Prepared in cooperation with the
Georgia Department of Transportation
Preconstruction Division
Office of Bridge Design

Magnitude and Frequency of Rural Floods in the Southeastern United States, 2006: Volume 1, Georgia

Scientific Investigations Report 2009–5043

U.S. Department of the Interior
U.S. Geological Survey

Cover: Flint River at North Bridge Road near Lovejoy, Georgia, July 11, 2005. Photograph by Arthur C. Day, U.S. Geological Survey.

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KEN SALAZAR, Secretary

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Contents

Figures

Tables

Conversion Factors and Datums

Multiply	By	To obtain
	Length	
inch	2.54	centimeter (cm)
inch	25.4	millimeter (mm)
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
	Area	
square mile (mi^2)	259.0	hectare (ha)
square mile (mi^2)	2.590	square kilometer (km^2)
	Flow rate	
cubic foot per second (ft^3/s)	0.02832	cubic meter per second (m^3/s)

Temperature in degrees Fahrenheit (°F) may be converted to degrees Celsius (°C) as follows:

$$°C = (°F - 32) / 1.8$$

Vertical coordinate information is referenced to North American Vertical Datum of 1988 (NAVD 88).

Horizontal coordinate information is referenced to North American Datum of 1983 (NAD 83).

Elevation, as used in this report, refers to distance above the vertical datum.

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Abstract

A multistate approach was used to update methods for estimating the magnitude and frequency of floods in rural, ungaged basins in Georgia, South Carolina, and North Carolina that are not substantially affected by regulation, tidal fluctuations, or urban development. Annual peak-flow data through September 2006 were analyzed for 943 streamgaging stations having 10 or more years of data on rural streams in Georgia, South Carolina, North Carolina, and adjacent parts of Alabama, Florida, Tennessee, and Virginia. Flood-frequency estimates were computed for the 943 stations by fitting the logarithms of annual peak flows for each station to a Pearson Type III distribution. As part of the computation of flood-frequency estimates for these streamgaging stations, a new value for the generalized-skew coefficient was developed by using a Bayesian generalized least-squares regression model. Additionally, basin characteristics for the streamgaging stations were computed by using a geographical information system and automated computer algorithms.

Regional regression analysis, using generalized least-squares regression, was used to develop a set of predictive equations for estimating the 50-, 20-, 10-, 4-, 2-, 1-, 0.5-, and 0.2-percent chance exceedance flows for rural ungaged basins in Georgia, South Carolina, and North Carolina. Flood-frequency estimates and basin characteristics for 828 streamgaging stations were combined to form the final database used in the regional regression analysis. Five hydrologic regions were developed for Georgia, South Carolina, and North Carolina. The final predictive equations are all functions of drainage area and percentage of the drainage basin within each hydrologic region. Average standard errors of prediction for these regression equations range from 34.5 to 47.7 percent.

Introduction

Reliable estimates of the magnitude and frequency of floods are required for the design of transportation and water-conveyance structures, such as roads, bridges, culverts, dams, and levees. Federal, State, regional, and local officials rely on these estimates to effectively plan and manage land use and water resources, to protect lives and property in flood-prone areas, and to determine flood-insurance rates. Griffis and Stedinger (2007a) determined that estimates of magnitude and frequency of floods using steamgaging, or gaged, stations with a shorter record of annual peak-flow data have higher standard errors or uncertainties when compared to estimates using streamgages with longer annual peak-flow record. Thus, long-term data collection at gaged stations is important in the determination of reliable estimates of the magnitude and frequency of floods.

Not only are estimates of the magnitude and frequency of floods needed at locations where streamflow is monitored continuously, but also at ungaged sites where no streamflow has been recorded for use as a basis in determining the estimates. Therefore, other methods, such as regionalization, must be used to estimate the magnitude and frequency of floods at ungaged sites. Regionalization uses flood-frequency information determined for a group of gaged stations within a hydrologic region to form the basis for estimators that can be used for ungaged sites within the hydrologic region. Historically, hydrologic regions were determined by each State, leading to differences in hydrologic regions at state boundaries. These differences cause some discontinuity and confusion related to appropriate flood-frequency techniques and results for drainage basins near or crossing state boundaries. This study was conducted in cooperation with the Departments of Transportation in Georgia, South Carolina, and North Carolina (GDOT, SCDOT, and NCDOT, respectively), and the North Carolina Floodplain Mapping Program using a multistate approach with hydrologic regions that cross state boundaries in order to maintain continuity at state boundaries.

Purpose and Scope

The purpose of this report is to present methods for estimating the magnitude and frequency of floods on rural streams in Georgia, South Carolina, and North Carolina. Methods were developed using flood-frequency analyses of annual peak-flow data, through September 2006, at streamflow-monitoring stations. The report (1) includes regional equations for estimating the magnitude and frequency of peak flows on rural, ungaged, non-regulated streams in Georgia, South Carolina, and North Carolina; (2) presents estimates of the magnitude of floods at the 50-, 20-, 10-, 4-, 2-, 1-, 0.5-, and 0.2-percent chance exceedance levels for 357 gaged stations in Georgia; (3) describes techniques used to develop regression equations to estimate the magnitude of floods for rural ungaged sites in Georgia, South Carolina, and North Carolina; (4) describes the accuracy and limitations of these equations; and (5) presents example applications of the methods. This report focuses on the gaged stations in Georgia that were evaluated during the study. Two other volumes present similar information for gaged stations in North Carolina (volume 2) and South Carolina (volume 3) that were used in the study. Many of the descriptions for standard definitions, processing methods, and analytical techniques described in this report were presented earlier in Ries and Dillow (2006), Feaster and Tasker (2002), and Pope and others (2001).

Previous Studies

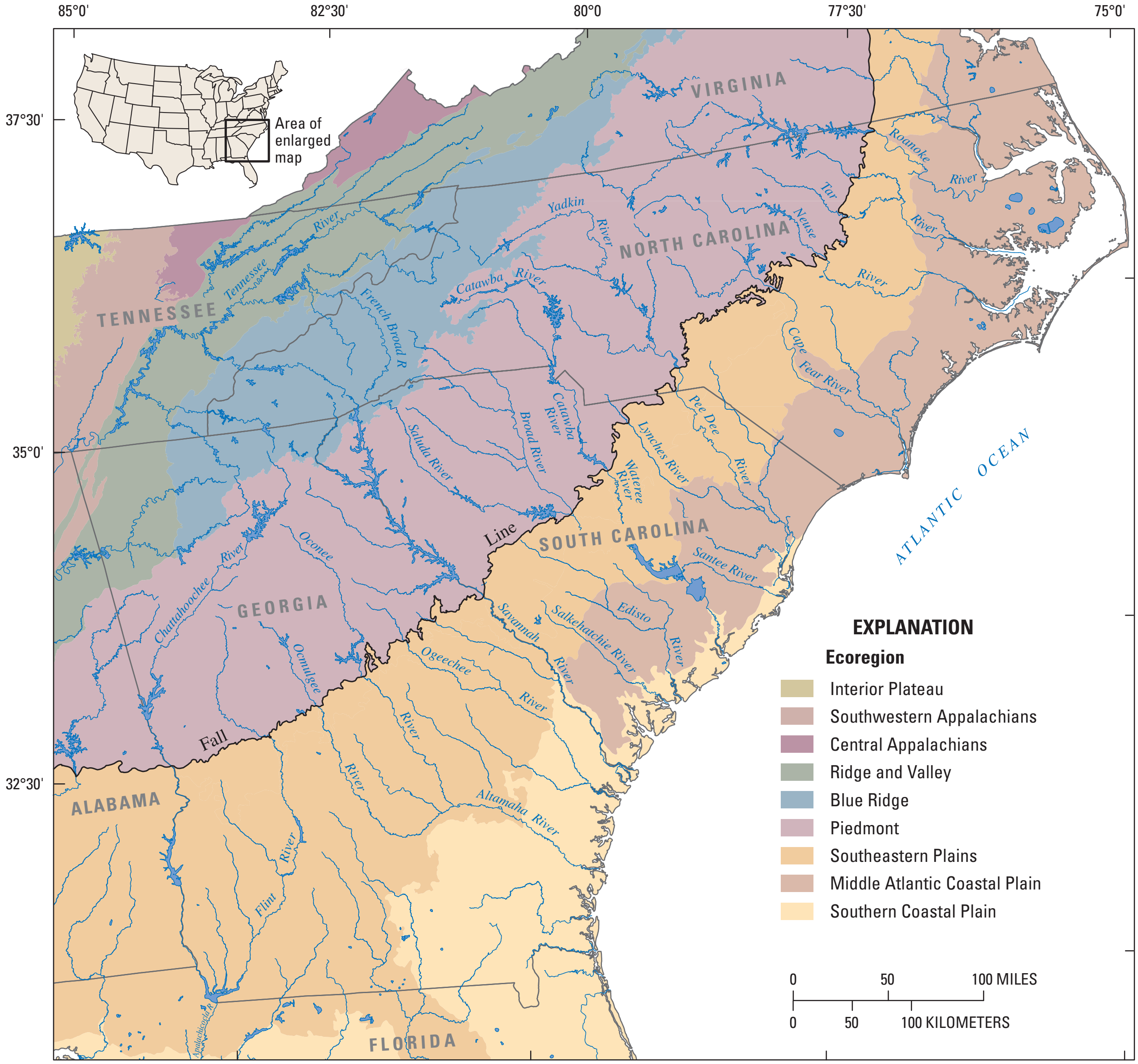
The earliest study of flood frequency of rural streams in Georgia was completed by Carter (1951), who used the index flood method. Bunch and Price (1962) used the index flood method as well to investigate the flood frequency of streams in Georgia. Speer and Gamble (1964a, 1964b) and Barnes and Golden (1966) developed flood-frequency regression methods for several states and used data abstracted from Bunch and Price (1962) for the Georgia portion of their reports. Golden and Price (1976) described flood-frequency methods for rural streams in Georgia having drainage areas less than 20 square miles (mi^2) and multiple-regression methods were used to relate peak flows for floods of selected recurrence intervals to drainage areas. Price (1978) prepared a flood-frequency report based on peak-flow data for 262 gaged stations in Georgia and 46 gaged stations in adjacent states and developed flood-frequency relations using multiple-regression methods for streams having drainage areas from 0.1 to 1,000 mi^2. Stamey and Hess (1993) used generalized least-squares regression methods to define the relation of magnitude and frequency of floods to drainage area on ungaged, rural streams not affected substantially by regulation. This report updates and supercedes the previous flood-frequency report for rural streams in Georgia by Stamey and Hess (1993).

Description of Study Area

The study area includes all of Georgia, South Carolina, and North Carolina, covering an area of about 142,500 mi^2 within seven U.S. Environmental Protection Agency (USEPA) level III ecoregions—Southwestern Appalachians, Blue Ridge, Ridge and Valley, Piedmont, Southeastern Plains, Southern Coastal Plain, and Middle Atlantic Coastal Plain (fig. 1; U.S. Environmental Protection Agency, 2007). The ecoregions represent areas of general similarity in ecosystems and in the type, quality, and quantity of environmental resources. They provide a spatial framework for the research, assessment, management, and monitoring of ecosystems and ecosystem components. The ecoregions were determined from an analysis of the spatial patterns and the composition of biotic and abiotic phenomena that include geology, physiography, vegetation, climate, soils, land use, wildlife, and hydrology (Griffith and others, 2002). The Fall Line separates the higher elevation Southwestern Appalachians, Blue Ridge, Ridge and Valley, and Piedmont ecoregions from the low lying Southeastern Plains, Southern Coastal Plain, and Middle Atlantic Coastal Plain ecoregions.

The Southwestern Appalachians ecoregion is composed of open low mountains. The eastern boundary of this ecoregion, along the more abrupt escarpment where it meets the Ridge and Valley ecoregion, is relatively smooth and only slightly notched by small, eastward-flowing streams. The Ridge and Valley is composed of roughly parallel ridges and valleys that have a variety of widths, heights, and geologic materials. Springs and caves are relatively numerous in this ecoregion, and present-day forests cover about 50-percent of the ecoregion. The Blue Ridge ecoregion varies from narrow ridges to hilly plateaus to more massive mountainous areas. The mostly forested slopes; high-gradient, cool, clear streams; and rugged terrain overlie primarily metamorphic rocks, with minor areas of igneous and sedimentary geology. The Piedmont ecoregion is composed of a transitional area between the mostly mountainous ecoregions of the Appalachians to the northwest and the relatively flat Coastal Plain to the southeast. It is a complex mosaic of Precambrian and Paleozoic metamorphic and igneous rocks, with moderately dissected irregular plains and some hills. The soils tend to be finer textured than in the coastal plain regions to the south. Once largely cultivated, much of this ecoregion has reverted to pine and hardwood forests, with increasing conversion to urban and suburban land cover (Omernik, 1987).

The Southeastern Plains ecoregion is composed of irregular plains made up of a mosaic of cropland, pasture, woodland, and forest. The sand, silt, and clay geology of this ecoregion contrasts with the older rocks of the Piedmont ecoregion. Elevations and relief are greater than in the Southern Coastal Plain ecoregion but generally are less than in much of the Piedmont. Streams in this area have relatively low gradient and sandy bottoms. The Southern Coastal Plain ecoregion consists of mostly flat plains, but it is a heterogeneous ecoregion containing barrier islands, coastal lagoons, marshes, and swampy lowlands along the Gulf and Atlantic coasts. This ecoregion is lower in elevation with less relief and wetter soils than the Southeastern Plains ecoregion. The Middle Atlantic Coastal Plain ecoregion consists of low-elevation flat plains,



Base modified from U.S. Geological Survey 1:100,000-scale digital data
Ecoregions from U.S. Environmental Protection Agency 1:7,500,000-scale digital data (2002; revision of Omernik, J.M., 1987, Ecoregions of the conterminous United States: Annals of the Association of American Geographers 77(1):118–125)

Figure 1. Study area and ecoregions in Georgia, South Carolina, North Carolina, and surrounding States.

with many swamps, marshes, and estuaries. The low terraces, marshes, dunes, barrier islands, and beaches are underlain by unconsolidated sediments. Poorly drained soils are common, and the ecoregion has a mix of coarse and finer textured soils compared to the mostly coarse soils in the majority of the Southeastern Plains ecoregion. The Middle Atlantic Coastal Plain ecoregion typically is lower, flatter, and more poorly drained than the Southern Coastal Plain ecoregion (Omernik, 1987).

The average annual precipitation in the study area ranges from 40 to 60 inches per year (in/yr) with the exception of the southern portion of the Blue Ridge ecoregion, which receives up to 80 in/yr of precipitation (Natural Resources Conservation Service, 2008). Precipitation in the study area typically is associated with the movement of warm and cold fronts from November through April and isolated summer thunderstorms from May through October. Occasionally, tropical storms or hurricanes along the Atlantic and Gulf coasts produce unusually heavy amounts of rainfall throughout the study area. The mean annual air temperature ranges from 55 degrees Fahrenheit (°F) in northern North Carolina to 68 °F in southern Georgia (National Oceanic and Atmospheric Administration, 2008).

Acknowledgments

The authors gratefully acknowledge the leadership and guidance provided by Larry R. Bohman, the Surface Water Specialist of the U.S. Geological Survey (USGS) Eastern Region, South. Mr. Bohman often took the lead in coordinating meetings among the three USGS Water Science Centers involved in this study and served as liaison with the USGS Office of Surface Water. Mr. Bohman provided valuable technical guidance throughout the entire study. Additionally, the authors acknowledge the valuable guidance and assistance in flood-frequency estimation and statistical regionalization procedures provided by Dr. Timothy A. Cohn of the USGS Office of Surface Water. We also acknowledge the participation of Dr. Jery R. Stedinger and Ms. Andrea Gruber of Cornell University in Ithaca, New York, for their significant contributions in developing the generalized-skew coefficient for the study area.

This report is prepared as part of an ongoing cooperative program of water-resources investigations between the USGS and the GDOT, Preconstruction Division, Office of Bridge Design. The peak-flow data used in the analyses described in this report were collected throughout Georgia, South Carolina, North Carolina, and the adjoining States at gaged stations operated in cooperation with GDOT and a variety of other Federal, State, and local agencies. The authors also acknowledge the dedicated work of the USGS field-office staff in collecting, processing, and storing the peak-flow data necessary for the completion of this study.

Data Compilation

The first step in the regionalization of flood-frequency estimates for rural streams is the compilation of all rural gaged stations with 10 or more years of annual peak-flow record. It is important that the peak-flow data are reviewed for quality assurance and quality control (QA/QC) and for homogeneity or absence of trends, which implies relatively constant watershed and climatic conditions during the period of record. Once peak-flow records are compiled and reviewed, then basin characteristics must be determined for each of the gaged stations.

Peak-Flow Data

Gaged stations with annual peak-flow record are either continuous-record stations or crest-stage stations. At continuous-record stations, the water-surface elevation, or stage, of the stream is recorded at fixed intervals, typically 15 minutes. At crest-stage stations, only the crest (highest) stage that occurs between site visits is recorded. Regardless of the type of gage, measurements of flow, or discharge, are determined throughout the range of recorded stages, and a relation between stage and discharge is developed for the gaged station. Using this stage-discharge relation, or rating, discharges for all recorded stages at this station are determined. The highest peak discharge that occurs during a given year is the annual peak flow for the year, and the list of annual peak flows is the annual peak-flow record. The peak-flow records for gaged stations are available from the USGS National Water Information System (NWIS) database at *http://nwis.waterdata.usgs.gov/usa/nwis/peak/*.

Gaged stations in Georgia, South Carolina, and North Carolina and adjacent parts of Alabama, Florida, Tennessee, and Virginia were investigated for possible use in this study. Stations were only used in the analysis if 10 or more years of annual peak-flow data were available, and if peak flows at the stations were not affected substantially by dam regulation, flood-retarding reservoirs, tides, or urbanization. The peak-flow record for rural gaged stations that meet these criteria then were compiled and reviewed for QA/QC by using computer programs that were developed with commercial statistical software. Details on these computer programs are available in Feaster and Tasker (2002). Kendall's tau was chosen to assess the significance of trends for each station (Helsel and Hirsch, 1992). If it was determined that a station record was not homogeneous, the entire record for that station was not considered. However, if a significant portion of the record was found to be homogeneous, only the homogenous portion of the record was considered for this study. The QA/QC analysis resulted in the selection of 943 stations that were considered for use in this study (fig. 2, p. 27; table 1, p. 32). The 943 gaged stations are comprised of 357 stations in Georgia, 82 in South Carolina, 333 in North Carolina, 35 in Alabama, 23 in Florida, 41 in Tennessee, and 72 in Virginia.

Physical and Climatic Basin Characteristics

Peak-flow information can be estimated at ungaged sites through multiple regression analysis that relates peak-flow characteristics (such as 1-percent chance exceedance flow) to selected physical and climatic basin characteristics for gaged drainage basins. Drainage-basin boundaries are needed for each station to determine basin characteristics. Drainage-basin boundaries for this study were generated by using two different geographical information system (GIS) methods. In Georgia, basin boundaries were generated from National Elevation Dataset (NED) digital elevation models (DEMs) at 30-meter (m) horizontal resolution (or 10-m when available; U.S. Geological Survey, 1999a). In North Carolina, basin boundaries were generated by using a Light Detection and Ranging (LIDAR)-derived DEM, with 3-m horizontal resolution, available from the North Carolina Floodplain Mapping Program (2003). To improve boundary delineations, processing was done to make the DEM conform to stream locations defined in the high-resolution National Hydrography Dataset (NHD; U.S. Geological Survey, 1999b). In South Carolina, basin boundaries were delineated manually by using topographic contours visible on 1:24,000-scale digital raster graphics (DRGs) for reference.

Basin characteristics were selected for use as potential explanatory variables in the regression analyses on the basis of the theoretical hydrologic relation to flood flows and the ability to measure the basin characteristics by using digital datasets and GIS technology. For each of the 943 rural gaged stations, 20 basin characteristics were determined and considered for this study. Those determined were drainage area, basin perimeter length, mean basin slope, basin shape factor, main channel length, main channel slope, minimum basin elevation, maximum basin elevation, mean basin elevation, percentage of basin that is impervious, percentage of basin that is forested, soil drainage index, hydrologic soil index, drainage density, mean annual precipitation, and maximum 24-hour precipitation with recurrence intervals of 2-, 10-, 25-, 50-, and 100-years. The names, unit of measures, method of measurements, and source data for the measured basin characteristic that were considered for use in this study are listed in table 2.

The drainage areas that were computed using GIS were compared to previously published drainage areas for the gaged stations as a means of quality assurance. The measured and published drainage areas agreed closely for most stations in Georgia, but the drainage areas for several stations differed by more than 5 percent. In most of these cases, the published drainage areas were determined from older topographic maps with 10-foot (ft) contour intervals. Boundaries determined by the two methods were compared, and those computed using GIS were considered superior in accuracy to manual delineations. Therefore, the stations with differences greater than 5 percent were revised using the GIS-measured values.

Estimation of Flood Magnitude and Frequency at Gaged Stations

A frequency analysis of annual peak-flow data at a gaged station provides an estimate of the flood magnitude and frequency at that specific stream site. Flood-frequency flows in previous USGS reports were expressed as T-year floods based on the recurrence interval for that flood quantile (for example, the “100-year flood”). The use of recurrence-interval terminology is now discouraged because it sometimes causes confusion to the general public. The term is sometimes interpreted to imply that there is a set time interval between floods of a particular magnitude, when in fact floods are random processes that are best understood using probabilistic terms. Misunderstandings with the T-year recurrence interval terminology primarily have to do with the number of times that a peak flow of certain magnitude could occur during the T-year period. While the T-year recurrence interval flood is statistically expected to occur, on average, once during the T-year period, it may occur multiple times during the period or not at all. In Georgia, an example of multiple times the 100-year flood occurred within a 100-year period is in the Flint River basin in southwestern Georgia. Within a 4-year period, annual peak flows exceeded the 100-year recurrence interval flood at some gaged stations in the basin due to Tropical Storm Alberto in July of 1994 and then due to heavy rains in March of 1998.

The terminology associated with flood-frequency estimates is undergoing a shift away from the T-year recurrence interval flood to the P-percent chance exceedance flood. The use of percent chance exceedance flood is now recommended because it conveys the probability, or odds, of a flood of a given magnitude being equaled or exceeded in any given year. For example, a 1-percent chance exceedance flood (formerly known as the “100-year flood”) corresponds to the flow magnitude that has a probability of 0.01 of being equaled or exceeded in any given year. That is, a flow with an annual exceedance probability of 0.01 has a 1 percent chance of being exceeded in any given year. The percent chance P is computed as the inverse of the recurrence interval T multiplied by 100 (for example, $1/100 \times 100$). T-year recurrence intervals with corresponding annual exceedance probabilities and percent chance exceedances are shown in table 3.

Flood Frequency

Flood-frequency estimates for gaged stations are computed by fitting the series of annual peak flows to a known statistical distribution. Flood-frequency estimates for this study were computed by fitting logarithms (base 10) of the annual peak flows to a Pearson Type III distribution. This follows the guidelines and computational methods described in Bulletin 17B of the Hydrology Subcommittee of the Interagency Advisory Committee on Water Data (1982). Fitting the distribution requires calculating the mean, standard deviation, and skew coefficient of the logarithms of the annual peak-flow record, which describe the mid-point, slope, and curvature of the peak-flow frequency curve, respectively. Estimates of the P-percent chance exceedance flows are computed by inserting the three statistics of the frequency distribution into the equation:

$$\log Q_P = X + KS \ , \tag{1}$$

where

Q_P is the P-percent chance exceedance flow, in cubic feet per second (ft^3/s);

X is the mean of the logarithms of the annual peak flows;

K is a factor based on the skew coefficient and the given percent chance exceedance, which can be obtained from appendix 3 in Bulletin 17B; and

S is the standard deviation of the logarithms of the annual peak flows, which is a measure of the degree of variation of the annual values about the mean value.

A series of annual peak flows at a station may include outliers, or annual peak flows that are substantially lower or higher than other peak flows in the series. The station record also may include information about peak flows that occurred outside of the period of regularly collected, or systematic, record. These peak flows are known as historic peaks and

Table 2. Basin characteristics considered for use in the regional regression analysis.

[DEM, digital elevation model; NED, National Elevation Dataset; DRG, digital raster graphic; LIDAR, Light Detection and Ranging; STATSGO, State Soil Geographic]

Name	Units	Method	Source data
Drainage area	Square miles	For Georgia, North Carolina, Alabama, Tennessee, and Florida stations: Area within the watershed boundary, which is represented as a polygon of cells that flow to the streamgage location based on the primary down-slope flow direction of the DEM For South Carolina and Virginia stations: Area within the watershed boundary, which is digitized using the 1:24,000-scale DRG contours	For Georgia, Alabama, Tennessee, and Florida stations: USGS NED DEMs at 10- and 30-m resolution (*http://ned.usgs.gov/*), conditioned to conform with National Hydrography Dataset streams, 1:24,000 scale (*http://nhd.usgs.gov/*). For South Carolina and Virginia stations: USGS DRG, 1:24,000-scale (*http://topomaps.usgs.gov/drg/*). For North Carolina Stations: LIDAR-derived DEM at 3-m resolution (*http://www.ncfloodmaps.com/pubdocs/lidar_final_jan03.pdf*.
Main channel length	Miles	Length of the longest flow path in a drainage area based on steepest descent as defined by the flow direction grid	DEM data used to create the watershed boundaries, as defined in the drainage area source data.
Basin Perimeter	Miles	Length of watershed boundary perimeter	Watershed boundaries, as defined in the drainage area method.
Main channel slope	Feet per mile	Difference in the DEM elevation at points corresponding to 10 percent and 85 percent of the main channel divided by the main channel length between those two points	DEM data used to create the watershed boundaries, as defined in the drainage area source data. Main channel length, as defined in the main channel length method.
Mean basin slope	Percent	Mean of the DEM percent slope grid values within the watershed boundary	DEM data used to create the watershed boundaries, as defined in the drainage area source data.
Basin ahape factor	Dimensionless	Main channel length squared divided by drainage area	Drainage area, as defined in the drainage area method. Main channel length, as defined in the main channel length method.
Mean basin elevation	Feet	Area-weighted average	DEM data used to create the watershed boundaries, as defined in the drainage area source data.
Maximum basin elevation	Feet	Maximum elevation value of the DEM within the watershed boundary	DEM data used to create the watershed boundaries, as defined in the drainage area source data.
Minimum basin elevation	Feet	Minimum elevation value of the DEM within the watershed boundary	DEM data used to create the watershed boundaries, as defined in the drainage area source data.
Percent impervious	Percent	(Impervious surface area/drainage area)*100	National Land-Cover Dataset 2001 Impervious Surface, 30-meter resolution (*http://www.mrlc.gov/mrlc2k_ncld.asp*).

Table 2. Basin characteristics considered for use in the regional regression analysis.—Continued

[DEM, digital elevation model; NED, National Elevation Dataset; DRG, digital raster graphic; LIDAR, Light Detection and Ranging; STATSGO, State Soil Geographic]

Name	Units	Method	Source data
Percent forested	Percent	(Forested area/drainage area)*100	National Land-Cover Dataset 2001, 30-meter resolution (*http://www.mrlc.gov/mrlc2k_ncld.asp*).
Mean annual precipitation	Inches	Area-weighted average	PRISM (*http://prism.oregonstate.edu*).
24-hour, 2-, 10-, 25-, 50-, and 100-year maximum precipitation	Inches	Area-weighted average	For Georgia, Alabama, and Florida stations: Derived from Hershfield (1961). For North Carolina, South Carolina, Tennessee, and Virginia stations: National Oceanic and Atmospheric Administration Atlas 14, Volume 2 (*http://hdsc.nws.noaa.gov/hdsc/pfds/index.html*).
Soil drainage index	Dimensionless	Area-weighted average	STATSGO data (*http://soils.usda.gov/survey/geography/statsgo/*).
Hydrologic soil index	Dimensionless	Area-weighted average	STATSGO data (*http://soils.usda.gov.survey/geography/statsgo/*).
Drainage density	Miles per square mile	Total length of all streams divided by drainage area	NHD 1:24,000 scale (*http://nhd.usgs.gov*). Drainage area, as defined in the drainage area method.

Table 3. T-year recurrence intervals with corresponding annual exceedance probabilities and P-percent chance exceedances for flood-frequency flow estimates.

T-year recurrence interval	Annual exceedance probability	P-percent chance exceedance
2	0.5	50
5	0.2	20
10	0.10	10
25	0.04	4
50	0.02	2
100	0.01	1
200	0.005	0.5
500	0.002	0.2

are often the peak flows known to have occurred during an extended period of time (longer than the period of collected record). Bulletin 17B (Interagency Advisory Committee on Water Data, 1982) provides guidelines for detecting and interpreting outliers and historic data points and provides computational methods for appropriate corrections to the distribution to account for the presence of outliers and historic information. In some cases, outliers may be excluded from the record; thus, the number of systematic peaks may not be equal to the number of years in the period of record.

In terms of annual peak flows, the period of collected record can be thought of as a sample of the entire record, or population. Statistical measures, such as mean, standard deviation, or skew coefficient, can be described in terms of the sample or computed measure and the population or true measure. Statistical measures computed from the sample record are estimates of what the measure would be if the entire population were known and used to compute the given measure. The accuracy of these estimates depends on the specific statistic and the given sample of the population.

The USGS computer program PEAKFQWin version 5.2.0 was used to compute flood-frequency estimates for the 943 gaged stations considered for this study. PEAKFQWin automates many of the analytical procedures recommended in Bulletin 17B (Interagency Advisory Committee on Water Data, 1982), including identifying and adjusting for outliers and historical periods, weighting of station skews with a generalized skew, and fitting a log-Pearson Type III distribution to the annual peak-flow data. The PEAKFQWin program and associated documentation can be downloaded from the Web at *http://water.usgs.gov/software/PeakFQ/*. The station skew coefficients were weighted with a new generalized-skew coefficient developed for this study. Station skew coefficients and the generalized-skew coefficient used for this study are explained in the following sections. The final flood-frequency estimates from the Bulletin 17B analysis for the 357 rural gaged stations in Georgia are given in table 4 (p. 56).

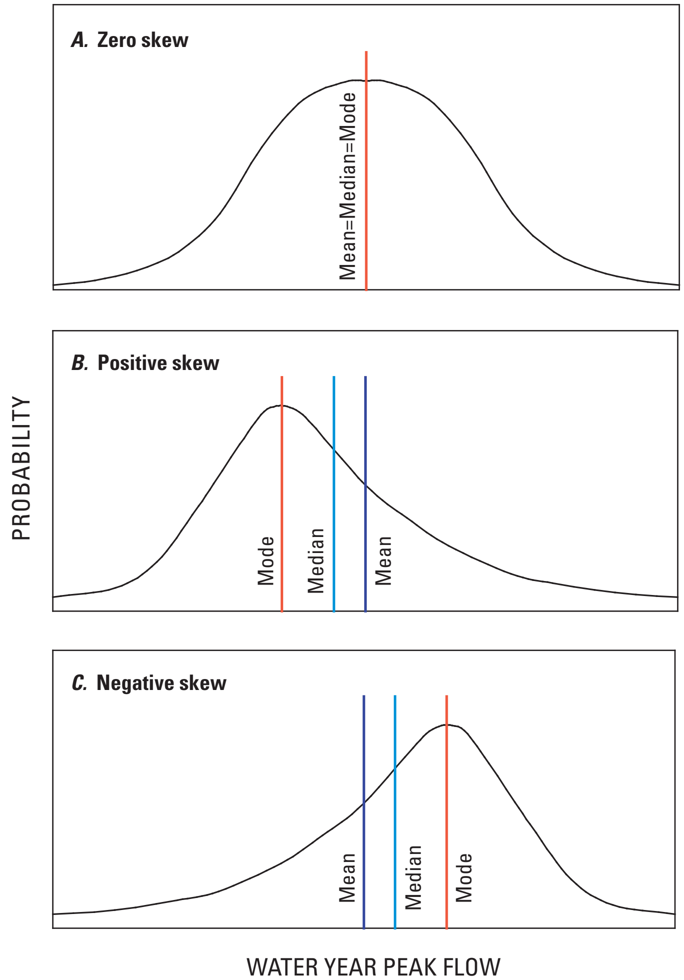


Figure 3. Examples of distributions with *(A)* zero skew, *(B)* positive skew, and *(C)* negative skew (modified from Feaster and Tasker, 2002).

Skew Coefficient

The skew coefficient measures the asymmetry of the probability distribution of a set of annual peak flows. The skew coefficient is zero when the mean of the annual series equals the median and the mode; positive when the mean exceeds the median, which in turn exceeds the mode; and negative when the mean is less than the median, which in turn is less than the mode (fig. 3). The skew coefficient is strongly influenced by the presence of outliers. Large positive skews typically are the result of high outliers, and large negative skews typically are the result of low outliers. The station skew coefficient, which is calculated by using the annual peak-flow record for a gaged station, is sensitive to extreme events; therefore, the station skew coefficient for short records may not provide an accurate estimate of the population or true skew coefficient. Using a weighted average of the station skew coefficient with a generalized or regional skew coefficient is recommended in Bulletin 17B (Interagency Advisory Committee on Water Data, 1982). The generalized-skew coefficient is the skew coefficient associated with a defined region and is calculated by using the station skew coefficients for stations with longer annual peak-flow record within the region.

Generalized-Skew Analysis

During the development of flood-frequency techniques in the late 1970s and early 1980s, a nationwide generalized-skew study was conducted and documented in Bulletin 17B (Interagency Advisory Committee on Water Data, 1982). Station skew coefficients for long-term gaged stations throughout the Nation were computed and used to produce a map of isolines of generalized skew; however, the map was prepared at a national scale using data and methods that are now more than 30 years old. In order to generate more accurate generalized-skew coefficients, three methods are described in Bulletin 17B for developing generalized skews using skew coefficients computed from gaged stations with long-term peak-flow record (25 or more years of record): (1) plot station skew coefficients on a map and construct skew isolines, (2) use regression techniques to develop a skew-prediction equation relating station skew coefficients to some set of basin characteristics, or (3) use the arithmetic mean of station skew coefficients from long-term gaged stations in the area (Interagency Advisory Committee on Water Data, 1982).

A generalized-skew coefficient analysis using methods 1 and 2 was performed as part of this study. The initial dataset for the generalized-skew coefficient analysis included 489 gaged stations with 25 or more years of annual peak-flow record located in the study area. The station skew coefficients for these 489 gaged stations were plotted at the centroid of the watershed for each station in order to develop a skew isoline map. The map then was reviewed to determine if any geographic or topographic trends were visually apparent. No clearly definable patterns were found, so regression techniques then were used to develop a skew prediction equation using station skew as the response variable. A Bayesian generalized least-squares (GLS) regression model was used for the generalized-skew coefficient regression analysis as suggested by Reis and others (2005) and Gruber and others (2007), both of which made use of the methods proposed by Martins and Stedinger (2002). The methods from Martins and Stedinger (2002) also were used in this study except that the distance between basin centroids was used instead of the distance between gaged stations.

Annual peak flows of basins are cross-correlated because a single large storm event can cause the annual peak in several basins. One advantage of using GLS is that it takes this cross-correlation among the basins into account. The GLS statistical analysis depends on the estimated cross-correlations of the peak flows at different pairs of stations. The cross-correlation generally is estimated as a function of distances between gaged stations, or in the case of this study, distances between centroids of the gaged basins.

If the watersheds of two stations are nested such that one is contained within the other, the cross-correlation between the concurrent peak flows would be larger than if the basins were not nested. This leads to errors in the estimation of cross-correlations for non-nested basins, which leads to incorrect model errors. A screening metric was developed to determine the redundant station pairs that represent the same watershed. Details on the screening metric used can be found in the appendix of this report.

After running the screening metric on all 489 stations, 92 stations were removed from the generalized-skew coefficient regression analysis because of redundancy. Also, an additional 55 stations were removed because they had censored peak-flow data, which are peak flows that are less than the minimum recordable peak flow at a station. A total of 342 stations was used for the final Bayesian GLS regression analysis of skew. A map of these 342 stations can be found in the appendix.

Based on the Bayesian GLS regression analysis, a constant generalized-skew value of –0.019 was determined to be the most reasonable approach to predicting the generalized skew in the study area. More complicated Bayesian GLS models with additional explanatory variables were evaluated but resulted in very modest improvements in accuracy. A detailed description of the accuracy of these models is available in the appendix. The modest improvements in the more complicated models were not justified because of the increased complexity associated with the additional explanatory variables. The mean square error (MSE) associated with the constant generalized-skew model is 0.143. This MSE is equivalent to a record length of 39 years. This is a significant improvement over the skew map MSE value of 0.302 in Bulletin 17B, which is equivalent to 17 years of record. The generalized-skew value of –0.019 with an associated MSE of 0.143 was used to compute the flood-frequency estimates for the 943 gaged stations with 10 or more years of record according to methods recommended in Bulletin 17B (Interagency Advisory Committee on Water Data, 1982). The appendix of this report provides additional details of the generalized-skew coefficient regression analysis used for this study.

Estimation of Flood Magnitude and Frequency at Ungaged Sites

A regional regression analysis was used to develop a set of equations for use in estimating the magnitude and frequency of floods for rural ungaged sites in Georgia, South Carolina, and North Carolina. These equations relate the 50-, 20-, 10-, 4-, 2-, 1-, 0.5-, and 0.2-percent chance exceedance flows computed from available records for gaged stations to measured physical and climatic basin characteristics of the associated drainage basins. All 943 rural gaged stations used in the flood-frequency analysis were considered for use in the regional regression analysis (fig. 2, p. 27; table 1, p. 32).

Regression Analysis

Ordinary least-squares (OLS) regression techniques were used in the exploratory analysis to determine the best regression models for all combinations of basin characteristics and the development of hydrologic regions that define the study area. In OLS regression, linear relations between the explanatory (basin characteristics) and response variables (P-percent chance exceedance flows) are necessary; thus, sometimes variables must be transformed in order to create linear relations. For example, the relation between arithmetic values of basin drainage area and P-percent chance exceedance flow is typically curvilinear. However, the relation between the logarithms of basin drainage area and the logarithms of P-percent chance exceedance flow is normally linear. Homoscedasicity (a constant variance in the response variable over the range of the explanatory variables) about the regression line and normality of the residuals also are requirements for OLS regression. Log transformation of the P-percent chance exceedance flow and explanatory variables enhances the homoscedasicity of the data about the regression line. Homoscedasicity and normality of residuals were examined in residual plots.

Selection of the explanatory variables for each hydrologic region was based on all-possible-subsets (APS) regression methods (Neter and others, 1985). The final explanatory variables for each hydrologic region were selected on the basis of several factors, including standard error of the estimate, Mallow's *Cp* statistic, statistical significance of the explanatory variables, coefficient of determination (r^2), and ease of measurement of explanatory variables. Multicollinearity in the candidate exploratory variables also was assessed by the variance inflation factor (VIF) and the correlation between explanatory variables.

Generalized least square regression methods, as described by Stedinger and Tasker (1985), were used to determine the final regional P-percent chance exceedance flow regression equations with the use of the USGS computer program GLSNET (Tasker and Stedinger, 1989; G.D. Tasker, K.M. Flynn, A.M. Lumb, and W.O. Thomas, Jr., U.S. Geological Survey, written commun., 1995). In order to remove the redundancy associated with gaged stations that represent the same watershed for the regional GLS regression analysis, two stations on the same stream where the smaller basin represents 50 percent or more of the large basin were flagged as a redundant station pair. If the peak-flow record of the station with the shorter period of record from the redundant pair was within the period of record of the station with the longer peak-flow record, the station with the shorter peak-flow record was omitted from the analysis. However, if the peak-flow record of the station with the shorter record was outside of the period of record of the longer record station, then both stations were used in the analysis. Finally, if only a portion of the period of record for both stations had a significant overlap (10 or more years), the record for the station with the longer record was extended by using the Maintenance of Variance Extension (MOVE1) method of correlation analysis (Hirsch, 1982) and the station with the shorter record was removed from the analysis. The eight stations for which the MOVE1 method was used to extend the record are identified in table 1 (p. 32). In all, 52 stations were omitted from the regional regression analysis because of redundant record, leaving a total of 891 stations.

Regionalization of Flood-Frequency Estimates

An OLS regression analysis was performed on the 891 remaining rural gaged stations in order to determine the need for hydrologic regions within the study area. All response and explanatory variables were transformed to logarithms (base 10) prior to the regression analyses to (1) obtain linear relations between the response variables and the explanatory variables and (2) achieve equal variance about the regression line. A value of 1 was added to the percentage of forested and impervious area basin characteristics to prevent zero values and facilitate transformation to logarithms. The standard errors of estimate using varying combinations of explanatory variables ranged from 60 to 69 percent for the 1-percent chance exceedance flow estimate when using only one hydrologic region for the entire study area. Regression residuals for the 1-percent chance exceedance flows were plotted at the centroid of the respective drainage area in order to determine geographical patterns of bias. Large errors of estimate and geographic bias of the regression residuals indicated that the study area needed to be subdivided into hydrologic regions. The seven USEPA level III ecoregions (fig. 2, p. 27) were used as the initial hydrologic regions for the regression analysis. For each ecoregion, watersheds with drainage areas of 75 percent or more in one ecoregion were grouped together.

APS regression methods were conducted on each of the seven groups of stations to determine the candidate explanatory variables for each ecoregion. APS analysis results indicated that the addition of variables other than drainage area did not reduce the standard error of estimate by more than 3 percent. This small reduction did not warrant the use of additional explanatory variables in the model, so drainage area was selected as the only basin characteristic used for further analysis.

An OLS regression analysis was run for each group of stations using the following regression model:

$$Q_P = a_0 (DA)^{b_0} , \tag{2}$$

where

Q_p	is the P-percent chance exceedance flow, in ft^3/s;
DA	is the drainage area, in mi^2; and
a_0 and b_0	are the regression coefficients.

The regression model was logarithmically transformed to the following linear form:

$$\log Q_P = \log a_0 + b_0 (\log DA) . \tag{3}$$

The residuals from the OLS analysis were plotted for each ecoregion in order to determine the need for dividing the ecoregions into subregions. The residuals plots indicated that there are hydrologic subregions in the Southeastern Plains ecoregion. There was an apparent narrow region of negative bias residuals at the northern edge of the Southeastern Plains ecoregion. This narrow region of negative residuals coincides with the USEPA level IV Sand Hills ecoregion (U.S. Environmental Protection Agency, 2007), so the Sand Hills ecoregion was added to the group of existing level III ecoregions to help define this area. Additionally, there was an area with positive-bias residuals in the southwestern corner of the Georgia Southeastern Plains. This area was documented in previous Georgia flood-frequency reports (Price, 1978; Stamey and Hess, 1993) and corresponds to the lower portion of the USEPA level IV Tifton Uplands ecoregion (U.S. Environmental Protection Agency, 2007); therefore, a separate hydrologic region was established for this area of positive residuals. Finally, the residuals plot indicated positive bias residuals in the Alabama portion of the Southeastern Plains ecoregion. Because the Alabama stations in the Southeastern Plains were not representative of the stations in the Southeastern Plains of Georgia, South Carolina, and North Carolina, the 15 Alabama stations in the Southeastern Plains were omitted from the regression analysis.

The regression coefficients, a_0 and b_0, from the OLS analysis for the Southwestern Appalachians, Ridge and Valley, and Piedmont ecoregions were not significantly different at the 95-percent probability level, so these three ecoregions were combined to form one hydrologic region. Similarly, the regression coefficients for the remainder of the Southeastern Plains, the entire Southern Coastal Plain, and the entire Middle Atlantic Coastal Plain ecoregions were not significantly different at the 95-percent probability level, and these three ecoregions likewise were combined to form one hydrologic region. The OLS regression analysis was re-run for each of the five proposed hydrologic regions for the study area. The residuals from the analyses were plotted on a map of the five hydrologic regions and showed no geographical bias. Therefore, the five hydrologic regions were used for the final GLS analysis (fig. 4, p. 29).

Considerable variability in the predicted P-percent chance exceedance flow for stations with drainage areas less than 1 mi^2 was observed in the OLS regression analyses for each of the five hydrologic regions. This variability can be attributed, in part, to the difficulty in measuring peak flows for stations with small drainage basins. In smaller drainage basins, streamflow changes very rapidly over time. The rapidly changing flow conditions make it difficult to measure streamflow accurately, thus increasing the uncertainty in documented flood peaks. In addition to measurement errors, runoff hydrology and hydraulics likely are different in small watersheds, which typically are sensitive to land use and high-intensity rainfalls of short duration. In larger watersheds, such sensitivities are suppressed and floods are influenced to a larger degree by channel and basin storage effects. Because of the lack of sufficient data in some regions and the variability and uncertainty of data for small watersheds, the 44 stations with drainage areas less than 1 mi^2 were omitted from the final regional regression analysis. Also, only one gaged station has a drainage area greater than 9,000 mi^2 for use in the regional regression analysis. This station (site 548, fig. 4, p. 29), which has a drainage area of 13,600 mi^2, was omitted from the final regional regression analysis because of the lack of data points needed to develop the regression analysis model for a drainage area greater than 8,930 mi^2 (site 886).

Two undefined areas are in the study area (fig. 4, p. 29). The first undefined area is composed of basins within the Okefenokee Swamp in southeastern Georgia. This area has no gaged stations to define the magnitude and frequency of floods for the basins that drain into the swamp. The second undefined area is the Upper Three Runs River basin near the midwestern boundary of South Carolina. Large sand deposits in the upper end of this basin affect runoff. The Upper Three Runs gaged stations (sites 428, 429, and 430; table 1, p. 32) have smaller magnitude peak flows when compared to the peak flows in surrounding basins because of the substantial amounts of rainfall runoff that are stored in the sand deposits (Feaster and Tasker, 2002). When these stations were eliminated from further consideration, 828 stations remained for use in developing the rural flood-frequency relations for Georgia, South Carolina, and North Carolina. The distribution of systematic peak-flow record lengths for the 828 stations used in the regional regression analyses is shown in figure 5.

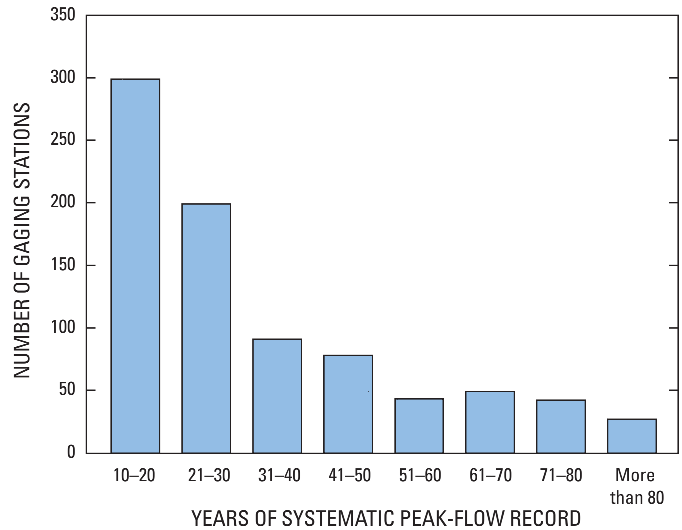


Figure 5. Distribution of systematic peak-flow record lengths for rural streamgaging stations used in the regional regression analysis.

Regional Regression Equations

In regional regression analyses studies, stations that drain from more than one hydrologic region often are omitted. In this study, 83 of the 828 stations have substantial drainage from more than one hydrologic region. Griffis and Stedinger (2007b) determined that a pooled regression model approach combining data across hydrologic regions increases the number of stations and information available for model estimation. They used qualitative indicator variables of “1” or “0” for each hydrologic region as explanatory variables in the regional regression equation. A similar approach was used by Feaster and Tasker (2002) to distinguish between States for two of the hydrologic regions included in their study. A linear regression model that incorporates the regional indicator variables is as follows:

$$\log Q_P = a_1(d_1) + a_2(d_2) + \ldots + a_n(d_n) + b_0 \log DA, \quad (4)$$

where

$d_1, d_2, \ldots,$ and d_n are the indicator variables for hydrologic regions 1, 2, …., and n; and

$a_1, a_2, \ldots,$ and a_n are regression coefficients.

If the drainage basin of a station is within a specific hydrologic region, a value of "1" is used for the qualitative variable for the hydrologic region. Otherwise, a "0" is used to indicate the basin is not within the hydrologic region. Although this approach is useful for hydrologic regions with a small sample of stations, the approach does not incorporate stations with drainage basins that are within multiple hydrologic regions. In order to incorporate these stations in the regional regression analysis, a modified version of the Griffis and Stedinger (2007b) pooled regional regression approach was used for this study. In this modified approach, the percentages of the basin within the various hydrologic regions were used as explanatory variables instead of the "1" or "0" qualitative indicator variables. With this approach, all of the stations in the study region are pooled in the regional regression analysis, and no stations are omitted due to multiple hydrologic regions within a basin. The regression model for this modified approach has the following linear form for *n* number of hydrologic regions:

$$\log Q_P = a_1(PCT_1) + a_2(PCT_2) + ... + a_n(PCT_n) + b_0 \log DA, \quad (5)$$

where

PCT_1, PCT_2, …, and PCT_n are the basin percentages in hydrologic regions 1, 2, …., and *n*, in percent.

Using this model assumes that the slope or b_0 coefficient is constant for every hydrologic region. In order to test the significance of the differences in b_0 coefficients for each hydrologic region, cross products of the explanatory variables were added to the equation. For *n* number of hydrologic regions, the hydrologic model has the following linear form:

$$\log Q_P = a_1(PCT_1) + a_2(PCT_2) + ... + a_n(PCT_n) + b_0 \log DA + b_1[(\log DA)(PCT_1)] + b_2[(\log DA)(PCT_2)] + ... + b_n[(\log DA)(PCT_n)], \quad (6)$$

where

b_1, b_2, …, and b_n are regression coefficients.

To test the significance of the slope difference for each hydrologic region, the coefficient of one of the cross products is set to zero, and the significance of the differences in slopes (b_1, b_2, …, and b_n coefficients) is tested at the 95-percent probability level.

A GLS analysis was run on the final 828 rural gaged stations considered for the regional regression analysis using equation 6. The slope of the relation for hydrologic regions 2 and 3 was found to be significantly different from the other regions at the 95-percent probability level for the $Q_{50\%}$ through $Q_{0.2\%}$ flows. Additionally, the slope for hydrologic region 1 was found to be significantly different at the 95-percent probability level for only the $Q_{50\%}$ flow. A slope-adjustment factor was included in the final regression equations for hydrologic region 2 and 3. However, no slope-adjustment factor for hydrologic region 1 was included in the $Q_{50\%}$ equation because the inclusion of the slope-adjustment factor for hydrologic region 1 did not reduce the standard error of estimate significantly for the $Q_{50\%}$ equation, and the exclusion of the slope adjustment factor for hydrologic region 1 maintained consistency in the final regression equations. The results of the analyses are a single P-percent chance exceedance flow estimate equation for the entire study area, which is composed of five hydrologic regions (fig. 4, p. 29). Georgia is within all five hydrologic regions (fig. 6). The final regional regression equations for the 50- through 0.2-percent chance exceedance flows are:

$$Q_{50\%} = 10^{[0.0220(PCT_1)+0.0204(PCT_2)+0.0141(PCT_3)+0.0178(PCT_4)+0.0196(PCT_5)]} DA^{[0.649+0.00130(PCT_2)+0.00109(PCT_3)]}, \quad (7)$$

$$Q_{20\%} = 10^{[0.0247(PCT_1)+0.0232(PCT_2)+0.0165(PCT_3)+0.0209(PCT_4)+0.0230(PCT_5)]} DA^{[0.627+0.00122(PCT_2)+0.00117(PCT_3)]}, \quad (8)$$

$$Q_{10\%} = 10^{[0.0260(PCT_1)+0.0246(PCT_2)+0.0177(PCT_3)+0.0224(PCT_4)+0.0247(PCT_5)]} DA^{[0.617+0.00119(PCT_2)+0.00123(PCT_3)]}, \quad (9)$$

$$Q_{4\%} = 10^{[0.0273(PCT_1)+0.0260(PCT_2)+0.0189(PCT_3)+0.0239(PCT_4)+0.0265(PCT_5)]} DA^{[0.606+0.00118(PCT_2)+0.00130(PCT_3)]}, \quad (10)$$

$$Q_{2\%} = 10^{[0.0282(PCT_1)+0.0268(PCT_2)+0.0196(PCT_3)+0.0249(PCT_4)+0.0276(PCT_5)]} DA^{[0.600+0.00118(PCT_2)+0.00135(PCT_3)]}, \quad (11)$$

$$Q_{1\%} = 10^{[0.0289(PCT_1)+0.0276(PCT_2)+0.0202(PCT_3)+0.0258(PCT_4)+0.0286(PCT_5)]} DA^{[0.594+0.00119(PCT_2)+0.00139(PCT_3)]}, \quad (12)$$

$$Q_{0.5\%} = 10^{[0.0295(PCT_1)+0.0282(PCT_2)+0.0208(PCT_3)+0.0265(PCT_4)+0.0295(PCT_5)]} DA^{[0.589+0.00120(PCT_2)+0.00144(PCT_3)]}, \quad (13)$$

$$Q_{0.2\%} = 10^{[0.0303(PCT_1)+0.0290(PCT_2)+0.0214(PCT_3)+0.0274(PCT_4)+0.0306(PCT_5)]} DA^{[0.583+0.00121(PCT_2)+0.00149(PCT_3)]}, \quad (14)$$

where

$Q_{50\%}$, $Q_{20\%}$, …, and $Q_{0.2\%}$ are the flows with percent chance exceedances of 50 percent, 20 percent, …, 0.2 percent, in ft^3/s;

PCT_1, PCT_2, PCT_3, PCT_4, and PCT_5 are the basin percentages in hydrologic regions 1, 2, 3, 4, and 5, in percent; and

DA is the drainage area, in mi^2.

These equations allow for the computation of P-percent chance exceedance flows for rural ungaged sites that drain one or more hydrologic regions. It is important to note that the sum of the basin percentages in the five hydrologic regions must equal 100 percent when using equations 7–14. For ungaged sites that are entirely within one hydrologic region, equations 7–14 can be reduced to the simpler form shown in table 5.

Drainage areas and percentage of each basin in the five hydrologic regions for the 357 Georgia stations that were considered for use in the regression analysis are shown in table 6 (p. 80). The Bulletin 17B analysis, regression equation, and weighted estimates of the flood-frequency statistics for the 357 stations in Georgia are shown in table 4 (p. 56). The method for determining the weighted estimates is described in the Application of Methods Section.

Accuracy and Limitations

When applying regression equations, users are advised not to interpret the empirical results as exact. Regression equations are statistical models that must be interpreted and applied within the limits of the data and with the understanding that the results are best-fit estimates with an associated scatter or variance. The development and use of a regression equation raises questions about how well the predicted values represent the true values. Errors in the model (that is, differences between predicted and observed values) can be examined to determine parameters that describe the accuracy of a regression equation, which depends on both the model and sampling error. Model error measures the ability of a set of explanatory variables to estimate the values of peak-flow characteristics calculated from the station records that were used to develop the equation. The model error depends on the number and predictive power of the explanatory variables in a regression equation. Sampling error measures the ability of a finite number of stations with a finite number of recorded annual peak flows to describe the true peak-flow characteristics for a station. The sampling error depends on the number and record length of stations used in the analysis and decreases as either the number of stations or record lengths increase.

A measure of the uncertainty in a regression equation estimate for a site, *i*, is the variance of prediction, $V_{p,i}$. The $V_{p,i}$ is the sum of the model error variance and sampling error variance and is computed using the following equation:

$$V_{p,i} = \gamma^2 + MSE_{s,i} \ , \qquad (15)$$

where

γ^2 is the model error variance; and

$MSE_{s,i}$ is the sampling mean square error for site *i*.

Assuming that the explanatory variables for the gaged stations in a regression analysis are representative of all stations in the region, the average accuracy of prediction for a regression equation can be determined by computing the average variance of prediction, *AVP*, for *n* number of stations:

$$AVP = \gamma^2 + \left(\frac{1}{n}\right)\sum_{i=1}^{n} MSE_{s,i} \ . \qquad (16)$$

A more traditional measure of the accuracy of P-percent chance exceedance flow regression equations is the standard error of prediction, S_p, which is simply the square root of the variance of prediction. The average standard error of prediction for a regression equation can be computed in percent error using *AVP,* in log units, and the following transformation formula:

$$S_{p,ave} = 100\left[10^{2.3026(AVP)} - 1\right]^{0.5}, \qquad (17)$$

where

$S_{p,ave}$ is the average standard error of prediction, in percent.

Table 5. Regional flood-frequency equations for rural ungaged streams with drainage basins that are within one hydrologic region.

[*DA*, drainage area, in square miles]

Percent chance exceedance	Hydrologic region (shown in figs. 4, 6)				
	1	2	3	4	5
50	$158(DA)^{0.649}$	$110(DA)^{0.779}$	$25.7(DA)^{0.758}$	$60.3(DA)^{0.649}$	$91.2(DA)^{0.649}$
20	$295(DA)^{0.627}$	$209(DA)^{0.749}$	$44.7(DA)^{0.744}$	$123(DA)^{0.627}$	$200(DA)^{0.627}$
10	$398(DA)^{0.617}$	$288(DA)^{0.736}$	$58.9(DA)^{0.740}$	$174(DA)^{0.617}$	$295(DA)^{0.617}$
4	$537(DA)^{0.606}$	$398(DA)^{0.724}$	$77.6(DA)^{0.736}$	$245(DA)^{0.606}$	$447(DA)^{0.606}$
2	$661(DA)^{0.600}$	$479(DA)^{0.718}$	$91.2(DA)^{0.735}$	$309(DA)^{0.600}$	$575(DA)^{0.600}$
1	$776(DA)^{0.594}$	$575(DA)^{0.713}$	$105(DA)^{0.733}$	$380(DA)^{0.594}$	$724(DA)^{0.594}$
0.5	$891(DA)^{0.589}$	$661(DA)^{0.709}$	$120(DA)^{0.733}$	$447(DA)^{0.589}$	$891(DA)^{0.589}$
0.2	$1,072(DA)^{0.583}$	$794(DA)^{0.704}$	$138(DA)^{0.732}$	$550(DA)^{0.583}$	$1,148(DA)^{0.583}$

A.

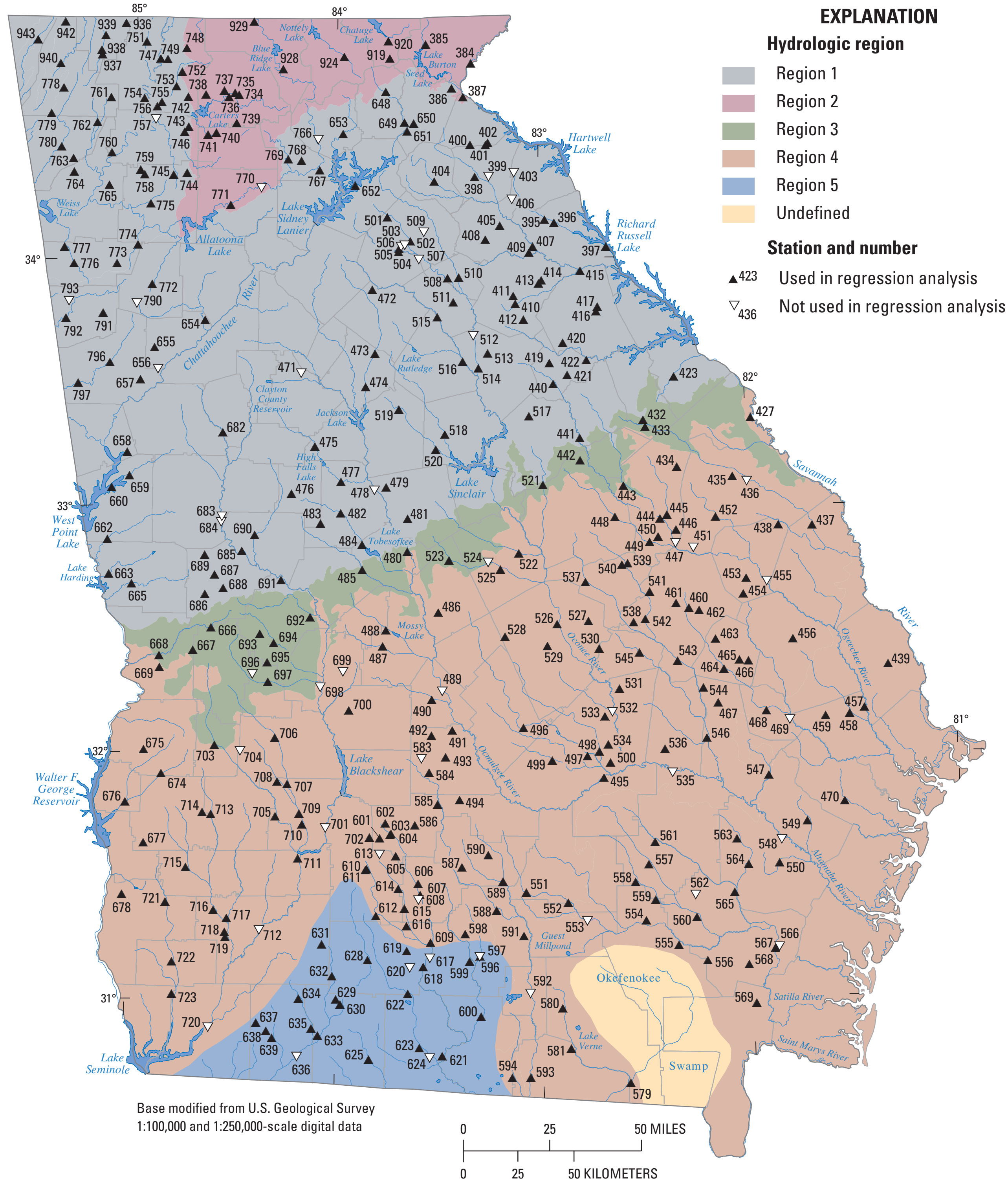


Figure 6. Hydrologic regions in Georgia with *(A)* locations of the rural streamgaging stations used in the regional regression analysis and *(B)* counties in Georgia.

B.

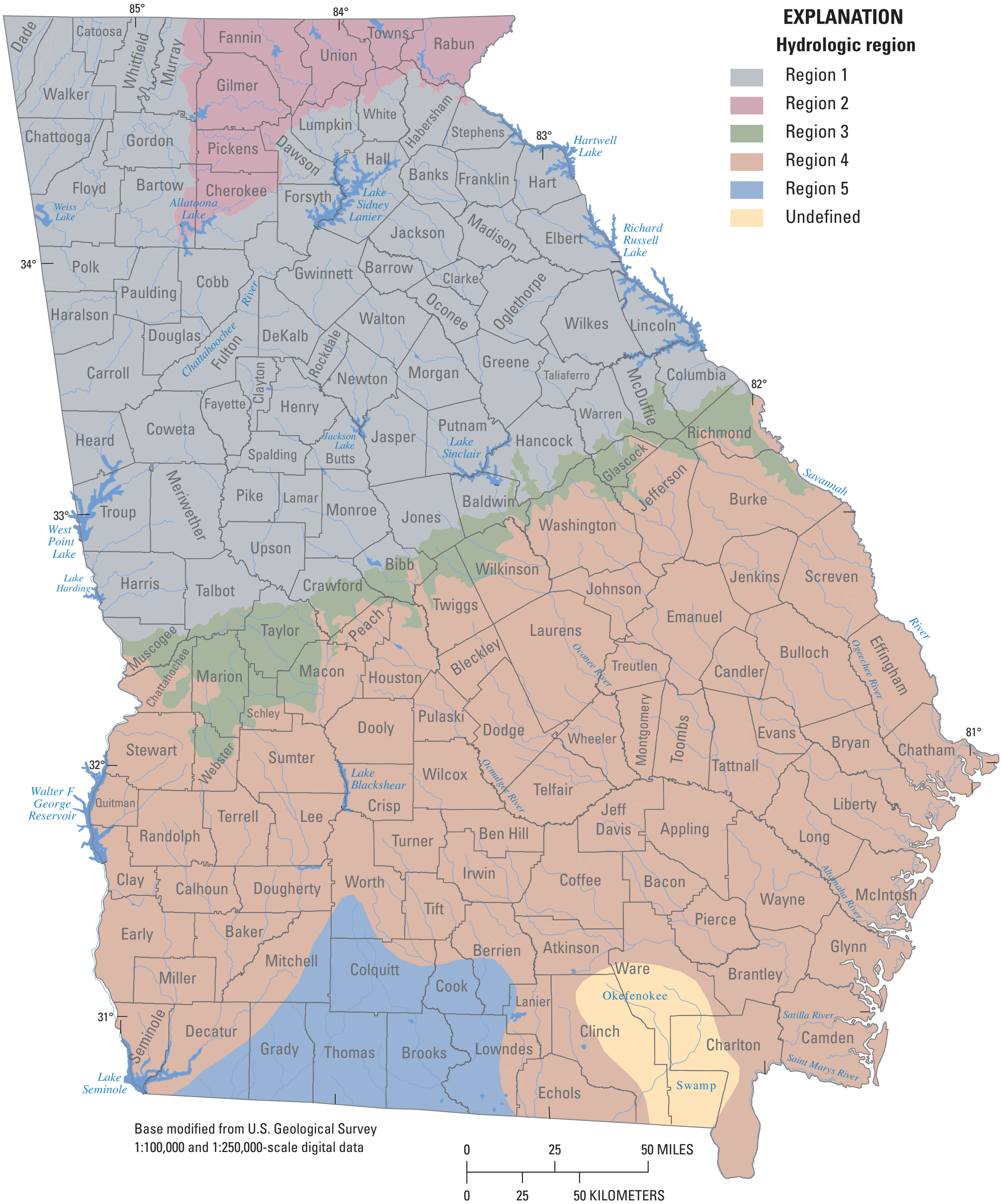


Figure 6. Hydrologic regions in Georgia with *(A)* locations of the rural streamgaging stations used in the regional regression analysis and *(B)* counties in Georgia.—Continued

Approximately two-thirds of the estimates obtained from a regression equation for ungaged sites will have errors less than the standard error of prediction. The average variance of prediction and standard error of prediction for the final set of regional regression equations are shown in table 7.

Table 7. Average variance of prediction and standard error of prediction for the regional regression equations.

Percent chance exceedance	Average variance of prediction (log units)	Average standard error of prediction (percent)
50	0.0212	34.5
20	0.0206	34.0
10	0.0219	35.1
4	0.0248	37.5
2	0.0275	39.6
1	0.0305	41.9
0.5	0.0338	44.3
0.2	0.0387	47.7

Previous USGS flood frequency reports also have expressed the accuracy of regional regression equations in terms of equivalent years of record, which is an estimate of the number of years of station record that would be needed at an ungaged site to produce peak-flow estimates with accuracy equal to that of the associated regression equation. The equivalent year of record concept, while relatively easy to grasp, can sometimes misconstrue the relation between flood-frequency estimates and associated variances. Using variances provides a more accurate characterization of the underlying uncertainty of the various flow estimates.

Users of the regression models may be interested in a measure of uncertainty at a particular site as opposed to the uncertainty statistics based on station data used to generate the regression models. One such measure of uncertainty at a particular ungaged site is the confidence interval of a prediction, or prediction interval. Prediction interval is the minimum and maximum value between which is a stated probability that the true value of the response variable exists. Tasker and Driver (1988) determined that a 100 $(1-\alpha)$ prediction interval for the true value of a streamflow statistic for an ungaged site from the regression equation can be computed as follows:

$$Q/C < Q < CQ\,, \qquad (18)$$

where

Q is the streamflow characteristic for the ungaged site; and

C is computed as

$$C = 10^{Z_{(\alpha/2)} S_{p,i}}\,, \qquad (19)$$

where

$Z_{(\alpha/2)}$ is the normal critical value at a particular alpha-level α, which equals 0.05 for a 95-percent prediction interval, divided by 2 and is equal to 1.96 for an α of 0.05; and

$S_{p,i}$ is the standard error of prediction for site *i*, and is computed as

$$S_{p,i} = \left[\gamma^2 + \boldsymbol{x_i} \boldsymbol{U} \boldsymbol{x_i'}\right]^{0.5}\,, \qquad (20)$$

where

γ^2 is the model error variance;

$\boldsymbol{x_i}$ is a row vector of variables log*DA*, PCT_1, PCT_2, PCT_3, PCT_5, log$DA*PCT_2$, and log$DA*PCT_3$ for site *i*, augmented by a 1 as the first element;

$\boldsymbol{U}$ is the covariance matrix for the regression coefficients; and

$\boldsymbol{x_i'}$ is the transpose of $\boldsymbol{x_i}$ (Ludwig and Tasker, 1993).

The values for γ^2 and $\boldsymbol{U}$ are presented in table 8.

The procedure necessary to obtain the prediction intervals for P-percent chance exceedance flow estimates is explained in the following example computation of the 2-percent chance exceedance flow for a hypothetical ungaged site on Indian Creek near Ideal, Georgia:

1. Obtain the drainage area and hydrologic percentages for the ungaged site ($DA = 250$ mi^2, $PCT_1 = 60.0$, $PCT_2 = 40.0$, $PCT_3 = 0.0$, $PCT_4 = 0.0$, $PCT_5 = 0.0$);
2. Compute $Q_{2\%\,(g)r}$ using equation 11 ($Q_{2\%(g)r} = 10^{[0.0282(60.0)+0.0268(40.0)+0.0196(0)+0.0249(0)+0.0276(0)]} 250^{[0.600+0.00118(40.0)+0.00135(0)]} = 20{,}700$ ft^3/s);
3. Determine the $\boldsymbol{x_i}$ vector ($\boldsymbol{x_i} = \{1, \log_{10}(250), 60.0, 40.0, 0.0, 0.0, (\log_{10}(250))(40.0), 0.0\}$);
4. Compute the standard error of prediction using equation 20 with γ^2 and $\boldsymbol{U}$ for the 2-percent chance exceedance flow from table 8; $S_{p,i} = (0.0265+0.000503)^{0.5} = 0.16433$;
5. Compute C using equation 19 ; $C = 10^{(1.96*0.16433)} = 2.0994$;
6. Compute the 95-percent prediction interval using equation 18; $(20{,}700/2.0994) < Q_{2\%(u)r} < (20{,}700 * 2.0994)$, or, $9{,}860 < Q_{2\%(u)r} < 43{,}500$.

The example may not be clear to readers unfamiliar with the matrix algebra computations necessary for solution. To aid users who wish to compute the 95-percent prediction intervals at an ungaged site, a spreadsheet program has been developed and posted at *http://pubs.usgs.gov/sir/2009/5043/*. Instructions for proper application of the program are self-explanatory and are embedded within the spreadsheet.

The following limitations need to be recognized when using the final regional regression equations:

1. The ranges of explanatory variables used to develop the regional regression equations are shown in figure 7. For all sites with drainage basins that are within one hydrologic region, accuracy estimates and use of the relations is considered appropriate for drainage areas that range in size from 1 mi^2 to 9,000 mi^2. The relations also appear to be valid from 1 mi^2 to 9,000 mi^2 for most percentages within each hydrologic region (based on fig. 7) even though some gaps (blank areas in the graphs) occur where the accuracy and applicability of the relations have not been verified with observed data.
2. The methods are not appropriate (or applicable) for sites where the watershed is affected substantially by regulation from impoundments, channelization, levees, or other man-made structures.
3. The methods are not appropriate (or applicable) for sites on streams in urban areas (impervious area greater than 10 percent) unless the effects of urbanization are insignificant.
4. The methods do not apply where flooding is influenced by extreme ocean storm surge or tidal events.
5. The methods are not valid for the basins in the Okefenokee Swamp in southeastern Georgia where the magnitude and frequency relations are undefined nor the Upper Three Runs River basin near the midwestern boundary of South Carolina.

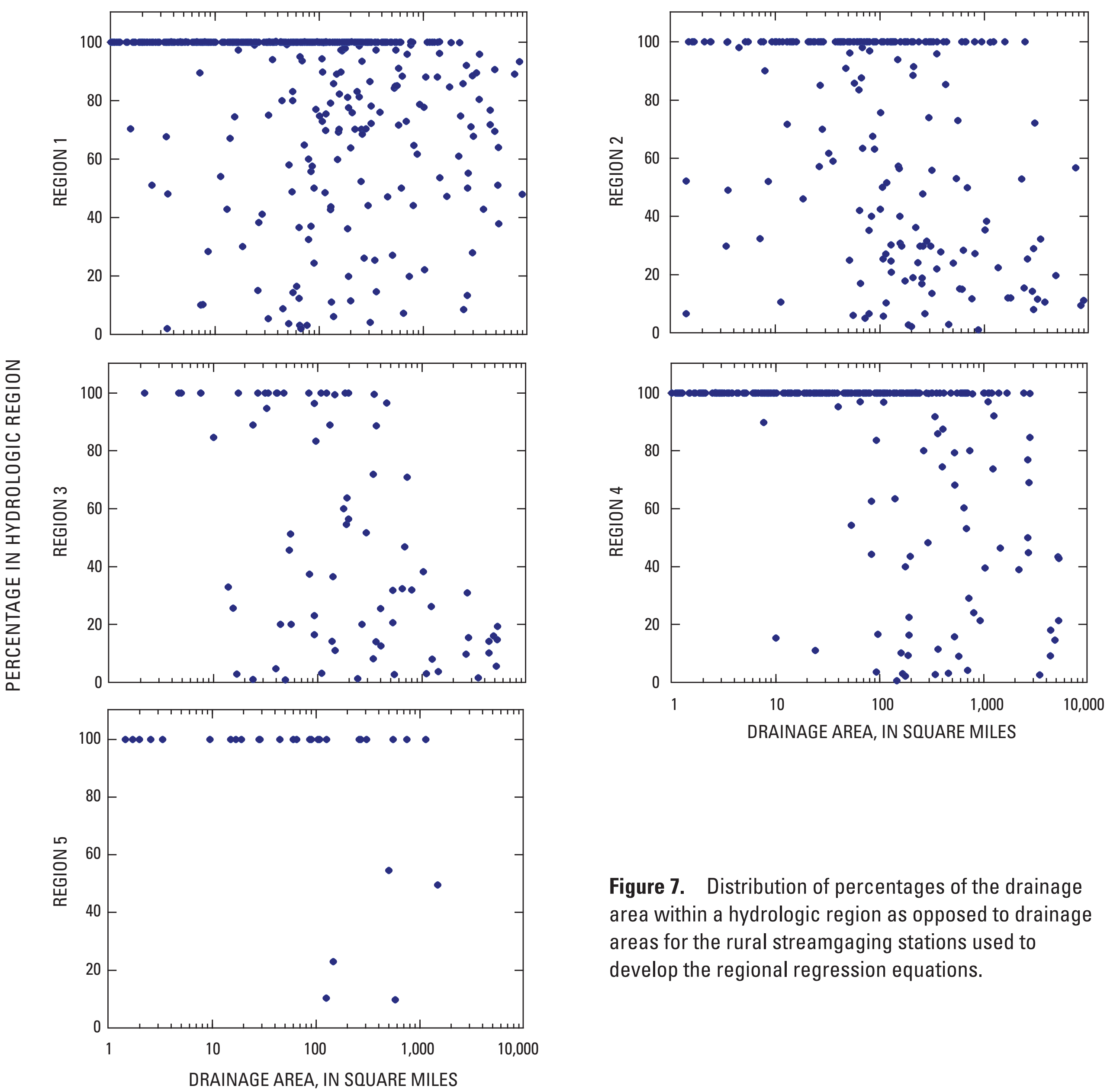


Figure 7. Distribution of percentages of the drainage area within a hydrologic region as opposed to drainage areas for the rural streamgaging stations used to develop the regional regression equations.

Table 8. Values needed to determine prediction intervals for the regression equations.

[γ^2, the regression model error variance used in equation 20; ***U***, the covariance matrix used in equation 20]

Percent chance exceedance	γ^2	*U*							
50	0.0206	8.13E–04	–1.74E–04	–2.13E–06	–4.53E–06	–3.22E–06	–1.45E–06	1.05E–06	9.32E–07
		–1.74E–04	7.43E–05	–7.87E–08	1.05E–06	1.32E–06	4.09E–08	–6.20E–07	–8.26E–07
		–2.13E–06	–7.87E–08	3.77E–08	3.61E–08	1.65E–08	1.05E–08	–2.78E–09	4.12E–09
		–4.53E–06	1.05E–06	3.61E–08	2.07E–07	3.85E–08	1.09E–08	–7.82E–08	–9.11E–09
		–3.22E–06	1.32E–06	1.65E–08	3.85E–08	6.75E–07	3.55E–09	–1.62E–08	–3.26E–07
		–1.45E–06	4.09E–08	1.05E–08	1.09E–08	3.55E–09	1.34E–07	3.56E–10	4.36E–09
		1.05E–06	–6.20E–07	–2.78E–09	–7.82E–08	–1.62E–08	3.56E–10	4.31E–08	9.36E–09
		9.32E–07	–8.26E–07	4.12E–09	–9.11E–09	–3.26E–07	4.36E–09	9.36E–09	1.87E–07
20	0.0200	8.86E–04	–1.83E–04	–2.42E–06	–4.93E–06	–3.32E–06	–1.47E–06	1.14E–06	9.59E–07
		–1.83E–04	7.68E–05	–9.06E–08	1.07E–06	1.32E–06	3.69E–08	–6.43E–07	–8.35E–07
		–2.42E–06	–9.06E–08	4.27E–08	4.13E–08	1.93E–08	1.07E–08	–2.90E–09	4.07E–09
		–4.93E–06	1.07E–06	4.13E–08	2.24E–07	4.09E–08	1.11E–08	–8.14E–08	–9.06E–09
		–3.32E–06	1.32E–06	1.93E–08	4.09E–08	6.98E–07	3.32E–09	–1.65E–08	–3.33E–07
		–1.47E–06	3.69E–08	1.07E–08	1.11E–08	3.32E–09	1.47E–07	3.53E–10	4.35E–09
		1.14E–06	–6.43E–07	–2.90E–09	–8.14E–08	–1.65E–08	3.53E–10	4.44E–08	9.40E–09
		9.59E–07	–8.35E–07	4.07E–09	–9.06E–09	–3.33E–07	4.35E–09	9.40E–09	1.90E–07
10	0.0212	9.97E–04	–2.04E–04	–2.87E–06	–5.70E–06	–3.78E–06	–1.64E–06	1.31E–06	1.07E–06
		–2.04E–04	8.52E–05	–1.12E–07	1.18E–06	1.45E–06	3.97E–08	–7.21E–07	–9.20E–07
		–2.87E–06	–1.12E–07	5.07E–08	4.90E–08	2.35E–08	1.20E–08	–3.26E–09	4.29E–09
		–5.70E–06	1.18E–06	4.90E–08	2.59E–07	4.70E–08	1.25E–08	–9.16E–08	–1.00E–08
		–3.78E–06	1.45E–06	2.35E–08	4.70E–08	7.82E–07	3.60E–09	–1.82E–08	–3.70E–07
		–1.64E–06	3.97E–08	1.20E–08	1.25E–08	3.60E–09	1.72E–07	3.60E–10	4.67E–09
		1.31E–06	–7.21E–07	–3.26E–09	–9.16E–08	–1.82E–08	3.60E–10	4.94E–08	1.03E–08
		1.07E–06	–9.20E–07	4.29E–09	–1.00E–08	–3.70E–07	4.67E–09	1.03E–08	2.10E–07
4	0.0239	1.18E–03	–2.38E–04	–3.58E–06	–6.97E–06	–4.58E–06	–1.94E–06	1.59E–06	1.28E–06
		–2.38E–04	1.00E–04	–1.45E–07	1.38E–06	1.69E–06	4.60E–08	–8.57E–07	–1.08E–06
		–3.58E–06	–1.45E–07	6.33E–08	6.10E–08	3.02E–08	1.43E–08	–3.86E–09	4.74E–09
		–6.97E–06	1.38E–06	6.10E–08	3.17E–07	5.72E–08	1.49E–08	–1.09E–07	–1.19E–08
		–4.58E–06	1.69E–06	3.02E–08	5.72E–08	9.31E–07	4.21E–09	–2.13E–08	–4.37E–07
		–1.94E–06	4.60E–08	1.43E–08	1.49E–08	4.21E–09	2.13E–07	3.91E–10	5.32E–09
		1.59E–06	–8.57E–07	–3.86E–09	–1.09E–07	–2.13E–08	3.91E–10	5.85E–08	1.21E–08
		1.28E–06	–1.08E–06	4.74E–09	–1.19E–08	–4.37E–07	5.32E–09	1.21E–08	2.47E–07

Table 8. Values needed to determine prediction intervals for the regression equations.—Continued

[γ^2, the regression model error variance used in equation 20; ***U***, the covariance matrix used in equation 20]

Percent chance exceedance	γ^2	*U*							
2	0.0265	1.33E–03	–2.69E–04	–4.17E–06	–8.04E–06	–5.29E–06	–2.21E–06	1.84E–06	1.46E–06
		–2.69E–04	1.13E–04	–1.72E–07	1.56E–06	1.92E–06	5.16E–08	–9.77E–07	–1.22E–06
		–4.17E–06	–1.72E–07	7.38E–08	7.11E–08	3.56E–08	1.64E–08	–4.39E–09	5.16E–09
		–8.04E–06	1.56E–06	7.11E–08	3.66E–07	6.59E–08	1.71E–08	–1.25E–07	–1.37E–08
		–5.29E–06	1.92E–06	3.56E–08	6.59E–08	1.06E–06	4.77E–09	–2.42E–08	–4.97E–07
		–2.21E–06	5.16E–08	1.64E–08	1.71E–08	4.77E–09	2.48E–07	4.26E–10	5.94E–09
		1.84E–06	–9.77E–07	–4.39E–09	–1.25E–07	–2.42E–08	4.26E–10	6.65E–08	1.36E–08
		1.46E–06	–1.22E–06	5.16E–09	–1.37E–08	–4.97E–07	5.94E–09	1.36E–08	2.80E–07
1	0.0294	1.50E–03	–3.01E–04	–4.79E–06	–9.19E–06	–6.05E–06	–2.51E–06	2.10E–06	1.66E–06
		–3.01E–04	1.28E–04	–2.00E–07	1.76E–06	2.16E–06	5.74E–08	–1.11E–06	–1.37E–06
		–4.79E–06	–2.00E–07	8.49E–08	8.16E–08	4.14E–08	1.86E–08	–4.95E–09	5.64E–09
		–9.19E–06	1.76E–06	8.16E–08	4.18E–07	7.54E–08	1.95E–08	–1.42E–07	–1.56E–08
		–6.05E–06	2.16E–06	4.14E–08	7.54E–08	1.21E–06	5.40E–09	–2.73E–08	–5.62E–07
		–2.51E–06	5.74E–08	1.86E–08	1.95E–08	5.40E–09	2.85E–07	4.71E–10	6.63E–09
		2.10E–06	–1.11E–06	–4.95E–09	–1.42E–07	–2.73E–08	4.71E–10	7.52E–08	1.54E–08
		1.66E–06	–1.37E–06	5.64E–09	–1.56E–08	–5.62E–07	6.63E–09	1.54E–08	3.16E–07
0.05	0.0326	1.67E–03	–3.36E–04	–5.44E–06	–1.04E–05	–6.86E–06	–2.83E–06	2.38E–06	1.87E–06
		–3.36E–04	1.43E–04	–2.30E–07	1.98E–06	2.43E–06	6.33E–08	–1.25E–06	–1.54E–06
		–5.44E–06	–2.30E–07	9.65E–08	9.26E–08	4.74E–08	2.10E–08	–5.55E–09	6.17E–09
		–1.04E–05	1.98E–06	9.26E–08	4.74E–07	8.54E–08	2.20E–08	–1.60E–07	–1.76E–08
		–6.86E–06	2.43E–06	4.74E–08	8.54E–08	1.36E–06	6.07E–09	–3.07E–08	–6.33E–07
		–2.83E–06	6.33E–08	2.10E–08	2.20E–08	6.07E–09	3.24E–07	5.23E–10	7.40E–09
		2.38E–06	–1.25E–06	–5.55E–09	–1.60E–07	–3.07E–08	5.23E–10	8.46E–08	1.72E–08
		1.87E–06	–1.54E–06	6.17E–09	–1.76E–08	–6.33E–07	7.40E–09	1.72E–08	3.55E–07
0.02	0.0373	1.91E–03	–3.85E–04	–6.33E–06	–1.21E–05	–8.00E–06	–3.27E–06	2.78E–06	2.18E–06
		–3.85E–04	1.65E–04	–2.69E–07	2.29E–06	2.81E–06	7.08E–08	–1.45E–06	–1.78E–06
		–6.33E–06	–2.69E–07	1.12E–07	1.08E–07	5.56E–08	2.45E–08	–6.39E–09	6.94E–09
		–1.21E–05	2.29E–06	1.08E–07	5.52E–07	9.93E–08	2.57E–08	–1.85E–07	–2.05E–08
		–8.00E–06	2.81E–06	5.56E–08	9.93E–08	1.58E–06	7.02E–09	–3.54E–08	–7.33E–07
		–3.27E–06	7.08E–08	2.45E–08	2.57E–08	7.02E–09	3.79E–07	6.04E–10	8.52E–09
		2.78E–06	–1.45E–06	–6.39E–09	–1.85E–07	–3.54E–08	6.04E–10	9.80E–08	1.99E–08
		2.18E–06	–1.78E–06	6.94E–09	–2.05E–08	–7.33E–07	8.52E–09	1.99E–08	4.11E–07

Analysis of Gaged Basins within Multiple Hydrologic Regions

A comparison of the actual P-percent chance exceedance flows and predicted P-percent chance exceedance flows was made for all 828 stations used in the regression analysis. The actual P-percent chance exceedance flows are the peak-flow statistics that are determined using the log-Pearson Type III analysis of the annual peaks and the predicted P-percent chance exceedance flows are the estimates from the regression equations. The purpose of the comparison was to analyze how well the final regional regression equations predicted the P-percent chance exceedance flows for stations with drainage basins that are within multiple hydrologic regions. The actual and predicted 1-percent chance exceedance flow for gaged stations with a portion of the drainage basin within hydrologic region 1 is shown in figure 8. The stations are grouped in 25-percent increments from 1 to 100 percent of the drainage basin within hydrologic region 1. The points appear to be equally scattered around the one-to-one line for all percentage ranges. Thus, there does not appear to be any over- or under-prediction of the P-percent chance exceedance flows for stations having at least some of the basin in hydrologic region 1. The plots for all five hydrologic regions exhibited similar scatter around the one-to-one line for the $Q_{50\%}$ through $Q_{0.2\%}$ equations, which indicates the model works well for stations with drainage basins that are within multiple regions.

Application of Methods

The best estimates of flood frequencies for a site typically are obtained through a weighted combination of estimates produced from more than one method. Tasker (1975) demonstrated that if two independent estimates of a streamflow statistic are available, a properly weighted average of the independent estimates will provide an estimate that is more accurate than either of the independent estimates. Improved flood-frequency estimates can be determined for Georgia gaged stations by weighting estimates determined from the Bulletin 17B analysis with estimates obtained from the regression equations provided in this report. Improved estimates can be determined for ungaged sites on the same stream in Georgia by weighting the estimates obtained from the regression equations with estimates that were determined based on the flow of an upstream or downstream gaged station. The following sections describe the weighting process for gaged stations and ungaged sites in more detail and provide example calculations. The results are rounded to three significant figures.

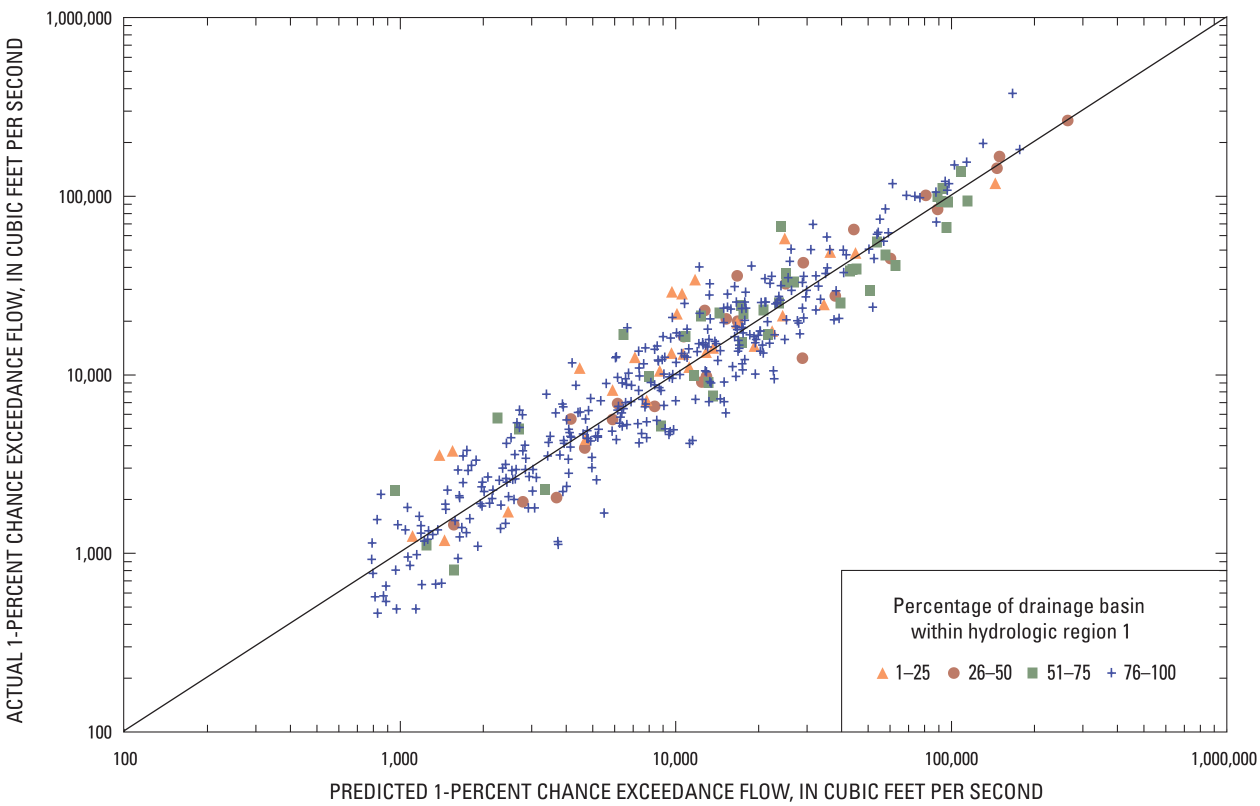


Figure 8. Actual and predicted 1-percent chance exceedance flows for rural streamgaging stations with a portion of the drainage basin within hydrologic region 1.

Estimation for a Gaged Station

The Interagency Advisory Committee on Water Data (1982) recommends that better estimates of flood-frequency statistics for a gaged station can be obtained by combining (weighting) at-site flow estimates determined from the log-Pearson Type III analysis of the annual peaks with flow estimates obtained for the station from regression equations. Optimal weighted flow estimates can be obtained if the variance of prediction for each of the two estimates is known or can be estimated accurately. The variance of prediction can be thought of as a measure of the uncertainty in either the at-site estimate or the regional regression results. If the two estimates can be assumed to be independent and are weighted in inverse proportion to the associated variances, the variance of the weighted estimate will be less than the variance of either of the independent estimates.

The variance of prediction corresponding to the at-site flow estimate from the log-Pearson Type III analysis is computed using the asymptotic formula given in Cohn and others (2001) with the addition of the mean-squared error of generalized skew (Griffis and others, 2004). This variance varies as a function of the length of record, the fitted log-Pearson Type III distribution parameters (mean, standard deviation, and weighted skew), and the accuracy of the method used to determine the generalized-skew component of the weighted skew. The variance of prediction for the at-site estimate generally decreases with length of record and the quality of the log-Pearson Type III distribution fit. The variance of prediction values for the at-site flow estimates for the 357 gaged stations located in Georgia are shown in table 9 (p. 90). The variance of prediction from the regional regression equations is a function of the regression equations and the values of the independent variables used to develop the flow estimate from the regression equations. This variance generally increases as the values of the independent variables move further from the mean values of the independent variables. The average variance of prediction values for the regional regression equations used in this study are shown in table 7.

Once the variances have been computed, the two independent flow estimates can be weighted using the following equation:

$$\log Q_{P(g)w} = \frac{V_{p,P(g)r}\log Q_{P(g)s} + V_{p,P(g)s}\log Q_{P(g)r}}{V_{p,P(g)s} + V_{p,P(g)r}}, \qquad (21)$$

where

$Q_{P(g)w}$ is the weighted estimate of peak flow for any P-percent chance exceedance for a gaged station, in ft^3/s;

$V_{p,P(g)r}$ is the variance of prediction at the gaged station derived from the applicable regional regression equations for the selected P-percent chance exceedance (from table 10), in log units;

$Q_{P(g)s}$ is the estimate of peak flow at the gaged station from the log-Pearson Type III analysis for the selected P-percent chance exceedance, in ft^3/s;

$V_{p,P(g)s}$ is the variance of prediction at the gaged station from the log-Pearson Type III analysis for the selected P-percent chance exceedance (from table 9, p. 90), in log units; and

$Q_{P(g)r}$ is the peak-flow estimate for the P-percent chance exceedance at the gaged station derived from the applicable regional regression equations 7–14, in ft^3/s.

When the variance of prediction corresponding to one of the estimates is high, the uncertainty is also high, and so the weight for that estimate is relatively small. Conversely, when the variance of prediction is low, the uncertainty is also low and so the weight is correspondingly large. The variance of prediction associated with the weighted estimate, $V_{p,P(g)w}$, is computed using the following equation:

$$V_{p,P(g)w} = \frac{V_{p,P(g)s}V_{p,P(g)r}}{V_{p,P(g)s} + V_{p,P(g)r}}. \qquad (22)$$

The weighted (best) flow estimates were computed using equation 21 along with the variance of prediction values from tables 7 and 9 (p. 90) for the 357 gaged stations in Georgia. The weighted flow estimates for the 357 gaged stations are shown in table 4 (p. 56). The variance of prediction values associated with the weighted estimates are shown in table 9.

An example of the application of the procedure described above is the following computation of the weighted 1-percent chance exceedance flow for the station on Chattahoochee River near Cornelia, Georgia (station number 02331600, site 651, fig. 4, p. 29):

1. Obtain the at-site estimate of the 1-percent chance exceedance flow at the station based on the Bulletin 17B analysis from table 4 (p. 56; $Q_{1\%(g)s} = 32{,}900$ ft^3/s);
2. Obtain drainage area and hydrologic region percentages from table 6 (p. 80) for the gaged station ($DA = 315$ mi^2, $PCT_1 = 72.2$, $PCT_2 = 27.8$, $PCT_3 = 0.0$, $PCT_4 = 0.0$, and $PCT_5 = 0.0$);
3. Compute $Q_{1\%(g)r}$ using equation 12 ($Q_{1\%(g)r} = 10^{[0.0289(72.2)+0.0276(27.8)+0.0202(0)+0.0258(0)+0.0286(0)]} 315^{[0.594+0.00119(27.8)+0.00139(0)]}$ = 26,300 ft^3/s);
4. Obtain the variance of prediction for the at-site estimate for the 1-percent chance exceedance flow from table 9 (p. 90; $V_{p,1\%(g)s} = 0.0031$) ;
5. Obtain the variance of prediction for the 1-percent chance exceedance flow regression equation from table 7 ($V_{p,1\%(g)r} = 0.0305$); and
6. Compute the weighted 1-percent chance exceedance flow for the station using equation 21 ($\log Q_{1\%(g)w} = ((0.0305)(\log 32{,}900) + (0.0031)(\log 26{,}300)) / (0.0305+0.0031) = 4.508$, and $Q_{1\%(g)w} = 32{,}200$ ft^3/s).
7. Compute the weighted variance for the station using equation 22 ($V_{p,1\%(g)w} = ((0.0031)(0.0305))/(0.0031+0.0305) = 0.0028$).

Previous USGS flood frequency reports used the equivalent years of record associated with the regression equations along with the length of record at the gaged station to weight the flow estimates obtained from the regional regression equation and the log-Pearson Type III analysis. However, the length of record often fails to account for the true variance of log-Pearson Type III flood frequency estimates. For example, although longer record lengths generally result in decreased variance, record length fails to account for the improvement in information content provided by the generalized skew or the addition of historic peaks. Furthermore, flood frequency distributions computed from two different gaged-station records of the same length may not be of equal reliability owing to differences in underlying variances of the peak-flow records. For example, smaller drainage areas may have flashier, more highly varied records, or may be more difficult to accurately gage than a large basin, hence the log-Pearson Type III distributions could be expected to have larger variances. More importantly, the equivalent year of record concept, while relatively easy to grasp, can sometimes misconstrue the relation between flood-frequency estimates and associated variances. Using variances provides a more accurate characterization of the underlying uncertainty of the various flow estimates.

Estimation for an Ungaged Site Near a Gaged Station

Sauer (1974) presented the following method to improve flood-frequency estimates for an ungaged site near a gaged station, on the same stream, that has 10 or more years of peak-flow record. To obtain a weighted flow estimate ($Q_{P(u)w}$) for P-percent chance exceedance at the ungaged site, the weighted flow estimate for an upstream or downstream gaged station ($Q_{P(g)w}$) must first be determined by using the equation provided in the previous section. The weighted flow estimate for the ungaged site ($Q_{P(u)w}$) is then computed using the following equation:

$$Q_{P(u)w} = \left[\left(\frac{2\Delta A}{A_{(g)}} \right) + \left(1 - \frac{2\Delta A}{A_{(g)}} \right) \left(\frac{Q_{P(g)w}}{Q_{P(g)r}} \right) \right] Q_{P(u)r} , \qquad (23)$$

where

$Q_{P(u)w}$ is the weighted estimate of peak flow for the selected P-percent chance exceedance at the ungaged site, in ft^3/s;

ΔA is the absolute value of the difference between the drainage areas of the gaged station and the ungaged site, in mi^2;

$A_{(g)}$ is the drainage area for the gaged station, in mi^2;

$Q_{P(u)r}$ is the peak-flow estimate derived from the applicable regional equations 7–14 for the selected P-percent chance exceedance at the ungaged site, in ft^3/s.

Use of equation 23 gives full weight to the regression equation estimates when the drainage area for the ungaged site is equal to 0.5 or 1.5 times the drainage area for the gaged station, and increasing weight to the gaged station estimates as the drainage area ratio approaches 1. The weighting procedure must not be applied when the drainage area ratio for the ungaged site and gaged station is less than 0.5 or greater than 1.5.

An example of the application of the procedure described in this section is the following computation of the weighted 1-percent chance exceedance flow for a hypothetical ungaged site on the Chattahoochee River located above the USGS station near Cornelia, Georgia (station number 02331600, site 651, fig. 4, p. 29) cited in the previous section:

1. Calculate the value of $Q_{1\%(g)w}$ ($Q_{1\%\,(g)w}$ = 32,200 ft^3/s);
2. Obtain the drainage areas for both the gaged and ungaged sites (A_g = 315 mi^2, and A_u = 250 mi^2);
3. Obtain the hydrologic region percentages for the ungaged site (PCT_1 = 60.0, PCT_2 = 40.0, PCT_3 = 0.0, PCT_4 = 0.0, PCT_5 = 0.0);
4. Compute $Q_{1\%(u)r}$ for the ungaged site using equation 12 ($Q_{1\%\,(u)r} = 10^{[0.0289(60.0)+0.0276(40.0)+0.0202(0)+0.0258(0)+0.0286(0)]}\ 250^{[0.594+0.00119(40.0)+0.00139(0)]}$ = 23,800 ft^3/s);
5. Compute $Q_{1\%\,(g)r}$ for the gaged station using equation 12 ($Q_{1\%\,(g)r}$ = 26,300 ft^3/s);
6. Compute ΔA, where $\Delta A = 315 – 250 = 65$ mi^2;
7. Compute the weighted estimate for the ungaged site, $Q_{1\%(u)w}$, using equation 23 ($Q_{1\%\,(u)w}$ = [((2*65)/315) + ((1–((2*65)/315))*(32,200/26,300))]*23,800 = 26,900 ft^3/s).

For an ungaged site that is located between two gaged stations on the same stream, two flow estimates can be made using the methods and criteria outlined in this section. Besides evaluating the differences in hydrologic region make-up of the two gaged stations in comparison to the ungaged site, additional hydrologic judgment may be necessary to determine which of the two estimates (or some interpolation thereof) is most appropriate. Other factors that might be considered when evaluating the two estimates include differences in the length of record for the two gaged stations and the hydrologic conditions that existed during the data collection period for each gaged station (that is, does the time series represent a climatic period that was predominately wet or dry?).

Summary and Conclusions

This report presents methods for determining flood magnitude and frequency at rural gaged stations and rural ungaged sites in Georgia, South Carolina, and North Carolina. For this study, 828 streamgaging stations in or near these three States were used in the regional regression analysis. The stations used for this study are in rural basins, have 10 years or more of peak-flow record, and are not significantly affected by regulation, tidal fluctuations, or urban development. By using a multistate analysis, continuity in hydrologic regions and regression equations at state boundaries is maintained to minimize confusion on which flood-frequency techniques and results are most appropriate for drainage basins near or crossing state boundaries.

A regional analysis of station skew coefficients resulted in one generalized-skew coefficient that can be applied to the entire study area. The generalized-skew value of –0.019 was determined by using a Bayesian generalized least-squares (GLS) regression model. The mean square error (MSE) for the new generalized-skew value is 0.143, which is substantially less than the 0.302 MSE for the generalized-skew map previously published in Bulletin 17B of the Hydrology Subcommittee of the Interagency Advisory Committee on Water Data. A weighted skew coefficient (using the station and generalized-skew values) was used with the log-Pearson Type III analysis to compute the 50-, 20-, 10-, 4-, 2-, 1-, 0.5-, and 0.2-percent chance exceedance flows at each gaged station.

Regional regression analysis, using GLS regression, was used to develop a set of predictive equations that can be used to estimate the 50-, 20-, 10-, 4-, 2-, 1-, 0.5-, and 0.2-percent chance exceedance flows for rural ungaged sites in Georgia, South Carolina, and North Carolina. The predictive equations are all functions of drainage area and the percentage of drainage basin within each of the five hydrologic regions defined in the study area. Average standard errors of prediction for these equations ranged from 34.5 to 47.7 percent. Additional data from gaged stations that drain multiple hydrologic regions were used in the development of the equations by including hydrologic region percentages in the regional regression analysis. As such, the predictive equations can be used to estimate the P-percent chance exceedance flows for ungaged sites that have a drainage basin in one or more hydrologic regions.

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Figures 2 and 4

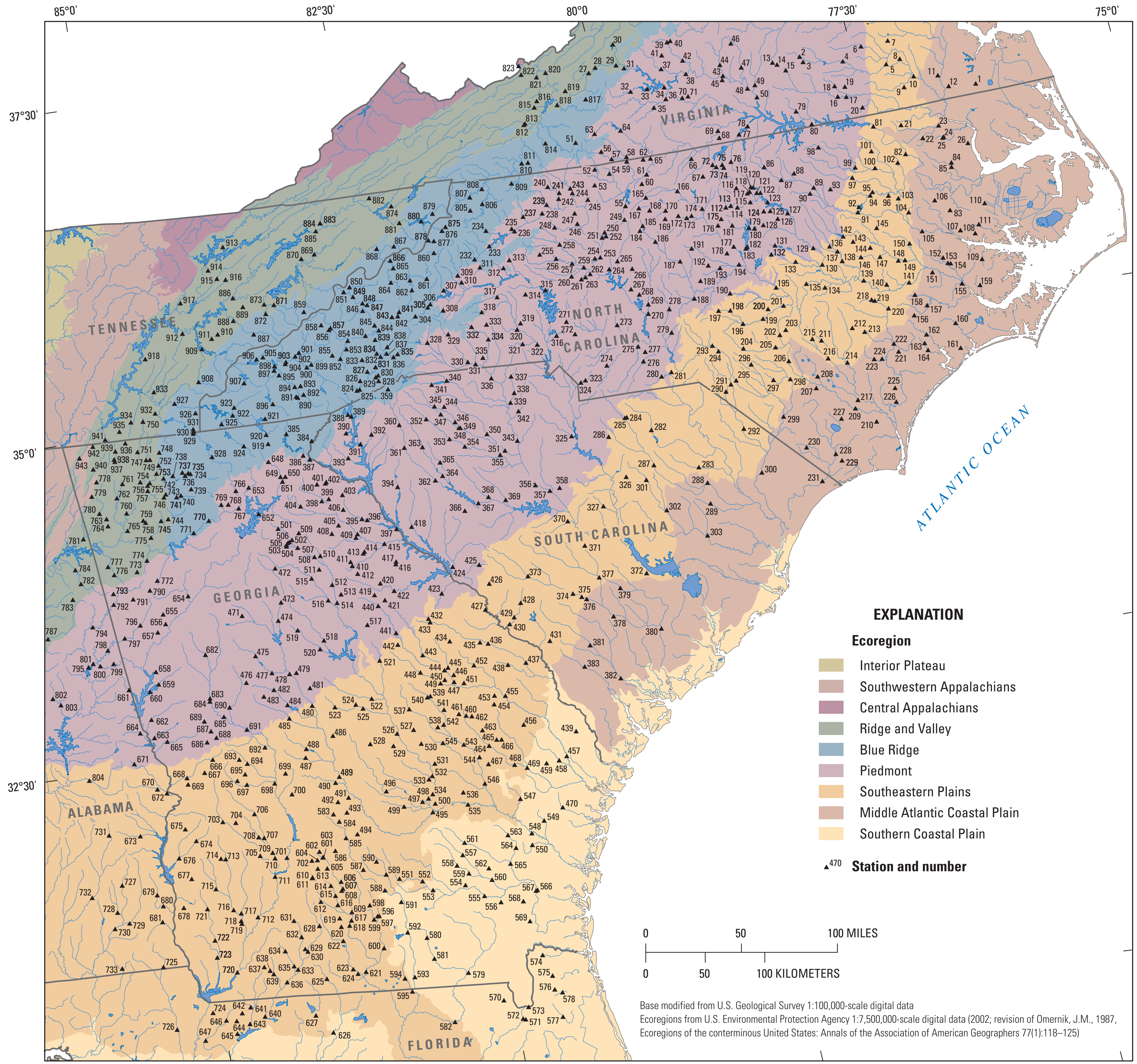

Figure 2. Locations of rural stream-gaging stations in Georgia, South Carolina, North Carolina, and surrounding States that were considered for use in the regional regression analysis, 2006.

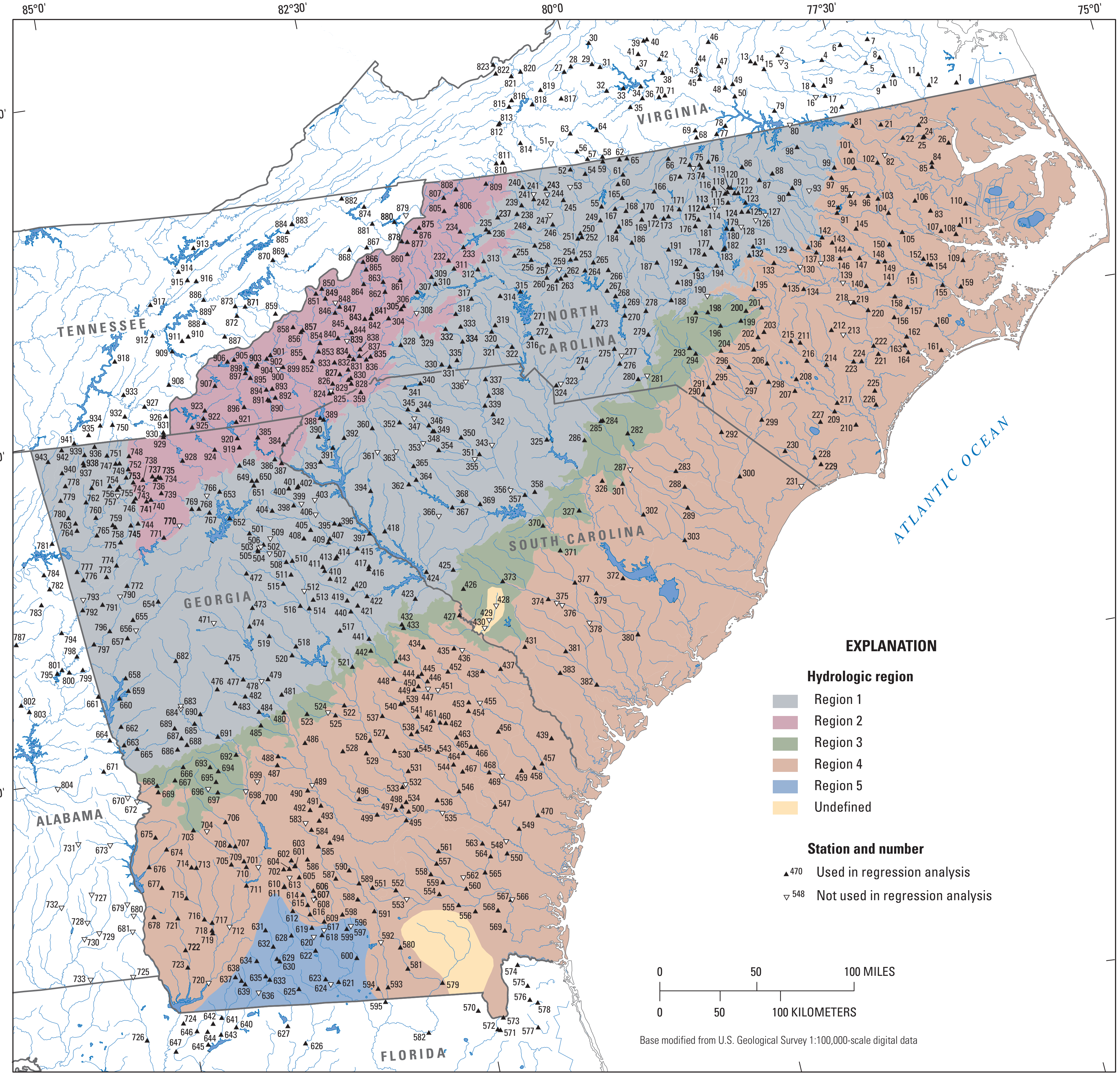

Figure 4. Hydrologic regions and locations of rural streamgaging stations in the study area used in the regional regression analysis.

Tables 1, 4, 6, and 9

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.

[USGS (U.S. Geological Survey) station number: [1], station not used in regression analysis; [2], peaks at indicated station were combined with peaks at adjacent nearby station on same stream; [c], peak-flow record available for station includes channelization or urbanization periods that were not used in the regression analysis; [h], peak-flow record adjusted for historical period; [m], extended record using MOVE1 analysis; [r], peak-flow record available for station includes regulated period that was not used in the regression analysis]

Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
1	02043500	Cypress Swamp at Cypress Chapel, VA	36 37 25	76 36 06	VA	1954–1996	37
2	[h]02044000	Nottoway River near Burkeville, VA	37 04 41	78 11 49	VA	1947–1995	49
3	[1]02044200	Falls Creek tributary near Victoria, VA	37 02 05	78 10 25	VA	1968–2005	38
4	[h]02044500	Nottoway River near Rawlings, VA	36 59 01	77 47 59	VA	1951–2005	55
5	02045500	Nottoway River near Stony Creek, VA	36 54 01	77 23 59	VA	1930–2005	76
6	[h]02046000	Stony Creek near Dinwiddie, VA	37 04 02	77 36 09	VA	1947–2005	59
7	02046400	Jones Hole Swamp tributary near Carson, VA	37 04 14	77 20 29	VA	1967–1976	10
8	02046500	Anderson Branch at Sussex, VA	36 55 11	77 15 44	VA	1949–1983	26
9	02046900	Musgrave Branch near Drewryville, VA	36 42 14	77 16 28	VA	1966–1975	10
10	[h]02047000	Nottoway River near Sebrell, VA	36 46 14	77 09 58	VA	1942–2005	64
11	02049700	Cypress Swamp near Burdette, VA	36 44 30	76 56 17	VA	1950–1976	27
12	02050050	Blackwater River tributary near Holland, VA	36 38 45	76 51 28	VA	1967–2005	39
13	02050400	North Meherrin River near Briery, VA	37 04 21	78 27 44	VA	1966–1975	10
14	02050500	North Meherrin River near Keysville, VA	37 03 06	78 25 19	VA	1949–1973	21
15	02051000	North Meherrin River near Lunenburg, VA	36 59 51	78 20 59	VA	1947–2005	57
16	[1]02051400	Saddletree Creek near Lawrenceville, VA	36 43 52	77 54 38	VA	1958–1976	19
17	[h]02051500	Meherrin River near Lawrenceville, VA	36 43 01	77 49 54	VA	1928–2005	78
18	02051600	Great Creek near Cochran, VA	36 48 47	77 55 18	VA	1958–1995	38
19	02051650	Rocky Run near Dolphin, VA	36 47 36	77 49 34	VA	1966–1975	10
20	[h]02052500	Fountains Creek near Brink, VA	36 36 56	77 41 59	VA	1954–1996	43
21	02053110	Wildcat Swamp near Jackson, NC	36 25 49	77 22 23	NC	1953–1971	19
22	02053170	Cutawhiskie Creek at NC 35 near Woodland, NC	36 18 07	77 11 44	NC	1953–1971	19
23	[h]02053200	Potecasi Creek near Union, NC	36 22 15	77 01 32	NC	1958–2006	48
24	[c]02053500	Ahoskie Creek at Ahoskie, NC	36 16 49	76 59 58	NC	1951–1963	13
25	02053510	Ahoskie Creek tributary at Poortown, NC	36 16 30	77 00 37	NC	1964–1973	10
26	02053550	Chinkapin Creek near Colerain, NC	36 11 53	76 47 13	NC	1953–1971	19
27	[h]02054500	Roanoke River at Lafayette, VA	37 14 11	80 12 33	VA	1944–2005	62
28	02054530	Roanoke River at Glenvar, VA	37 16 04	80 08 22	VA	1992–2005	14
29	[h]02055000	Roanoke River at Roanoke, VA	37 15 30	79 56 19	VA	1899–2005	107
30	02055100	Tinker Creek near Daleville, VA	37 25 03	79 56 07	VA	1957–2005	49
31	02056650	Back Creek near Dundee, VA	37 13 39	79 52 05	VA	1975–2005	31
32	02056900	Blackwater River near Rocky Mount, VA	37 02 43	79 50 39	VA	1977–2005	29
33	02057000	Blackwater River near Union Hall, VA	37 02 36	79 41 06	VA	1925–1964	40
34	02057500	Roanoke River near Toshes, VA	37 02 04	79 31 17	VA	1926–1963	38
35	02058000	Snow Creek at Sago, VA	36 53 51	79 39 04	VA	1935–1944	10
36	02058400	Pigg River near Sandy Level, VA	36 56 46	79 31 29	VA	1931–2005	75
37	02059500	Goose Creek near Huddleston, VA	37 10 24	79 31 13	VA	1926–2005	78
38	[r]02060500	Roanoke River at Altavista, VA	37 06 17	79 17 43	VA	1931–1961	31
39	02061000	Big Otter River near Bedford, VA	37 21 51	79 25 09	VA	1944–1960	17
40	02061150	Chestnut Branch near Forest, VA	37 22 11	79 23 15	VA	1960–1976	17

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

[USGS (U.S. Geological Survey) station number: [1], station not used in regression analysis; [2], peaks at indicated station were combined with peaks at adjacent nearby station on same stream; [c], peak-flow record available for station includes channelization or urbanization periods that were not used in the regression analysis; [h], peak-flow record adjusted for historical period; [m], extended record using MOVE1 analysis; [r], peak-flow record available for station includes regulated period that was not used in the regression analysis]

Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
41	02061300	Nininger Creek near Bedford, VA	37 16 27	79 29 30	VA	1949–1974	26
42	02061500	Big Otter River near Evington, VA	37 12 31	79 18 13	VA	1937–2005	69
43	[h,r] 02062500	Roanoke River at Brookneal, VA	37 02 29	78 57 01	VA	1924–1962	38
44	[h] 02064000	Falling River near Naruna, VA	37 07 37	78 57 35	VA	1930–2005	69
45	02065100	Snake Creek near Brookneal, VA	37 00 43	78 57 51	VA	1967–1995	25
46	02065300	Right Hand Fork near Appomattox, VA	37 16 13	78 49 13	VA	1967–1995	29
47	02065500	Cub Creek at Phenix, VA	37 04 46	78 45 49	VA	1947–2005	59
48	[h,r] 02066000	Roanoke River at Randolph, VA	36 54 55	78 44 27	VA	1901–1962	61
49	02066500	Roanoke Creek at Saxe, VA	36 55 50	78 39 55	VA	1947–1972	25
50	02067000	Roanoke River near Clover, VA	36 50 18	78 40 01	VA	1930–1952	23
51	[1] 02067810	Maple Swamp Branch near Meadows Of Dan, VA	36 44 10	80 26 27	VA	1970–1979	10
52	[h,r] 02068500	Dan River near Francisco, NC	36 30 54	80 18 11	NC	1925–1938	13
53	[1] 02068610	Hog Rock Creek near Moores Springs, NC	36 23 53	80 19 45	NC	1955–1971	15
54	02068660	Little Snow Creek near Lawsonville, NC	36 27 54	80 10 27	NC	1954–1971	18
55	02069030	Belews Creek near Kernersville, NC	36 12 20	80 04 24	NC	1954–1971	17
56	02069600	Anglin Branch near Stuart, VA	36 38 15	80 12 54	VA	1967–1976	10
57	02069700	South Mayo River near Nettleridge, VA	36 34 15	80 07 46	VA	1963–2005	43
58	02070000	North Mayo River near Spencer, VA	36 34 05	79 59 14	VA	1929–2005	77
59	[h] 02070500	Mayo River near Price, NC	36 32 02	79 59 29	NC	1930–2006	55
60	02070810	Jacobs Creek near Wentworth, NC	36 20 54	79 53 13	NC	1954–1973	18
61	[h] 02071000	Dan River near Wentworth, NC	36 24 45	79 49 34	NC	1940–2006	67
62	02071410	Matrimony Creek near Leaksville, NC	36 31 39	79 50 07	NC	1958–1973	15
63	02071530	Smith River near Woolwine, VA	36 46 42	80 14 57	VA	1995–2005	11
64	[r] 02072500	Smith River at Bassett, VA	36 46 12	80 00 03	VA	1938–1949	12
65	[r] 02074000	Smith River at Eden, NC	36 31 32	79 45 56	NC	1940–1949	10
66	02075160	Moon Creek near Yanceyville, NC	36 28 14	79 23 04	NC	1954–1989	21
67	02075230	South Country Line Creek near Hightowers, NC	36 19 29	79 18 19	NC	1954–1976	23
68	02075450	Little Winns Creek near Turbeville, VA	36 35 21	79 05 19	VA	1958–1974	17
69	02075500	Dan River at Paces, VA	36 38 32	79 05 22	VA	1901–2005	87
70	02076400	Whitethorn Creek tributary at Gretna, VA	36 56 01	79 22 09	VA	1966–1975	10
71	02076500	Georges Creek near Gretna, VA	36 56 12	79 18 41	VA	1950–1997	48
72	02077200	Hyco Creek near Leasburg, NC	36 23 52	79 11 48	NC	1965–2006	39
73	[1,h] 02077210	Kilgore Creek tributary near Leasburg, NC	36 22 39	79 09 56	NC	1954–1971	13
74	[h] 02077240	Double Creek near Roseville, NC	36 21 45	79 05 47	NC	1965–1982	16
75	[r] 02077250	South Hyco Creek near Roseville, NC	36 23 10	79 06 25	NC	1967–1976	10
76	02077310	Storys Creek near Roxboro, NC	36 23 49	79 01 13	NC	1954–1971	18
77	[r] 02077500	Hyco River near Denniston, VA	36 35 17	78 53 55	VA	1930–1964	18
78	02078000	Hyco River near Omega, VA	36 38 10	78 48 19	VA	1934–1950	17
79	02079640	Allen Creek near Boydton, VA	36 40 47	78 19 36	VA	1962–2005	40
80	[1] 02079720	Smith Creek tributary near South Hill, VA	36 33 51	78 12 09	VA	1966–1975	10

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

[USGS (U.S. Geological Survey) station number: [1], station not used in regression analysis; [2], peaks at indicated station were combined with peaks at adjacent nearby station on same stream; [c], peak-flow record available for station includes channelization or urbanization periods that were not used in the regression analysis; [h], peak-flow record adjusted for historical period; [m], extended record using MOVE1 analysis; [r], peak-flow record available for station includes regulated period that was not used in the regression analysis]

Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
81	[h,r] 02080500	Roanoke River at Roanoke Rapids, NC	36 27 36	77 38 01	NC	1912–1949	38
82	[1,h] 02081000	Roanoke River near Scotland Neck, NC	36 12 33	77 23 02	NC	1940–1949	10
83	02081060	Smithwick Creek tributary near Williamston, NC	35 43 52	77 04 41	NC	1953–1971	19
84	02081110	White Oak Swamp near Windsor, NC	36 04 47	76 58 35	NC	1953–1971	14
85	0208111310	Cashie River at SR 1257 near Windsor, NC	36 02 52	76 59 03	NC	1988–2006	19
86	02081210	Shelton Creek near Oxford, NC	36 18 48	78 43 15	NC	1954–1971	18
87	02081500	Tar River near Tar River, NC	36 11 39	78 34 59	NC	1940–2006	67
88	02081710	Long Creek at Kittrell, NC	36 13 31	78 27 14	NC	1954–1976	20
89	02081747	Tar River at US 401 at Louisburg, NC	36 05 35	78 17 46	NC	1964–2006	43
90	02081800	Cedar Creek near Louisburg, NC	36 03 15	78 20 23	NC	1954–1975	22
91	[h] 02082000	Tar River near Nashville, NC	35 50 58	77 55 50	NC	1929–1970	42
92	02082500	Sapony Creek near Nashville, NC	35 53 11	77 54 39	NC	1951–1970	20
93	[1] 02082540	Wildcat Branch near Mapleville, NC	36 03 30	78 08 38	NC	1953–1963	11
94	[h] 02082585	Tar River at NC 97 Rocky Mount, NC	35 57 17	77 47 14	NC	1977–2006	30
95	[1] 02082610	Tar River near Rocky Mount, NC	35 58 39	77 45 34	NC	1964–1973	10
96	02082630	Harts Mill Run near Tarboro, NC	35 55 41	77 37 09	NC	1953–1971	18
97	[h] 02082770	Swift Creek at Hilliardston, NC	36 06 44	77 55 12	NC	1964–2006	43
98	02082835	Fishing Creek near Warrenton, NC	36 23 01	78 10 53	NC	1954–1976	22
99	[h] 02082950	Little Fishing Creek near White Oak, NC	36 11 00	77 52 34	NC	1959–2006	47
100	[h] 02083000	Fishing Creek near Enfield, NC	36 09 02	77 41 35	NC	1915–2006	92
101	02083090	Beaverdam Swamp near Heathsville, NC	36 16 50	77 41 47	NC	1953–1971	19
102	02083410	Deep Creek near Scotland Neck, NC	36 09 27	77 28 23	NC	1953–1973	21
103	[h] 02083500	Tar River at Tarboro, NC	35 53 40	77 31 59	NC	1897–2006	105
104	[h] 02083800	Conetoe Creek near Bethel, NC	35 46 34	77 27 44	NC	1957–2000	44
105	[h] 02084000	Tar River at Greenville, NC	35 37 00	77 22 22	NC	1997–2006	10
106	02084240	Collie Swamp near Everetts, NC	35 49 35	77 12 02	NC	1953–1976	24
107	02084500	Herring Run near Washington, NC	35 34 04	77 01 08	NC	1951–1980	30
108	02084520	Upper Goose Creek near Yeatsville, NC	35 31 26	76 53 22	NC	1953–1973	21
109	02084540	Durham Creek at Edward, NC	35 19 26	76 52 27	NC	1966–2004	39
110	02084557	Van Swamp near Hoke, NC	35 43 51	76 44 46	NC	1978–2006	29
111	02084570	Acre Swamp near Pinetown, NC	35 35 03	76 50 22	NC	1953–1969	17
112	02084909	Sevenmile Creek near Efland, NC	36 03 56	79 08 39	NC	1988–2004	17
113	02085000	Eno River at Hillsborough, NC	36 04 16	79 05 44	NC	1928–2006	64
114	[1] 02085020	Stony Creek tributary near Hillsboro, NC	36 03 02	79 02 13	NC	1953–1971	19
115	02085070	Eno River near Durham, NC	36 04 20	78 54 28	NC	1964–2006	43
116	02085190	North Fork Little River tributary near Rougemont, NC	36 11 42	79 00 51	NC	1954–1976	23
117	[2] 0208521324	Little River at SR 1461 near Orange Factory, NC	36 08 30	78 55 09	NC	1962–2006	45
118	[2] 0208524090	Mountain Creek at SR 1617 near Bahama, NC	36 08 59	78 53 48	NC	1995–2006	11
119	02085500	Flat River at Bahama, NC	36 10 58	78 52 44	NC	1926–2006	81
120	02086000	Dial Creek near Bahama, NC	36 10 37	78 51 23	NC	1926–1991	47

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

[USGS (U.S. Geological Survey) station number: [1], station not used in regression analysis; [2], peaks at indicated station were combined with peaks at adjacent nearby station on same stream; [c], peak-flow record available for station includes channelization or urbanization periods that were not used in the regression analysis; [h], peak-flow record adjusted for historical period; [m], extended record using MOVE1 analysis; [r], peak-flow record available for station includes regulated period that was not used in the regression analysis]

Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
121	0208650112	Flat River tributary near Willardville, NC	36 07 55	78 50 00	NC	1989–2006	14
122	02086624	Knap Of Reeds Creek near Butner, NC	36 07 41	78 47 54	NC	1983–2006	14
123	[h] 02087000	Neuse River near Northside, NC	36 02 55	78 44 58	NC	1928–1980	53
124	0208700780	Little Lick Creek above SR 1814 near Oak Grove, NC	35 59 12	78 47 57	NC	1983–1995	13
125	02087030	Lick Creek near Durham, NC	35 58 51	78 44 18	NC	1954–1971	18
126	[1] 02087140	Lower Barton Creek tributary near Raleigh, NC	35 54 45	78 40 54	NC	1954–1971	18
127	[1,2,h,r] 02087183	Neuse River near Falls, NC	35 56 24	78 34 51	NC	1960–1980	21
128	[1,h] 02087240	Stirrup Iron Creek tributary near Nelson, NC	35 53 07	78 49 36	NC	1954–1973	20
129	[h,r] 02087500	Neuse River near Clayton, NC	35 38 50	78 24 19	NC	1928–1980	53
130	[1,h,r] 02087570	Neuse River at Smithfield, NC	35 30 45	78 20 58	NC	1917–1980	48
131	[c] 02087580	Swift Creek near Apex, NC	35 43 08	78 45 08	NC	1954–1971	18
132	02087910	Middle Creek near Holly Springs, NC	35 39 29	78 48 05	NC	1954–1971	18
133	02088000	Middle Creek near Clayton, NC	35 34 15	78 35 26	NC	1940–2006	66
134	02088140	Stone Creek near Newton Grove, NC	35 20 25	78 21 53	NC	1953–1971	19
135	02088210	Hannah Creek near Benson, NC	35 23 37	78 31 47	NC	1953–1971	19
136	02088420	Long Branch near Selma, NC	35 38 12	78 15 05	NC	1953–1971	19
137	02088470	Little River near Kenly, NC	35 35 21	78 11 17	NC	1965–1989	25
138	[1,h] 02088500	Little River near Princeton, NC	35 30 41	78 09 37	NC	1931–2006	76
139	[1,r] 02089000	Neuse River near Goldsboro, NC	35 20 15	77 59 51	NC	1930–1980	51
140	0208925200	Bear Creek at Mays Store, NC	35 16 29	77 47 40	NC	1988–2006	19
141	[r] 02089500	Neuse River at Kinston, NC	35 15 28	77 35 08	NC	1928–1980	53
142	[r] 02090380	Contentnea Creek near Lucama, NC	35 41 28	78 06 35	NC	1965–1976	12
143	02090560	Lee Swamp tributary near Lucama, NC	35 38 22	78 01 36	NC	1953–1971	19
144	02090625	Turner Swamp near Eureka, NC	35 34 15	77 52 46	NC	1969–1987	19
145	02090780	Whiteoak Swamp tributary near Wilson, NC	35 42 25	77 47 10	NC	1953–1971	19
146	02090960	Nahunta Swamp near Pikeville, NC	35 30 50	77 58 52	NC	1953–2003	22
147	02091000	Nahunta Swamp near Shine, NC	35 29 20	77 48 22	NC	1955–2006	52
148	02091430	Shepherd Run near Snow Hill, NC	35 26 07	77 38 41	NC	1953–1971	19
149	[h] 02091500	Contentnea Creek at Hookerton, NC	35 25 44	77 34 57	NC	1929–2006	78
150	02091700	Little Contentnea Creek near Farmville, NC	35 32 41	77 30 40	NC	1957–1987	31
151	02091810	Halfmoon Creek near Fort Barnwell, NC	35 17 59	77 21 13	NC	1953–1965	12
152	02091970	Creeping Swamp near Vanceboro, NC	35 23 31	77 13 45	NC	1972–1985	14
153	02092000	Swift Creek near Vanceboro, NC	35 20 43	77 11 44	NC	1951–1989	39
154	02092020	Palmetto Swamp near Vanceboro, NC	35 20 19	77 10 15	NC	1953–1976	24
155	02092120	Bachelor Creek near New Bern, NC	35 10 25	77 06 13	NC	1953–1971	19
156	02092290	Rattlesnake Branch near Comfort, NC	35 00 32	77 35 49	NC	1953–1971	19
157	[h] 02092500	Trent River near Trenton, NC	35 03 51	77 27 41	NC	1952–2006	55
158	02092520	Vine Swamp near Kinston, NC	35 09 30	77 33 15	NC	1953–1971	19
159	02092620	Upper Broad Creek tributary near Grantsboro, NC	35 08 07	76 56 30	NC	1953–1973	21
160	02092720	White Oak River at Belgrade, NC	34 53 31	77 14 01	NC	1953–1973	21

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

[USGS (U.S. Geological Survey) station number: [1], station not used in regression analysis; [2], peaks at indicated station were combined with peaks at adjacent nearby station on same stream; [c], peak-flow record available for station includes channelization or urbanization periods that were not used in the regression analysis; [h], peak-flow record adjusted for historical period; [m], extended record using MOVE1 analysis; [r], peak-flow record available for station includes regulated period that was not used in the regression analysis]

Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
161	02092780	Bell Swamp near Hubert, NC	34 42 05	77 14 00	NC	1953–1970	18
162	[h] 02093000	New River near Gum Branch, NC	34 50 57	77 31 10	NC	1950–2006	43
163	02093040	Southwest Creek tributary near Jacksonville, NC	34 47 19	77 33 07	NC	1954–1973	19
164	02093070	Southwest Creek near Jacksonville, NC	34 43 57	77 32 01	NC	1953–1973	20
165	02093290	Haw River near Summerfield, NC	36 14 32	79 52 19	NC	1954–1971	18
166	[h] 02093500	Haw River near Benaja, NC	36 15 00	79 33 59	NC	1929–1971	43
167	[h] 02093800	Reedy Fork near Oak Ridge, NC	36 10 21	79 57 10	NC	1956–2006	51
168	[h] 02094000	Horsepen Creek at Battle Ground, NC	36 08 34	79 51 23	NC	1926–1959	30
169	[c,h] 02095000	South Buffalo Creek near Greensboro, NC	36 03 36	79 43 33	NC	1929–1958	29
170	[c] 02095500	North Buffalo Creek near Greensboro, NC	36 07 14	79 42 29	NC	1929–1990	62
171	02096500	Haw River at Haw River, NC	36 05 14	79 21 58	NC	1929–2006	78
172	02096660	Rock Creek near Whitsett, NC	36 03 55	79 35 56	NC	1954–1971	17
173	02096700	Big Alamance Creek near Elon College, NC	36 02 21	79 31 28	NC	1958–1980	23
174	02096740	Gun Branch near Alamance, NC	36 02 58	79 28 34	NC	1954–1973	19
175	02096846	Cane Creek near Orange Grove, NC	35 59 14	79 12 22	NC	1989–2006	18
176	02096850	Cane Creek near Teer, NC	35 56 35	79 14 45	NC	1960–1973	14
177	[2,h] 02096960	Haw River near Bynum, NC	35 45 55	79 08 09	NC	1928–2006	78
178	02097010	Robeson Creek near Pittsboro, NC	35 43 30	79 12 32	NC	1954–1976	23
179	02097314	New Hope Creek near Blands, NC	35 53 06	78 57 55	NC	1983–2006	20
180	0209741955	Northeast Creek at SR 1100 near Genlee, NC	35 52 20	78 54 47	NC	1983–2006	20
181	02097464	Morgan Creek near White Cross, NC	35 55 25	79 06 54	NC	1989–2006	17
182	02097910	White Oak Creek near Wilsonville, NC	35 44 48	79 00 43	NC	1954–1971	18
183	02098000	New Hope River near Pittsboro, NC	35 44 13	79 01 35	NC	1950–1973	24
184	02098500	West Fork Deep River near High Point, NC	36 00 15	79 58 41	NC	1924–1966	42
185	02099000	East Fork Deep River near High Point, NC	36 02 14	79 56 44	NC	1929–2006	74
186	02099500	Deep River near Randleman, NC	35 54 13	79 51 10	NC	1929–2004	75
187	[h] 02100500	Deep River at Ramseur, NC	35 43 35	79 39 20	NC	1923–2006	84
188	02101000	Bear Creek at Robbins, NC	35 26 01	79 34 59	NC	1940–1971	32
189	02101030	Falls Creek near Bennett, NC	35 33 21	79 29 55	NC	1954–1973	20
190	[1] 02101480	Sugar Creek near Tramway, NC	35 25 29	79 14 49	NC	1954–1973	20
191	0210166029	Rocky River at SR 1300 near Crutchfield Crossroads, NC	35 48 25	79 31 39	NC	1989–2006	18
192	02101800	Tick Creek near Mount Vernon Springs, NC	35 39 35	79 24 06	NC	1959–2006	36
193	02101890	Bear Creek near Goldston, NC	35 37 34	79 17 53	NC	1952–1971	19
194	02102000	Deep River at Moncure, NC	35 37 37	79 06 58	NC	1931–2006	76
195	[h,r] 02102500	Cape Fear River at Lillington, NC	35 24 22	78 48 48	NC	1924–1980	57
196	02102908	Flat Creek near Inverness, NC	35 10 58	79 10 39	NC	1969–2006	38
197	02102910	Dunhams Creek tributary near Carthage, NC	35 18 42	79 22 52	NC	1954–1971	18
198	02102930	Crane Creek near Vass, NC	35 17 54	79 16 18	NC	1954–1971	18
199	02103000	Little River at Manchester, NC	35 11 36	78 59 08	NC	1939–2006	15
200	02103390	South Prong Anderson Creek near Lillington, NC	35 15 32	78 55 26	NC	1953–1971	19

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

[USGS (U.S. Geological Survey) station number: [1], station not used in regression analysis; [2], peaks at indicated station were combined with peaks at adjacent nearby station on same stream; [c], peak-flow record available for station includes channelization or urbanization periods that were not used in the regression analysis; [h], peak-flow record adjusted for historical period; [m], extended record using MOVE1 analysis; [r], peak-flow record available for station includes regulated period that was not used in the regression analysis]

Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
201	02103500	Little River at Linden, NC	35 15 47	78 46 34	NC	1928–1971	44
202	02104000	Cape Fear River at Fayetteville, NC	35 03 02	78 51 30	NC	1889–1959	71
203	02104080	Reese Creek near Fayetteville, NC	35 04 50	78 47 44	NC	1953–1971	17
204	02104220	Rockfish Creek at Raeford, NC	34 59 59	79 12 53	NC	1989–2006	18
205	02104500	Rockfish Creek near Hope Mills, NC	34 57 58	78 55 03	NC	1939–1954	16
206	[r] 02105500	Cape Fear River at Wilm O Huske Lock near Tarheel, NC	34 50 45	78 49 14	NC	1941–1980	36
207	02105570	Browns Creek near Elizabethtown, NC	34 36 33	78 36 56	NC	1953–1973	18
208	02105630	Turnbull Creek near Elizabethtown, NC	34 41 33	78 35 01	NC	1949–1971	19
209	[r] 02105769	Cape Fear River at Lock #1 near Kelly, NC	34 24 16	78 17 37	NC	1970–1980	11
210	02105900	Hood Creek near Leland, NC	34 16 43	78 07 31	NC	1953–2006	34
211	02106000	Little Coharie Creek near Roseboro, NC	34 57 14	78 29 16	NC	1951–1991	41
212	02106240	Turkey Creek near Turkey, NC	35 00 12	78 11 05	NC	1955–1973	18
213	[1] 02106410	Stewarts Creek tributary near Warsaw, NC	34 57 26	78 04 41	NC	1955–1971	16
214	[h] 02106500	Black River near Tomahawk, NC	34 45 18	78 17 19	NC	1952–2006	55
215	[h] 02106910	Big Swamp near Roseboro, NC	34 58 39	78 34 06	NC	1953–1973	20
216	02107000	South River near Parkersburg, NC	34 48 46	78 27 25	NC	1952–1986	35
217	02107500	Colly Creek near Kelly, NC	34 27 49	78 15 25	NC	1951–1971	21
218	[1] 02107590	Northeast Cape Fear River tributary near Mount Olive, NC	35 11 07	77 57 33	NC	1954–1971	18
219	02107600	Northeast Cape Fear River near Seven Springs, NC	35 10 21	77 55 55	NC	1959–1975	17
220	02107620	Mathews Creek near Pink Hill, NC	35 05 50	77 49 09	NC	1953–1969	16
221	02107980	Limestone Creek near Beulaville, NC	34 45 49	77 48 14	NC	1953–1971	19
222	[h] 02108000	Northeast Cape Fear River near Chinquapin, NC	34 49 44	77 49 56	NC	1941–2006	66
223	02108500	Rockfish Creek near Wallace, NC	34 44 33	78 02 21	NC	1955–1981	27
224	02108548	Little Rockfish Creek at Wallace, NC	34 44 03	77 58 02	NC	1977–1992	16
225	02108610	Pike Creek near Burgaw, NC	34 30 01	77 53 57	NC	1953–1971	18
226	02108630	Turkey Creek near Castle Hayne, NC	34 23 48	77 54 47	NC	1953–1971	19
227	02108960	Buckhead Branch near Bolton, NC	34 20 53	78 26 18	NC	1953–1971	19
228	02109500	Waccamaw River at Freeland, NC	34 05 42	78 32 54	NC	1940–2006	67
229	02109640	Wet Ash Swamp near Ash, NC	34 02 18	78 30 13	NC	1953–1971	18
230	02110020	Mill Branch near Tabor City, NC	34 11 00	78 48 07	NC	1953–1971	18
231	[1] 02110500	Waccamaw River near Longs, SC	33 54 46	78 42 54	SC	1951–2006	57
232	[h] 02111000	Yadkin River at Patterson, NC	35 59 27	81 33 30	NC	1940–2006	66
233	[h] 02111180	Elk Creek at Elkville, NC	36 04 17	81 24 11	NC	1966–2006	41
234	02111340	South Prong Lewis Fork Creek near North Wilkesboro, NC	36 11 23	81 24 39	NC	1955–1971	16
235	[h] 02111500	Reddies River at North Wilkesboro, NC	36 10 30	81 10 08	NC	1940–2006	65
236	[h,r] 02112000	Yadkin River at Wilkesboro, NC	36 09 09	81 08 44	NC	1904–1961	48
237	[h] 02112120	Roaring River near Roaring River, NC	36 15 01	81 02 40	NC	1965–2006	42
238	02112247	Elkin River at Elkin, NC	36 15 12	80 51 44	NC	1971–1980	10
239	[h] 02112360	Mitchell River near State Road, NC	36 18 41	80 48 26	NC	1965–2006	42
240	02112410	Fisher River near Bottom, NC	36 26 35	80 46 11	NC	1954–1971	16

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

[USGS (U.S. Geological Survey) station number: [1], station not used in regression analysis; [2], peaks at indicated station were combined with peaks at adjacent nearby station on same stream; [c], peak-flow record available for station includes channelization or urbanization periods that were not used in the regression analysis; [h], peak-flow record adjusted for historical period; [m], extended record using MOVE1 analysis; [r], peak-flow record available for station includes regulated period that was not used in the regression analysis]

Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
241	[1] 02112500	Fisher River near Dobson, NC	36 23 05	80 40 19	NC	1922–1933	12
242	[h] 02113000	Fisher River near Copeland, NC	36 20 28	80 41 09	NC	1922–2006	85
243	[h] 02113850	Ararat River at Ararat, NC	36 24 16	80 33 42	NC	1965–2006	42
244	[1,h] 02114010	Ararat River at Dam near Pilot Mountain, NC	36 22 00	80 32 59	NC	1953–1968	16
245	02114450	Little Yadkin River at Dalton, NC	36 17 57	80 24 53	NC	1961–2006	46
246	02115500	Forbush Creek near Yadkinville, NC	36 08 00	80 32 59	NC	1941–1971	31
247	[1] 02115520	Logan Creek near Smithtown, NC	36 12 50	80 33 31	NC	1954–1971	18
248	02115540	South Deep Creek near Yadkinville, NC	36 08 00	80 45 59	NC	1954–1966	13
249	02115830	Smith Creek near Kernersville, NC	36 06 19	80 06 18	NC	1954–1971	18
250	02115856	Salem Creek near Atwood, NC	36 02 10	80 18 34	NC	1972–1982	11
251	02115860	Muddy Creek near Muddy Creek, NC	36 00 01	80 20 25	NC	1965–1991	19
252	02115900	South Fork Muddy Creek near Clemmons, NC	36 00 22	80 18 06	NC	1965–1991	19
253	[h,r] 02116500	Yadkin River at Yadkin College, NC	35 51 24	80 23 13	NC	1929–1961	33
254	02117030	Humpy Creek near Fork, NC	35 51 17	80 26 23	NC	1969–1983	15
255	02117410	Mcclelland Creek near Statesville, NC	35 57 04	80 56 45	NC	1954–1976	22
256	02117500	Rocky Creek at Turnersburg, NC	35 54 00	80 47 59	NC	1941–1971	31
257	[m] 02118000	South Yadkin River near Mocksville, NC	35 50 42	80 39 32	NC	1939–2006	68
258	02118500	Hunting Creek near Harmony, NC	36 00 02	80 44 44	NC	1952–2006	55
259	[1,h] 02119000	South Yadkin River at Cooleemee, NC	35 48 10	80 33 21	NC	1929–1965	37
260	[r] 02120500	Third Creek at Cleveland, NC	35 45 01	80 40 59	NC	1941–1954	14
261	02120780	Second Creek near Barber, NC	35 43 04	80 35 45	NC	1980–2006	27
262	02120820	Deal Branch near Salisbury, NC	35 44 44	80 30 24	NC	1954–1971	15
263	02121000	Yadkin River near Salisbury, NC	35 43 41	80 33 19	NC	1896–1927	30
264	02121180	North Potts Creek at Linwood, NC	35 45 28	80 19 23	NC	1980–1990	11
265	02121500	Abbotts Creek at Lexington, NC	35 48 25	80 14 05	NC	1941–2006	33
266	02121940	Flat Swamp Creek near Lexington, NC	35 43 59	80 06 36	NC	1954–1971	18
267	02122560	Cabin Creek near Jackson Hill, NC	35 34 57	80 09 11	NC	1954–1971	17
268	02122720	Beaverdam Creek tributary near Denton, NC	35 31 58	80 05 03	NC	1954–1971	18
269	[h] 02123500	Uwharrie River near Eldorado, NC	35 26 57	80 01 02	NC	1939–1971	32
270	02123567	Dutchmans Creek near Uwharrie, NC	35 22 45	80 01 49	NC	1982–2004	20
271	02124060	North Prong Clarke Creek near Huntersville, NC	35 25 14	80 47 53	NC	1954–1973	20
272	02124130	Mallard Creek near Charlotte, NC	35 19 06	80 44 15	NC	1954–1971	18
273	02125000	Big Bear Creek near Richfield, NC	35 20 05	80 20 08	NC	1955–2006	52
274	02125410	Chinkapin Creek near Monroe, NC	35 02 49	80 29 32	NC	1953–1971	18
275	[h] 02126000	Rocky River near Norwood, NC	35 08 56	80 10 33	NC	1930–2006	77
276	[h] 02127000	Brown Creek near Polkton, NC	35 02 01	80 08 59	NC	1936–1971	36
277	[1] 02127390	Palmetto Branch at Ansonville, NC	35 06 04	80 07 10	NC	1953–1971	17
278	02128000	Little River near Star, NC	35 23 14	79 49 53	NC	1955–2006	51
279	02128260	Cheek Creek near Pekin, NC	35 12 38	79 50 48	NC	1954–1971	18
280	02129440	South Fork Jones Creek near Morven, NC	34 53 52	80 00 23	NC	1954–1971	18

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

[USGS (U.S. Geological Survey) station number: [l], station not used in regression analysis; [2], peaks at indicated station were combined with peaks at adjacent nearby station on same stream; [c], peak-flow record available for station includes channelization or urbanization periods that were not used in the regression analysis; [h], peak-flow record adjusted for historical period; [m], extended record using MOVE1 analysis; [r], peak-flow record available for station includes regulated period that was not used in the regression analysis]

Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
281	[l] 02129530	Little Creek tributary near Pee Dee, NC	34 55 08	79 54 37	NC	1955–1971	11
282	02130900	Black Creek near Mcbee, SC	34 30 51	80 10 59	SC	1960–2006	46
283	02131110	Jeffries Creek above Florence, SC	34 10 41	79 48 33	SC	1968–2006	38
284	02131309	Fork Creek at Jefferson, SC	34 38 20	80 23 19	SC	1977–1997	21
285	02131320	Little Fork Creek at Jefferson, SC	34 38 14	80 24 22	SC	1990–2000	10
286	02131472	Hanging Rock Creek near Kershaw, SC	34 30 59	80 34 58	SC	1981–2005	24
287	[l] 02131500	Lynches River near Bishopville, SC	34 15 01	80 12 49	SC	1943–2006	59
288	[h] 02132000	Lynches River at Effingham, SC	34 03 06	79 45 14	SC	1928–2006	79
289	02132100	Two Mile Br near Lake City, SC	33 53 39	79 45 37	SC	1976–2003	28
290	02132230	Bridge Creek tributary at Johns, NC	34 42 13	79 26 33	NC	1953–1973	18
291	02132320	Big Shoe Heel Creek near Laurinburg, NC	34 45 02	79 23 12	NC	1988–2006	17
292	02132500	Little Pee Dee River near Dillon, SC	34 24 18	79 20 24	SC	1940–2006	66
293	02133500	Drowning Creek near Hoffman, NC	35 03 40	79 29 38	NC	1940–2006	67
294	02133590	Beaverdam Creek near Aberdeen, NC	35 00 43	79 26 49	NC	1953–1971	18
295	02133624	Lumber River near Maxton, NC	34 46 22	79 19 55	NC	1988–2006	18
296	02133960	Raft Swamp near Red Springs, NC	34 52 17	79 10 11	NC	1953–1971	15
297	02134380	Tenmile Swamp near Lumberton, NC	34 43 35	78 59 30	NC	1953–1973	18
298	02134480	Big Swamp near Tarheel, NC	34 42 37	78 50 11	NC	1986–2006	21
299	[h] 02134500	Lumber River at Boardman, NC	34 26 33	78 57 37	NC	1930–2006	77
300	02135000	Little Pee Dee River at Galivants Ferry, SC	34 03 26	79 14 49	SC	1942–2006	65
301	02135300	Scape Ore Swamp near Bishopville, SC	34 09 03	80 18 17	SC	1969–2006	38
302	02135500	Black River near Gable, SC	33 54 01	80 09 54	SC	1952–1992	36
303	[h] 02136000	Black River at Kingstree, SC	33 39 41	79 50 09	SC	1928–2006	79
304	[h] 02137000	Mill Creek at Old Fort, NC	35 37 59	82 11 13	NC	1961–1975	15
305	02137727	Catawba River near Pleasant Gardens, NC	35 41 09	82 03 37	NC	1981–2006	26
306	[h] 02138000	Catawba River near Marion, NC	35 42 26	82 01 59	NC	1942–1981	40
307	[h] 02138500	Linville River near Nebo, NC	35 47 41	81 53 24	NC	1923–2006	84
308	[l] 02138680	White Branch near Marion, NC	35 38 46	81 55 17	NC	1955–1971	14
309	02140980	Carroll Creek near Collettsville, NC	35 53 21	81 44 17	NC	1955–1971	17
310	02140991	Johns River at Arneys Store, NC	35 50 01	81 42 43	NC	1986–2006	21
311	02141130	Zacks Fork Creek near Lenoir, NC	35 55 32	81 31 12	NC	1967–1976	10
312	02141890	Duck Creek near Taylorsville, NC	35 53 34	81 18 08	NC	1954–1971	18
313	02142000	Lower Little River near All Healing Springs, NC	35 56 44	81 14 13	NC	1954–2006	51
314	02142480	Hagan Creek near Catawba, NC	35 40 20	81 08 11	NC	1954–1971	15
315	0214253830	Norwood Creek near Troutman, NC	35 40 50	80 56 43	NC	1984–2006	22
316	02142900	Long Creek near Paw Creek, NC	35 19 43	80 54 35	NC	1966–2006	41
317	[h] 02143000	Henry Fork near Henry River, NC	35 41 04	81 24 12	NC	1926–2006	70
318	[h] 02143040	Jacob Fork at Ramsey, NC	35 35 26	81 34 01	NC	1962–2006	45
319	02143310	Lithia Inn Branch near Lincolnton, NC	35 27 47	81 13 26	NC	1954–1968	14
320	[h] 02143500	Indian Creek near Laboratory, NC	35 25 14	81 15 55	NC	1952–2006	55

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

[USGS (U.S. Geological Survey) station number: [1], station not used in regression analysis; [2], peaks at indicated station were combined with peaks at adjacent nearby station on same stream; [c], peak-flow record available for station includes channelization or urbanization periods that were not used in the regression analysis; [h], peak-flow record adjusted for historical period; [m], extended record using MOVE1 analysis; [r], peak-flow record available for station includes regulated period that was not used in the regression analysis]

Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
321	02144000	Long Creek near Bessemer City, NC	35 18 23	81 14 05	NC	1954–2006	53
322	[h] 02145000	South Fork Catawba River at Lowell, NC	35 17 07	81 06 04	NC	1943–2006	52
323	[1] 02146890	East Fork Twelve Mile Creek near Waxhaw, NC	34 57 47	80 42 39	NC	1954–1972	18
324	[m] 02146900	Twelve Mile Creek near Waxhaw, NC	34 57 07	80 45 21	NC	1961–2004	44
325	02147500	Rocky Creek at Great Falls, SC	34 33 56	80 55 11	SC	1952–2006	50
326	02148090	Swift Creek near Camden, SC	34 11 50	80 28 57	SC	1990–2004	12
327	02148300	Colonels Creek near Leesburg, SC	34 00 26	80 43 57	SC	1968–2006	15
328	[h] 02149000	Cove Creek near Lake Lure, NC	35 25 24	82 06 42	NC	1952–2006	55
329	02150420	Camp Creek near Rutherfordton, NC	35 27 47	81 54 28	NC	1955–1971	17
330	02151000	Second Broad River at Cliffside, NC	35 14 08	81 45 56	NC	1926–1997	72
331	02151500	Broad River near Boiling Springs, NC	35 12 39	81 41 51	NC	1926–2006	80
332	02152100	First Broad River near Casar, NC	35 29 35	81 40 56	NC	1960–2006	46
333	02152420	Big Knob Creek near Fallston, NC	35 29 34	81 32 24	NC	1953–1971	18
334	[h] 02152500	First Broad River near Lawndale, NC	35 22 50	81 32 39	NC	1940–1980	41
335	02152610	Sugar Branch near Boiling Springs, NC	35 15 00	81 37 14	NC	1954–1987	34
336	[1,m] 02153500	Broad River near Gaffney, SC	35 05 20	81 34 19	SC	1939–1990	54
337	02153780	Clarks Fork Creek near Smyrna, SC	35 04 45	81 23 16	SC	1981–2006	24
338	02153800	Bullock Creek near Sharon, SC	34 57 13	81 22 57	SC	1991–2006	16
339	02153840	Bells Creek near Sharon, SC	34 53 09	81 25 50	SC	1991–2006	12
340	02154500	North Pacolet River at Fingerville, SC	35 07 15	81 59 09	SC	1931–2006	74
341	02154790	South Pacolet River near Campobello, SC	35 06 23	82 07 46	SC	1989–2006	18
342	021563931	Turkey Creek near Lowrys, SC	34 48 47	81 22 09	SC	1991–2006	16
343	[1,m] 02156500	Broad River near Carlisle, SC	34 35 43	81 25 16	SC	1939–2006	69
344	02157000	North Tyger River near Fairmont, SC	34 55 45	82 02 39	SC	1951–1988	38
345	02157500	Middle Tyger River at Lyman, SC	34 56 35	82 07 59	SC	1939–2005	51
346	[m] 02158000	North Tyger River near Moore, SC	34 48 10	81 57 56	SC	1935–1978	41
347	[1] 02158500	South Tyger River near Reidville, SC	34 52 35	82 05 09	SC	1935–1978	41
348	[m] 02159000	South Tyger River near Woodruff, SC	34 45 21	81 56 18	SC	1935–1978	44
349	[1] 02159500	Tyger River near Woodruff, SC	34 45 15	81 55 29	SC	1929–1956	28
350	02160000	Fairforest Creek near Union, SC	34 40 45	81 41 24	SC	1940–2006	65
351	02160105	Tyger River near Delta, SC	34 32 07	81 32 53	SC	1974–2006	32
352	02160326	Enoree River at Pelham, SC	34 51 23	82 13 34	SC	1994–2006	13
353	[1] 02160390	Enoree River near Woodruff, SC	34 41 00	82 02 23	SC	1994–2006	14
354	02160500	Enoree River near Enoree, SC	34 36 38	81 54 34	SC	1930–1993	77
355	[1,m] 02160700	Enoree River at Whitmire , SC	34 30 33	81 35 53	SC	1974–2006	34
356	[1,2] 02161000	Broad River at Alston, SC	34 14 36	81 19 10	SC	1897–2006	38
357	02161500	Broad River at Richtex, SC	34 11 06	81 11 47	SC	1926–1983	58
358	02162010	Cedar Creek near Blythewood, SC	34 11 45	81 06 12	SC	1967–1996	29
359	02162350	Middle Saluda River near Cleveland, SC	35 07 12	82 32 15	SC	1981–2006	24
360	02162500	Saluda River near Greenville, SC	34 50 32	82 28 50	SC	1942–2006	62

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

[USGS (U.S. Geological Survey) station number: [1], station not used in regression analysis; [2], peaks at indicated station were combined with peaks at adjacent nearby station on same stream; [c], peak-flow record available for station includes channelization or urbanization periods that were not used in the regression analysis; [h], peak-flow record adjusted for historical period; [m], extended record using MOVE1 analysis; [r], peak-flow record available for station includes regulated period that was not used in the regression analysis]

Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
361	[1] 02163000	Saluda River near Pelzer, SC	34 40 05	82 27 54	SC	1930–1993	62
362	02163500	Saluda River near Ware Shoals, SC	34 23 30	82 13 24	SC	1939–2006	68
363	[1] 02164110	Reedy River above Fork Shoals, SC	34 39 10	82 17 51	SC	1994–2006	14
364	02165000	Reedy River near Ware Shoals, SC	34 25 02	82 09 05	SC	1940–2002	63
365	02165200	South Rabon Creek near Gray Court, SC	34 31 12	82 09 25	SC	1968–2006	30
366	[1] 02166970	Ninety–Six Creek near Ninety–Six, SC	34 07 57	81 59 47	SC	1981–2001	21
367	[h,r] 02167000	Saluda River at Chappells, SC	34 10 28	81 51 50	SC	1927–1939	13
368	02167450	Little River near Silverstreet, SC	34 12 34	81 45 47	SC	1991–2006	16
369	02167582	Bush River near Prosperity, SC	34 10 08	81 36 37	SC	1991–2006	16
370	02169550	Congaree Creek at Cayce, SC	33 56 16	81 04 39	SC	1960–1980	21
371	02169630	Big Beaver Creek near St. Matthews, SC	33 44 13	80 57 29	SC	1967–1993	27
372	02169960	Lake Marion tributary near Vance, SC	33 27 27	80 26 31	SC	1976–2004	26
373	02172500	South Fork Edisto River near Montmorenci, SC	33 34 36	81 30 49	SC	1940–1993	49
374	[h] 02173000	South Fork Edisto River near Denmark, SC	33 23 36	81 07 59	SC	1932–2006	73
375	[1] 02173030	South Fork Edisto River near Cope, SC	33 21 33	81 03 34	SC	1992–2006	15
376	[1] 02173051	South Fork Edisto River near Bamberg, SC	33 20 14	81 01 07	SC	1992–2006	15
377	[h] 02173500	North Fork Edisto River at Orangeburg, SC	33 29 01	80 52 24	SC	1939–2006	68
378	[1,h] 02174000	Edisto River near Branchville, SC	33 10 36	80 48 04	SC	1946–2006	61
379	02174250	Cow Castle Creek near Bowman, SC	33 22 44	80 41 59	SC	1971–2006	22
380	[h] 02175000	Edisto River near Givhans, SC	33 01 41	80 23 29	SC	1939–2006	68
381	02175500	Salkehatchie River near Miley, SC	32 59 21	81 03 09	SC	1952–2006	55
382	02176000	Combahee River near Yemassee, SC	32 42 26	80 49 34	SC	1952–1966	15
383	02176500	Coosawhatchie River near Hampton, SC	32 50 11	81 07 54	SC	1952–2006	55
384	02177000	Chattooga River near Clayton, GA	34 48 50	83 18 22	GA	1915–2006	81
385	[h] 02178400	Tallulah River near Clayton, GA	34 53 25	83 31 50	GA	1965–2006	42
386	[h] 02181800	Little Panther Creek near Tallulah Falls, GA	34 42 48	83 24 07	GA	1956–1974	19
387	02182000	Panther Creek near Toccoa, GA	34 40 40	83 20 43	GA	1927–1978	51
388	02184500	Whitewater River at Jocassee, SC	34 58 19	82 56 24	SC	1952–1967	16
389	02185000	Keowee River near Jocassee, SC	34 57 21	82 54 41	SC	1950–1967	18
390	02185200	Little River near Walhalla, SC	34 50 11	82 58 48	SC	1967–2004	37
391	02185500	Keowee River near Newry, SC	34 44 20	82 51 50	SC	1940–1961	22
392	02186000	Twelvemile Creek near Liberty, SC	34 48 05	82 44 55	SC	1955–2006	27
393	02186645	Coneross Creek near Seneca, SC	34 38 57	82 59 30	SC	1989–2003	15
394	02187910	Rocky River near Starr, SC	34 22 59	82 34 38	SC	1989–2006	17
395	[h] 02188500	Beaverdam Creek at Dewy Rose, GA	34 10 52	82 56 38	GA	1943–1977	35
396	02188600	Beaverdam Creek above Elberton, GA	34 10 07	82 53 48	GA	1987–2006	12
397	[h,r] 02189000	Savannah River near Calhoun Falls, SC	34 04 15	82 38 29	SC	1897–1935	37
398	[h] 02189020	Indian Creek near Carnesville, GA	34 21 19	83 17 16	GA	1964–1976	13
399	[1] 02189030	Stephens Creek tributary at Carnesville, GA	34 21 51	83 13 16	GA	1964–1976	13
400	02189600	Bear Creek near Mize, GA	34 29 07	83 18 38	GA	1957–1969	13

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

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Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
401	02190100	Toms Creek near Eastanollee, GA	34 29 01	83 14 02	GA	1957–1969	13
402	02190200	Toms Creek tributary near Avalon, GA	34 29 35	83 13 23	GA	1955–1969	14
403	[1] 02190800	Double Branch at Bowersville, GA	34 22 51	83 05 28	GA	1960–1975	16
404	02191200	Hudson River at Homer, GA	34 20 15	83 29 17	GA	1951–1979	29
405	02191270	Scull Shoal Creek near Danielsville, GA	34 09 30	83 09 51	GA	1964–1975	12
406	[1] 02191280	Mill Shoal Creek near Royston, GA	34 16 13	83 06 08	GA	1964–1987	24
407	[h] 02191300	Broad River above Carlton, GA	34 04 24	83 00 12	GA	1898–2006	108
408	02191600	Double Branch near Danielsville, GA	34 06 06	83 14 11	GA	1964–1976	13
409	02191750	Fork Creek at Carlton, GA	34 02 55	83 01 16	GA	1964–1975	12
410	[h] 02191890	Brooks Creek near Lexington, GA	33 50 30	83 05 22	GA	1964–1975	12
411	02191910	Trouble Creek at Lexington, GA	33 52 24	83 05 60	GA	1959–1978	18
412	02191930	Buffalo Creek near Lexington, GA	33 46 40	83 03 01	GA	1964–2006	43
413	[h] 02191960	Macks Creek near Lexington, GA	33 55 24	82 58 30	GA	1959–1975	17
414	[h] 02191970	Little Macks Creek near Lexington, GA	33 56 09	82 57 41	GA	1959–1985	27
415	[h] 02192000	Broad River near Bell, GA	33 58 27	82 46 12	GA	1927–2006	75
416	02192400	Anderson Mill Creek near Danburg, GA	33 48 35	82 41 35	GA	1964–1975	12
417	02192420	Anderson Mill Creek tributary near Danburg, GA	33 49 42	82 41 12	GA	1964–1975	12
418	02192500	Little River near Mt. Carmel, SC	34 04 17	82 30 02	SC	1940–2006	64
419	02193300	Stephens Creek near Crawfordville, GA	33 36 05	82 55 28	GA	1961–1975	13
420	02193340	Kettle Creek near Washington, GA	33 40 57	82 51 29	GA	1987–2006	20
421	02193400	Harden Creek near Sharon, GA	33 33 10	82 50 15	GA	1964–1975	12
422	02193500	Little River near Washington, GA	33 36 46	82 44 33	GA	1950–2006	39
423	02195150	Kiokee Creek at Appling, GA	33 32 33	82 18 55	GA	1984–2006	23
424	[h] 02196000	Stevens Creek near Modoc, SC	33 43 45	82 10 54	SC	1940–2006	62
425	02196250	Horn Creek near Colliers (Edgefield), SC	33 42 55	81 56 22	SC	1981–1994	14
426	02196689	Little Horse Creek near Graniteville, SC	33 33 49	81 52 26	SC	1990–2006	13
427	[h,r] 02197000	Savannah River at Augusta, GA	33 22 26	81 56 34	SC	1876–1951	80
428	[1] 02197300	Upper Three Runs near New Ellenton, SC	33 23 06	81 36 59	SC	1967–2002	36
429	[1] 02197310	Upper Three Runs above Road C at Savannah River Plant, SC	33 17 09	81 41 39	SC	1975–2002	26
430	[1] 02197315	Upper Three Runs at Road A at Savannah River Plant, SC	33 14 21	81 44 41	SC	1975–2002	27
431	02197410	Miller Creek tributary near Baldoc, SC	33 04 09	–82 35 35	SC	1977–1998	20
432	[h] 02197520	Brier Creek near Thomson, GA	33 22 07	82 28 05	GA	1968–1993	25
433	02197550	Little Brier Creek near Thomson, GA	33 20 25	82 27 28	GA	1952–1967	16
434	02197600	Brushy Creek near Wrens, GA	33 10 38	82 18 20	GA	1959–2005	46
435	[h] 02197810	Walnut Branch near Waynesboro, GA	33 08 12	82 02 09	GA	1965–1974	10
436	[1,h] 02197830	Brier Creek near Waynesboro, GA	33 07 06	81 57 49	GA	1952–1994	27
437	[h] 02198000	Brier Creek at Millhaven, GA	32 56 01	81 39 04	GA	1938–2006	69
438	02198100	Beaverdam Creek near Sardis, GA	32 56 16	81 48 55	GA	1987–2006	19
439	02198690	Ebenezer Creek at Springfield, GA	32 21 57	81 17 50	GA	1990–2006	17
440	02199700	South Fork Ogeechee River near Crawfordville, GA	33 31 00	82 54 22	GA	1951–1969	19

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

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Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
441	[h] 02200000	Ogeechee River at Jewell, GA	33 17 49	82 46 39	GA	1984–2006	23
442	[h] 02200100	Little Ogeechee River at Hamburg, GA	33 12 26	82 46 37	GA	1951–1976	25
443	02200400	Rocky Comfort Creek near Grange, GA	33 06 10	82 34 01	GA	1979–2006	27
444	[h] 02200500	Ogeechee River near Louisville, GA	32 58 04	82 23 25	GA	1936–1966	31
445	02200900	Big Creek near Louisville, GA	32 59 01	82 21 22	GA	1951–1976	26
446	02200930	Spring Creek near Louisville, GA	32 55 21	82 18 48	GA	1965–2006	42
447	[1,h] 02200950	Ogeechee River near Wadley, GA	32 52 12	82 19 10	GA	1970–1987	18
448	[h] 02201000	Williamson Swamp Creek at Davisboro, GA	32 58 33	82 36 35	GA	1979–2006	28
449	[h] 02201110	Nails Creek near Bartow, GA	32 52 26	82 26 33	GA	1965–1974	10
450	02201160	Boggy Gut Creek near Wadley, GA	32 53 43	82 24 01	GA	1965–1974	10
451	[1,h] 02201250	Seals Creek tributary near Midville, GA	32 51 05	82 13 57	GA	1964–1974	11
452	[h] 02201350	Buckhead Creek near Waynesboro, GA	32 58 22	82 07 14	GA	1963–1983	21
453	[h] 02201800	Richardson Creek near Millen, GA	32 43 24	81 58 34	GA	1963–1983	21
454	02201830	Sculls Creek near Millen, GA	32 39 35	81 59 28	GA	1965–1975	11
455	[1,h] 02202000	Ogeechee River at Scarboro, GA	32 42 39	81 52 45	GA	1936–2002	67
456	02202300	Mill Creek near Statesboro, GA	32 28 29	81 45 16	GA	1963–1974	12
457	[h] 02202500	Ogeechee River near Eden, GA	32 11 30	81 24 57	GA	1936–2006	71
458	02202600	Black Creek near Blitchton, GA	32 10 05	81 29 17	GA	1980–2006	27
459	02202605	Mill Creek near Pembroke, GA	32 09 40	81 36 14	GA	1979–1996	18
460	[h] 02202800	Canoochee Creek near Swainsboro, GA	32 36 20	82 15 20	GA	1951–1976	26
461	[h] 02202810	Hughes Prong near Swainsboro, GA	32 37 30	82 19 03	GA	1965–1975	11
462	[h] 02202820	Reedy Creek near Twin City, GA	32 35 41	82 12 22	GA	1965–1974	10
463	[h] 02202850	Reedy Branch near Metter, GA	32 28 44	82 07 44	GA	1965–1974	10
464	02202865	Canoochee River near Metter, GA	32 21 21	82 05 24	GA	1970–1986	17
465	[h] 02202900	Fifteenmile Creek near Metter, GA	32 23 34	82 00 54	GA	1963–1983	21
466	[h] 02202910	Tenmile Creek tributary at Pulaski, GA	32 23 19	81 58 16	GA	1965–1987	23
467	[h] 02202950	Cypress Flat Creek near Collins, GA	32 13 10	82 07 13	GA	1965–1974	10
468	[h] 02203000	Canoochee River near Claxton, GA	32 11 06	81 53 19	GA	1938–2006	69
469	[1,h] 02203280	Canoochee River near Daisy, GA	32 08 55	81 46 53	GA	1903–1986	38
470	02203559	Peacock Creek at Mcintosh, GA	31 48 50	81 31 12	GA	1967–1977	11
471	[1] 02204135	Camp Creek tributary near Stockbridge, GA	33 34 35	84 08 51	GA	1977–2006	30
472	02208200	Beaverdam Creek tributary at Bold Springs, GA	33 53 59	83 47 36	GA	1965–1975	11
473	02208450	Alcovy River above Covington, GA	33 38 24	83 46 45	GA	1973–2006	33
474	[h] 02209000	Alcovy River below Covington, GA	33 30 21	83 49 30	GA	1929–1965	25
475	[h] 02211300	Towaliga River near Jackson, GA	33 15 50	84 04 17	GA	1961–1983	23
476	02211459	Big Towaliga Creek near Barnesville, GA	33 04 20	84 11 04	GA	1969–1981	13
477	[h] 02211500	Towaliga River near Forsyth, GA	33 07 17	83 56 36	GA	1929–1966	25
478	[1,h] 02212500	Ocmulgee River at Juliette, GA	33 05 50	83 47 10	GA	1916–1988	20
479	02212600	Falling Creek near Juliette, GA	33 05 59	83 43 25	GA	1965–2006	42
480	[h] 02213000	Ocmulgee River at Macon, GA	32 50 19	83 37 14	GA	1893–2006	114

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Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
481	[h] 02213050	Walnut Creek near Gray, GA	32 58 20	83 37 08	GA	1962–1994	33
482	[h] 02213350	Tobesofkee Creek below Forsyth, GA	32 59 37	83 56 41	GA	1963–1987	24
483	[h] 02213400	Little Tobesofkee Creek near Forsyth, GA	32 57 10	84 02 33	GA	1951–1961	11
484	[h] 02213470	Tobesofkee Creek above Macon, GA	32 52 02	83 50 24	GA	1967–1978	12
485	[h] 02214000	Echeconnee Creek near Macon, GA	32 45 55	83 50 22	GA	1938–1978	34
486	02214280	Savage Creek near Bullard, GA	32 35 34	83 28 11	GA	1979–2006	28
487	02214500	Big Indian Creek at Perry, GA	32 27 21	83 44 21	GA	1944–1977	34
488	02214820	Mossy Creek near Perry , GA	32 31 15	83 43 23	GA	1979–2006	25
489	[1,h] 02215000	Ocmulgee River at Hawkinsville, GA	32 16 51	83 27 40	GA	1909–1996	86
490	02215100	Tucsawhatchee Creek near Hawkinsville, GA	32 14 22	83 30 06	GA	1984–2006	23
491	02215220	Ocmulgee River tributary near Abbeville, GA	32 06 54	83 24 12	GA	1965–1975	11
492	[h] 02215230	Cedar Creek near Pineview, GA	32 05 35	83 30 12	GA	1965–1975	11
493	02215245	Folsom Creek tributary near Rochelle, GA	32 00 20	83 26 07	GA	1964–2006	43
494	02215280	Ball Creek tributary near Rochelle, GA	31 49 58	83 22 05	GA	1960–1977	18
495	[h] 02215500	Ocmulgee River at Lumber City, GA	31 55 13	82 40 26	GA	1909–2006	98
496	02215800	Gum Swamp Creek near Chauncey, GA	32 07 28	83 03 37	GA	1984–2006	23
497	[h] 02216000	Little Ocmulgee River at Towns, GA	32 00 29	82 45 10	GA	1938–1978	39
498	[h] 02216100	Alligator Creek near Alamo, GA	32 01 36	82 41 43	GA	1951–1966	16
499	02216180	Turnpike Creek near Mcrae, GA	31 59 29	82 55 19	GA	1983–2006	24
500	02216610	Tillman Mill Creek near Lumber City, GA	31 58 54	82 38 31	GA	1966–1985	20
501	02217000	Allen Creek at Talmo, GA	34 11 34	83 43 11	GA	1952–1974	23
502	02217200	Middle Oconee River near Jefferson, GA	34 05 46	83 36 23	GA	1951–1965	15
503	[1] 02217250	Buffalo Creek tributary near Jefferson, GA	34 05 00	83 38 01	GA	1964–1976	13
504	02217380	Mulberry River near Winder, GA	34 03 08	83 39 49	GA	1983–2006	23
505	02217400	Mulberry River tributary near Winder, GA	34 03 53	83 39 45	GA	1965–2006	42
506	[1,h] 02217450	Mulberry River tributary near Jefferson, GA	34 04 38	83 38 53	GA	1965–1974	10
507	[1] 02217475	Middle Oconee River near Arcade, GA	34 01 54	83 33 48	GA	1987–2006	20
508	[h] 02217500	Middle Oconee River near Athens, GA	33 56 48	83 25 22	GA	1929–2006	71
509	[1] 02217660	Little Curry Creek near Jefferson, GA	34 08 25	83 32 09	GA	1964–1976	13
510	02217900	North Oconee River at Athens, GA	33 56 55	83 22 04	GA	1929–1972	31
511	02218100	Porters Creek at Watkinsville, GA	33 50 56	83 23 42	GA	1964–1975	12
512	[1,h] 02218300	Oconee River near Penfield, GA	33 43 16	83 17 44	GA	1970–2006	37
513	[h] 02218450	Town Creek near Greensboro, GA	33 38 29	83 13 36	GA	1964–1987	24
514	[h] 02218500	Oconee River near Greensboro, GA	33 34 52	83 16 22	GA	1904–1991	83
515	02219000	Apalachee River near Bostwick, GA	33 47 17	83 28 27	GA	1945–2006	33
516	02219500	Apalachee River near Buckhead, GA	33 36 31	83 20 58	GA	1901–1978	49
517	02220550	Whitten Creek near Sparta, GA	33 23 12	83 01 34	GA	1961–1986	26
518	[h] 02220900	Little River near Eatonton, GA	33 18 50	83 26 14	GA	1971–2006	36
519	[h] 02221000	Murder Creek near Monticello, GA	33 24 56	83 39 43	GA	1952–1976	25
520	[h] 02221525	Murder Creek below Eatonton, GA	33 15 08	83 28 53	GA	1978–2006	29

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

[USGS (U.S. Geological Survey) station number: [1], station not used in regression analysis; [2], peaks at indicated station were combined with peaks at adjacent nearby station on same stream; [c], peak-flow record available for station includes channelization or urbanization periods that were not used in the regression analysis; [h], peak-flow record adjusted for historical period; [m], extended record using MOVE1 analysis; [r], peak-flow record available for station includes regulated period that was not used in the regression analysis]

Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
521	[h] 02223082	Buffalo Creek near Linton, GA	33 06 28	82 57 34	GA	1984–2006	23
522	[h] 02223200	Commissioner Creek at Toomsboro, GA	32 49 54	83 04 43	GA	1949–1976	28
523	[h] 02223300	Big Sandy Creek near Jeffersonville, GA	32 48 16	83 25 04	GA	1959–1971	13
524	[1] 02223349	Big Sandy Creek tributary near Irwinton, GA	32 48 13	83 13 40	GA	1977–2006	30
525	02223360	Big Sandy Creek near Irwinton, GA	32 45 60	83 10 05	GA	1970–1987	18
526	[h] 02223500	Oconee River at Dublin, GA	32 32 41	82 53 41	GA	1894–2006	113
527	02223700	Indian Branch tributary near Scott, GA	32 33 23	82 44 32	GA	1965–1975	11
528	02224000	Rocky Creek near Dudley, GA	32 29 39	83 08 49	GA	1952–1976	25
529	[h] 02224100	Turkey Creek near Dublin, GA	32 27 22	82 56 32	GA	1984–2006	23
530	02224200	Mercer Creek near Soperton, GA	32 26 39	82 41 29	GA	1965–1975	11
531	02224400	Cypress Creek near Tarrytown, GA	32 16 50	82 35 44	GA	1965–1975	11
532	[1,h] 02224500	Oconee River near Mount Vernon, GA	32 11 29	82 37 59	GA	1938–1996	58
533	02224650	Peterson Creek at Glenwood, GA	32 10 09	82 40 00	GA	1965–1974	10
534	02224800	Oconee River tributary near Glenwood, GA	32 03 17	82 39 08	GA	1965–1974	10
535	[1,h] 02225000	Altamaha River near Baxley, GA	31 56 21	82 21 12	GA	1928–2006	47
536	[h] 02225100	Cobb Creek near Lyons, GA	32 02 07	82 22 46	GA	1951–1966	16
537	[h] 02225150	Ohoopee River near Wrightsville, GA	32 42 51	82 45 19	GA	1963–1983	21
538	02225180	Mulepen Creek near Adrian, GA	32 32 59	82 31 25	GA	1965–1974	10
539	02225200	Little Ohoopee River near Wrightsville, GA	32 47 21	82 33 01	GA	1951–1976	26
540	[h] 02225210	Hurricane Branch near Wrightsville, GA	32 47 01	82 34 41	GA	1965–1974	10
541	02225240	Crooked Creek near Kite, GA	32 40 23	82 26 42	GA	1965–1974	10
542	[h] 02225250	Little Ohoopee River near Swainsboro, GA	32 33 45	82 28 02	GA	1970–2006	29
543	[h] 02225300	Ohoopee River near Oak Park, GA	32 23 30	82 18 48	GA	1951–1986	22
544	02225330	Beaver Creek near Cobbtown, GA	32 16 53	82 11 26	GA	1965–2006	41
545	02225350	Reedy Creek tributary near Soperton, GA	32 25 36	82 29 51	GA	1965–1988	24
546	[h] 02225500	Ohoopee River near Reidsville, GA	32 04 43	82 10 38	GA	1904–2006	73
547	02225850	Beards Creek near Glennville, GA	31 55 27	81 52 57	GA	1966–1987	22
548	[1,h] 02226000	Altamaha River at Doctortown, GA	31 39 17	81 49 40	GA	1925–2006	82
549	[h] 02226030	Doctors Creek near Ludowici, GA	31 44 08	81 42 07	GA	1966–1987	22
550	02226100	Penholoway Creek near Jesup, GA	31 34 01	81 50 17	GA	1959–2000	42
551	[h] 02226190	Little Creek near Willacoochee, GA	31 27 25	83 03 02	GA	1965–1987	23
552	[h] 02226200	Satilla River near Douglas, GA	31 24 50	82 51 02	GA	1951–1976	26
553	[1,h] 02226300	Satilla River near Pearson, GA	31 20 12	82 46 07	GA	1953–1965	13
554	02226465	Dryden Creek near Dixie Union, GA	31 20 24	82 28 42	GA	1978–1988	11
555	[h] 02226500	Satilla River near Waycross, GA	31 14 18	82 19 28	GA	1937–2006	70
556	[h] 02226580	Big Creek near Hoboken, GA	31 10 29	82 11 16	GA	1966–1987	22
557	[h] 02227000	Hurricane Creek near Alma, GA	31 34 04	82 27 50	GA	1952–1987	35
558	[h] 02227100	Little Hurricane Creek near Alma, GA	31 29 45	82 31 40	GA	1948–1962	15
559	[h] 02227200	Little Hurricane Creek below Alma, GA	31 25 26	82 25 58	GA	1948–1978	31
560	[h] 02227290	Alabaha River near Blackshear, GA	31 21 05	82 14 15	GA	1953–1987	21

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

[USGS (U.S. Geological Survey) station number: [1], station not used in regression analysis; [2], peaks at indicated station were combined with peaks at adjacent nearby station on same stream; [c], peak-flow record available for station includes channelization or urbanization periods that were not used in the regression analysis; [h], peak-flow record adjusted for historical period; [m], extended record using MOVE1 analysis; [r], peak-flow record available for station includes regulated period that was not used in the regression analysis]

Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
561	[h] 02227400	Big Satilla Creek near Alma, GA	31 39 29	82 25 56	GA	1948–1978	31
562	[1] 02227422	Crooked Creek tributary near Bristol, GA	31 26 26	82 15 02	GA	1976–2006	31
563	[h] 02227430	Little Satilla Creek at Odum, GA	31 40 05	82 02 26	GA	1949–1978	30
564	[h] 02227470	Little Satilla Creek near Jesup, GA	31 33 49	81 59 10	GA	1949–1965	17
565	[h] 02227500	Little Satilla River near Offerman, GA	31 27 05	82 03 16	GA	1951–2006	56
566	[1] 02227990	Satilla River tributary at Atkinson, GA	31 13 33	81 51 09	GA	1977–2006	29
567	[h] 02228000	Satilla River at Atkinson, GA	31 13 14	81 51 56	GA	1931–2006	76
568	02228050	Buffalo Creek at Hickox, GA	31 09 22	81 59 28	GA	1966–1987	22
569	02228055	Satilla River tributary near Winokur, GA	30 59 60	81 57 29	GA	1980–1989	10
570	02229000	Middle Prong St. Marys River at Taylor, FL	30 26 11	82 17 14	FL	1956–2001	38
571	02230000	Turkey Creek at Macclenny, FL	30 16 09	82 07 20	FL	1956–1982	27
572	02230500	South Prong St. Marys River at Glen St. Mary, FL	30 16 41	82 08 39	FL	1950–1971	22
573	02231000	St. Marys River near Macclenny, FL	30 21 32	82 04 53	FL	1927–2004	78
574	02231250	Little St. Marys River near Hilliard, FL	30 43 56	81 53 34	FL	1961–1989	29
575	02231268	Alligator Creek at Callahan, FL	30 33 60	81 50 00	FL	1982–2004	23
576	02231280	Thomas Creek near Crawford, FL	30 27 40	81 49 56	FL	1965–2004	40
577	02246300	Ortega River at Jacksonville, FL	30 14 51	81 47 48	FL	1965–2003	39
578	02246600	Trout River at Dinsmore, FL	30 25 52	81 46 06	FL	1961–1993	25
579	02314500	Suwannee River at Fargo, GA	30 40 50	82 33 38	GA	1928–2006	73
580	[h] 02314600	Suwannoochee Creek at Dupont, GA	30 59 10	82 52 50	GA	1952–1976	25
581	[h] 02314700	Suwannoochee Creek near Thelma, FL	30 49 19	82 50 27	GA	1963–1987	25
582	02315500	Suwannee River at White Springs, FL	30 19 33	82 44 17	FL	1907–2006	81
583	[1] 02315650	Alapaha River tributary near Pitts, GA	32 00 21	83 33 27	GA	1965–1975	11
584	02315670	Alapaha River tributary near Rochelle, GA	31 56 41	83 30 52	GA	1965–1975	10
585	02315700	Alapaha River at Rebecca, GA	31 48 56	83 28 26	GA	1951–1977	27
586	[h] 02315900	Deep Creek near Ashburn, GA	31 43 50	83 34 60	GA	1951–1976	26
587	[h] 02315980	Jacks Creek near Ocilla, GA	31 33 39	83 21 28	GA	1960–1975	16
588	[h] 02316000	Alapaha River near Alapaha, GA	31 23 04	83 11 33	GA	1938–2006	43
589	[h] 02316200	Willacoochee River near Ocilla, GA	31 30 07	83 09 43	GA	1950–1977	28
590	[h] 02316220	Little Brushy Creek near Ocilla, GA	31 36 31	83 13 56	GA	1966–1975	10
591	02316260	Alapaha River tributary near Willacoochee, GA	31 16 51	83 03 45	GA	1965–1975	11
592	[1,h] 02316390	Alapaha River at Lakeland, GA	31 02 47	83 02 37	GA	1970–1987	18
593	[h] 02317500	Alapaha River at Statenville, GA	30 42 15	83 01 60	GA	1928–2006	79
594	[h] 02317600	Alapahoochee River near Statenville, GA	30 42 14	83 07 18	GA	1984–2006	23
595	02317620	Alapaha River near Jennings, FL	30 35 54	83 04 24	FL	1977–2001	13
596	[h] 02317700	Withlacoochee River near Nashville, GA	31 11 55	83 16 21	GA	1951–1977	27
597	[1,h] 02317710	Withlacoochee River tributary near Nashville, GA	31 11 55	83 17 17	GA	1960–1987	28
598	[h] 02317730	New River tributary near Nashville, GA	31 17 19	83 20 36	GA	1960–1975	16
599	[h] 02317734	New River near Nashville, GA	31 10 38	83 19 20	GA	1970–1987	18
600	[h] 023177483	Withlacoochee River near Bemiss, GA	30 57 10	83 16 07	GA	1977–2006	25

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

[USGS (U.S. Geological Survey) station number: [1], station not used in regression analysis; [2], peaks at indicated station were combined with peaks at adjacent nearby station on same stream; [c], peak-flow record available for station includes channelization or urbanization periods that were not used in the regression analysis; [h], peak-flow record adjusted for historical period; [m], extended record using MOVE1 analysis; [r], peak-flow record available for station includes regulated period that was not used in the regression analysis]

Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
601	02317760	Little River near Ashburn, GA	31 41 33	83 42 08	GA	1965–1975	11
602	02317765	Newell Branch near Worth, GA	31 44 21	83 43 30	GA	1965–1975	11
603	[h] 02317770	Newell Branch near Ashburn, GA	31 41 47	83 41 51	GA	1965–1975	11
604	[h] 02317775	Daniels Creek near Ashburn, GA	31 40 41	83 45 06	GA	1965–1987	23
605	[h] 02317780	Lime Sink Creek near Sycamore, GA	31 36 21	83 40 31	GA	1965–1984	20
606	[h] 02317795	Mill Creek near Tifton, GA	31 29 37	83 34 04	GA	1965–1975	11
607	[h] 02317800	Little River near Tifton, GA	31 26 22	83 33 38	GA	1951–1973	23
608	[1] 02317810	Arnold Creek tributary near Tifton, GA	31 25 31	83 34 23	GA	1965–2002	37
609	[h] 02317830	Little River near Lenox, GA	31 15 16	83 30 32	GA	1968–1978	11
610	02317840	Warrior Creek near Sylvester, GA	31 33 11	83 48 53	GA	1965–1975	11
611	02317845	Warrior Creek tributary near Sylvester, GA	31 32 55	83 49 11	GA	1965–1975	11
612	02317870	Warrior Creek near Sumner, GA	31 21 46	83 46 11	GA	1966–1987	22
613	[1] 02317890	Little Creek near Sylvester, GA	31 36 49	83 45 29	GA	1965–1975	11
614	[h] 02317900	Ty Ty Creek at Ty Ty, GA	31 28 23	83 39 47	GA	1951–1978	28
615	[h] 02317905	Little Creek near Omega, GA	31 23 36	83 37 60	GA	1965–1975	11
616	[h] 02317910	Ty Ty Creek tributary at Crosland, GA	31 19 18	83 37 24	GA	1960–1974	15
617	[1,h] 02317980	Little River near Sparks, GA	31 11 35	83 31 22	GA	1961–1979	19
618	[h] 02318000	Little River near Adel, GA	31 09 20	83 32 37	GA	1941–2006	42
619	02318015	Bull Creek near Norman Park, GA	31 13 14	83 37 20	GA	1965–1975	11
620	[1] 02318020	Bull Creek tributary near Ellenton, GA	31 09 20	83 37 06	GA	1960–1975	16
621	[h] 02318500	Withlacoochee River near Quitman, GA	30 47 35	83 27 13	GA	1928–2006	36
622	[h] 02318600	Okapilco Creek near Berlin, GA	31 02 49	83 37 02	GA	1963–1984	22
623	02318700	Okapilco Creek near Quitman, GA	30 49 32	83 33 45	GA	1980–2006	27
624	[1,h] 02318725	Okapilco Creek at Quitman, GA	30 47 11	83 31 33	GA	1970–1986	13
625	[h] 02326200	Aucilla River near Boston, GA	30 46 45	83 48 12	GA	1962–1984	23
626	02326500	Aucilla River at Lamont, FL	30 22 12	83 48 25	FL	1951–2001	40
627	02326598	Caney Creek near Monticello, FL	30 30 53	83 56 24	FL	1969–1981	13
628	[h] 02327200	Ochlockonee River at Moultrie, GA	31 10 59	83 48 32	GA	1951–1977	27
629	02327350	Ochlockonee River tributary near Coolidge, GA	31 01 25	83 57 35	GA	1965–2006	42
630	[h] 02327355	Ochlockonee River near Coolidge, GA	31 00 08	83 56 21	GA	1981–2006	26
631	[h] 02327400	Sallys Branch tributary near Sale City, GA	31 14 47	84 01 40	GA	1966–1975	10
632	02327415	Little Ochlockonee River near Moultrie, GA	31 07 02	83 58 42	GA	1981–2006	24
633	[h] 02327500	Ochlockonee River near Thomasville, GA	30 52 33	84 02 44	GA	1937–2006	51
634	[h] 02327550	Barnetts Creek near Meigs, GA	31 01 33	84 08 14	GA	1965–1987	21
635	[h] 02327700	Barnetts Creek near Thomasville, GA	30 54 19	84 04 34	GA	1951–1977	27
636	[1,h] 02327810	Ochlockonee River near Cairo, GA	30 47 31	84 09 16	GA	1970–1987	18
637	02327860	Popple Branch near Whigham, GA	30 55 36	84 20 18	GA	1977–2002	26
638	[h] 02327900	Wolf Creek near Whigham, GA	30 53 37	84 17 26	GA	1951–1977	27
639	[h] 02328000	Tired Creek near Cairo, GA	30 51 55	84 15 46	GA	1944–1979	36
640	02329000	Ochlockonee River near Havana, FL	30 33 15	84 23 03	FL	1926–2006	81

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

[USGS (U.S. Geological Survey) station number: [1], station not used in regression analysis; [2], peaks at indicated station were combined with peaks at adjacent nearby station on same stream; [c], peak-flow record available for station includes channelization or urbanization periods that were not used in the regression analysis; [h], peak-flow record adjusted for historical period; [m], extended record using MOVE1 analysis; [r], peak-flow record available for station includes regulated period that was not used in the regression analysis]

Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
641	02329490	Willacoochee Creek near Quincy, FL	30 38 14	84 30 02	FL	1975–1990	15
642	[h] 02329534	Quincy Creek at Quincy, FL	30 36 01	84 34 50	FL	1975–1992	18
643	02329600	Little River near Midway, FL	30 30 45	84 31 25	FL	1965–2006	41
644	02329700	Rocky Comfort Creek near Quincy, FL	30 32 45	84 38 09	FL	1965–1981	17
645	02329877	Ocklawaha Creek near Wetumpka, FL	30 27 01	84 38 36	FL	1975–1990	15
646	02330050	Telogia Creek near Greensboro, FL	30 33 35	84 43 36	FL	1965–1986	22
647	02330100	Telogia Creek near Bristol, FL	30 25 36	84 55 40	FL	1903–2006	53
648	[h] 02330450	Chattahoochee River at Helen, GA	34 42 03	83 43 44	GA	1981–2006	26
649	02331000	Chattahoochee River near Leaf, GA	34 34 37	83 38 09	GA	1940–1999	60
650	[h] 02331500	Soque River near Demorest, GA	34 34 23	83 35 27	GA	1905–1965	34
651	02331600	Chattahoochee River near Cornelia, GA	34 32 27	83 37 22	GA	1940–2006	67
652	[h] 02333000	Chattahoochee River near Gainesville, GA	34 19 17	83 52 46	GA	1938–1955	18
653	[h] 02333500	Chestatee River near Dahlonega, GA	34 31 41	83 56 23	GA	1929–2006	71
654	[h] 02337000	Sweetwater Creek near Austell, GA	33 46 22	84 36 53	GA	1904–2006	72
655	[h] 02337400	Dog River near Douglasville, GA	33 39 36	84 51 41	GA	1951–1977	27
656	[1] 02337448	Hurricane Creek tributary near Fairplay, GA	33 35 03	84 50 54	GA	1977–2006	30
657	02337500	Snake Creek near Whitesburg, GA	33 31 46	84 55 42	GA	1955–2001	47
658	02338660	New River near Corinth, GA	33 14 07	84 59 16	GA	1979–2006	28
659	02338840	Yellowjacket Creek below Hogansville, GA	33 08 22	84 58 31	GA	1979–2006	13
660	[h] 02339000	Yellowjacket Creek near La Grange, GA	33 05 27	85 03 40	GA	1951–1971	21
661	02339225	Wehadkee Creek below Rock Mills, AL	33 07 20	85 14 57	AL	1979–1990	12
662	[h] 02340250	Flat Shoal Creek near West Point, GA	32 52 53	85 04 41	GA	1948–2006	29
663	02340500	Mountain Oak Creek near Hamilton, GA	32 44 28	85 04 08	GA	1944–1973	30
664	[h] 02340750	Osanippa Creek near Fairfax, AL	32 47 20	85 11 30	AL	1953–1974	22
665	02341220	Mulberry Creek near Mulberry Grove, GA	32 42 11	84 57 29	GA	1984–2006	22
666	02341600	Juniper Creek near Geneva, GA	32 31 42	84 34 14	GA	1963–2006	44
667	02341723	Pine Knot Creek near Juniper, GA	32 26 15	84 39 25	GA	1979–2006	27
668	02341800	Upatoi Creek near Columbus, GA	32 24 49	84 49 12	GA	1969–2006	38
669	02341900	Ochillee Creek near Cussetta, GA	32 21 54	84 49 02	GA	1979–2006	28
670	[1,h] 02342150	Uchee Creek near Seale, AL	32 21 17	85 05 44	AL	1951–1970	20
671	02342200	Phelps Creek near Opelika, AL	32 33 49	85 16 36	AL	1959–1974	16
672	[1,h] 02342500	Uchee Creek near Fort Mitchell, AL	32 19 01	85 00 54	AL	1947–2003	57
673	[1,h] 02342933	South Fork Cowikee Creek near Batesville, AL	32 01 04	85 17 45	AL	1964–2005	41
674	[h] 02343200	Pataula Creek near Lumpkin, GA	31 56 04	84 48 12	GA	1949–1978	30
675	02343219	Bluff Springs Branch near Lumpkin, GA	32 01 53	84 53 18	GA	1977–2006	30
676	[h] 02343225	Pataula Creek near Georgetown, GA	31 49 07	84 58 26	GA	1951–1978	28
677	[h] 02343244	Cemochechobee Creek near Coleman, GA	31 39 12	84 53 02	GA	1984–2006	22
678	[h] 02343267	Temple Creek near Blakely, GA	31 26 35	84 58 60	GA	1978–2006	28
679	[1,h] 02343275	Abbie Creek near Abbeville, AL	31 33 43	85 12 18	AL	1951–1990	25
680	[1,h] 02343300	Abbie Creek near Haleburg, AL	31 28 25	85 09 45	AL	1958–1993	35

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

[USGS (U.S. Geological Survey) station number: [1], station not used in regression analysis; [2], peaks at indicated station were combined with peaks at adjacent nearby station on same stream; [c], peak-flow record available for station includes channelization or urbanization periods that were not used in the regression analysis; [h], peak-flow record adjusted for historical period; [m], extended record using MOVE1 analysis; [r], peak-flow record available for station includes regulated period that was not used in the regression analysis]

Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
681	[1] 02343700	Stevenson Creek near Headland, AL	31 21 19	85 11 05	AL	1960–1974	15
682	02344700	Line Creek near Senoia, GA	33 19 09	84 31 20	GA	1965–2006	42
683	[1,h] 02345000	Flint River near Molena, GA	32 59 21	84 31 45	GA	1900–1953	41
684	[1] 02345500	Flint River near Woodbury, GA	32 57 59	84 31 58	GA	1900–1927	28
685	[h] 02346180	Flint River near Thomaston, GA	32 50 20	84 25 27	GA	1900–1994	73
686	[h] 02346193	Scott Creek near Talbotton, GA	32 39 48	84 36 06	GA	1969–1987	19
687	[h] 02346195	Lazer Creek near Talbotton, GA	32 44 33	84 33 20	GA	1981–2006	24
688	[h] 02346210	Kimbrough Creek near Talbotton, GA	32 41 19	84 30 48	GA	1969–1987	19
689	02346217	Coleoatchee Creek near Manchester, GA	32 49 20	84 36 16	GA	1969–2006	37
690	[h] 02346500	Potato Creek near Thomaston, GA	32 54 15	84 21 45	GA	1938–1973	36
691	[h] 02347500	Flint River near Carsonville, GA	32 43 17	84 13 57	GA	1913–2006	88
692	[h] 02348300	Patsiliga Creek near Reynolds, GA	32 34 21	84 05 27	GA	1963–1984	22
693	[h] 02348485	Whitewater Creek near Butler, GA	32 30 15	84 20 03	GA	1979–2002	22
694	[h] 02349000	Whitewater Creek near Butler, GA	32 28 01	84 15 58	GA	1944–1977	34
695	02349030	Cedar Creek near Rupert, GA	32 23 22	84 17 49	GA	1979–2005	27
696	[1] 02349330	Buck Creek tributary near Tazewell, GA	32 20 50	84 22 26	GA	1977–2006	30
697	02349350	Buck Creek near Ellaville, GA	32 18 36	84 17 36	GA	1979–2006	28
698	[1,h] 02349605	Flint River near Montezuma, GA	32 17 35	84 02 37	GA	1905–2006	102
699	[1] 02349695	Horsehead Creek near Montezuma, GA	32 21 28	83 56 12	GA	1977–2006	30
700	02349900	Turkey Creek at Byromville, GA	32 11 44	83 54 08	GA	1951–2006	56
701	[1,h] 02350512	Flint River near Oakfield, GA	31 43 30	84 01 07	GA	1929–2006	49
702	[h] 02350520	Abrams Creek tributary near Doles, GA	31 40 47	83 48 04	GA	1965–1975	11
703	[h] 02350600	Kinchafoonee Creek at Preston, GA	32 03 09	84 32 54	GA	1948–2006	51
704	[1] 02350685	Choctahatchee Creek tributary near Plains, GA	32 02 03	84 26 01	GA	1977–2006	29
705	[h] 02350900	Kinchafoonee Creek near Dawson, GA	31 45 52	84 15 12	GA	1948–2006	41
706	02351500	Muckalee Creek near Americus, GA	32 04 59	84 15 29	GA	1963–2006	26
707	02351700	Muckalee Creek near Smithville, GA	31 53 44	84 11 52	GA	1951–1966	16
708	[h] 02351800	Muckaloochee Creek at Smithville, GA	31 54 20	84 14 44	GA	1948–1978	29
709	[h] 02351890	Muckalee Creek near Leesburg, GA	31 46 34	84 08 22	GA	1980–2006	27
710	[h] 02351900	Muckalee Creek near Leesburg, GA	31 43 56	84 07 30	GA	1951–1986	22
711	02352500	Flint River at Albany, GA	31 35 39	84 08 39	GA	1893–2006	114
712	[1,h] 02353000	Flint River at Newton, GA	31 18 25	84 20 20	GA	1938–2006	69
713	02353100	Ichawaynochaway Creek near Graves, GA	31 46 17	84 33 44	GA	1963–1990	22
714	02353200	Little Ichawaynochaway Creek near Shellman, GA	31 46 46	84 36 13	GA	1951–1962	12
715	[h] 02353400	Pachitla Creek near Edison, GA	31 33 18	84 40 51	GA	1948–2006	49
716	[h] 02353500	Ichawaynochaway Creek at Milford, GA	31 22 58	84 32 47	GA	1906–2006	69
717	[h] 02354500	Chickasawhatchee Creek at Elmodel, GA	31 21 02	84 28 57	GA	1940–2006	49
718	02354800	Ichawaynochaway Creek near Elmodel, GA	31 17 38	84 29 31	GA	1996–2006	11
719	[h] 02355000	Ichawaynochaway Creek near Newton, GA	31 16 21	84 29 19	GA	1938–1947	10
720	[1,h] 02356000	Flint River at Bainbridge, GA	30 54 42	84 34 48	GA	1905–2006	98

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

[USGS (U.S. Geological Survey) station number: [1], station not used in regression analysis; [2], peaks at indicated station were combined with peaks at adjacent nearby station on same stream; [c], peak-flow record available for station includes channelization or urbanization periods that were not used in the regression analysis; [h], peak-flow record adjusted for historical period; [m], extended record using MOVE1 analysis; [r], peak-flow record available for station includes regulated period that was not used in the regression analysis]

Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
721	02356100	Spring Creek near Arlington, GA	31 24 48	84 46 33	GA	1951–1980	25
722	02356640	Spring Creek at Colquitt, GA	31 10 16	84 44 31	GA	1981–2006	24
723	02357000	Spring Creek near Iron City, GA	31 02 25	84 44 24	GA	1938–2006	65
724	02358600	Flat Creek near Chattahoochee, FL	30 37 44	84 50 06	FL	1961–1982	21
725	[1,h] 02358785	Cowarts Creek near Cottonwood, AL	31 01 01	85 13 21	AL	1971–1994	11
726	02359000	Chipola River near Altha, FL	30 32 03	85 09 55	FL	1913–2006	72
727	[1,h] 02360000	West Fork Choctawhatchee River at Blue Springs, AL	31 39 50	85 30 18	AL	1944–1971	28
728	[1,h] 02360275	Judy Creek near Ozark, AL	31 27 48	85 34 20	AL	1951–1994	29
729	[1,h] 02360500	East Fork Choctawhatchee River near Midland City, AL	31 22 24	85 28 38	AL	1953–1990	17
730	[1,h] 02361000	Choctawhatchee River near Newton, AL	31 20 35	85 36 38	AL	1922–2005	76
731	[1,h] 02362610	Pea River near Midway, AL	32 03 01	85 34 21	AL	1973–1994	12
732	[1,h] 02363000	Pea River near Ariton, AL	31 35 42	85 46 59	AL	1939–2005	66
733	[1] 02365310	Grants Branch tributary near Fadette, AL	31 02 22	85 35 11	AL	1972–1981	10
734	[h] 02379500	Cartecay River near Ellijay, GA	34 41 03	84 27 31	GA	1938–1986	48
735	[h] 02380000	Ellijay River at Ellijay, GA	34 41 33	84 28 45	GA	1919–1972	22
736	[h] 02380500	Coosawattee River near Ellijay, GA	34 40 30	84 30 31	GA	1939–2006	64
737	02381100	Mountaintown Creek tributary near Ellijay, GA	34 42 04	84 31 54	GA	1965–1974	10
738	[h] 02381300	Fir Creek near Ellijay, GA	34 41 06	84 37 23	GA	1966–1987	22
739	[h] 02381600	Fausett Creek near Talking Rock, GA	34 34 13	84 28 08	GA	1966–2006	41
740	[h] 02381900	Ball Creek near Talking Rock, GA	34 31 52	84 34 11	GA	1965–1974	10
741	[h] 02382200	Talking Rock Creek near Hinton, GA	34 31 22	84 36 40	GA	1964–2006	42
742	[h] 02382600	Sugar Creek near Chatsworth, GA	34 40 26	84 42 40	GA	1965–1974	10
743	[h] 02382800	Dry Creek at Oakman, GA	34 33 13	84 42 27	GA	1965–1974	10
744	[h] 02382900	Pine Log Creek near Rydal, GA	34 22 02	84 42 45	GA	1964–1974	11
745	[h] 02383000	Rock Creek near Fairmount, GA	34 21 32	84 46 46	GA	1952–1974	23
746	[h] 02383200	Redbud Creek near Ranger, GA	34 31 57	84 43 39	GA	1964–1974	11
747	02384500	Conasauga River near Eton, GA	34 49 40	84 51 03	GA	1954–2006	49
748	02384540	Mill Creek near Crandall, GA	34 52 19	84 43 17	GA	1985–2006	22
749	02384600	Pinhook Creek near Eton, GA	34 49 34	84 48 54	GA	1964–2006	43
750	02384900	Coahulla Creek near Cleveland, TN	35 07 00	84 50 18	TN	1955–1985	31
751	[h] 02385000	Coahulla Creek near Varnell, GA	34 53 43	84 55 15	GA	1940–1962	16
752	[h] 02385700	Rock Creek near Chatsworth, GA	34 46 33	84 44 33	GA	1965–1974	10
753	[h] 02385800	Holly Creek near Chatsworth, GA	34 43 00	84 46 12	GA	1961–2006	46
754	[h] 02387000	Conasauga River at Tilton, GA	34 40 00	84 55 42	GA	1938–2006	69
755	[h] 02387100	Polecat Creek near Spring Place, GA	34 39 08	84 50 33	GA	1964–1974	11
756	[h] 02387200	Beamer Creek near Spring Place, GA	34 38 03	84 51 52	GA	1964–1974	11
757	[1] 02387300	Dead Mans Branch near Resaca, GA	34 35 44	84 52 11	GA	1965–1987	23
758	[h] 02387560	Oothkalooga Creek tributary at Adairsville, GA	34 21 34	84 55 20	GA	1965–1974	10
759	[h] 02387570	Oothkalooga Creek at Adairsville, GA	34 22 40	84 56 34	GA	1964–1974	11
760	02387700	Rocky Creek at Curryville, GA	34 26 44	85 05 12	GA	1965–1974	10

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

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Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
761	[h]02387800	Bailey Creek near Villanow, GA	34 40 10	85 05 40	GA	1965–1974	10
762	[h]02388000	West Armuchee Creek near Subligna, GA	34 34 04	85 09 37	GA	1961–1981	21
763	[h]02388200	Storey Mill Creek near Summerville, GA	34 25 14	85 16 35	GA	1966–1987	22
764	02388300	Heath Creek near Rome, GA	34 21 57	85 16 17	GA	1969–1990	22
765	[h]02388400	Dozier Creek near Shannon, GA	34 18 53	85 05 47	GA	1965–1974	10
766	[1]02388900	Etowah River near Dahlonega, GA	34 30 56	84 03 40	GA	1950–2006	29
767	[h]02389000	Etowah River near Dawsonville, GA	34 22 57	84 03 21	GA	1940–1980	39
768	[h]02389300	Shoal Creek near Dawsonville, GA	34 25 13	84 08 47	GA	1959–1974	16
769	02390000	Amicalola Creek near Dawsonville, GA	34 25 32	84 12 43	GA	1940–2006	14
770	[1]02391000	Etowah River near Ball Ground, GA	34 19 05	84 20 35	GA	1908–1921	11
771	02392000	Etowah River at Canton, GA	34 14 24	84 29 41	GA	1892–2006	115
772	[h]02394400	Pumpkinvine Creek below Dallas, GA	33 54 59	84 52 41	GA	1951–1977	27
773	[h]02394820	Euharlee Creek at Rockmart, GA	33 59 55	85 03 09	GA	1984–2006	23
774	[h]02394950	Hills Creek near Taylorsville, GA	34 04 32	84 57 02	GA	1960–1974	15
775	02395120	Two Run Creek near Kingston, GA	34 14 34	84 53 23	GA	1981–2006	26
776	[h]02397410	Cedar Creek at Cedartown, GA	33 59 45	85 15 53	GA	1949–1997	27
777	[h]02397500	Cedar Creek near Cedartown, GA	34 03 41	85 18 47	GA	1943–2006	36
778	[h]02397750	Duck Creek above Lafayette, GA	34 42 16	85 19 51	GA	1965–1974	10
779	02397830	Harrisburg Creek near Hawkins, GA	34 36 02	85 23 21	GA	1980–2006	27
780	02398000	Chattooga River at Summerville, GA	34 27 59	85 20 10	GA	1938–2006	69
781	[h]02398300	Chattooga River above Gaylesville, AL	34 17 25	85 30 33	AL	1949–2005	48
782	02400000	Terrapin Creek near Piedmont, AL	33 57 23	85 34 38	AL	1945–1963	19
783	02400033	Nances Creek near White Plains, AL	33 50 43	85 39 60	AL	1971–1981	11
784	[h]02400100	Terrapin Creek at Ellisville, AL	34 03 54	85 36 51	AL	1963–2005	41
785	[h]02401000	Big Wills Creek near Reece City, AL	34 05 53	86 02 17	AL	1943–2005	54
786	02401500	Big Canoe Creek near Gadsden, AL	33 54 11	86 06 36	AL	1938–1965	28
787	[h]02404000	Choccolocco Creek near Jenifer, AL	33 34 14	85 55 50	AL	1904–1979	55
788	[h]02404400	Choccolocco Creek at Jackson Shoal near Lincoln, AL	33 32 54	86 05 49	AL	1961–2005	42
789	[h]02404500	Choccolocco Creek near Lincoln, AL	33 33 38	86 07 35	AL	1939–1963	25
790	[1]02411735	Mcclendon Creek tributary near Dallas, GA	33 50 58	84 57 20	GA	1977–2006	29
791	[h]02411800	Little River near Buchanan, GA	33 47 51	85 07 03	GA	1960–1985	26
792	[h]02411900	Tallapoosa River at Tallapoosa, GA	33 46 27	85 17 60	GA	1951–1977	27
793	[1]02411902	Mann Creek tributary near Tallapoosa, GA	33 51 16	85 17 28	GA	1977–2006	29
794	02412000	Tallapoosa River near Heflin, AL	33 37 22	85 30 48	AL	1953–2005	53
795	[h]02412500	Tallapoosa River near Ofelia, AL	33 19 34	85 35 31	AL	1939–1970	32
796	02413000	Little Tallapoosa River at Carrollton, GA	33 35 50	85 04 49	GA	1936–1965	29
797	[h]02413200	Little Tallapoosa River near Bowden, GA	33 30 46	85 14 03	GA	1949–1977	29
798	02413300	Little Tallapoosa River near Newell, AL	33 26 14	85 23 57	AL	1976–2005	30
799	[h]02413400	Wedowee Creek above Wedowee, AL	33 19 56	85 21 39	AL	1960–1972	13
800	[h]02413475	Wedowee Creek near Wedowee Al, AL	33 19 30	85 29 02	AL	1951–1975	25

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

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Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
801	[h] 02413500	Little Tallapoosa River near Wedowee, AL	33 20 57	85 32 43	AL	1938–1979	34
802	[h] 02414800	Harbuck Creek near Hackneyville, AL	33 07 08	85 56 41	AL	1951–1970	20
803	[h] 02415000	Hillabee Creek near Hackneyville, AL	33 03 55	85 52 41	AL	1953–2005	41
804	[1,h] 02419000	Uphapee Creek near Tuskegee, AL	32 28 36	85 41 42	AL	1940–2005	65
805	03160610	Old Field Creek near West Jefferson, NC	36 21 29	81 31 45	NC	1955–1971	17
806	[h] 03161000	South Fork New River near Jefferson, NC	36 23 36	81 24 25	NC	1925–2006	79
807	[h] 03162110	Buffalo Creek at Warrensville, NC	36 27 22	81 30 50	NC	1955–1971	17
808	[h] 03162500	North Fork New River at Crumpler, NC	36 30 15	81 23 24	NC	1909–1966	39
809	03162880	Vile Creek near Sparta, NC	36 30 39	81 06 15	NC	1955–1971	17
810	03164000	New River near Galax, VA	36 38 50	80 58 44	VA	1930–2005	76
811	[h] 03165000	Chestnut Creek at Galax, VA	36 38 45	80 55 09	VA	1945–2005	61
812	03166800	Glade Creek at Grahams Forge, VA	36 55 51	80 54 01	VA	1976–1995	20
813	03167000	Reed Creek at Grahams Forge, VA	36 56 20	80 53 14	VA	1909–2005	87
814	03167700	Beaverdam Creek at Hillsville, VA	36 46 05	80 43 32	VA	1971–1995	24
815	03168500	Peak Creek at Pulaski, VA	37 02 50	80 46 34	VA	1927–1961	17
816	03168750	Thorne Springs Branch near Dublin, VA	37 05 30	80 44 33	VA	1957–2005	49
817	03169350	Brush Creek at Terrys Fork, VA	37 02 44	80 16 44	VA	1957–1976	20
818	03170000	Little River at Graysontown, VA	37 02 15	80 33 24	VA	1929–2005	77
819	03171150	Crab Creek tributary near Christiansburg, VA	37 07 56	80 27 31	VA	1957–1976	20
820	[h,r] 03171500	New River at Eggleston, VA	37 17 22	80 37 00	VA	1915–1939	24
821	[h] 03173000	Walker Creek at Bane, VA	37 16 05	80 42 34	VA	1938–2005	68
822	03175500	Wolf Creek near Narrows, VA	37 18 20	80 50 59	VA	1909–2005	76
823	[h,r] 03176500	New River at Glen Lyn, VA	37 22 22	80 51 38	VA	1915–1938	24
824	[m] 03439000	French Broad River at Rosman, NC	35 08 36	82 49 29	NC	1936–2006	71
825	[1] 03439500	French Broad at Calvert, NC	35 08 55	82 47 58	NC	1925–1955	31
826	03440000	Catheys Creek near Brevard, NC	35 12 40	82 46 59	NC	1945–2004	29
827	03441000	Davidson River near Brevard, NC	35 16 23	82 42 21	NC	1921–2006	83
828	03441440	Little River above High Falls near Cedar Mountain, NC	35 11 32	82 36 48	NC	1963–1990	28
829	[h] 03441500	Little River near Penrose, NC	35 13 23	82 38 06	NC	1943–1955	13
830	[h] 03442000	Crab Creek near Penrose, NC	35 14 02	82 36 38	NC	1943–1955	13
831	03443000	French Broad River at Blantyre, NC	35 17 57	82 37 26	NC	1921–2006	86
832	[h] 03444000	Boylston Creek near Horseshoe, NC	35 22 10	82 33 49	NC	1943–1955	13
833	03444500	South Fork Mills River at The Pink Beds, NC	35 21 58	82 44 21	NC	1927–1973	31
834	[h] 03446000	Mills River near Mills River, NC	35 23 53	82 35 42	NC	1925–2006	74
835	[1] 03446410	Laurel Branch near Edneyville, NC	35 22 15	82 24 09	NC	1955–1966	12
836	[h] 03446500	Clear Creek near Hendersonville, NC	35 21 14	82 26 39	NC	1946–1955	10
837	[h] 03447000	Mud Creek at Naples, NC	35 23 14	82 30 13	NC	1939–1955	17
838	[h] 03447500	Cane Creek at Fletcher, NC	35 26 08	82 29 22	NC	1926–1958	18
839	[1] 03448000	French Broad River at Bent Creek, NC	35 30 07	82 35 32	NC	1935–1986	52
840	[h] 03448500	Hominy Creek at Candler, NC	35 32 28	82 40 34	NC	1943–1977	35

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

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Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
841	[h] 0344894205	North Fork Swannanoa River near Walkertown, NC	35 41 00	82 19 59	NC	1989–2006	18
842	[r] 03449000	Norh Fork Swannanoa Rivernear Black Mountain, NC	35 39 11	82 21 03	NC	1926–1952	27
843	03450000	Beetree Creek near Swannanoa, NC	35 39 11	82 24 19	NC	1927–2006	70
844	[h] 03451000	Swannanoa River at Biltmore, NC	35 34 06	82 32 41	NC	1921–2006	78
845	[h] 03451500	French Broad River at Asheville, NC	35 36 32	82 34 41	NC	1896–2006	111
846	03452000	Sandymush Creek near Alexander, NC	35 43 49	82 40 10	NC	1943–1955	13
847	[h] 03453000	Ivy River near Marshall, NC	35 46 11	82 37 15	NC	1935–2006	52
848	[1,h] 03453500	French Broad River at Marshall, NC	35 47 11	82 39 39	NC	1943–2006	64
849	03453880	Brush Creek at Walnut, NC	35 50 40	82 44 30	NC	1954–1971	17
850	03454000	Big Laurel Creek near Stackhouse, NC	35 55 11	82 45 42	NC	1935–1973	39
851	[h] 03454500	French Broad River at Hot Springs, NC	35 53 23	82 49 16	NC	1935–1949	15
852	03455500	West Fork Pigeon River near Hazelwood, NC	35 23 46	82 56 15	NC	1955–2006	52
853	03456500	East Fork Pigeon River near Canton, NC	35 27 42	82 52 11	NC	1955–2006	52
854	[2,h] 03456991	Pigeon River near Canton, NC	35 31 23	82 50 48	NC	1908–2006	81
855	03457500	Allen Creek near Hazelwood, NC	35 25 49	83 00 29	NC	1950–1973	24
856	03459000	Jonathan Creek near Cove Creek, NC	35 37 22	83 00 26	NC	1931–1973	43
857	[h] 03459500	Pigeon River near Hepco, NC	35 38 06	82 59 24	NC	1928–2006	79
858	03460000	Cataloochee Creek near Cataloochee, NC	35 40 03	83 04 25	NC	1935–2006	62
859	03461200	Cosby Creek above Cosby, TN	35 46 58	83 13 03	TN	1959–1987	29
860	03461910	North Toe River at Newland, NC	36 05 01	81 55 44	NC	1955–1973	19
861	[h] 03462000	North Toe River at Altapass, NC	35 53 59	82 01 49	NC	1935–1958	24
862	03463300	South Toe River near Celo, NC	35 49 53	82 11 03	NC	1958–2006	49
863	[h] 03463500	South Toe River at Newdale, NC	35 54 22	82 11 18	NC	1935–1952	18
864	03463910	Phipps Creek near Burnsville, NC	35 54 40	82 22 09	NC	1957–1973	14
865	[h] 03464000	Cane River near Sioux, NC	36 00 52	82 19 39	NC	1934–1971	38
866	[h] 03464500	Nolichucky River at Poplar, NC	36 04 28	82 20 41	NC	1926–1955	30
867	03465000	North Indian Creek near Unicoi, TN	36 10 35	82 17 35	TN	1945–1984	39
868	[h] 03465500	Nolichucky River at Embreeville, TN	36 10 35	82 27 27	TN	1921–2006	86
869	03467000	Lick Creek at Mohawk, TN	36 12 05	83 02 52	TN	1947–2006	28
870	[h] 03467500	Nolichucky River near Morristown, TN	36 10 49	83 10 32	TN	1921–1982	61
871	03469160	East Fork Little Pigeon Rivernear Sevierville, TN	35 51 55	83 29 17	TN	1954–1982	29
872	03469500	West Prong Little Pigeon River near Pigeon Forge, TN	35 48 21	83 34 28	TN	1947–1982	32
873	[h] 03470000	Little Pigeon River at Sevierville, TN	35 52 42	83 34 40	TN	1920–1982	63
874	[h,r] 03477000	South Fork Holston River at Bluff City, TN	36 28 38	82 15 46	TN	1901–1950	50
875	[h] 03478910	Cove Creek at Sherwood, NC	36 15 50	81 47 02	NC	1955–1972	18
876	[h] 03479000	Watauga River near Sugar Grove, NC	36 14 21	81 49 20	NC	1940–2006	67
877	[1] 03480540	Peavine Branch near Banner Elk, NC	36 10 20	81 54 41	NC	1953–1963	11
878	[h] 03481000	Elk River near Elk Park, NC	36 11 01	81 57 44	NC	1935–1955	21
879	03482000	Roan Creek near Neva, TN	36 22 37	81 53 13	TN	1943–1985	40
880	[h] 03483000	Watauga River at Butler, TN	36 19 59	82 00 15	TN	1921–1948	28

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Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
881	[h] 03485500	Doe River at Elizabethton, TN	36 20 40	82 12 36	TN	1912–1982	66
882	[h] 03487550	Reedy Creek at Orebank, TN	36 33 42	82 27 34	TN	1964–2006	42
883	03491000	Big Creek near Rogersville, TN	36 25 34	82 57 07	TN	1942–2006	59
884	03491200	Big Creek tributary near Rogersville, TN	36 25 30	82 57 17	TN	1955–1985	31
885	03491500	Holston River near Rogersville, TN	36 22 18	83 00 12	TN	1902–1941	40
886	[h,r] 03497000	Tennessee River at Knoxville, TN	35 57 17	83 51 42	TN	1890–1941	48
887	03497300	Little River above Townsend, TN	35 39 52	83 42 41	TN	1964–2006	43
888	[h] 03498500	Little River near Maryville, TN	35 47 08	83 53 05	TN	1951–2006	56
889	[1] 03498700	Nails Creek near Knoxville, TN	35 52 49	83 46 47	TN	1955–1985	31
890	03500000	Little Tennessee River near Prentiss, NC	35 09 00	83 22 47	NC	1945–2006	62
891	[h] 03500240	Cartoogechaye Creek near Franklin, NC	35 09 32	83 23 39	NC	1962–2006	45
892	[h] 03501000	Cullasaja River at Cullasaja, NC	35 09 59	83 19 25	NC	1908–1971	52
893	03501760	Coon Creek near Franklin, NC	35 14 04	83 20 28	NC	1957–1973	17
894	[h] 03502000	Little Tennessee River at Iotla, NC	35 14 03	83 23 42	NC	1929–1945	17
895	03503000	Little Tennessee River at Needmore, NC	35 20 11	83 31 37	NC	1945–2006	61
896	03504000	Nantahala River near Rainbow Springs, NC	35 07 39	83 37 07	NC	1940–2006	67
897	03506500	Nantahala River at Almond, NC	35 22 32	83 33 59	NC	1923–1943	19
898	03507000	Little Tennessee River at Judson, NC	35 24 30	83 33 26	NC	1897–1944	48
899	[2] 03509000	Scott Creek above Sylva, NC	35 23 02	83 12 51	NC	1929–1995	50
900	[1,h,r] 03510500	Tuckasegee River at Dillsboro, NC	35 22 00	83 15 37	NC	1928–1940	13
901	03511000	Oconaluftee River at Cherokee, NC	35 29 04	83 18 56	NC	1922–1949	28
902	[h] 03512000	Oconaluftee River at Birdtown, NC	35 27 41	83 21 13	NC	1949–2006	58
903	[r] 03513000	Tuckasegee River at Bryson City, NC	35 25 39	83 26 49	NC	1898–1940	43
904	[1] 03513410	Jenkins Branch tributary at Bryson City, NC	35 24 50	83 27 20	NC	1957–1971	13
905	03513500	Noland Creek near Bryson City, NC	35 29 05	83 30 15	NC	1936–1971	36
906	03514000	Hazel Creek at Proctor, NC	35 28 38	83 42 58	NC	1943–1952	10
907	03516000	Snowbird Creek near Robbinsville, NC	35 18 40	83 51 35	NC	1943–1952	10
908	[h] 03518500	Tellico River at Tellico Plains, TN	35 21 43	84 16 44	TN	1926–2006	62
909	[r] 03519500	Little Tennessee River at Mcghee, TN	35 36 16	84 12 42	TN	1905–1944	40
910	03519610	Baker Creek tributary near Binfield, TN	35 41 56	84 02 46	TN	1967–2002	33
911	03519640	Baker Creek near Greenback, TN	35 40 21	84 06 28	TN	1966–1998	33
912	03520100	Sweetwater Creek near Loudon, TN	35 44 17	84 22 25	TN	1954–1982	29
913	03528400	White Creek near Sharps Chapel, TN	36 20 43	83 53 40	TN	1935–1970	36
914	03534500	Buffalo Creek at Norris, TN	36 11 06	84 03 40	TN	1948–1982	31
915	03535000	Bullrun Creek near Halls Crossroads, TN	36 06 52	83 59 17	TN	1958–2006	35
916	03535180	Willow Fork near Halls Crossroads, TN	36 05 59	83 54 27	TN	1967–2006	40
917	03538250	East Fork Poplar Creek near Oak Ridge, TN	35 57 58	84 21 30	TN	1961–1988	28
918	03543500	Sewee Creek near Decatur, TN	35 34 53	84 44 53	TN	1935–1994	60
919	03544947	Brier Creek near Hiawassee, GA	34 50 05	83 42 34	GA	1984–2006	23
920	03545000	Hiwassee River at Presley, GA	34 54 17	83 43 01	GA	1942–2001	60

Table 1. Summary of rural streamgaging stations in and near Georgia, South Carolina, and North Carolina that were considered for use in the regional regression analysis, 2006.—Continued

[USGS (U.S. Geological Survey) station number: [1], station not used in regression analysis; [2], peaks at indicated station were combined with peaks at adjacent nearby station on same stream; [c], peak-flow record available for station includes channelization or urbanization periods that were not used in the regression analysis; [h], peak-flow record adjusted for historical period; [m], extended record using MOVE1 analysis; [r], peak-flow record available for station includes regulated period that was not used in the regression analysis]

Map identification number (fig. 2)	USGS station number	Station name	Latitude (degree minute second)	Longitude (degree minute second)	State	Period of record	Number of systematic peaks
921	03546000	Shooting Creek near Hayesville, NC	35 01 29	83 42 27	NC	1923–1955	13
922	[r] 03548500	Hiwassee River above Murphy, NC	35 04 53	84 00 10	NC	1897–1941	44
923	[h] 03550000	Valley River at Tomotla, NC	35 08 20	83 58 50	NC	1905–2006	96
924	[h] 03550500	Nottely River near Blairsville, GA	34 50 28	83 56 10	GA	1943–2000	58
925	[r] 03554000	Nottely River near Ranger, NC	35 01 37	84 06 55	NC	1901–1941	32
926	03556000	Turtletown Creek at Turtletown, TN	35 07 60	84 20 36	TN	1935–1971	37
927	03557000	Hiwassee River near Reliance, TN	35 13 20	84 31 34	TN	1901–1939	33
928	[h] 03558000	Toccoa River near Dial, GA	34 47 24	84 14 24	GA	1913–1996	84
929	[h] 03560000	Fightingtown Creek at Mccaysville, GA	34 58 53	84 23 12	GA	1943–1973	31
930	03560500	Davis Mill Creek at Copperhill, TN	34 59 43	84 22 56	TN	1950–1994	35
931	03561000	North Potato Creek near Ducktown, TN	35 00 54	84 22 58	TN	1935–1970	36
932	03565300	South Chestuee Creek near Benton, TN	35 10 02	84 42 58	TN	1958–1987	30
933	03565500	Oostanaula Creek near Sanford, TN	35 19 39	84 42 18	TN	1955–2006	38
934	03566200	Brymer Creek near Mcdonald, TN	35 07 20	84 56 60	TN	1955–1985	31
935	03566420	Wolftever Creek near Ooltewah, TN	35 03 44	85 03 59	TN	1965–2006	39
936	[h] 03566660	Sugar Creek near Ringgold, GA	34 58 14	85 01 29	GA	1965–1974	10
937	[h] 03566685	Little Chickamauga Creek near Ringgold, GA	34 50 32	85 08 28	GA	1964–1975	12
938	[h] 03566687	Little Chickamauga Creek tributary near Ringgold, GA	34 51 36	85 08 40	GA	1965–1974	10
939	[h] 03566700	South Chickamauga Creek at Ringgold, GA	34 55 07	85 07 32	GA	1949–1965	17
940	[h] 03567200	West Chickamauga Creek near Kensington, GA	34 48 10	85 20 52	GA	1950–1976	27
941	03567500	South Chickamauga Creek near Chickamauga, TN	35 00 51	85 12 24	TN	1929–1994	64
942	03568500	Chattanooga Creek near Flintstone, GA	34 58 20	85 19 40	GA	1951–1974	24
943	03568933	Lookout Creek near New England, GA	34 53 51	85 27 47	GA	1980–2006	27

Table 4. Flood-frequency statistics for rural streamgaging stations in Georgia that were considered for use in the regression equations, 2006.

[USGS, U.S. Geological Survey; G, estimated from the Bulletin 17B analysis of the streamgaging station; R, estimated from the regression equation; W, weighted estimate using equation 21; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		50-percent chance exceedance			20-percent chance exceedance			10-percent chance exceedance			4-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
384	02177000	7,370	6,980	7,360	12,000	11,300	12,000	15,600	14,600	15,500	21,100	18,900	20,900
385	02178400	2,740	2,540	2,730	4,420	4,290	4,410	5,670	5,620	5,670	7,410	7,390	7,410
386	02181800	124	252	136	263	464	290	397	626	440	624	845	683
387	02182000	2,250	1,550	2,150	4,690	2,670	4,300	6,850	3,490	6,040	10,200	4,550	8,400
395	02188500	1,390	1,690	1,400	2,410	2,910	2,430	3,260	3,780	3,290	4,550	4,900	4,580
396	02188600	1,420	2,540	1,680	2,590	4,310	3,070	3,520	5,570	4,200	4,840	7,170	5,760
398	02189020	783	593	752	1,240	1,060	1,200	1,590	1,390	1,540	2,080	1,840	2,000
399	02189030	109	—	—	160	—	—	194	—	—	237	—	—
400	02189600	413	365	399	783	661	737	1,100	880	1,000	1,570	1,170	1,360
401	02190100	506	435	489	877	783	848	1,180	1,040	1,130	1,640	1,380	1,520
402	02190200	339	159	298	536	297	477	673	400	597	852	540	752
403	02190800	183	—	—	302	—	—	390	—	—	509	—	—
404	02191200	2,280	2,280	2,280	3,910	3,880	3,910	5,180	5,020	5,150	6,970	6,480	6,850
405	02191270	610	648	614	1,160	1,150	1,160	1,600	1,520	1,590	2,250	2,000	2,200
406	02191280	127	—	—	164	—	—	187	—	—	214	—	—
407	02191300	13,000	11,700	13,000	21,300	18,900	21,200	27,400	23,800	27,200	35,800	29,900	35,400
408	02191600	444	457	446	846	822	842	1,190	1,090	1,170	1,700	1,440	1,630
409	02191750	835	958	855	1,290	1,680	1,370	1,620	2,200	1,750	2,060	2,880	2,290
410	02191890	775	808	780	1,480	1,420	1,470	2,060	1,870	2,020	2,930	2,460	2,790
411	02191910	145	285	163	251	520	296	334	695	408	455	928	577
412	02191930	389	465	395	687	834	703	927	1,110	951	1,280	1,470	1,310
413	02191960	201	354	218	379	642	420	532	855	597	768	1,140	867
414	02191970	179	239	186	335	440	349	462	589	483	647	790	677
415	02192000	21,300	17,700	21,200	31,800	28,100	31,700	38,900	35,200	38,800	48,100	43,900	47,900
416	02192400	544	479	527	931	858	910	1,220	1,140	1,190	1,610	1,510	1,570
417	02192420	140	158	147	286	295	290	409	398	404	592	537	563
419	02193300	801	523	746	1,260	936	1,180	1,610	1,240	1,500	2,110	1,640	1,940
420	02193340	2,150	1,560	2,100	3,020	2,690	2,990	3,560	3,500	3,550	4,200	4,540	4,240
421	02193400	486	388	468	744	702	735	926	934	928	1,170	1,240	1,190
422	02193500	6,000	6,310	6,030	10,300	10,400	10,300	13,500	13,200	13,500	17,800	16,800	17,600
423	02195150	1,690	1,390	1,640	2,950	2,370	2,820	4,020	3,070	3,750	5,670	3,980	5,030
432	02197520	2,090	1,630	2,090	3,030	2,760	3,030	3,740	3,570	3,740	4,720	4,620	4,720

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		2-percent chance exceedance			1-percent chance exceedance			0.2-percent chance exceedance			0.5-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
384	02177000	25,800	22,000	25,200	31,000	25,800	30,100	36,900	29,000	35,200	45,800	33,900	42,700
385	02178400	8,790	8,670	8,780	10,300	10,200	10,300	11,800	11,500	11,800	14,000	13,600	13,900
386	02181800	841	1,020	900	1,110	1,210	1,150	1,430	1,380	1,410	1,960	1,650	1,800
387	02182000	13,200	5,450	10,300	16,700	6,320	12,200	20,500	7,130	14,000	26,500	8,410	16,600
395	02188500	5,680	5,900	5,700	6,980	6,780	6,950	8,450	7,640	8,310	10,700	8,990	10,300
396	02188600	5,920	8,600	7,070	7,080	9,850	8,370	8,330	11,100	9,700	10,100	13,000	11,600
398	02189020	2,480	2,240	2,390	2,910	2,600	2,790	3,380	2,950	3,200	4,050	3,500	3,800
399	02189030	269	—	—	300	—	—	332	—	—	373	—	—
400	02189600	1,990	1,430	1,670	2,460	1,670	1,980	2,990	1,900	2,290	3,800	2,270	2,760
401	02190100	2,030	1,680	1,850	2,480	1,960	2,190	2,980	2,230	2,540	3,740	2,660	3,060
402	02190200	989	664	876	1,130	780	1,000	1,270	896	1,120	1,450	1,080	1,290
403	02190800	603	—	—	701	—	—	803	—	—	945	—	—
404	02191200	8,430	7,780	8,250	10,000	8,910	9,660	11,700	10,000	11,100	14,100	11,800	13,200
405	02191270	2,790	2,430	2,700	3,370	2,820	3,210	4,000	3,200	3,740	4,910	3,790	4,500
406	02191280	234	—	—	253	—	—	272	—	—	297	—	—
407	02191300	42,400	35,400	41,800	49,300	39,900	48,400	56,500	44,300	55,000	66,600	51,200	64,300
408	02191600	2,150	1,760	2,020	2,650	2,050	2,430	3,210	2,330	2,840	4,060	2,780	3,460
409	02191750	2,410	3,490	2,740	2,770	4,030	3,190	3,150	4,560	3,660	3,680	5,400	4,350
410	02191890	3,670	2,980	3,430	4,480	3,450	4,070	5,390	3,910	4,740	6,720	4,630	5,700
411	02191910	555	1,140	726	665	1,330	884	785	1,520	1,050	960	1,810	1,300
412	02191930	1,570	1,790	1,620	1,890	2,080	1,940	2,250	2,360	2,280	2,760	2,820	2,780
413	02191960	978	1,390	1,110	1,220	1,620	1,370	1,490	1,850	1,640	1,920	2,210	2,050
414	02191970	802	968	843	971	1,130	1,020	1,160	1,300	1,200	1,420	1,550	1,470
415	02192000	54,900	51,700	54,700	61,800	58,100	61,600	68,700	64,300	68,400	78,000	74,100	77,600
416	02192400	1,920	1,840	1,880	2,240	2,130	2,190	2,570	2,430	2,500	3,030	2,890	2,960
417	02192420	747	661	698	917	776	832	1,100	891	968	1,370	1,070	1,170
419	02193300	2,520	1,990	2,300	2,960	2,320	2,670	3,430	2,640	3,050	4,120	3,130	3,610
420	02193340	4,660	5,470	4,760	5,100	6,290	5,270	5,520	7,100	5,760	6,060	8,360	6,450
421	02193400	1,350	1,510	1,400	1,550	1,760	1,620	1,750	2,010	1,850	2,020	2,400	2,170
422	02193500	21,200	19,900	20,900	24,600	22,600	24,200	28,100	25,200	27,400	32,900	29,300	31,900
423	02195150	7,130	4,760	6,100	8,820	5,460	7,170	10,800	6,180	8,300	13,800	7,220	9,900
432	02197520	5,530	5,510	5,530	6,390	6,320	6,390	7,330	7,140	7,320	8,690	8,330	8,660

Table 4. Flood-frequency statistics for rural streamgaging stations in Georgia that were considered for use in the regression equations, 2006.—Continued

[USGS, U.S. Geological Survey; G, estimated from the Bulletin 17B analysis of the streamgaging station; R, estimated from the regression equation; W, weighted estimate using equation 21; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		50-percent chance exceedance			20-percent chance exceedance			10-percent chance exceedance			4-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
433	02197550	641	302	573	1,010	510	891	1,280	667	1,110	1,640	873	1,390
434	02197600	396	524	407	735	994	764	1,020	1,360	1,070	1,440	1,850	1,520
435	02197810	255	320	261	424	617	450	564	850	614	775	1,170	867
436	02197830	3,670	3,330	3,660	5,980	5,610	5,970	8,000	7,310	7,970	11,200	9,490	11,100
437	02198000	3,290	4,110	3,310	5,930	6,980	5,960	8,260	9,120	8,300	12,000	11,900	12,000
438	02198100	592	557	580	1,400	1,060	1,240	2,250	1,440	1,800	3,800	1,960	2,590
439	02198690	1,210	1,640	1,380	3,310	2,990	3,140	5,580	4,010	4,630	9,690	5,350	6,670
440	02199700	1,440	1,480	1,440	2,150	2,560	2,190	2,650	3,330	2,740	3,290	4,330	3,450
441	02200000	4,080	5,500	4,120	6,830	9,070	6,900	8,970	11,600	9,090	12,100	14,700	12,300
442	02200100	825	1,050	862	1,660	1,760	1,680	2,390	2,280	2,360	3,530	2,950	3,330
443	02200400	1,640	2,190	1,700	2,750	3,620	2,860	3,590	4,670	3,760	4,750	6,020	5,000
444	02200500	8,080	6,790	8,030	14,100	11,100	14,000	18,400	14,200	18,200	23,900	18,200	23,600
445	02200900	643	1,160	675	1,070	2,150	1,150	1,390	2,900	1,520	1,840	3,900	2,080
446	02200930	213	337	227	439	649	474	660	893	713	1,040	1,230	1,100
447	02200950	8,420	7,380	8,410	11,900	12,200	11,900	14,600	15,700	14,600	18,400	20,100	18,500
448	02201000	1,490	1,250	1,470	2,770	2,300	2,730	3,760	3,090	3,700	5,140	4,140	5,010
449	02201110	309	239	295	614	466	574	892	644	808	1,340	889	1,150
450	02201160	420	223	302	1,020	435	627	1,600	602	873	2,560	832	1,210
451	02201250	45	—	—	66	—	—	82	—	—	104	—	—
452	02201350	1,130	768	1,090	2,240	1,440	2,120	3,270	1,950	3,000	4,980	2,640	4,300
453	02201800	581	607	584	1,010	1,150	1,030	1,360	1,560	1,400	1,870	2,120	1,930
454	02201830	166	157	165	222	311	231	258	432	278	302	601	340
455	02202000	10,200	9,760	10,200	17,600	16,400	17,600	23,400	21,200	23,300	31,500	27,200	31,200
456	02202300	685	650	681	935	1,220	965	1,090	1,670	1,160	1,280	2,260	1,410
457	02202500	11,100	11,400	11,100	18,900	19,200	18,900	24,900	24,800	24,900	33,300	31,900	33,200
458	02202600	1,790	2,070	1,870	4,420	3,740	4,180	7,010	5,010	6,150	11,400	6,660	8,920
459	02202605	146	137	144	278	272	276	383	379	382	534	528	532
460	02202800	741	723	740	1,150	1,360	1,160	1,440	1,840	1,460	1,840	2,500	1,890
461	02202810	150	172	150	210	340	214	255	472	263	317	655	335
462	02202820	244	251	244	342	488	346	415	674	425	518	929	541
463	02202850	163	134	162	205	265	207	232	370	237	265	516	276
464	02202865	2,050	1,890	2,030	3,090	3,430	3,140	3,800	4,600	3,930	4,730	6,120	4,990

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		2-percent chance exceedance			1-percent chance exceedance			0.2-percent chance exceedance			0.5-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
433	02197550	1,930	1,030	1,600	2,220	1,180	1,800	2,530	1,360	2,020	2,960	1,560	2,310
434	02197600	1,810	2,280	1,920	2,230	2,750	2,370	2,690	3,180	2,840	3,380	3,830	3,540
435	02197810	959	1,450	1,090	1,170	1,750	1,360	1,400	2,030	1,630	1,770	2,460	2,050
436	02197830	14,200	11,300	13,900	17,800	13,100	17,100	22,000	14,900	20,800	28,900	17,300	26,300
437	02198000	15,400	14,200	15,300	19,300	16,500	18,900	24,000	18,800	23,200	31,500	21,900	29,600
438	02198100	5,360	2,420	3,250	7,360	2,910	3,960	9,890	3,360	4,660	14,200	4,050	5,680
439	02198690	13,800	6,540	8,370	19,000	7,800	10,200	25,400	8,930	11,900	36,000	10,700	14,400
440	02199700	3,790	5,220	4,050	4,290	6,000	4,640	4,810	6,770	5,250	5,520	7,980	6,130
441	02200000	14,600	17,500	14,800	17,400	19,900	17,700	20,400	22,200	20,600	24,800	25,900	25,000
442	02200100	4,530	3,500	4,110	5,670	4,000	4,900	6,970	4,540	5,740	8,940	5,260	6,870
443	02200400	5,670	7,120	6,000	6,650	8,130	7,040	7,680	9,240	8,140	9,120	10,700	9,640
444	02200500	28,100	21,500	27,600	32,300	24,600	31,600	36,400	27,800	35,500	41,900	32,100	40,600
445	02200900	2,210	4,770	2,570	2,600	5,710	3,100	3,010	6,560	3,670	3,600	7,850	4,520
446	02200930	1,420	1,520	1,460	1,890	1,840	1,870	2,470	2,130	2,300	3,450	2,580	2,940
447	02200950	21,700	23,800	21,800	25,300	27,300	25,500	29,400	30,900	29,500	35,400	35,800	35,400
448	02201000	6,250	5,060	6,070	7,410	6,040	7,160	8,630	6,940	8,270	10,300	8,290	9,800
449	02201110	1,760	1,100	1,440	2,260	1,340	1,760	2,850	1,560	2,090	3,790	1,900	2,570
450	02201160	3,440	1,030	1,480	4,460	1,260	1,790	5,650	1,460	2,070	7,480	1,780	2,500
451	02201250	122	—	—	141	—	—	161	—	—	191	—	—
452	02201350	6,600	3,250	5,400	8,560	3,910	6,600	10,900	4,500	7,820	14,800	5,410	9,650
453	02201800	2,310	2,620	2,400	2,790	3,150	2,910	3,320	3,640	3,430	4,120	4,380	4,220
454	02201830	333	750	390	365	914	444	395	1,070	497	435	1,300	574
455	02202000	38,200	32,500	37,800	45,400	37,700	44,700	53,200	42,500	52,000	64,300	49,600	62,200
456	02202300	1,410	2,780	1,600	1,540	3,350	1,810	1,670	3,860	2,010	1,830	4,650	2,290
457	02202500	40,100	38,100	40,000	47,500	44,300	47,200	55,300	50,000	54,800	66,500	58,300	65,500
458	02202600	15,500	8,120	11,200	20,400	9,660	13,600	26,100	11,000	15,900	35,200	13,200	19,200
459	02202605	657	659	658	790	805	797	931	940	935	1,130	1,150	1,140
460	02202800	2,150	3,070	2,240	2,480	3,700	2,610	2,820	4,260	3,000	3,300	5,120	3,570
461	02202810	368	817	399	424	995	471	484	1,160	551	571	1,410	670
462	02202820	602	1,150	642	692	1,400	754	790	1,630	877	934	1,980	1,060
463	02202850	288	645	305	312	788	338	335	920	370	366	1,120	415
464	02202865	5,430	7,470	5,850	6,140	8,900	6,770	6,860	10,200	7,680	7,830	12,100	8,990

Table 4. Flood-frequency statistics for rural streamgaging stations in Georgia that were considered for use in the regression equations, 2006.—Continued

[USGS, U.S. Geological Survey; G, estimated from the Bulletin 17B analysis of the streamgaging station; R, estimated from the regression equation; W, weighted estimate using equation 21; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		50-percent chance exceedance			20-percent chance exceedance			10-percent chance exceedance			4-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
465	02202900	1,550	1,470	1,550	2,400	2,690	2,420	2,990	3,620	3,040	3,780	4,850	3,880
466	02202910	95	66	92	178	134	171	250	188	238	362	266	337
467	02202950	105	70	100	164	141	160	209	199	207	272	281	274
468	02203000	4,040	3,640	4,030	6,750	6,470	6,740	8,900	8,570	8,890	12,000	11,300	12,000
469	02203280	5,140	4,740	5,130	7,630	8,340	7,640	9,450	11,000	9,490	11,900	14,500	12,000
470	02203559	400	626	448	681	1,180	805	893	1,610	1,100	1,190	2,180	1,520
471	02204135	30	—	—	69	—	—	104	—	—	159	—	—
472	02208200	138	167	143	215	311	234	269	419	304	342	565	403
473	02208450	2,490	4,690	2,650	4,190	7,790	4,530	5,510	9,970	6,050	7,360	12,700	8,210
474	02209000	2,860	5,620	2,960	5,060	9,270	5,280	6,870	11,800	7,220	9,560	15,000	10,100
475	02211300	3,460	3,250	3,440	5,670	5,460	5,640	7,450	7,030	7,380	10,100	9,010	9,850
476	02211459	326	277	317	522	506	518	673	676	674	889	904	894
477	02211500	6,040	6,630	6,060	9,640	10,900	9,700	12,600	13,900	12,700	17,200	17,500	17,200
478	02212500	26,600	21,700	26,500	39,900	34,200	39,700	49,800	42,800	49,500	63,800	53,100	63,100
479	02212600	2,530	2,550	2,530	4,380	4,320	4,370	5,840	5,580	5,800	7,950	7,180	7,800
480	02213000	27,700	23,600	27,600	45,200	37,100	44,900	57,400	46,400	57,000	73,100	57,500	72,200
481	02213050	2,910	1,480	2,750	5,030	2,560	4,710	6,630	3,330	6,120	8,840	4,330	7,940
482	02213350	3,030	2,090	2,910	5,190	3,570	4,930	6,900	4,630	6,440	9,370	5,980	8,470
483	02213400	1,090	989	1,070	2,530	1,730	2,330	3,950	2,270	3,400	6,360	2,970	4,900
484	02213470	4,450	4,200	4,420	7,910	7,000	7,740	10,800	8,980	10,400	15,100	11,500	14,000
485	02214000	4,100	3,510	4,060	7,620	5,840	7,410	10,900	7,500	10,300	16,300	9,590	14,600
486	02214280	599	583	596	1,170	1,100	1,160	1,640	1,500	1,600	2,340	2,040	2,240
487	02214500	914	1,210	955	1,790	2,230	1,870	2,540	3,010	2,640	3,670	4,050	3,770
488	02214820	415	1,080	467	696	1,950	821	915	2,610	1,130	1,230	3,490	1,600
489	02215000	26,600	25,300	26,600	42,800	40,000	42,700	53,700	50,300	53,600	67,400	62,800	67,200
490	02215100	2,060	1,640	1,950	4,410	3,000	3,920	6,550	4,030	5,500	9,990	5,380	7,660
491	02215220	73	89	76	117	180	131	149	252	175	192	354	238
492	02215230	267	220	260	480	429	470	656	594	641	921	821	890
493	02215245	112	70	104	233	142	214	334	200	302	481	282	423
494	02215280	213	108	185	381	216	332	514	302	441	704	423	591
495	02215500	26,100	25,500	26,100	42,800	41,000	42,800	55,200	51,800	55,100	72,000	65,100	71,700
496	02215800	1,590	2,000	1,660	2,970	3,630	3,110	4,140	4,860	4,330	5,930	6,470	6,110

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		2-percent chance exceedance			1-percent chance exceedance			0.2-percent chance exceedance			0.5-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
465	02202900	4,380	5,920	4,550	5,000	7,070	5,270	5,630	8,110	5,990	6,500	9,690	7,040
466	02202910	463	334	423	579	411	519	712	483	619	919	593	769
467	02202950	324	353	333	380	434	399	440	509	466	529	626	568
468	02203000	14,700	13,700	14,600	17,600	16,200	17,500	20,700	18,500	20,400	25,500	21,900	25,000
469	02203280	13,900	17,500	14,100	16,000	20,600	16,300	18,200	23,500	18,600	21,400	27,700	21,900
470	02203559	1,430	2,690	1,890	1,680	3,240	2,290	1,940	3,740	2,690	2,320	4,500	3,290
471	02204135	207	—	—	261	—	—	322	—	—	412	—	—
472	02208200	399	695	487	457	816	572	518	936	662	601	1,130	793
473	02208450	8,870	15,100	10,100	10,500	17,200	12,000	12,200	19,300	14,000	14,700	22,500	17,000
474	02209000	11,900	17,900	12,700	14,500	20,300	15,500	17,300	22,700	18,400	21,700	26,400	22,800
475	02211300	12,400	10,800	12,000	14,900	12,300	14,100	17,800	13,800	16,300	22,100	16,200	19,600
476	02211459	1,070	1,110	1,080	1,260	1,290	1,270	1,470	1,480	1,470	1,780	1,770	1,770
477	02211500	21,200	20,800	21,100	25,800	23,700	25,400	31,100	26,400	30,000	39,200	30,700	36,700
478	02212500	75,200	62,400	74,200	87,400	70,100	85,600	101,000	77,500	98,000	120,000	89,000	115,000
479	02212600	9,700	8,610	9,450	11,600	9,860	11,100	13,700	11,100	12,900	16,700	13,000	15,400
480	02213000	85,000	67,500	83,800	96,800	75,700	95,000	109,000	83,700	106,000	125,000	96,000	121,000
481	02213050	10,600	5,220	9,340	12,500	6,000	10,700	14,400	6,770	12,000	17,200	7,980	14,000
482	02213350	11,400	7,190	10,100	13,700	8,240	11,800	16,200	9,280	13,400	19,800	10,900	15,800
483	02213400	8,670	3,590	6,130	11,500	4,150	7,330	14,800	4,700	8,500	20,300	5,550	10,200
484	02213470	18,800	13,700	16,900	23,000	15,600	19,900	27,700	17,400	22,900	34,700	20,400	27,300
485	02214000	21,400	11,400	18,100	27,600	13,000	21,800	35,100	14,600	25,700	47,500	17,000	31,200
486	02214280	2,940	2,520	2,790	3,600	3,030	3,370	4,320	3,500	3,960	5,370	4,220	4,810
487	02214500	4,640	4,950	4,740	5,730	5,930	5,800	6,940	6,810	6,890	8,740	8,140	8,470
488	02214820	1,480	4,240	2,010	1,760	5,040	2,480	2,070	5,780	2,990	2,500	6,870	3,730
489	02215000	77,300	73,800	77,100	86,900	83,400	86,700	96,400	92,700	96,100	109,000	107,000	109,000
490	02215100	13,100	6,570	9,440	16,800	7,840	11,300	21,000	8,970	13,100	27,600	10,700	15,800
491	02215220	225	444	292	260	545	353	295	638	414	345	782	505
492	02215230	1,150	1,020	1,100	1,410	1,240	1,340	1,690	1,440	1,580	2,120	1,760	1,950
493	02215245	604	355	521	736	436	624	878	512	726	1,080	629	873
494	02215280	860	529	715	1,030	647	850	1,210	757	982	1,470	927	1,180
495	02215500	85,400	76,800	84,900	99,300	87,500	98,400	114,000	97,400	113,000	134,000	112,000	132,000
496	02215800	7,510	7,880	7,660	9,300	9,390	9,340	11,300	10,700	11,000	14,400	12,800	13,500

Table 4. Flood-frequency statistics for rural streamgaging stations in Georgia that were considered for use in the regression equations, 2006.—Continued

[USGS, U.S. Geological Survey; G, estimated from the Bulletin 17B analysis of the streamgaging station; R, estimated from the regression equation; W, weighted estimate using equation 21; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		50-percent chance exceedance			20-percent chance exceedance			10-percent chance exceedance			4-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
497	02216000	2,460	2,700	2,460	4,000	4,850	4,020	5,230	6,460	5,270	7,040	8,560	7,120
498	02216100	1,820	2,120	1,830	3,060	3,840	3,080	4,140	5,130	4,190	5,840	6,830	5,920
499	02216180	997	755	935	2,030	1,420	1,850	2,900	1,920	2,570	4,180	2,600	3,540
500	02216610	235	115	196	480	230	382	696	321	526	1,040	449	725
501	02217000	1,250	1,040	1,220	2,200	1,820	2,120	2,960	2,380	2,810	4,080	3,120	3,760
502	02217200	4,860	3,820	4,780	7,100	6,390	7,040	8,610	8,210	8,570	10,600	10,500	10,600
503	02217250	118	—	—	183	—	—	232	—	—	299	—	—
504	02217380	3,690	3,950	3,710	5,220	6,600	5,310	6,190	8,470	6,360	7,360	10,800	7,680
505	02217400	386	290	381	582	529	578	734	707	731	954	944	953
506	02217450	209	—	—	284	—	—	336	—	—	403	—	—
507	02217475	5,830	6,860	5,950	9,210	11,200	9,490	11,700	14,300	12,100	14,900	18,100	15,600
508	02217500	6,780	7,710	6,800	10,300	12,600	10,400	12,700	16,000	12,800	15,600	20,200	15,800
509	02217660	201	—	—	335	—	—	434	—	—	568	—	—
510	02217900	4,240	6,280	4,390	6,800	10,300	7,150	8,770	13,200	9,340	11,600	16,700	12,500
511	02218100	314	244	293	564	449	522	766	601	697	1,060	805	935
512	02218300	11,800	13,500	11,800	18,000	21,600	18,100	22,400	27,200	22,600	28,200	34,000	28,500
513	02218450	646	791	660	1,170	1,390	1,200	1,600	1,830	1,640	2,260	2,410	2,290
514	02218500	12,900	14,800	13,000	20,600	23,700	20,700	26,500	29,800	26,700	35,100	37,200	35,300
515	02219000	3,620	4,540	3,710	6,120	7,550	6,280	7,970	9,670	8,200	10,500	12,300	10,800
516	02219500	8,230	8,190	8,230	14,100	13,300	14,000	18,500	16,900	18,300	24,800	21,400	24,300
517	02220550	1,370	981	1,330	2,080	1,720	2,040	2,590	2,250	2,540	3,280	2,950	3,220
518	02220900	5,070	5,880	5,120	8,570	9,690	8,640	11,100	12,400	11,200	14,400	15,700	14,500
519	02221000	1,240	1,250	1,240	2,000	2,160	2,010	2,540	2,830	2,570	3,270	3,680	3,320
520	02221525	2,970	4,770	3,080	4,990	7,920	5,200	6,510	10,100	6,840	8,600	12,900	9,120
521	02223082	2,310	2,210	2,310	3,200	3,700	3,220	3,770	4,780	3,810	4,480	6,140	4,570
522	02223200	2,540	1,850	2,500	4,640	3,050	4,530	6,280	3,960	6,080	8,580	5,130	8,160
523	02223300	351	368	354	668	610	653	937	792	892	1,350	1,030	1,230
524	02223349	22	—	—	46	—	—	66	—	—	96	—	—
525	02223360	2,190	1,460	2,090	3,280	2,470	3,160	4,030	3,240	3,890	5,020	4,240	4,850
526	02223500	30,900	28,100	30,800	50,400	44,200	50,200	64,200	55,500	63,800	82,300	69,100	81,600
527	02223700	106	94	103	171	190	176	219	266	233	284	373	313
528	02224000	1,300	886	1,200	2,640	1,650	2,340	3,820	2,240	3,240	5,680	3,020	4,480

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		2-percent chance exceedance			1-percent chance exceedance			0.2-percent chance exceedance			0.5-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
497	02216000	8,570	10,400	8,700	10,300	12,400	10,500	12,100	14,100	12,300	15,000	16,700	15,200
498	02216100	7,390	8,320	7,490	9,200	9,900	9,290	11,300	11,300	11,300	14,700	13,500	14,400
499	02216180	5,270	3,200	4,340	6,450	3,850	5,170	7,730	4,430	5,980	9,590	5,330	7,150
500	02216610	1,340	562	887	1,690	687	1,060	2,080	804	1,240	2,690	983	1,490
501	02217000	5,030	3,770	4,550	6,080	4,350	5,350	7,240	4,920	6,160	8,960	5,820	7,350
502	02217200	12,000	12,500	12,100	13,500	14,300	13,600	15,000	16,000	15,200	17,000	18,700	17,400
503	02217250	353	—	—	411	—	—	472	—	—	561	—	—
504	02217380	8,200	12,900	8,690	9,020	14,700	9,690	9,800	16,500	10,700	10,800	19,300	12,000
505	02217400	1,140	1,160	1,140	1,340	1,350	1,340	1,560	1,540	1,560	1,900	1,840	1,880
506	02217450	455	—	—	508	—	—	563	—	—	638	—	—
507	02217475	17,500	21,500	18,500	20,200	24,400	21,300	23,000	27,200	24,300	26,800	31,600	28,400
508	02217500	17,700	24,000	18,000	19,800	27,200	20,200	21,900	30,300	22,500	24,500	35,100	25,400
509	02217660	673	—	—	782	—	—	895	—	—	1,050	—	—
510	02217900	13,900	19,800	15,100	16,500	22,500	18,000	19,200	25,100	20,900	23,300	29,200	25,200
511	02218100	1,310	986	1,140	1,590	1,150	1,340	1,890	1,320	1,550	2,340	1,580	1,860
512	02218300	32,700	40,200	33,100	37,300	45,300	37,900	42,000	50,300	42,700	48,600	58,000	49,600
513	02218450	2,830	2,920	2,850	3,470	3,380	3,440	4,190	3,830	4,060	5,280	4,540	4,980
514	02218500	42,200	43,900	42,400	49,900	49,500	49,800	58,400	54,800	57,800	70,800	63,200	69,300
515	02219000	12,500	14,700	12,900	14,500	16,700	15,000	16,700	18,700	17,200	19,600	21,800	20,300
516	02219500	29,800	25,300	29,000	35,100	28,700	33,700	40,800	32,000	38,500	48,900	37,100	45,400
517	02220550	3,830	3,570	3,770	4,410	4,120	4,340	5,030	4,660	4,930	5,890	5,510	5,780
518	02220900	17,000	18,700	17,200	19,600	21,200	19,800	22,300	23,700	22,500	25,900	27,500	26,200
519	02221000	3,840	4,450	3,930	4,420	5,130	4,550	5,010	5,790	5,170	5,830	6,830	6,060
520	02221525	10,300	15,400	11,000	12,000	17,500	13,000	13,900	19,600	15,000	16,500	22,800	18,000
521	02223082	4,990	7,310	5,130	5,500	8,350	5,710	6,000	9,420	6,280	6,660	11,000	7,070
522	02223200	10,400	6,060	9,750	12,400	6,940	11,400	14,500	7,920	13,100	17,500	9,150	15,400
523	02223300	1,710	1,210	1,490	2,110	1,370	1,750	2,570	1,580	2,040	3,270	1,810	2,410
524	02223349	122	—	—	150	—	—	180	—	—	223	—	—
525	02223360	5,760	5,050	5,590	6,520	5,840	6,340	7,300	6,700	7,130	8,350	7,790	8,170
526	02223500	96,200	81,100	95,100	110,000	91,500	108,000	125,000	102,000	123,000	144,000	117,000	140,000
527	02223700	334	468	381	387	573	457	442	671	533	518	822	646
528	02224000	7,340	3,710	5,500	9,240	4,450	6,580	11,400	5,120	7,630	14,800	6,150	9,200

Table 4. Flood-frequency statistics for rural streamgaging stations in Georgia that were considered for use in the regression equations, 2006.—Continued

[USGS, U.S. Geological Survey; G, estimated from the Bulletin 17B analysis of the streamgaging station; R, estimated from the regression equation; W, weighted estimate using equation 21; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		50-percent chance exceedance			20-percent chance exceedance			10-percent chance exceedance			4-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
529	02224100	3,050	2,530	3,010	5,850	4,540	5,710	8,360	6,060	8,030	12,400	8,030	11,500
530	02224200	665	366	624	915	703	882	1,080	965	1,060	1,300	1,320	1,300
531	02224400	259	208	252	448	408	441	610	566	600	859	782	835
532	02224500	30,800	28,200	30,700	49,400	44,700	49,200	61,800	56,200	61,600	77,100	70,200	76,800
533	02224650	236	175	229	317	344	321	371	478	387	440	664	480
534	02224800	73	67	71	122	137	126	160	193	171	213	272	237
535	02225000	54,400	—	—	89,100	—	—	114,000	—	—	146,000	—	—
536	02225100	784	978	793	1,290	1,820	1,320	1,680	2,460	1,740	2,240	3,310	2,340
537	02225150	1,110	900	1,090	1,930	1,680	1,910	2,540	2,270	2,510	3,360	3,060	3,320
538	02225180	389	331	372	658	638	651	860	878	866	1,140	1,200	1,170
539	02225200	1,040	887	1,030	1,990	1,650	1,970	2,820	2,240	2,760	4,110	3,020	3,950
540	02225210	173	137	165	339	271	322	481	378	450	698	527	634
541	02225240	136	217	162	269	425	331	385	588	479	566	813	698
542	02225250	2,910	1,970	2,870	4,670	3,580	4,610	6,100	4,790	5,990	8,240	6,380	8,010
543	02225300	4,610	3,910	4,580	8,130	6,930	8,060	11,100	9,180	10,900	15,600	12,100	15,200
544	02225330	205	261	213	442	507	455	663	701	672	1,020	965	1,000
545	02225350	123	84	117	209	170	202	273	239	266	360	336	354
546	02225500	7,350	5,710	7,290	12,500	9,990	12,400	16,400	13,200	16,200	22,100	17,200	21,700
547	02225850	1,230	988	1,190	2,160	1,830	2,090	2,930	2,480	2,800	4,100	3,340	3,830
548	02226000	58,000	—	—	91,200	—	—	115,000	—	—	145,000	—	—
549	02226030	423	561	436	673	1,060	712	850	1,450	918	1,080	1,970	1,200
550	02226100	1,870	1,750	1,860	3,080	3,190	3,090	3,910	4,280	3,950	4,970	5,710	5,060
551	02226190	247	201	238	485	393	463	688	545	648	994	755	910
552	02226200	1,970	2,010	1,970	3,400	3,640	3,410	4,580	4,870	4,600	6,350	6,480	6,360
553	02226300	3,210	2,720	3,190	6,200	4,890	6,120	8,810	6,510	8,610	12,900	8,620	12,400
554	02226465	358	330	348	701	636	674	981	876	932	1,390	1,200	1,290
555	02226500	7,550	6,000	7,480	14,300	10,500	14,100	19,500	13,800	19,200	26,600	18,000	25,900
556	02226580	1,050	795	1,010	1,810	1,490	1,750	2,400	2,020	2,320	3,230	2,730	3,100
557	02227000	1,580	1,480	1,570	2,830	2,710	2,820	3,820	3,650	3,800	5,250	4,880	5,200
558	02227100	611	789	643	1,720	1,480	1,660	2,900	2,000	2,630	5,000	2,710	4,080
559	02227200	1,310	1,150	1,290	2,670	2,130	2,600	3,790	2,870	3,650	5,420	3,860	5,110
560	02227290	3,860	3,010	3,800	6,580	5,380	6,480	8,720	7,160	8,560	11,800	9,460	11,500

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		2-percent chance exceedance			1-percent chance exceedance			0.2-percent chance exceedance			0.5-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
529	02224100	16,100	9,770	14,400	20,500	11,600	17,700	25,700	13,300	21,100	34,000	15,800	26,100
530	02224200	1,460	1,640	1,500	1,620	1,980	1,710	1,790	2,300	1,930	2,020	2,780	2,240
531	02224400	1,080	974	1,040	1,340	1,180	1,280	1,630	1,380	1,520	2,090	1,680	1,880
532	02224500	88,300	82,600	87,900	99,000	93,500	98,600	110,000	104,000	109,000	123,000	119,000	123,000
533	02224650	491	827	556	544	1,010	640	596	1,170	724	668	1,430	847
534	02224800	257	342	294	303	420	357	353	493	421	424	606	517
535	02225000	171,000	—	—	197,000	—	—	223,000	157,000	218,000	258,000	—	—
536	02225100	2,690	4,060	2,850	3,180	4,870	3,420	3,700	5,600	4,020	4,460	6,720	4,900
537	02225150	4,010	3,760	3,970	4,680	4,510	4,650	5,380	5,190	5,340	6,340	6,230	6,310
538	02225180	1,360	1,490	1,420	1,600	1,810	1,700	1,850	2,100	1,970	2,200	2,540	2,380
539	02225200	5,270	3,710	4,990	6,590	4,450	6,120	8,110	5,130	7,320	10,500	6,150	9,130
540	02225210	888	659	792	1,100	804	963	1,340	939	1,140	1,700	1,150	1,400
541	02225240	726	1,010	890	910	1,230	1,110	1,120	1,430	1,320	1,440	1,740	1,640
542	02225250	10,100	7,770	9,740	12,200	9,260	11,600	14,600	10,600	13,700	18,200	12,600	16,700
543	02225300	19,600	14,600	18,800	24,200	17,300	22,800	29,400	19,700	27,100	37,300	23,300	33,300
544	02225330	1,360	1,200	1,300	1,760	1,460	1,630	2,220	1,690	1,960	2,950	2,050	2,460
545	02225350	428	422	426	499	517	504	573	606	584	675	744	699
546	02225500	26,800	20,800	26,200	31,800	24,500	30,900	37,300	27,800	35,900	45,200	32,800	42,900
547	02225850	5,130	4,100	4,710	6,290	4,920	5,660	7,610	5,650	6,630	9,620	6,780	8,070
548	02226000	169,000	—	—	193,000	—	—	218,000	164,000	215,000	251,000	—	—
549	02226030	1,260	2,430	1,440	1,440	2,930	1,700	1,630	3,380	1,970	1,880	4,070	2,360
550	02226100	5,740	6,970	5,910	6,510	8,320	6,790	7,260	9,520	7,650	8,240	11,400	8,860
551	02226190	1,260	939	1,130	1,550	1,140	1,370	1,880	1,330	1,620	2,370	1,620	1,980
552	02226200	7,890	7,900	7,890	9,620	9,410	9,590	11,600	10,800	11,500	14,500	12,800	14,200
553	02226300	16,500	10,500	15,500	20,700	12,400	19,000	25,500	14,200	22,800	32,900	16,900	28,200
554	02226465	1,720	1,490	1,590	2,090	1,800	1,920	2,480	2,090	2,240	3,030	2,530	2,710
555	02226500	32,300	21,800	31,200	38,200	25,600	36,600	44,400	29,100	42,000	52,800	34,300	49,300
556	02226580	3,900	3,350	3,740	4,610	4,030	4,420	5,370	4,640	5,110	6,440	5,580	6,090
557	02227000	6,430	5,970	6,350	7,720	7,130	7,600	9,120	8,170	8,890	11,200	9,760	10,800
558	02227100	7,050	3,330	5,300	9,570	4,000	6,580	12,600	4,610	7,830	17,500	5,540	9,600
559	02227200	6,770	4,730	6,280	8,220	5,660	7,510	9,770	6,500	8,730	12,000	7,780	10,500
560	02227290	14,400	11,500	13,900	17,200	13,600	16,500	20,200	15,500	19,100	24,700	18,400	22,900

Table 4. Flood-frequency statistics for rural streamgaging stations in Georgia that were considered for use in the regression equations, 2006.—Continued

[USGS, U.S. Geological Survey; G, estimated from the Bulletin 17B analysis of the streamgaging station; R, estimated from the regression equation; W, weighted estimate using equation 21; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		50-percent chance exceedance			20-percent chance exceedance			10-percent chance exceedance			4-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
561	02227400	1,810	1,290	1,790	3,220	2,370	3,170	4,510	3,190	4,390	6,670	4,280	6,320
562	02227422	22	—	—	43	—	—	60	—	—	85	—	—
563	02227430	769	877	776	1,700	1,630	1,700	2,480	2,220	2,460	3,620	2,990	3,550
564	02227470	830	1,190	863	2,270	2,190	2,260	3,700	2,960	3,600	6,070	3,980	5,650
565	02227500	4,790	4,020	4,750	9,110	7,110	9,010	12,500	9,420	12,300	17,300	12,400	16,900
566	02227990	27	—	—	51	—	—	71	—	—	103	—	—
567	02228000	13,300	10,400	13,200	24,800	17,800	24,400	34,100	23,200	33,400	47,500	30,100	45,900
568	02228050	1,230	959	1,170	2,300	1,780	2,160	3,190	2,410	2,950	4,520	3,250	4,030
569	02228055	119	92	108	234	185	210	337	259	294	500	363	414
579	02314500	3,890	5,770	4,010	7,180	10,100	7,370	9,600	13,300	9,870	12,800	17,400	13,200
580	02314600	738	1,150	761	1,280	2,120	1,330	1,680	2,860	1,760	2,200	3,850	2,340
581	02314700	1,120	1,850	1,150	1,840	3,360	1,910	2,390	4,500	2,520	3,150	6,000	3,390
583	02315650	49	—	—	68	—	—	80	—	—	96	—	—
584	02315670	148	120	146	181	239	185	201	333	210	227	466	247
585	02315700	1,420	1,290	1,410	2,320	2,370	2,320	2,970	3,190	2,990	3,840	4,280	3,900
586	02315900	1,680	1,460	1,660	2,860	2,670	2,840	3,760	3,590	3,740	5,030	4,810	4,990
587	02315980	105	68	100	184	139	176	252	195	239	355	276	331
588	02316000	3,740	4,080	3,750	6,610	7,230	6,630	8,780	9,570	8,810	11,800	12,600	11,800
589	02316200	1,140	1,120	1,140	2,070	2,070	2,070	2,820	2,790	2,820	3,940	3,750	3,910
590	02316220	66	83	71	114	168	130	150	237	178	200	333	250
591	02316260	172	128	159	306	255	286	420	355	391	593	496	542
592	02316390	6,520	5,610	6,500	9,360	9,820	9,370	11,000	12,900	11,000	12,900	16,900	13,000
593	02317500	5,660	6,630	5,690	10,200	11,600	10,200	13,700	15,200	13,800	18,500	19,800	18,600
594	02317600	2,170	2,110	2,160	4,290	3,820	4,230	5,930	5,100	5,820	8,200	6,790	7,960
596	02317700	1,750	2,090	1,780	3,220	4,120	3,290	4,340	5,810	4,470	5,880	8,340	6,150
597	02317710	71	—	—	156	—	—	233	—	—	354	—	—
598	02317730	85	66	84	130	135	131	163	191	167	208	269	218
599	02317734	2,470	1,680	2,350	4,060	3,130	3,890	5,280	4,250	5,050	6,980	5,770	6,650
600	023177483	4,730	4,270	4,710	9,740	7,900	9,620	14,000	10,800	13,700	20,500	14,700	19,900
601	02317760	368	242	336	592	472	558	758	653	724	983	900	952
602	02317765	75	66	72	136	134	135	188	189	188	268	267	267
603	02317770	274	203	269	401	397	401	487	550	493	597	762	615

Map identification number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		2-percent chance exceedance			1-percent chance exceedance			0.2-percent chance exceedance			0.5-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
561	02227400	8,730	5,240	8,040	11,200	6,270	9,960	14,300	7,190	12,100	19,400	8,600	15,300
562	02227422	105	—	—	127	—	—	151	—	—	184	—	—
563	02227430	4,550	3,670	4,420	5,530	4,410	5,330	6,560	5,070	6,240	8,000	6,090	7,500
564	02227470	8,240	4,870	7,390	10,800	5,830	9,270	13,600	6,690	11,100	17,900	8,010	13,700
565	02227500	21,200	15,000	20,500	25,300	17,800	24,300	29,600	20,200	28,100	35,700	23,900	33,400
566	02227990	131	—	—	163	—	—	199	—	—	255	—	—
567	02228000	58,700	36,100	56,100	70,800	42,300	66,700	83,800	47,800	77,600	103,000	56,100	93,100
568	02228050	5,670	3,990	4,940	6,940	4,790	5,920	8,360	5,510	6,890	10,500	6,600	8,320
569	02228055	649	456	519	822	558	636	1,020	654	751	1,340	801	929
579	02314500	15,300	21,000	16,000	17,700	24,700	18,700	20,200	28,100	21,500	23,500	33,100	25,400
580	02314600	2,600	4,710	2,810	3,000	5,640	3,310	3,400	6,480	3,820	3,940	7,760	4,550
581	02314700	3,770	7,320	4,130	4,440	8,730	4,960	5,160	9,980	5,860	6,180	11,900	7,160
583	02315650	107	—	—	119	—	—	131	—	—	147	—	—
584	02315670	245	582	275	263	712	305	281	832	336	304	1,020	379
585	02315700	4,500	5,240	4,610	5,190	6,270	5,380	5,890	7,190	6,150	6,850	8,600	7,240
586	02315900	6,050	5,880	6,010	7,140	7,020	7,110	8,310	8,050	8,240	9,970	9,610	9,860
587	02315980	446	346	411	551	426	502	670	500	595	856	614	738
588	02316000	14,100	15,200	14,200	16,600	18,000	16,700	19,200	20,500	19,300	22,800	24,300	23,000
589	02316200	4,880	4,600	4,830	5,930	5,510	5,840	7,070	6,330	6,880	8,770	7,580	8,410
590	02316220	241	417	313	284	512	382	330	600	453	395	736	558
591	02316260	745	620	674	919	757	821	1,120	885	969	1,420	1,080	1,190
592	02316390	14,100	20,400	14,300	15,200	24,100	15,500	16,200	27,300	16,600	17,400	32,200	18,100
593	02317500	22,400	23,900	22,500	26,400	28,100	26,600	30,600	31,800	30,700	36,500	37,500	36,600
594	02317600	9,990	8,270	9,640	11,800	9,840	11,300	13,700	11,300	13,000	16,300	13,400	15,400
596	02317700	7,100	10,400	7,540	8,370	12,800	9,050	9,680	15,300	10,700	11,500	19,200	13,100
597	02317710	463	—	—	588	—	—	730	—	—	946	—	—
598	02317730	244	338	261	282	416	310	323	488	361	381	600	437
599	02317734	8,360	7,090	7,970	9,830	8,510	9,380	11,400	9,860	10,800	13,700	11,900	13,000
600	023177483	26,000	18,100	24,900	32,200	21,700	30,400	39,000	25,400	36,200	49,000	30,800	44,500
601	02317760	1,160	1,120	1,140	1,350	1,360	1,350	1,550	1,580	1,560	1,820	1,920	1,870
602	02317765	338	335	337	417	412	414	507	484	493	644	595	612
603	02317770	681	948	715	765	1,150	820	850	1,340	927	965	1,630	1,080

Table 4. Flood-frequency statistics for rural streamgaging stations in Georgia that were considered for use in the regression equations, 2006.—Continued

[USGS, U.S. Geological Survey; G, estimated from the Bulletin 17B analysis of the streamgaging station; R, estimated from the regression equation; W, weighted estimate using equation 21; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		50-percent chance exceedance			20-percent chance exceedance			10-percent chance exceedance			4-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
604	02317775	88	65	83	172	131	163	239	185	226	332	261	311
605	02317780	85	112	88	153	223	163	204	313	221	274	437	304
606	02317795	325	197	293	667	387	584	959	536	813	1,400	742	1,130
607	02317800	1,520	1,520	1,520	2,640	2,790	2,660	3,490	3,750	3,520	4,660	5,010	4,720
608	02317810	50	—	—	93	—	—	127	—	—	177	—	—
609	02317830	2,340	1,920	2,330	3,370	3,490	3,370	4,050	4,680	4,060	4,920	6,230	4,950
610	02317840	304	237	287	510	461	494	675	638	661	920	881	902
611	02317845	167	83	150	246	168	229	301	236	285	373	331	361
612	02317870	2,140	1,270	2,050	3,250	2,330	3,160	3,990	3,140	3,890	4,920	4,210	4,820
613	02317890	64	—	—	102	—	—	130	—	—	167	—	—
614	02317900	808	733	804	1,360	1,380	1,360	1,760	1,870	1,770	2,320	2,530	2,340
615	02317905	337	153	299	601	303	536	798	422	706	1,060	587	924
616	02317910	189	90	176	296	182	280	371	255	353	469	357	448
617	02317980	6,310	3,740	6,260	9,120	6,670	9,070	11,100	8,880	11,000	13,600	11,700	13,500
618	02318000	5,380	3,890	5,330	9,200	6,940	9,120	12,000	9,250	11,900	15,900	12,300	15,700
619	02318015	125	116	121	274	252	263	408	371	388	618	559	582
620	02318020	75	—	—	134	—	—	179	—	—	241	—	—
621	02318500	7,850	8,450	7,890	15,200	15,200	15,200	21,600	20,400	21,500	31,300	27,600	30,700
622	02318600	2,200	1,900	2,190	3,910	3,750	3,900	5,370	5,290	5,370	7,630	7,610	7,630
623	02318700	3,700	3,440	3,650	7,420	6,660	7,230	10,600	9,310	10,200	15,600	13,300	14,700
624	02318725	3,290	3,520	3,300	7,070	6,800	7,050	10,800	9,510	10,700	17,400	13,500	16,700
625	02326200	1,120	1,650	1,210	2,720	3,270	2,840	4,250	4,620	4,350	6,750	6,660	6,720
628	02327200	1,220	1,690	1,230	2,000	3,350	2,040	2,650	4,740	2,730	3,650	6,820	3,840
629	02327350	205	142	197	377	306	367	516	449	505	717	675	708
630	02327355	4,000	3,370	3,930	7,900	6,520	7,710	11,300	9,120	10,900	16,800	13,000	15,900
631	02327400	388	198	347	717	422	645	984	617	880	1,370	922	1,220
632	02327415	1,600	1,080	1,480	3,160	2,160	2,860	4,550	3,080	4,020	6,790	4,470	5,760
633	02327500	5,740	5,480	5,730	11,000	10,400	11,000	15,700	14,500	15,600	23,000	20,400	22,700
634	02327550	826	529	771	1,710	1,090	1,570	2,480	1,570	2,240	3,680	2,310	3,230
635	02327700	2,840	1,860	2,650	6,200	3,670	5,550	9,430	5,180	8,050	14,900	7,450	11,800
636	02327810	8,620	6,680	8,540	16,000	12,600	15,800	22,800	17,500	22,300	34,000	24,600	32,700
637	02327860	167	129	161	295	279	292	401	411	403	560	618	577

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		2-percent chance exceedance			1-percent chance exceedance			0.2-percent chance exceedance			0.5-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
604	02317775	406	329	381	484	405	455	565	475	529	676	584	636
605	02317780	329	547	375	385	669	451	444	782	532	524	957	649
606	02317795	1,780	924	1,390	2,200	1,120	1,660	2,670	1,310	1,930	3,350	1,590	2,320
607	02317800	5,600	6,120	5,700	6,580	7,310	6,740	7,620	8,380	7,810	9,070	10,000	9,330
608	02317810	218	—	—	263	—	—	311	—	—	381	—	—
609	02317830	5,550	7,600	5,620	6,190	9,060	6,300	6,820	10,400	6,980	7,670	12,300	7,920
610	02317840	1,130	1,090	1,110	1,360	1,330	1,340	1,620	1,550	1,580	2,010	1,880	1,930
611	02317845	428	416	424	484	510	493	542	598	562	621	733	663
612	02317870	5,610	5,160	5,540	6,280	6,170	6,260	6,950	7,080	6,970	7,830	8,470	7,970
613	02317890	196	—	—	226	—	—	257	—	—	300	—	—
614	02317900	2,770	3,110	2,810	3,230	3,740	3,300	3,710	4,310	3,810	4,390	5,190	4,550
615	02317905	1,270	733	1,100	1,490	894	1,280	1,710	1,040	1,450	2,010	1,270	1,700
616	02317910	545	448	525	622	550	605	701	644	686	808	789	803
617	02317980	15,500	14,300	15,400	17,400	16,900	17,400	19,400	19,300	19,400	22,200	22,900	22,300
618	02318000	18,900	14,900	18,600	22,100	17,700	21,700	25,400	20,200	24,800	29,900	24,000	29,100
619	02318015	804	718	749	1,010	902	938	1,250	1,110	1,150	1,610	1,420	1,480
620	02318020	289	—	—	340	—	—	393	—	—	467	—	—
621	02318500	39,800	33,600	38,500	49,400	40,000	47,100	60,300	46,400	56,300	76,700	55,800	69,800
622	02318600	9,640	9,530	9,630	12,000	11,700	11,900	14,600	14,000	14,500	18,800	17,600	18,500
623	02318700	20,000	16,500	18,600	25,000	20,100	22,800	30,500	24,100	27,300	39,000	30,000	34,100
624	02318725	23,900	16,800	22,200	32,000	20,500	28,700	42,100	24,500	36,000	59,200	30,500	47,300
625	02326200	9,050	8,360	8,780	11,700	10,200	11,100	14,800	12,300	13,600	19,600	15,500	17,400
628	02327200	4,540	8,560	4,870	5,560	10,500	6,070	6,730	12,600	7,470	8,560	15,800	9,680
629	02327350	885	866	880	1,070	1,090	1,070	1,270	1,330	1,290	1,550	1,710	1,600
630	02327355	21,700	16,200	20,100	27,300	19,700	24,800	33,800	23,600	30,000	43,900	29,400	37,700
631	02327400	1,700	1,180	1,510	2,050	1,470	1,810	2,440	1,800	2,160	3,000	2,310	2,670
632	02327415	8,840	5,630	7,240	11,200	6,930	8,860	14,000	8,370	10,700	18,500	10,500	13,500
633	02327500	29,700	25,400	29,100	37,400	30,700	36,300	46,300	36,600	44,300	60,200	45,500	56,600
634	02327550	4,720	2,920	4,050	5,900	3,620	4,950	7,230	4,390	5,930	9,230	5,570	7,380
635	02327700	20,000	9,340	14,900	26,200	11,400	18,300	33,700	13,700	22,000	45,700	17,200	27,400
636	02327810	44,600	30,500	41,900	57,500	36,900	52,600	73,100	43,900	64,800	98,700	54,300	83,400
637	02327860	698	794	729	854	996	906	1,030	1,220	1,110	1,290	1,570	1,410

Table 4. Flood-frequency statistics for rural streamgaging stations in Georgia that were considered for use in the regression equations, 2006.—Continued

[USGS, U.S. Geological Survey; G, estimated from the Bulletin 17B analysis of the streamgaging station; R, estimated from the regression equation; W, weighted estimate using equation 21; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		50-percent chance exceedance			20-percent chance exceedance			10-percent chance exceedance			4-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
638	02327900	1,130	616	1,100	2,020	1,260	1,970	2,750	1,820	2,680	3,800	2,660	3,680
639	02328000	2,370	1,300	2,300	4,930	2,600	4,700	7,450	3,690	6,920	11,800	5,340	10,400
648	02330450	1,870	2,090	1,890	3,330	3,560	3,360	4,600	4,670	4,610	6,560	6,150	6,460
649	02331000	6,540	4,590	6,430	10,400	7,600	10,200	13,100	9,780	12,800	16,600	12,600	16,200
650	02331500	5,180	4,420	5,150	7,980	7,350	7,950	10,100	9,430	10,100	12,900	12,100	12,800
651	02331600	11,400	7,370	11,200	17,300	12,000	17,000	21,200	15,300	20,900	26,100	19,500	25,600
652	02333000	17,200	10,300	17,000	25,500	16,600	25,100	31,100	21,000	30,600	38,400	26,500	37,600
653	02333500	6,310	4,530	6,240	10,300	7,510	10,200	13,400	9,660	13,200	17,500	12,400	17,100
654	02337000	4,190	5,650	4,220	6,300	9,310	6,370	7,810	11,900	7,930	9,830	15,100	10,000
655	02337400	3,280	1,930	3,110	5,730	3,300	5,380	7,560	4,280	7,010	10,000	5,530	9,060
656	02337448	74	—	—	128	—	—	171	—	—	232	—	—
657	02337500	2,800	1,610	2,690	4,560	2,770	4,390	5,750	3,600	5,530	7,240	4,670	6,910
658	02338660	2,890	3,680	3,000	5,310	6,150	5,460	7,240	7,910	7,380	10,000	10,100	10,000
659	02338840	2,280	2,960	2,310	2,860	4,990	2,960	3,220	6,440	3,400	3,640	8,260	3,950
660	02339000	3,770	4,640	3,940	7,200	7,710	7,330	10,100	9,870	10,000	14,700	12,600	13,800
662	02340250	3,810	5,000	3,940	6,540	8,280	6,770	8,640	10,600	8,960	11,600	13,500	12,000
663	02340500	1,790	2,300	1,860	3,510	3,910	3,590	5,050	5,070	5,050	7,510	6,530	7,160
665	02341220	3,810	4,770	3,950	6,810	7,920	7,040	9,300	10,100	9,520	13,100	12,900	13,000
666	02341600	711	479	692	1,180	788	1,130	1,580	1,020	1,490	2,170	1,330	1,970
667	02341723	342	351	343	603	580	599	828	755	809	1,180	981	1,110
668	02341800	6,030	2,910	5,690	10,100	4,700	9,220	13,400	6,040	11,800	18,600	7,740	15,300
669	02341900	887	657	842	1,770	1,160	1,600	2,590	1,540	2,200	3,960	2,040	3,050
674	02343200	1,460	949	1,390	3,270	1,770	2,970	5,080	2,390	4,370	8,240	3,220	6,380
675	02343219	134	122	133	209	244	213	268	341	278	354	476	376
676	02343225	3,730	2,410	3,520	8,080	4,350	7,140	12,500	5,810	10,200	20,500	7,700	14,500
677	02343244	294	354	299	572	680	585	834	935	851	1,280	1,280	1,280
678	02343267	42	113	46	84	226	97	125	316	149	195	442	243
682	02344700	2,820	3,170	2,870	5,800	5,330	5,710	8,520	6,870	8,110	13,000	8,800	11,600
683	02345000	15,100	13,900	15,000	25,100	22,300	24,900	32,300	28,100	31,900	41,700	35,100	41,000
684	02345500	15,300	14,800	15,300	24,700	23,700	24,600	31,600	29,800	31,300	40,900	37,200	40,200
685	02346180	17,400	16,000	17,400	27,600	25,400	27,500	34,900	31,900	34,800	44,800	39,800	44,500
686	02346193	719	348	661	1,190	631	1,080	1,550	841	1,390	2,050	1,120	1,790

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		2-percent chance exceedance			1-percent chance exceedance			0.2-percent chance exceedance			0.5-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
638	02327900	4,680	3,370	4,510	5,650	4,160	5,420	6,700	5,050	6,400	8,240	6,390	7,850
639	02328000	16,100	6,710	13,500	21,500	8,250	17,000	28,200	9,940	21,000	39,600	12,500	26,900
648	02330450	8,320	7,240	8,000	10,400	8,530	9,750	12,700	9,640	11,500	16,400	11,400	14,100
649	02331000	19,300	14,900	18,800	22,000	17,100	21,300	24,700	19,200	23,800	28,400	22,500	27,300
650	02331500	15,200	14,400	15,100	17,700	16,400	17,500	20,300	18,400	20,000	24,000	21,500	23,500
651	02331600	29,500	23,000	29,000	32,900	26,300	32,200	36,200	29,400	35,400	40,400	34,200	39,500
652	02333000	44,000	31,300	43,000	49,600	35,600	48,200	55,400	39,600	53,500	63,100	45,900	60,700
653	02333500	20,900	14,700	20,200	24,400	16,900	23,400	28,100	18,900	26,700	33,300	22,100	31,200
654	02337000	11,400	18,000	11,700	13,100	20,400	13,600	14,800	22,800	15,400	17,200	26,500	18,100
655	02337400	12,000	6,650	10,700	14,000	7,640	12,200	16,100	8,600	13,700	18,900	10,100	15,800
656	02337448	282	—	—	338	—	—	398	—	—	485	—	—
657	02337500	8,320	5,630	7,920	9,380	6,470	8,870	10,400	7,300	9,780	11,800	8,590	11,100
658	02338660	12,300	12,100	12,200	14,800	13,800	14,400	17,500	15,500	16,700	21,300	18,100	19,900
659	02338840	3,950	9,900	4,390	4,240	11,300	4,820	4,530	12,700	5,250	4,900	14,900	5,850
660	02339000	18,700	15,000	17,000	23,200	17,100	20,100	28,300	19,100	23,200	36,200	22,300	27,800
662	02340250	14,000	16,100	14,500	16,500	18,300	17,000	19,300	20,400	19,700	23,200	23,800	23,400
663	02340500	9,750	7,840	8,950	12,400	8,980	10,800	15,400	10,100	12,600	20,200	11,900	15,300
665	02341220	16,300	15,400	15,900	20,000	17,500	18,900	24,200	19,600	22,000	30,500	22,800	26,400
666	02341600	2,690	1,550	2,360	3,280	1,770	2,760	3,950	2,030	3,200	4,970	2,330	3,780
667	02341723	1,500	1,150	1,360	1,860	1,310	1,610	2,290	1,500	1,890	2,950	1,720	2,250
668	02341800	23,000	9,090	18,000	28,200	10,300	20,700	34,000	11,800	23,500	43,100	13,500	27,300
669	02341900	5,270	2,460	3,740	6,840	2,880	4,450	8,750	3,310	5,190	11,900	3,890	6,210
674	02343200	11,400	3,950	8,070	15,300	4,740	9,840	20,100	5,450	11,600	28,200	6,540	14,100
675	02343219	426	595	463	507	727	563	596	850	669	730	1,040	830
676	02343225	28,700	9,370	18,000	39,200	11,100	21,600	52,600	12,700	25,100	76,000	15,100	30,200
677	02343244	1,700	1,590	1,670	2,220	1,920	2,110	2,850	2,230	2,580	3,900	2,700	3,300
678	02343267	264	553	336	351	677	450	458	791	578	639	968	780
682	02344700	17,100	10,500	14,500	21,900	12,000	17,300	27,600	13,500	20,200	36,600	15,800	24,400
683	02345000	48,900	41,400	47,900	56,300	46,700	54,700	63,700	51,800	61,400	73,900	59,800	70,800
684	02345500	48,300	43,900	47,300	56,000	49,500	54,300	64,100	54,800	61,400	75,400	63,200	71,400
685	02346180	52,600	47,000	52,100	60,600	52,900	59,800	69,000	58,600	67,700	80,700	67,500	78,800
686	02346193	2,460	1,370	2,110	2,900	1,590	2,430	3,360	1,820	2,750	4,030	2,170	3,220

Table 4. Flood-frequency statistics for rural streamgaging stations in Georgia that were considered for use in the regression equations, 2006.—Continued

[USGS, U.S. Geological Survey; G, estimated from the Bulletin 17B analysis of the streamgaging station; R, estimated from the regression equation; W, weighted estimate using equation 21; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		50-percent chance exceedance			20-percent chance exceedance			10-percent chance exceedance			4-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
687	02346195	3,230	2,750	3,160	6,380	4,650	5,990	9,340	6,010	8,330	14,300	7,720	11,600
688	02346210	847	540	826	1,290	965	1,270	1,600	1,280	1,570	2,000	1,690	1,970
689	02346217	363	311	356	669	565	653	913	755	883	1,260	1,010	1,200
690	02346500	3,830	4,710	3,880	6,610	7,820	6,710	8,850	10,000	8,970	12,200	12,700	12,300
691	02347500	26,100	20,900	25,900	43,700	32,900	43,200	56,500	41,200	55,700	73,500	51,200	71,900
692	02348300	1,470	1,190	1,430	2,850	1,940	2,630	4,140	2,510	3,610	6,280	3,240	4,960
693	02348485	129	223	131	186	372	191	226	485	236	282	633	300
694	02349000	537	727	545	840	1,190	861	1,080	1,540	1,120	1,440	1,990	1,510
695	02349030	251	430	267	431	709	470	583	921	647	818	1,200	917
696	02349330	36	—	—	55	—	—	69	—	—	88	—	—
697	02349350	976	1,130	1,000	1,960	1,830	1,930	2,820	2,360	2,680	4,150	3,050	3,730
698	02349605	25,800	20,900	25,600	44,100	32,700	43,500	57,900	41,100	56,900	77,000	51,300	74,800
699	02349695	81	—	—	151	—	—	205	—	—	279	—	—
700	02349900	1,030	713	991	2,040	1,340	1,930	2,910	1,820	2,710	4,230	2,470	3,790
701	02350512	24,300	21,300	24,200	39,100	33,900	38,900	50,400	42,900	50,000	66,200	53,900	65,300
702	02350520	292	143	281	419	283	407	512	394	498	640	549	626
703	02350600	2,540	1,590	2,490	4,580	2,700	4,450	6,230	3,540	5,990	8,670	4,640	8,160
704	02350685	19	—	—	66	—	—	128	—	—	262	—	—
705	02350900	3,330	3,340	3,330	6,060	5,730	6,040	8,480	7,520	8,390	12,300	9,840	12,000
706	02351500	1,620	1,330	1,580	2,870	2,330	2,760	3,920	3,080	3,700	5,530	4,070	5,030
707	02351700	2,190	2,150	2,180	3,740	3,790	3,750	5,000	5,020	5,010	6,900	6,630	6,800
708	02351800	676	733	680	1,320	1,380	1,320	1,860	1,870	1,860	2,680	2,530	2,660
709	02351890	2,980	2,680	2,970	5,300	4,730	5,270	7,300	6,270	7,210	10,400	8,260	10,100
710	02351900	2,790	2,890	2,790	4,570	5,110	4,590	5,960	6,760	6,000	7,960	8,910	8,040
711	02352500	30,900	23,100	30,700	47,200	37,100	46,900	59,100	47,000	58,600	75,200	59,300	74,300
712	02353000	29,200	23,600	29,100	43,800	37,900	43,600	54,100	48,200	53,900	67,600	60,800	67,300
713	02353100	1,730	1,330	1,680	2,650	2,450	2,620	3,280	3,300	3,280	4,100	4,420	4,160
714	02353200	587	752	626	1,050	1,410	1,160	1,440	1,910	1,620	2,030	2,590	2,280
715	02353400	2,600	1,800	2,550	4,910	3,280	4,780	6,960	4,400	6,680	10,200	5,860	9,500
716	02353500	5,040	3,910	4,990	8,880	6,930	8,770	11,900	9,180	11,700	16,300	12,100	15,900
717	02354500	2,050	2,550	2,070	3,510	4,580	3,550	4,590	6,100	4,660	6,060	8,090	6,180
718	02354800	4,960	5,330	5,110	10,800	9,350	10,100	16,300	12,300	13,900	25,400	16,100	19,100

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		2-percent chance exceedance			1-percent chance exceedance			0.2-percent chance exceedance			0.5-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
687	02346195	19,000	9,250	14,300	24,800	10,600	16,900	31,800	11,900	19,600	43,400	13,900	23,500
688	02346210	2,300	2,050	2,270	2,600	2,390	2,570	2,910	2,710	2,880	3,320	3,230	3,300
689	02346217	1,550	1,230	1,460	1,860	1,440	1,730	2,200	1,640	2,000	2,680	1,960	2,390
690	02346500	15,000	15,200	15,000	18,100	17,300	17,900	21,600	19,400	21,000	26,800	22,500	25,500
691	02347500	86,700	60,200	84,300	100,000	67,600	96,300	114,000	74,700	109,000	133,000	85,900	125,000
692	02348300	8,320	3,800	6,020	10,800	4,320	7,070	13,800	4,950	8,210	18,700	5,670	9,670
693	02348485	325	741	352	371	846	409	420	972	472	488	1,110	559
694	02349000	1,740	2,330	1,830	2,070	2,650	2,180	2,450	3,050	2,580	3,010	3,480	3,140
695	02349030	1,030	1,400	1,150	1,270	1,600	1,390	1,540	1,830	1,660	1,970	2,100	2,030
696	02349330	103	—	—	119	—	—	135	—	—	159	—	—
697	02349350	5,320	3,570	4,560	6,660	4,060	5,380	8,170	4,660	6,290	10,500	5,320	7,440
698	02349605	92,200	60,100	88,700	108,000	67,600	103,000	125,000	75,500	117,000	149,000	86,400	137,000
699	02349695	339	—	—	402	—	—	467	—	—	558	—	—
700	02349900	5,380	3,030	4,690	6,670	3,650	5,630	8,110	4,200	6,590	10,300	5,060	7,980
701	02350512	79,100	63,400	77,600	92,900	72,000	90,500	108,000	80,500	104,000	129,000	92,700	123,000
702	02350520	742	685	732	851	836	848	968	976	970	1,130	1,190	1,150
703	02350600	10,700	5,520	9,870	13,000	6,410	11,700	15,600	7,350	13,700	19,300	8,550	16,300
704	02350685	417	—	—	637	—	—	939	—	—	1,510	—	—
705	02350900	15,900	11,800	15,100	20,000	13,800	18,600	24,900	15,700	22,400	32,600	18,400	27,800
706	02351500	6,950	4,900	6,130	8,560	5,740	7,290	10,400	6,590	8,510	13,200	7,740	10,200
707	02351700	8,540	8,010	8,310	10,400	9,440	9,940	12,400	10,800	11,600	15,600	12,700	14,000
708	02351800	3,380	3,110	3,330	4,170	3,740	4,070	5,050	4,310	4,860	6,360	5,190	6,000
709	02351890	13,200	9,990	12,700	16,400	11,800	15,500	20,000	13,500	18,400	25,800	15,900	22,900
710	02351900	9,620	10,800	9,740	11,400	12,700	11,600	13,400	14,500	13,600	16,300	17,100	16,500
711	02352500	87,900	70,000	86,600	101,000	79,800	99,100	115,000	89,400	112,000	135,000	103,000	131,000
712	02353000	77,900	71,800	77,500	88,600	82,000	88,100	99,600	91,900	98,900	115,000	106,000	114,000
713	02353100	4,730	5,410	4,860	5,360	6,470	5,600	6,000	7,420	6,330	6,870	8,870	7,390
714	02353200	2,550	3,190	2,870	3,150	3,830	3,520	3,820	4,410	4,160	4,860	5,300	5,130
715	02353400	13,100	7,150	11,900	16,600	8,530	14,500	20,600	9,760	17,300	26,800	11,600	21,300
716	02353500	20,000	14,600	19,300	24,000	17,300	23,000	28,300	19,700	26,700	34,600	23,300	32,100
717	02354500	7,220	9,840	7,420	8,420	11,700	8,720	9,680	13,400	10,100	11,400	15,900	12,000
718	02354800	34,000	19,500	23,500	44,300	23,000	28,100	56,500	26,100	32,500	76,100	30,800	38,900

Table 4. Flood-frequency statistics for rural streamgaging stations in Georgia that were considered for use in the regression equations, 2006.—Continued

[USGS, U.S. Geological Survey; G, estimated from the Bulletin 17B analysis of the streamgaging station; R, estimated from the regression equation; W, weighted estimate using equation 21; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		50-percent chance exceedance			20-percent chance exceedance			10-percent chance exceedance			4-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
719	02355000	6,410	5,400	6,310	11,400	9,470	11,200	15,200	12,500	14,800	20,500	16,300	19,800
720	02356000	30,600	26,100	30,500	46,700	42,200	46,600	58,000	53,700	57,900	72,800	67,900	72,600
721	02356100	1,260	753	1,140	2,430	1,410	2,150	3,410	1,920	2,920	4,840	2,600	3,960
722	02356640	3,250	2,340	3,050	6,330	4,220	5,720	9,020	5,630	7,820	13,200	7,480	10,700
723	02357000	4,370	3,330	4,250	8,740	5,940	8,390	12,200	7,890	11,600	17,100	10,400	15,800
734	02379500	3,890	4,980	3,920	6,550	8,190	6,610	8,580	10,600	8,680	11,400	13,800	11,600
735	02380000	3,630	3,580	3,630	5,910	5,960	5,910	7,620	7,760	7,630	9,960	10,200	9,980
736	02380500	6,140	7,740	6,180	9,890	12,500	9,960	12,700	16,100	12,800	16,500	20,800	16,700
737	02381100	240	218	233	425	404	417	577	551	565	806	753	778
738	02381300	96	143	101	159	269	173	209	369	235	283	508	331
739	02381600	740	659	733	1,360	1,170	1,340	1,880	1,570	1,840	2,630	2,110	2,530
740	02381900	435	291	410	777	534	729	1,040	725	968	1,400	986	1,290
741	02382200	4,890	4,540	4,860	8,680	7,490	8,560	11,800	9,720	11,500	16,500	12,700	15,800
742	02382600	640	522	631	926	936	927	1,110	1,260	1,120	1,350	1,690	1,390
743	02382800	398	322	392	634	587	630	809	790	807	1,050	1,060	1,050
744	02382900	578	745	587	910	1,320	942	1,180	1,750	1,240	1,570	2,320	1,680
745	02383000	413	516	421	708	924	730	939	1,220	976	1,270	1,620	1,330
746	02383200	327	216	316	547	398	529	714	534	688	947	717	904
747	02384500	9,260	6,780	9,080	15,200	11,100	14,800	19,700	14,200	19,000	26,100	18,100	24,800
748	02384540	619	537	603	1,130	962	1,090	1,540	1,290	1,470	2,140	1,740	2,000
749	02384600	388	376	387	601	680	606	755	905	767	961	1,200	987
751	02385000	3,500	2,870	3,450	5,780	4,840	5,690	7,500	6,250	7,340	9,890	8,020	9,580
752	02385700	291	290	291	465	531	474	602	722	622	804	981	844
753	02385800	3,610	2,630	3,540	6,150	4,440	5,980	8,170	5,780	7,870	11,100	7,540	10,500
754	02387000	14,100	12,500	14,100	20,500	20,000	20,500	24,900	25,400	24,900	30,400	32,000	30,400
755	02387100	261	197	257	380	364	379	468	490	471	591	658	602
756	02387200	321	220	305	466	406	454	570	545	564	711	731	717
757	02387300	80	—	—	129	—	—	163	—	—	209	—	—
758	02387560	349	361	350	554	654	567	716	871	742	953	1,160	999
759	02387570	1,150	1,170	1,150	1,770	2,030	1,800	2,260	2,660	2,320	2,960	3,470	3,060
760	02387700	958	641	900	1,560	1,140	1,460	2,040	1,500	1,880	2,740	1,980	2,450
761	02387800	541	378	507	1,060	684	953	1,520	910	1,300	2,270	1,210	1,800

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		2-percent chance exceedance			1-percent chance exceedance			0.2-percent chance exceedance			0.5-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
719	02355000	24,800	19,700	23,800	29,300	23,300	27,900	34,000	26,400	31,900	40,600	31,200	37,700
720	02356000	84,300	80,200	84,100	96,000	92,000	95,700	108,000	103,000	108,000	125,000	119,000	124,000
721	02356100	6,050	3,190	4,800	7,370	3,840	5,680	8,810	4,420	6,530	10,900	5,310	7,760
722	02356640	17,000	9,100	13,100	21,300	10,800	15,600	26,200	12,400	18,000	33,800	14,700	21,600
723	02357000	21,100	12,600	19,200	25,300	15,000	22,500	29,600	17,100	25,700	35,600	20,200	30,200
734	02379500	13,700	16,100	13,900	16,100	18,900	16,400	18,700	21,300	19,000	22,400	25,000	22,800
735	02380000	11,800	11,900	11,800	13,800	14,000	13,800	15,900	15,800	15,900	18,900	18,500	18,800
736	02380500	19,500	24,200	19,800	22,700	28,300	23,100	26,000	31,800	26,600	30,700	37,200	31,500
737	02381100	1,000	900	944	1,230	1,080	1,140	1,470	1,230	1,320	1,850	1,480	1,600
738	02381300	346	609	412	416	731	507	494	839	606	611	1,010	756
739	02381600	3,280	2,500	3,100	3,990	2,970	3,710	4,770	3,380	4,340	5,930	4,020	5,240
740	02381900	1,690	1,180	1,530	1,990	1,410	1,790	2,300	1,610	2,030	2,750	1,920	2,400
741	02382200	20,500	14,800	19,200	25,100	17,400	23,000	30,100	19,600	26,700	37,700	23,000	32,200
742	02382600	1,520	2,010	1,580	1,690	2,390	1,790	1,860	2,720	1,990	2,090	3,240	2,290
743	02382800	1,240	1,280	1,250	1,450	1,510	1,460	1,660	1,730	1,680	1,970	2,070	1,990
744	02382900	1,910	2,780	2,070	2,280	3,260	2,500	2,710	3,700	2,970	3,350	4,390	3,670
745	02383000	1,540	1,970	1,630	1,840	2,290	1,950	2,160	2,600	2,280	2,620	3,100	2,770
746	02383200	1,140	879	1,080	1,340	1,030	1,260	1,550	1,180	1,440	1,860	1,410	1,720
747	02384500	31,200	21,300	29,300	36,800	24,600	34,000	42,800	27,500	38,700	51,400	32,100	45,400
748	02384540	2,650	2,070	2,420	3,200	2,460	2,880	3,810	2,800	3,330	4,700	3,340	4,000
749	02384600	1,120	1,470	1,160	1,290	1,710	1,350	1,470	1,950	1,550	1,710	2,330	1,830
751	02385000	11,800	9,610	11,400	13,800	11,000	13,200	16,000	12,300	15,000	19,000	14,400	17,600
752	02385700	976	1,170	1,030	1,170	1,400	1,240	1,380	1,600	1,460	1,700	1,910	1,780
753	02385800	13,600	8,910	12,600	16,300	10,400	14,800	19,400	11,700	17,100	23,800	13,800	20,400
754	02387000	34,500	37,600	34,600	38,700	42,800	38,900	42,800	47,700	43,000	48,400	55,200	48,800
755	02387100	690	808	712	797	948	830	912	1,090	955	1,080	1,300	1,140
756	02387200	823	896	847	941	1,050	979	1,070	1,200	1,120	1,240	1,440	1,320
757	02387300	245	—	—	282	—	—	320	—	—	372	—	—
758	02387560	1,160	1,420	1,230	1,380	1,650	1,460	1,630	1,880	1,720	2,000	2,250	2,100
759	02387570	3,560	4,190	3,710	4,210	4,830	4,380	4,930	5,460	5,100	6,000	6,440	6,160
760	02387700	3,330	2,400	2,930	3,990	2,790	3,420	4,710	3,170	3,920	5,800	3,760	4,670
761	02387800	2,940	1,480	2,200	3,740	1,720	2,600	4,660	1,960	3,010	6,120	2,340	3,620

Table 4. Flood-frequency statistics for rural streamgaging stations in Georgia that were considered for use in the regression equations, 2006.—Continued

[USGS, U.S. Geological Survey; G, estimated from the Bulletin 17B analysis of the streamgaging station; R, estimated from the regression equation; W, weighted estimate using equation 21; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identification number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		50-percent chance exceedance			20-percent chance exceedance			10-percent chance exceedance			4-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
762	02388000	3,670	1,630	3,430	6,300	2,810	5,710	8,500	3,660	7,420	11,800	4,740	9,650
763	02388200	755	508	738	1,160	910	1,140	1,460	1,210	1,430	1,870	1,590	1,830
764	02388300	721	907	737	1,090	1,590	1,140	1,350	2,090	1,440	1,680	2,740	1,830
765	02388400	400	312	388	676	567	657	892	757	864	1,200	1,010	1,150
766	02388900	2,650	2,690	2,650	4,410	4,540	4,430	5,820	5,900	5,830	7,880	7,650	7,820
767	02389000	3,320	3,510	3,330	4,550	5,870	4,590	5,320	7,580	5,400	6,260	9,760	6,420
768	02389300	1,930	1,170	1,800	3,230	2,030	3,010	4,160	2,660	3,840	5,380	3,470	4,900
769	02390000	3,960	3,250	3,890	5,530	5,450	5,520	6,560	7,060	6,630	7,860	9,150	8,080
770	02391000	11,000	10,300	10,900	15,300	16,500	15,500	18,200	21,000	18,700	21,900	26,700	22,900
771	02392000	11,300	12,900	11,300	17,500	20,500	17,600	22,100	26,000	22,200	28,400	33,000	28,600
772	02394400	2,280	1,810	2,240	3,650	3,110	3,600	4,640	4,040	4,570	5,970	5,230	5,860
773	02394820	1,760	1,800	1,760	2,610	3,080	2,620	3,210	4,000	3,230	4,000	5,180	4,040
774	02394950	1,320	1,280	1,320	2,360	2,220	2,340	3,240	2,900	3,160	4,570	3,780	4,340
775	02395120	1,350	1,540	1,370	2,320	2,650	2,370	3,050	3,450	3,120	4,060	4,480	4,150
776	02397410	3,670	2,420	3,630	6,050	4,120	5,960	7,970	5,320	7,790	10,800	6,860	10,400
777	02397500	4,960	3,450	4,920	7,660	5,780	7,610	9,520	7,440	9,450	11,900	9,520	11,800
778	02397750	817	545	796	1,190	973	1,170	1,460	1,290	1,440	1,840	1,700	1,820
779	02397830	1,620	850	1,510	2,640	1,500	2,450	3,390	1,970	3,110	4,410	2,580	3,960
780	02398000	8,330	4,810	8,150	13,100	7,970	12,800	16,500	10,200	16,000	21,100	13,000	20,300
790	02411735	240	—	—	342	—	—	416	—	—	519	—	—
791	02411800	1,480	1,110	1,440	2,390	1,940	2,330	3,070	2,540	2,990	4,020	3,320	3,880
792	02411900	5,750	5,500	5,740	8,510	9,070	8,530	10,500	11,600	10,600	13,100	14,700	13,200
793	02411902	50	—	—	77	—	—	97	—	—	125	—	—
796	02413000	2,640	3,050	2,660	3,840	5,130	3,920	4,650	6,620	4,800	5,670	8,490	5,940
797	02413200	3,910	5,250	3,950	5,700	8,680	5,800	6,820	11,100	6,970	8,160	14,100	8,420
919	03544947	154	163	157	368	307	344	585	421	507	963	577	741
920	03545000	1,900	2,150	1,910	3,020	3,650	3,050	3,850	4,790	3,910	4,980	6,320	5,100
924	03550500	3,380	3,160	3,370	4,990	5,290	5,000	6,090	6,910	6,120	7,500	9,050	7,560
928	03558000	4,530	6,180	4,550	6,990	10,100	7,040	8,770	13,000	8,860	11,200	16,900	11,400
929	03560000	2,470	3,030	2,490	3,750	5,080	3,830	4,750	6,640	4,900	6,200	8,710	6,490
936	03566660	502	417	501	640	751	641	737	999	740	867	1,330	876
937	03566685	1,750	1,610	1,750	2,860	2,770	2,860	3,710	3,600	3,700	4,900	4,670	4,880

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		2-percent chance exceedance			1-percent chance exceedance			0.2-percent chance exceedance			0.5-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
762	02388000	14,800	5,710	11,500	18,100	6,570	13,300	21,900	7,400	15,100	27,800	8,710	17,700
763	02388200	2,200	1,940	2,160	2,540	2,250	2,480	2,910	2,570	2,830	3,430	3,050	3,330
764	02388300	1,940	3,310	2,160	2,190	3,830	2,490	2,460	4,340	2,840	2,810	5,140	3,330
765	02388400	1,460	1,230	1,390	1,740	1,440	1,640	2,040	1,650	1,890	2,480	1,970	2,260
766	02388900	9,630	9,090	9,470	11,600	10,500	11,200	13,700	11,900	13,000	16,900	13,900	15,600
767	02389000	6,940	11,600	7,200	7,590	13,400	7,960	8,230	15,000	8,720	9,060	17,600	9,770
768	02389300	6,320	4,190	5,720	7,270	4,830	6,500	8,240	5,460	7,290	9,550	6,440	8,380
769	02390000	8,820	10,800	9,200	9,780	12,600	10,300	10,700	14,100	11,500	12,000	16,600	13,100
770	02391000	24,700	31,300	26,300	27,600	35,900	29,700	30,600	40,000	33,200	34,700	46,500	38,300
771	02392000	33,500	38,600	33,800	38,900	44,300	39,300	44,700	49,400	45,200	52,900	57,300	53,400
772	02394400	7,010	6,290	6,890	8,090	7,230	7,920	9,220	8,150	8,980	10,800	9,570	10,500
773	02394820	4,610	6,230	4,680	5,250	7,160	5,360	5,900	8,070	6,050	6,810	9,480	7,030
774	02394950	5,740	4,560	5,330	7,060	5,250	6,340	8,560	5,930	7,390	10,900	7,000	8,950
775	02395120	4,880	5,390	5,010	5,740	6,210	5,880	6,650	7,000	6,770	7,940	8,240	8,050
776	02397410	13,200	8,230	12,600	15,900	9,430	14,800	18,800	10,600	17,200	23,300	12,400	20,700
777	02397500	13,700	11,400	13,600	15,600	13,000	15,400	17,400	14,600	17,200	19,900	17,000	19,600
778	02397750	2,150	2,070	2,130	2,470	2,400	2,450	2,820	2,730	2,800	3,320	3,250	3,300
779	02397830	5,220	3,120	4,630	6,060	3,610	5,290	6,950	4,090	5,960	8,190	4,840	6,900
780	02398000	24,800	15,500	23,600	28,600	17,600	26,900	32,500	19,700	30,200	38,100	23,000	34,900
790	02411735	602	—	—	690	—	—	785	—	—	920	—	—
791	02411800	4,780	4,010	4,600	5,590	4,630	5,330	6,450	5,230	6,080	7,670	6,180	7,160
792	02411900	15,200	17,500	15,400	17,400	19,900	17,700	19,700	22,300	20,000	22,900	25,900	23,300
793	02411902	148	—	—	172	—	—	198	—	—	236	—	—
796	02413000	6,430	10,200	6,850	7,200	11,600	7,770	7,970	13,000	8,700	9,000	15,300	10,000
797	02413200	9,100	16,800	9,500	10,000	19,100	10,600	10,900	21,400	11,700	12,000	24,900	13,100
919	03544947	1,330	692	923	1,790	829	1,130	2,350	950	1,320	3,270	1,140	1,610
920	03545000	5,880	7,420	6,050	6,830	8,750	7,090	7,830	9,900	8,150	9,240	11,700	9,690
924	03550500	8,560	10,600	8,670	9,630	12,500	9,810	10,700	14,100	10,900	12,200	16,600	12,600
928	03558000	13,000	19,700	13,300	15,000	23,100	15,400	17,000	25,900	17,500	19,900	30,400	20,700
929	03560000	7,430	10,200	7,830	8,770	12,000	9,340	10,300	13,600	11,000	12,500	16,000	13,400
936	03566660	970	1,620	987	1,080	1,880	1,110	1,190	2,140	1,230	1,350	2,560	1,410
937	03566685	5,880	5,630	5,860	6,920	6,470	6,870	8,030	7,300	7,930	9,630	8,590	9,460

Table 4. Flood-frequency statistics for rural streamgaging stations in Georgia that were considered for use in the regression equations, 2006.—Continued

[USGS, U.S. Geological Survey; G, estimated from the Bulletin 17B analysis of the streamgaging station; R, estimated from the regression equation; W, weighted estimate using equation 21; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		50-percent chance exceedance			20-percent chance exceedance			10-percent chance exceedance			4-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
938	03566687	313	348	313	442	631	445	541	841	548	682	1,120	698
939	03566700	9,020	4,420	8,920	13,000	7,360	12,900	15,800	9,430	15,600	19,500	12,000	19,200
940	03567200	4,250	2,570	4,110	6,870	4,350	6,590	8,920	5,620	8,450	11,900	7,230	11,000
942	03568500	2,910	2,020	2,830	4,340	3,460	4,240	5,370	4,480	5,240	6,740	5,790	6,560
943	03568933	6,840	4,080	6,470	11,300	6,800	10,500	14,700	8,730	13,400	19,600	11,100	17,200

Map identi-fication number (figs. 2, 4)	USGS station number	Discharge, in cubic feet per second											
		2-percent chance exceedance			1-percent chance exceedance			0.2-percent chance exceedance			0.5-percent chance exceedance		
		G	R	W	G	R	W	G	R	W	G	R	W
938	03566687	799	1,370	827	928	1,590	971	1,070	1,820	1,130	1,280	2,170	1,370
939	03566700	22,300	14,300	21,900	25,200	16,300	24,600	28,100	18,300	27,300	32,200	21,300	31,100
940	03567200	14,300	8,670	13,000	17,000	9,930	15,000	19,900	11,200	17,100	24,200	13,100	20,100
942	03568500	7,820	6,960	7,640	8,950	7,980	8,720	10,100	8,990	9,800	11,800	10,600	11,400
943	03568933	23,600	13,300	20,300	28,000	15,200	23,300	32,700	17,000	26,200	39,600	19,800	30,600

Table 6. Explanatory variables that are used in the regional regression equations for rural streamgaging stations in Georgia.

[USGS, U.S. Geological Survey; mi², square mile; *, indicates that drainage area has been revised as a result of this study]

Map identification number (figs. 2, 4)	USGS station number	Drainage area (mi²)	Percentage of drainage basin in hydrologic region				
			Hydrologic region 1	Hydrologic region 2	Hydrologic region 3	Hydrologic region 4	Hydrologic region 5
384	02177000	207	0.0	100.0	0.0	0.0	0.0
385	02178400	56.5	0.0	100.0	0.0	0.0	0.0
386	02181800	2.47	51.0	49.0	0.0	0.0	0.0
387	02182000	32.5	75.0	25.0	0.0	0.0	0.0
395	02188500	38.4	100.0	0.0	0.0	0.0	0.0
396	02188600	72.0	100.0	0.0	0.0	0.0	0.0
398	02189020	7.63	100.0	0.0	0.0	0.0	0.0
399	02189030	0.39	100.0	0.0	0.0	0.0	0.0
400	02189600	3.62	100.0	0.0	0.0	0.0	0.0
401	02190100	4.75*	100.0	0.0	0.0	0.0	0.0
402	02190200	1.01*	100.0	0.0	0.0	0.0	0.0
403	02190800	0.53*	100.0	0.0	0.0	0.0	0.0
404	02191200	60.9	100.0	0.0	0.0	0.0	0.0
405	02191270	8.75	100.0	0.0	0.0	0.0	0.0
406	02191280	0.39*	100.0	0.0	0.0	0.0	0.0
407	02191300	760	100.0	0.0	0.0	0.0	0.0
408	02191600	5.12*	100.0	0.0	0.0	0.0	0.0
409	02191750	16.0	100.0	0.0	0.0	0.0	0.0
410	02191890	12.3	100.0	0.0	0.0	0.0	0.0
411	02191910	2.47*	100.0	0.0	0.0	0.0	0.0
412	02191930	5.24*	100.0	0.0	0.0	0.0	0.0
413	02191960	3.45	100.0	0.0	0.0	0.0	0.0
414	02191970	1.89*	100.0	0.0	0.0	0.0	0.0
415	02192000	1430	100.0	0.0	0.0	0.0	0.0
416	02192400	5.49	100.0	0.0	0.0	0.0	0.0
417	02192420	1.00*	100.0	0.0	0.0	0.0	0.0
419	02193300	6.30	100.0	0.0	0.0	0.0	0.0
420	02193340	33.9	100.0	0.0	0.0	0.0	0.0
421	02193400	3.98	100.0	0.0	0.0	0.0	0.0
422	02193500	292	100.0	0.0	0.0	0.0	0.0
423	02195150	43.9	80.0	0.0	20.0	0.0	0.0
432	02197520	55.6	79.9	0.0	20.1	0.0	0.0
433	02197550	24.0	0.0	0.0	89.0	11.0	0.0
434	02197600	28.0	0.0	0.0	0.0	100.0	0.0
435	02197810	13.1*	0.0	0.0	0.0	100.0	0.0
436	02197830	473	9.9	0.0	44.2	45.9	0.0
437	02198000	646	7.3	0.0	32.4	60.3	0.0
438	02198100	30.8	0.0	0.0	0.0	100.0	0.0
439	02198690	162*	0.0	0.0	0.0	100.0	0.0
440	02199700	31.3	100.0	0.0	0.0	0.0	0.0

Table 6. Explanatory variables that are used in the regional regression equations for rural streamgaging stations in Georgia.—Continued

[USGS, U.S. Geological Survey; mi², square mile; *, indicates that drainage area has been revised as a result of this study]

Map identification number (figs. 2, 4)	USGS station number	Drainage area (mi²)	Percentage of drainage basin in hydrologic region				
			Hydrologic region 1	Hydrologic region 2	Hydrologic region 3	Hydrologic region 4	Hydrologic region 5
441	02200000	242	98.7	0.0	1.3	0.0	0.0
442	02200100	55.0	48.7	0.0	51.3	0.0	0.0
443	02200400	188	36.2	0.0	54.6	9.2	0.0
444	02200500	800	44.0	0.0	31.9	24.1	0.0
445	02200900	95.8	0.0	0.0	0.0	100.0	0.0
446	02200930	14.2	0.0	0.0	0.0	100.0	0.0
447	02200950	990	37.0	0.0	26.0	37.0	0.0
448	02201000	109	0.0	0.0	3.2	96.8	0.0
449	02201110	8.36	0.0	0.0	0.0	100.0	0.0
450	02201160	7.49*	0.0	0.0	0.0	100.0	0.0
451	02201250	0.65*	0.0	0.0	0.0	100.0	0.0
452	02201350	50.5*	0.0	0.0	0.0	100.0	0.0
453	02201800	35.2*	0.0	0.0	0.0	100.0	0.0
454	02201830	4.38	0.0	0.0	0.0	100.0	0.0
455	02202000	1940	18.4	0.0	13.5	68.1	0.0
456	02202300	39.0	0.0	0.0	0.0	100.0	0.0
457	02202500	2650	13.3	0.0	9.8	76.9	0.0
458	02202600	232	0.0	0.0	0.0	100.0	0.0
459	02202605	3.53*	0.0	0.0	0.0	100.0	0.0
460	02202800	46.0	0.0	0.0	0.0	100.0	0.0
461	02202810	5.05	0.0	0.0	0.0	100.0	0.0
462	02202820	8.99	0.0	0.0	0.0	100.0	0.0
463	02202850	3.41	0.0	0.0	0.0	100.0	0.0
464	02202865	202	0.0	0.0	0.0	100.0	0.0
465	02202900	137*	0.0	0.0	0.0	100.0	0.0
466	02202910	1.14	0.0	0.0	0.0	100.0	0.0
467	02202950	1.25*	0.0	0.0	0.0	100.0	0.0
468	02203000	555	0.0	0.0	0.0	100.0	0.0
469	02203280	833	0.0	0.0	0.0	100.0	0.0
470	02203559	36.8*	0.0	0.0	0.0	100.0	0.0
471	02204135	0.28	100.0	0.0	0.0	0.0	0.0
472	02208200	1.09*	100.0	0.0	0.0	0.0	0.0
473	02208450	185	100.0	0.0	0.0	0.0	0.0
474	02209000	244	100.0	0.0	0.0	0.0	0.0
475	02211300	105	100.0	0.0	0.0	0.0	0.0
476	02211459	2.36	100.0	0.0	0.0	0.0	0.0
477	02211500	315	100.0	0.0	0.0	0.0	0.0
478	02212500	1960	100.0	0.0	0.0	0.0	0.0
479	02212600	72.2	100.0	0.0	0.0	0.0	0.0
480	02213000	2240	99.8	0.0	0.2	0.0	0.0

Table 6. Explanatory variables that are used in the regional regression equations for rural streamgaging stations in Georgia.—Continued

[USGS, U.S. Geological Survey; mi², square mile; *, indicates that drainage area has been revised as a result of this study]

Map identification number (figs. 2, 4)	USGS station number	Drainage area (mi²)	Percentage of drainage basin in hydrologic region				
			Hydrologic region 1	Hydrologic region 2	Hydrologic region 3	Hydrologic region 4	Hydrologic region 5
481	02213050	31.3*	100.0	0.0	0.0	0.0	0.0
482	02213350	53.4	100.0	0.0	0.0	0.0	0.0
483	02213400	16.8	100.0	0.0	0.0	0.0	0.0
484	02213470	156	100.0	0.0	0.0	0.0	0.0
485	02214000	147	89.0	0.0	11.0	0.0	0.0
486	02214280	33.0	0.0	0.0	0.0	100.0	0.0
487	02214500	102*	0.0	0.0	0.0	100.0	0.0
488	02214820	92.9	0.0	0.0	16.4	83.6	0.0
489	02215000	3800	70.9	0.0	7.8	21.3	0.0
490	02215100	163	0.0	0.0	0.0	100.0	0.0
491	02215220	1.83*	0.0	0.0	0.0	100.0	0.0
492	02215230	7.33*	0.0	0.0	0.0	100.0	0.0
493	02215245	1.26*	0.0	0.0	0.0	100.0	0.0
494	02215280	2.45	0.0	0.0	0.0	100.0	0.0
495	02215500	5180	51.0	0.0	5.6	43.4	0.0
496	02215800	221	0.0	0.0	0.0	100.0	0.0
497	02216000	351	0.0	0.0	0.0	100.0	0.0
498	02216100	242*	0.0	0.0	0.0	100.0	0.0
499	02216180	49.2	0.0	0.0	0.0	100.0	0.0
500	02216610	2.71	0.0	0.0	0.0	100.0	0.0
501	02217000	18.2	100.0	0.0	0.0	0.0	0.0
502	02217200	135	100.0	0.0	0.0	0.0	0.0
503	02217250	0.35*	100.0	0.0	0.0	0.0	0.0
504	02217380	142	100.0	0.0	0.0	0.0	0.0
505	02217400	2.54*	100.0	0.0	0.0	0.0	0.0
506	02217450	0.67*	100.0	0.0	0.0	0.0	0.0
507	02217475	332	100.0	0.0	0.0	0.0	0.0
508	02217500	398	100.0	0.0	0.0	0.0	0.0
509	02217660	0.87	100.0	0.0	0.0	0.0	0.0
510	02217900	290	100.0	0.0	0.0	0.0	0.0
511	02218100	1.95	100.0	0.0	0.0	0.0	0.0
512	02218300	940	100.0	0.0	0.0	0.0	0.0
513	02218450	11.9	100.0	0.0	0.0	0.0	0.0
514	02218500	1090	100.0	0.0	0.0	0.0	0.0
515	02219000	176	100.0	0.0	0.0	0.0	0.0
516	02219500	436	100.0	0.0	0.0	0.0	0.0
517	02220550	16.6	100.0	0.0	0.0	0.0	0.0
518	02220900	262	100.0	0.0	0.0	0.0	0.0
519	02221000	24.0	100.0	0.0	0.0	0.0	0.0
520	02221525	190	100.0	0.0	0.0	0.0	0.0

Table 6. Explanatory variables that are used in the regional regression equations for rural streamgaging stations in Georgia.—Continued

[USGS, U.S. Geological Survey; mi², square mile; *, indicates that drainage area has been revised as a result of this study]

Map identification number (figs. 2, 4)	USGS station number	Drainage area (mi²)	Percentage of drainage basin in hydrologic region				
			Hydrologic region 1	Hydrologic region 2	Hydrologic region 3	Hydrologic region 4	Hydrologic region 5
521	02223082	92.9	77.0	0.0	23.0	0.0	0.0
522	02223200	191	19.8	0.0	63.8	16.4	0.0
523	02223300	33.5*	0.0	0.0	100.0	0.0	0.0
524	02223349	0.43*	0.0	0.0	14.6	85.4	0.0
525	02223360	177	0.0	0.0	60.0	40.0	0.0
526	02223500	4400	71.8	0.0	10.2	18.0	0.0
527	02223700	1.99*	0.0	0.0	0.0	100.0	0.0
528	02224000	62.9	0.0	0.0	0.0	100.0	0.0
529	02224100	316	0.0	0.0	0.0	100.0	0.0
530	02224200	16.1	0.0	0.0	0.0	100.0	0.0
531	02224400	6.77	0.0	0.0	0.0	100.0	0.0
532	02224500	5110	61.9	0.0	8.8	29.3	0.0
533	02224650	5.16	0.0	0.0	0.0	100.0	0.0
534	02224800	1.18*	0.0	0.0	0.0	100.0	0.0
535	02225000	11600	50.5	0.0	6.4	43.1	0.0
536	02225100	73.2*	0.0	0.0	0.0	100.0	0.0
537	02225150	64.4*	0.0	0.0	0.0	100.0	0.0
538	02225180	13.8	0.0	0.0	0.0	100.0	0.0
539	02225200	63.0	0.0	0.0	0.0	100.0	0.0
540	02225210	3.53	0.0	0.0	0.0	100.0	0.0
541	02225240	7.22	0.0	0.0	0.0	100.0	0.0
542	02225250	216	0.0	0.0	0.0	100.0	0.0
543	02225300	620	0.0	0.0	0.0	100.0	0.0
544	02225330	9.58	0.0	0.0	0.0	100.0	0.0
545	02225350	1.68	0.0	0.0	0.0	100.0	0.0
546	02225500	1110	0.0	0.0	0.0	100.0	0.0
547	02225850	74.4	0.0	0.0	0.0	100.0	0.0
548	02226000	13600	42.8	0.0	5.4	51.8	0.0
549	02226030	31.1*	0.0	0.0	0.0	100.0	0.0
550	02226100	180*	0.0	0.0	0.0	100.0	0.0
551	02226190	6.38	0.0	0.0	0.0	100.0	0.0
552	02226200	222*	0.0	0.0	0.0	100.0	0.0
553	02226300	355	0.0	0.0	0.0	100.0	0.0
554	02226465	13.7*	0.0	0.0	0.0	100.0	0.0
555	02226500	1200	0.0	0.0	0.0	100.0	0.0
556	02226580	53.2*	0.0	0.0	0.0	100.0	0.0
557	02227000	139	0.0	0.0	0.0	100.0	0.0
558	02227100	52.6*	0.0	0.0	0.0	100.0	0.0
559	02227200	94.2*	0.0	0.0	0.0	100.0	0.0
560	02227290	414	0.0	0.0	0.0	100.0	0.0

Table 6. Explanatory variables that are used in the regional regression equations for rural streamgaging stations in Georgia.—Continued

[USGS, U.S. Geological Survey; mi², square mile; *, indicates that drainage area has been revised as a result of this study]

Map identification number (figs. 2, 4)	USGS station number	Drainage area (mi²)	Percentage of drainage basin in hydrologic region				
			Hydrologic region 1	Hydrologic region 2	Hydrologic region 3	Hydrologic region 4	Hydrologic region 5
561	02227400	112	0.0	0.0	0.0	100.0	0.0
562	02227422	0.38*	0.0	0.0	0.0	100.0	0.0
563	02227430	61.9*	0.0	0.0	0.0	100.0	0.0
564	02227470	99.0*	0.0	0.0	0.0	100.0	0.0
565	02227500	646	0.0	0.0	0.0	100.0	0.0
566	02227990	0.59*	0.0	0.0	0.0	100.0	0.0
567	02228000	2790	0.0	0.0	0.0	100.0	0.0
568	02228050	71.1*	0.0	0.0	0.0	100.0	0.0
569	02228055	1.91	0.0	0.0	0.0	100.0	0.0
579	02314500	1130*	0.0	0.0	0.0	100.0	0.0
580	02314600	93.7*	0.0	0.0	0.0	100.0	0.0
581	02314700	195*	0.0	0.0	0.0	100.0	0.0
583	02315650	0.11*	0.0	0.0	0.0	100.0	0.0
584	02315670	2.87*	0.0	0.0	0.0	100.0	0.0
585	02315700	112	0.0	0.0	0.0	100.0	0.0
586	02315900	135*	0.0	0.0	0.0	100.0	0.0
587	02315980	1.21	0.0	0.0	0.0	100.0	0.0
588	02316000	663	0.0	0.0	0.0	100.0	0.0
589	02316200	90.0*	0.0	0.0	0.0	100.0	0.0
590	02316220	1.65	0.0	0.0	0.0	100.0	0.0
591	02316260	3.19*	0.0	0.0	0.0	100.0	0.0
592	02316390	1080	0.0	0.0	0.0	100.0	0.0
593	02317500	1400	0.0	0.0	0.0	100.0	0.0
594	02317600	239*	0.0	0.0	0.0	100.0	0.0
596	02317700	125*	0.0	0.0	0.0	0.0	100.0
597	02317710	0.63*	0.0	0.0	0.0	89.7	10.3
598	02317730	1.16*	0.0	0.0	0.0	100.0	0.0
599	02317734	146	0.0	0.0	0.0	77.0	23.0
600	023177483	502	0.0	0.0	0.0	45.5	54.5
601	02317760	8.54	0.0	0.0	0.0	100.0	0.0
602	02317765	1.15*	0.0	0.0	0.0	100.0	0.0
603	02317770	6.48	0.0	0.0	0.0	100.0	0.0
604	02317775	1.11	0.0	0.0	0.0	100.0	0.0
605	02317780	2.59*	0.0	0.0	0.0	100.0	0.0
606	02317795	6.21	0.0	0.0	0.0	100.0	0.0
607	02317800	145	0.0	0.0	0.0	100.0	0.0
608	02317810	0.16*	0.0	0.0	0.0	100.0	0.0
609	02317830	208	0.0	0.0	0.0	100.0	0.0
610	02317840	8.23*	0.0	0.0	0.0	100.0	0.0
611	02317845	1.64	0.0	0.0	0.0	100.0	0.0

Table 6. Explanatory variables that are used in the regional regression equations for rural streamgaging stations in Georgia.—Continued

[USGS, U.S. Geological Survey; mi^2, square mile; *, indicates that drainage area has been revised as a result of this study]

Map identification number (figs. 2, 4)	USGS station number	Drainage area (mi^2)	Percentage of drainage basin in hydrologic region				
			Hydrologic region 1	Hydrologic region 2	Hydrologic region 3	Hydrologic region 4	Hydrologic region 5
612	02317870	109	0.0	0.0	0.0	100.0	0.0
613	02317890	0.31*	0.0	0.0	0.0	100.0	0.0
614	02317900	47.0	0.0	0.0	0.0	100.0	0.0
615	02317905	4.22	0.0	0.0	0.0	100.0	0.0
616	02317910	1.86*	0.0	0.0	0.0	100.0	0.0
617	02317980	555	0.0	0.0	0.0	93.5	6.5
618	02318000	577	0.0	0.0	0.0	90.3	9.7
619	02318015	1.45*	0.0	0.0	0.0	0.0	100.0
620	02318020	0.11*	0.0	0.0	0.0	0.0	100.0
621	02318500	1480	0.0	0.0	0.0	50.4	49.6
622	02318600	108*	0.0	0.0	0.0	0.0	100.0
623	02318700	269	0.0	0.0	0.0	0.0	100.0
624	02318725	278	0.0	0.0	0.0	0.0	100.0
625	02326200	86.5*	0.0	0.0	0.0	0.0	100.0
628	02327200	89.9*	0.0	0.0	0.0	0.0	100.0
629	02327350	1.98*	0.0	0.0	0.0	0.0	100.0
630	02327355	260	0.0	0.0	0.0	0.0	100.0
631	02327400	3.31*	0.0	0.0	0.0	0.0	100.0
632	02327415	44.8	0.0	0.0	0.0	0.0	100.0
633	02327500	550	0.0	0.0	0.0	0.0	100.0
634	02327550	15.0	0.0	0.0	0.0	0.0	100.0
635	02327700	104	0.0	0.0	0.0	0.0	100.0
636	02327810	747	0.0	0.0	0.0	0.0	100.0
637	02327860	1.71	0.0	0.0	0.0	0.0	100.0
638	02327900	19.0	0.0	0.0	0.0	0.0	100.0
639	02328000	60.0	0.0	0.0	0.0	0.0	100.0
648	02330450	44.7	9.0	91.0	0.0	0.0	0.0
649	02331000	150	60.0	40.0	0.0	0.0	0.0
650	02331500	156	82.2	17.8	0.0	0.0	0.0
651	02331600	315	72.2	27.8	0.0	0.0	0.0
652	02333000	559	85.0	15.0	0.0	0.0	0.0
653	02333500	153	69.2	30.8	0.0	0.0	0.0
654	02337000	246	100.0	0.0	0.0	0.0	0.0
655	02337400	47.0*	100.0	0.0	0.0	0.0	0.0
656	02337448	0.31*	100.0	0.0	0.0	0.0	0.0
657	02337500	35.5	100.0	0.0	0.0	0.0	0.0
658	02338660	127	100.0	0.0	0.0	0.0	0.0
659	02338840	91.0	100.0	0.0	0.0	0.0	0.0
660	02339000	182	100.0	0.0	0.0	0.0	0.0
662	02340250	204	100.0	0.0	0.0	0.0	0.0

Table 6. Explanatory variables that are used in the regional regression equations for rural streamgaging stations in Georgia.—Continued

[USGS, U.S. Geological Survey; mi², square mile; *, indicates that drainage area has been revised as a result of this study]

Map identification number (figs. 2, 4)	USGS station number	Drainage area (mi²)	Percentage of drainage basin in hydrologic region				
			Hydrologic region 1	Hydrologic region 2	Hydrologic region 3	Hydrologic region 4	Hydrologic region 5
663	02340500	61.7	100.0	0.0	0.0	0.0	0.0
665	02341220	190	100.0	0.0	0.0	0.0	0.0
666	02341600	47.4	0.0	0.0	100.0	0.0	0.0
667	02341723	31.4*	0.0	0.0	100.0	0.0	0.0
668	02341800	342	25.3	0.0	71.9	2.8	0.0
669	02341900	53.3	0.0	0.0	45.7	54.3	0.0
674	02343200	70.0	0.0	0.0	0.0	100.0	0.0
675	02343219	2.98	0.0	0.0	0.0	100.0	0.0
676	02343225	295	0.0	0.0	0.0	100.0	0.0
677	02343244	15.3	0.0	0.0	0.0	100.0	0.0
678	02343267	2.64*	0.0	0.0	0.0	100.0	0.0
682	02344700	101	100.0	0.0	0.0	0.0	0.0
683	02345000	990	100.0	0.0	0.0	0.0	0.0
684	02345500	1090	100.0	0.0	0.0	0.0	0.0
685	02346180	1220	100.0	0.0	0.0	0.0	0.0
686	02346193	3.36	100.0	0.0	0.0	0.0	0.0
687	02346195	81.3	100.0	0.0	0.0	0.0	0.0
688	02346210	6.62	100.0	0.0	0.0	0.0	0.0
689	02346217	2.82	100.0	0.0	0.0	0.0	0.0
690	02346500	186	100.0	0.0	0.0	0.0	0.0
691	02347500	1850	99.8	0.0	0.2	0.0	0.0
692	02348300	131*	11.0	0.0	89.0	0.0	0.0
693	02348485	17.3	0.0	0.0	100.0	0.0	0.0
694	02349000	82.2*	0.0	0.0	100.0	0.0	0.0
695	02349030	41.1	0.0	0.0	100.0	0.0	0.0
696	02349330	0.40	0.0	0.0	100.0	0.0	0.0
697	02349350	146	0.0	0.0	99.4	0.6	0.0
698	02349605	2920	68.6	0.0	26.9	4.5	0.0
699	02349695	0.72	0.0	0.0	0.0	100.0	0.0
700	02349900	45.0	0.0	0.0	0.0	100.0	0.0
701	02350512	3880	51.0	0.0	20.3	28.7	0.0
702	02350520	3.77	0.0	0.0	0.0	100.0	0.0
703	02350600	197	0.0	0.0	56.5	43.5	0.0
704	02350685	0.30*	0.0	0.0	0.0	100.0	0.0
705	02350900	527	0.0	0.0	31.8	68.2	0.0
706	02351500	140	0.0	0.0	36.5	63.5	0.0
707	02351700	265	0.0	0.0	20.0	80.0	0.0
708	02351800	47.0	0.0	0.0	0.0	100.0	0.0
709	02351890	362	0.0	0.0	14.0	86.0	0.0
710	02351900	405	0.0	0.0	12.5	87.5	0.0

Table 6. Explanatory variables that are used in the regional regression equations for rural streamgaging stations in Georgia.—Continued

[USGS, U.S. Geological Survey; mi², square mile; *, indicates that drainage area has been revised as a result of this study]

Map identification number (figs. 2, 4)	USGS station number	Drainage area (mi²)	Percentage of drainage basin in hydrologic region				
			Hydrologic region 1	Hydrologic region 2	Hydrologic region 3	Hydrologic region 4	Hydrologic region 5
711	02352500	5310	37.9	0.0	19.3	42.8	0.0
712	02353000	5740	34.8	0.0	17.7	47.5	0.0
713	02353100	118	0.0	0.0	0.0	100.0	0.0
714	02353200	48.8*	0.0	0.0	0.0	100.0	0.0
715	02353400	188	0.0	0.0	0.0	100.0	0.0
716	02353500	620	0.0	0.0	0.0	100.0	0.0
717	02354500	320	0.0	0.0	0.0	100.0	0.0
718	02354800	1000	0.0	0.0	0.0	100.0	0.0
719	02355000	1020	0.0	0.0	0.0	100.0	0.0
720	02356000	7570	26.6	0.0	13.5	59.9	0.0
721	02356100	49.0	0.0	0.0	0.0	100.0	0.0
722	02356640	281	0.0	0.0	0.0	100.0	0.0
723	02357000	485	0.0	0.0	0.0	100.0	0.0
734	02379500	134	0.0	100.0	0.0	0.0	0.0
735	02380000	87.7	0.0	100.0	0.0	0.0	0.0
736	02380500	236	0.0	100.0	0.0	0.0	0.0
737	02381100	2.41	0.0	100.0	0.0	0.0	0.0
738	02381300	1.40	0.0	100.0	0.0	0.0	0.0
739	02381600	9.99	0.0	100.0	0.0	0.0	0.0
740	02381900	3.50	0.0	100.0	0.0	0.0	0.0
741	02382200	119	0.0	100.0	0.0	0.0	0.0
742	02382600	7.30	10.0	90.0	0.0	0.0	0.0
743	02382800	3.51*	48.0	52.0	0.0	0.0	0.0
744	02382900	11.3*	54.0	46.0	0.0	0.0	0.0
745	02383000	6.17	100.0	0.0	0.0	0.0	0.0
746	02383200	1.61*	100.0	0.0	0.0	0.0	0.0
747	02384500	252	52.3	47.7	0.0	0.0	0.0
748	02384540	7.68*	0.0	100.0	0.0	0.0	0.0
749	02384600	3.78*	100.0	0.0	0.0	0.0	0.0
751	02385000	86.7	100.0	0.0	0.0	0.0	0.0
752	02385700	3.46	2.0	98.0	0.0	0.0	0.0
753	02385800	64.0	36.6	63.4	0.0	0.0	0.0
754	02387000	687	72.8	27.2	0.0	0.0	0.0
755	02387100	1.40	100.0	0.0	0.0	0.0	0.0
756	02387200	1.66*	100.0	0.0	0.0	0.0	0.0
757	02387300	0.28*	100.0	0.0	0.0	0.0	0.0
758	02387560	3.56	100.0	0.0	0.0	0.0	0.0
759	02387570	21.7	100.0	0.0	0.0	0.0	0.0
760	02387700	8.61*	100.0	0.0	0.0	0.0	0.0
761	02387800	3.82	100.0	0.0	0.0	0.0	0.0

Table 6. Explanatory variables that are used in the regional regression equations for rural streamgaging stations in Georgia.—Continued

[USGS, U.S. Geological Survey; mi^2, square mile; *, indicates that drainage area has been revised as a result of this study]

Map identification number (figs. 2, 4)	USGS station number	Drainage area (mi^2)	Percentage of drainage basin in hydrologic region				
			Hydrologic region 1	Hydrologic region 2	Hydrologic region 3	Hydrologic region 4	Hydrologic region 5
762	02388000	36.4	100.0	0.0	0.0	0.0	0.0
763	02388200	6.02	100.0	0.0	0.0	0.0	0.0
764	02388300	14.7	100.0	0.0	0.0	0.0	0.0
765	02388400	2.84*	100.0	0.0	0.0	0.0	0.0
766	02388900	69.7	58.1	41.9	0.0	0.0	0.0
767	02389000	107	72.9	27.1	0.0	0.0	0.0
768	02389300	21.7	100.0	0.0	0.0	0.0	0.0
769	02390000	89.0	50.0	50.0	0.0	0.0	0.0
770	02391000	477	61.0	39.0	0.0	0.0	0.0
771	02392000	613	50.1	49.9	0.0	0.0	0.0
772	02394400	42.8	100.0	0.0	0.0	0.0	0.0
773	02394820	42.1	100.0	0.0	0.0	0.0	0.0
774	02394950	25.0	100.0	0.0	0.0	0.0	0.0
775	02395120	33.1	100.0	0.0	0.0	0.0	0.0
776	02397410	66.9	100.0	0.0	0.0	0.0	0.0
777	02397500	115	100.0	0.0	0.0	0.0	0.0
778	02397750	6.70	100.0	0.0	0.0	0.0	0.0
779	02397830	13.3	100.0	0.0	0.0	0.0	0.0
780	02398000	192	100.0	0.0	0.0	0.0	0.0
790	02411735	0.94*	100.0	0.0	0.0	0.0	0.0
791	02411800	20.2	100.0	0.0	0.0	0.0	0.0
792	02411900	236	100.0	0.0	0.0	0.0	0.0
793	02411902	0.12	100.0	0.0	0.0	0.0	0.0
796	02413000	95.1	100.0	0.0	0.0	0.0	0.0
797	02413200	220	100.0	0.0	0.0	0.0	0.0
919	03544947	1.67	0.0	100.0	0.0	0.0	0.0
920	03545000	45.5	0.0	100.0	0.0	0.0	0.0
924	03550500	74.8	0.0	100.0	0.0	0.0	0.0
928	03558000	177	0.0	100.0	0.0	0.0	0.0
929	03560000	70.9	0.0	100.0	0.0	0.0	0.0
936	03566660	4.44	100.0	0.0	0.0	0.0	0.0
937	03566685	35.5	100.0	0.0	0.0	0.0	0.0
938	03566687	3.36	100.0	0.0	0.0	0.0	0.0
939	03566700	169	100.0	0.0	0.0	0.0	0.0
940	03567200	73.0	100.0	0.0	0.0	0.0	0.0
942	03568500	50.6	100.0	0.0	0.0	0.0	0.0
943	03568933	149	100.0	0.0	0.0	0.0	0.0

Table 9. Variance of prediction values for rural streamgaging stations in Georgia that were considered for use in the regression equations.

[USGS, U.S. Geological Survey; G, computed from the Bulletin 17B analysis of the streamgaging station; W, weighted using equation 22; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		50-percent chance exceedance		20-percent chance exceedance		10-percent chance exceedance		4-percent chance exceedance	
		G	W	G	W	G	W	G	W
384	02177000	0.0008	0.0008	0.0011	0.0011	0.0017	0.0016	0.0030	0.0027
385	02178400	0.0010	0.0010	0.0012	0.0012	0.0017	0.0016	0.0027	0.0024
386	02181800	0.0031	0.0027	0.0044	0.0036	0.0063	0.0049	0.0104	0.0073
387	02182000	0.0031	0.0027	0.0038	0.0032	0.0051	0.0041	0.0079	0.0060
395	02188500	0.0007	0.0006	0.0009	0.0009	0.0014	0.0013	0.0024	0.0022
396	02188600	0.0086	0.0061	0.0104	0.0069	0.0137	0.0084	0.0195	0.0109
398	02189020	0.0036	0.0031	0.0050	0.0040	0.0070	0.0053	0.0106	0.0074
399	02189030	0.0033	—	0.0039	—	0.0051	—	0.0072	—
400	02189600	0.0086	0.0061	0.0115	0.0074	0.0158	0.0092	0.0234	0.0120
401	02190100	0.0061	0.0047	0.0088	0.0062	0.0126	0.0080	0.0192	0.0108
402	02190200	0.0044	0.0036	0.0051	0.0041	0.0066	0.0051	0.0093	0.0068
403	02190800	0.0046	—	0.0055	—	0.0072	—	0.0105	—
404	02191200	0.0029	0.0026	0.0036	0.0031	0.0048	0.0040	0.0073	0.0057
405	02191270	0.0026	0.0024	0.0030	0.0027	0.0040	0.0034	0.0061	0.0049
406	02191280	0.0008	—	0.0010	—	0.0013	—	0.0019	—
407	02191300	0.0006	0.0006	0.0007	0.0007	0.0010	0.0009	0.0015	0.0015
408	02191600	0.0032	0.0028	0.0041	0.0034	0.0056	0.0045	0.0087	0.0064
409	02191750	0.0043	0.0036	0.0057	0.0044	0.0077	0.0057	0.0112	0.0077
410	02191890	0.0040	0.0034	0.0049	0.0040	0.0066	0.0051	0.0099	0.0071
411	02191910	0.0046	0.0038	0.0060	0.0047	0.0083	0.0060	0.0124	0.0083
412	02191930	0.0022	0.0020	0.0027	0.0024	0.0038	0.0032	0.0059	0.0048
413	02191960	0.0036	0.0031	0.0050	0.0040	0.0070	0.0053	0.0111	0.0077
414	02191970	0.0031	0.0027	0.0037	0.0031	0.0048	0.0040	0.0073	0.0057
415	02192000	0.0004	0.0004	0.0005	0.0005	0.0006	0.0006	0.0010	0.0009
416	02192400	0.0070	0.0053	0.0083	0.0059	0.0107	0.0072	0.0151	0.0094
417	02192420	0.0125	0.0079	0.0146	0.0086	0.0189	0.0101	0.0267	0.0129
419	02193300	0.0042	0.0035	0.0060	0.0047	0.0085	0.0061	0.0128	0.0085
420	02193340	0.0017	0.0016	0.0019	0.0017	0.0024	0.0022	0.0034	0.0030
421	02193400	0.0043	0.0035	0.0054	0.0043	0.0072	0.0054	0.0104	0.0073
422	02193500	0.0024	0.0021	0.0026	0.0023	0.0033	0.0028	0.0048	0.0040
423	02195150	0.0035	0.0030	0.0053	0.0042	0.0078	0.0058	0.0126	0.0084
432	02197520	0.0002	0.0002	0.0003	0.0003	0.0004	0.0004	0.0008	0.0008

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		2-percent chance exceedance		1-percent chance exceedance		0.5-percent chance exceedance		0.2-percent chance exceedance	
		G	W	G	W	G	W	G	W
384	02177000	0.0043	0.0038	0.0061	0.0051	0.0083	0.0066	0.0117	0.0090
385	02178400	0.0038	0.0033	0.0052	0.0044	0.0069	0.0057	0.0096	0.0077
386	02181800	0.0148	0.0096	0.0202	0.0122	0.0268	0.0150	0.0374	0.0190
387	02182000	0.0109	0.0078	0.0147	0.0099	0.0193	0.0123	0.0267	0.0158
395	02188500	0.0036	0.0032	0.0051	0.0043	0.0069	0.0057	0.0099	0.0079
396	02188600	0.0251	0.0131	0.0315	0.0155	0.0388	0.0181	0.0499	0.0218
398	02189020	0.0141	0.0093	0.0183	0.0114	0.0231	0.0137	0.0306	0.0171
399	02189030	0.0092	—	0.0116	—	0.0143	—	0.0184	—
400	02189600	0.0306	0.0145	0.0391	0.0171	0.0488	0.0200	0.0636	0.0241
401	02190100	0.0255	0.0132	0.0329	0.0158	0.0415	0.0186	0.0545	0.0226
402	02190200	0.0120	0.0083	0.0151	0.0101	0.0186	0.0120	0.0241	0.0148
403	02190800	0.0136	—	0.0173	—	0.0216	—	0.0282	—
404	02191200	0.0099	0.0073	0.0130	0.0091	0.0167	0.0112	0.0225	0.0142
405	02191270	0.0083	0.0064	0.0111	0.0081	0.0145	0.0102	0.0200	0.0132
406	02191280	0.0025	—	0.0033	—	0.0042	—	0.0056	—
407	02191300	0.0022	0.0020	0.0031	0.0028	0.0041	0.0037	0.0058	0.0051
408	02191600	0.0119	0.0083	0.0159	0.0104	0.0207	0.0128	0.0283	0.0163
409	02191750	0.0146	0.0095	0.0185	0.0115	0.0230	0.0137	0.0298	0.0168
410	02191890	0.0134	0.0090	0.0177	0.0112	0.0227	0.0136	0.0307	0.0171
411	02191910	0.0165	0.0103	0.0213	0.0126	0.0270	0.0150	0.0357	0.0186
412	02191930	0.0082	0.0063	0.0110	0.0081	0.0144	0.0101	0.0198	0.0131
413	02191960	0.0152	0.0098	0.0202	0.0122	0.0263	0.0148	0.0357	0.0186
414	02191970	0.0100	0.0073	0.0133	0.0092	0.0172	0.0114	0.0235	0.0146
415	02192000	0.0014	0.0013	0.0019	0.0018	0.0026	0.0024	0.0037	0.0034
416	02192400	0.0193	0.0113	0.0242	0.0135	0.0297	0.0158	0.0381	0.0192
417	02192420	0.0340	0.0152	0.0426	0.0178	0.0523	0.0205	0.0670	0.0245
419	02193300	0.0170	0.0105	0.0219	0.0127	0.0275	0.0152	0.0360	0.0186
420	02193340	0.0044	0.0038	0.0056	0.0047	0.0070	0.0058	0.0092	0.0074
421	02193400	0.0134	0.0090	0.0169	0.0109	0.0209	0.0129	0.0270	0.0159
422	02193500	0.0065	0.0052	0.0086	0.0067	0.0111	0.0084	0.0152	0.0109
423	02195150	0.0174	0.0106	0.0232	0.0132	0.0300	0.0159	0.0407	0.0198
432	02197520	0.0012	0.0011	0.0017	0.0016	0.0024	0.0022	0.0035	0.0032

Table 9. Variance of prediction values for rural streamgaging stations in Georgia that were considered for use in the regression equations.—Continued

[USGS, U.S. Geological Survey; G, computed from the Bulletin 17B analysis of the streamgaging station; W, weighted using equation 22; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		50-percent chance exceedance		20-percent chance exceedance		10-percent chance exceedance		4-percent chance exceedance	
		G	W	G	W	G	W	G	W
433	02197550	0.0037	0.0032	0.0046	0.0038	0.0062	0.0048	0.0090	0.0066
434	02197600	0.0024	0.0021	0.0030	0.0026	0.0042	0.0035	0.0066	0.0052
435	02197810	0.0025	0.0023	0.0039	0.0032	0.0057	0.0045	0.0093	0.0068
436	02197830	0.0003	0.0003	0.0005	0.0005	0.0009	0.0009	0.0018	0.0017
437	02198000	0.0005	0.0005	0.0007	0.0006	0.0010	0.0010	0.0019	0.0017
438	02198100	0.0103	0.0069	0.0152	0.0087	0.0218	0.0109	0.0343	0.0144
439	02198690	0.0168	0.0094	0.0213	0.0105	0.0286	0.0124	0.0422	0.0156
440	02199700	0.0022	0.0020	0.0027	0.0024	0.0036	0.0031	0.0054	0.0044
441	02200000	0.0007	0.0006	0.0008	0.0008	0.0012	0.0011	0.0019	0.0018
442	02200100	0.0046	0.0038	0.0059	0.0046	0.0080	0.0059	0.0122	0.0082
443	02200400	0.0029	0.0026	0.0035	0.0030	0.0047	0.0038	0.0069	0.0054
444	02200500	0.0007	0.0007	0.0007	0.0007	0.0008	0.0008	0.0013	0.0012
445	02200900	0.0019	0.0017	0.0023	0.0021	0.0031	0.0027	0.0048	0.0041
446	02200930	0.0033	0.0028	0.0050	0.0040	0.0076	0.0056	0.0129	0.0085
447	02200950	0.0002	0.0002	0.0003	0.0003	0.0006	0.0006	0.0011	0.0011
448	02201000	0.0016	0.0015	0.0017	0.0015	0.0021	0.0019	0.0032	0.0029
449	02201110	0.0047	0.0038	0.0067	0.0050	0.0096	0.0067	0.0153	0.0095
450	02201160	0.0228	0.0110	0.0274	0.0118	0.0357	0.0136	0.0504	0.0166
451	02201250	0.0014	—	0.0022	—	0.0032	—	0.0052	—
452	02201350	0.0020	0.0019	0.0030	0.0026	0.0044	0.0037	0.0075	0.0058
453	02201800	0.0028	0.0025	0.0038	0.0032	0.0053	0.0043	0.0083	0.0062
454	02201830	0.0022	0.0020	0.0027	0.0024	0.0036	0.0031	0.0052	0.0043
455	02202000	0.0006	0.0006	0.0007	0.0006	0.0009	0.0009	0.0015	0.0014
456	02202300	0.0024	0.0021	0.0027	0.0024	0.0035	0.0030	0.0049	0.0041
457	02202500	0.0005	0.0005	0.0006	0.0006	0.0008	0.0008	0.0013	0.0013
458	02202600	0.0088	0.0062	0.0106	0.0070	0.0140	0.0085	0.0208	0.0113
459	02202605	0.0068	0.0051	0.0078	0.0057	0.0101	0.0069	0.0145	0.0091
460	02202800	0.0009	0.0009	0.0011	0.0010	0.0015	0.0014	0.0024	0.0022
461	02202810	0.0005	0.0005	0.0008	0.0007	0.0012	0.0011	0.0021	0.0019
462	02202820	0.0005	0.0004	0.0007	0.0007	0.0011	0.0011	0.0020	0.0019
463	02202850	0.0005	0.0005	0.0007	0.0007	0.0010	0.0010	0.0016	0.0015
464	02202865	0.0028	0.0025	0.0034	0.0029	0.0045	0.0037	0.0065	0.0052

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		2-percent chance exceedance		1-percent chance exceedance		0.5-percent chance exceedance		0.2-percent chance exceedance	
		G	W	G	W	G	W	G	W
433	02197550	0.0118	0.0083	0.0151	0.0101	0.0189	0.0121	0.0248	0.0151
434	02197600	0.0092	0.0069	0.0124	0.0088	0.0163	0.0110	0.0226	0.0143
435	02197810	0.0130	0.0088	0.0175	0.0111	0.0228	0.0136	0.0312	0.0173
436	02197830	0.0028	0.0026	0.0042	0.0037	0.0059	0.0050	0.0088	0.0072
437	02198000	0.0028	0.0026	0.0041	0.0036	0.0056	0.0048	0.0082	0.0068
438	02198100	0.0465	0.0173	0.0611	0.0203	0.0783	0.0236	0.1048	0.0283
439	02198690	0.0555	0.0184	0.0713	0.0214	0.0896	0.0245	0.1178	0.0291
440	02199700	0.0071	0.0056	0.0092	0.0071	0.0117	0.0087	0.0155	0.0111
441	02200000	0.0028	0.0025	0.0039	0.0034	0.0052	0.0045	0.0075	0.0063
442	02200100	0.0165	0.0103	0.0218	0.0127	0.0282	0.0154	0.0382	0.0192
443	02200400	0.0093	0.0069	0.0121	0.0087	0.0155	0.0106	0.0208	0.0135
444	02200500	0.0018	0.0017	0.0026	0.0024	0.0036	0.0032	0.0052	0.0046
445	02200900	0.0066	0.0053	0.0089	0.0069	0.0116	0.0086	0.0159	0.0112
446	02200930	0.0184	0.0110	0.0252	0.0138	0.0336	0.0168	0.0468	0.0212
447	02200950	0.0017	0.0016	0.0025	0.0023	0.0035	0.0032	0.0052	0.0046
448	02201000	0.0045	0.0039	0.0062	0.0051	0.0083	0.0066	0.0116	0.0089
449	02201110	0.0210	0.0119	0.0280	0.0146	0.0363	0.0175	0.0493	0.0217
450	02201160	0.0639	0.0192	0.0796	0.0220	0.0972	0.0251	0.1235	0.0295
451	02201250	0.0072	—	0.0096	—	0.0126	—	0.0172	—
452	02201350	0.0109	0.0078	0.0151	0.0101	0.0203	0.0127	0.0286	0.0164
453	02201800	0.0114	0.0081	0.0152	0.0101	0.0197	0.0124	0.0267	0.0158
454	02201830	0.0066	0.0053	0.0083	0.0065	0.0102	0.0078	0.0131	0.0098
455	02202000	0.0021	0.0020	0.0029	0.0027	0.0040	0.0036	0.0057	0.0050
456	02202300	0.0063	0.0051	0.0078	0.0062	0.0096	0.0075	0.0123	0.0093
457	02202500	0.0019	0.0018	0.0027	0.0025	0.0037	0.0033	0.0053	0.0046
458	02202600	0.0278	0.0138	0.0364	0.0166	0.0465	0.0196	0.0625	0.0239
459	02202605	0.0188	0.0112	0.0239	0.0134	0.0300	0.0159	0.0392	0.0195
460	02202800	0.0034	0.0030	0.0046	0.0040	0.0061	0.0052	0.0085	0.0070
461	02202810	0.0031	0.0028	0.0043	0.0038	0.0059	0.0050	0.0083	0.0069
462	02202820	0.0030	0.0027	0.0042	0.0037	0.0057	0.0049	0.0082	0.0067
463	02202850	0.0021	0.0020	0.0028	0.0026	0.0036	0.0033	0.0049	0.0044
464	02202865	0.0085	0.0065	0.0109	0.0080	0.0136	0.0097	0.0178	0.0122

Table 9. Variance of prediction values for rural streamgaging stations in Georgia that were considered for use in the regression equations.—Continued

[USGS, U.S. Geological Survey; G, computed from the Bulletin 17B analysis of the streamgaging station; W, weighted using equation 22; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		50-percent chance exceedance		20-percent chance exceedance		10-percent chance exceedance		4-percent chance exceedance	
		G	W	G	W	G	W	G	W
465	02202900	0.0012	0.0012	0.0014	0.0014	0.0019	0.0018	0.0029	0.0026
466	02202910	0.0024	0.0021	0.0032	0.0028	0.0046	0.0038	0.0076	0.0058
467	02202950	0.0031	0.0027	0.0044	0.0036	0.0063	0.0049	0.0098	0.0070
468	02203000	0.0005	0.0004	0.0006	0.0006	0.0009	0.0008	0.0015	0.0014
469	02203280	0.0003	0.0003	0.0004	0.0004	0.0006	0.0006	0.0010	0.0010
470	02203559	0.0073	0.0054	0.0090	0.0063	0.0119	0.0077	0.0170	0.0101
471	02204135	0.0070	—	0.0078	—	0.0100	—	0.0146	—
472	02208200	0.0050	0.0041	0.0063	0.0048	0.0083	0.0060	0.0120	0.0081
473	02208450	0.0024	0.0021	0.0030	0.0026	0.0041	0.0034	0.0062	0.0050
474	02209000	0.0012	0.0011	0.0015	0.0014	0.0022	0.0020	0.0036	0.0031
475	02211300	0.0020	0.0018	0.0029	0.0026	0.0043	0.0036	0.0070	0.0055
476	02211459	0.0045	0.0037	0.0064	0.0049	0.0091	0.0064	0.0138	0.0089
477	02211500	0.0008	0.0007	0.0012	0.0011	0.0019	0.0018	0.0035	0.0030
478	02212500	0.0004	0.0004	0.0006	0.0006	0.0009	0.0008	0.0015	0.0014
479	02212600	0.0021	0.0019	0.0026	0.0023	0.0036	0.0031	0.0056	0.0045
480	02213000	0.0007	0.0006	0.0007	0.0007	0.0008	0.0008	0.0013	0.0012
481	02213050	0.0019	0.0018	0.0022	0.0020	0.0029	0.0025	0.0044	0.0037
482	02213350	0.0025	0.0023	0.0033	0.0029	0.0046	0.0038	0.0072	0.0056
483	02213400	0.0046	0.0038	0.0059	0.0046	0.0082	0.0059	0.0129	0.0085
484	02213470	0.0032	0.0028	0.0045	0.0037	0.0063	0.0049	0.0099	0.0071
485	02214000	0.0015	0.0014	0.0024	0.0022	0.0038	0.0032	0.0067	0.0053
486	02214280	0.0047	0.0038	0.0056	0.0044	0.0074	0.0055	0.0110	0.0076
487	02214500	0.0039	0.0033	0.0048	0.0039	0.0064	0.0049	0.0097	0.0070
488	02214820	0.0030	0.0026	0.0039	0.0033	0.0054	0.0043	0.0083	0.0062
489	02215000	0.0005	0.0005	0.0005	0.0005	0.0006	0.0006	0.0009	0.0009
490	02215100	0.0070	0.0053	0.0090	0.0063	0.0123	0.0079	0.0186	0.0106
491	02215220	0.0059	0.0046	0.0072	0.0053	0.0095	0.0066	0.0135	0.0087
492	02215230	0.0035	0.0030	0.0048	0.0039	0.0066	0.0051	0.0103	0.0073
493	02215245	0.0039	0.0033	0.0042	0.0035	0.0053	0.0042	0.0078	0.0059
494	02215280	0.0054	0.0043	0.0066	0.0050	0.0088	0.0063	0.0129	0.0085
495	02215500	0.0005	0.0004	0.0005	0.0005	0.0007	0.0007	0.0011	0.0011
496	02215800	0.0046	0.0038	0.0063	0.0048	0.0088	0.0063	0.0136	0.0088

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		2-percent chance exceedance		1-percent chance exceedance		0.5-percent chance exceedance		0.2-percent chance exceedance	
		G	W	G	W	G	W	G	W
465	02202900	0.0040	0.0035	0.0054	0.0046	0.0070	0.0058	0.0097	0.0077
466	02202910	0.0106	0.0077	0.0145	0.0098	0.0191	0.0122	0.0265	0.0157
467	02202950	0.0131	0.0089	0.0171	0.0110	0.0218	0.0132	0.0290	0.0166
468	02203000	0.0022	0.0020	0.0030	0.0028	0.0042	0.0037	0.0060	0.0052
469	02203280	0.0015	0.0014	0.0021	0.0020	0.0028	0.0026	0.0041	0.0037
470	02203559	0.0218	0.0122	0.0274	0.0144	0.0337	0.0169	0.0432	0.0204
471	02204135	0.0195	—	0.0255	—	0.0326	—	0.0440	—
472	02208200	0.0154	0.0099	0.0194	0.0118	0.0238	0.0140	0.0306	0.0171
473	02208450	0.0085	0.0065	0.0112	0.0082	0.0146	0.0102	0.0198	0.0131
474	02209000	0.0051	0.0043	0.0071	0.0058	0.0095	0.0074	0.0134	0.0100
475	02211300	0.0099	0.0073	0.0134	0.0093	0.0175	0.0115	0.0241	0.0149
476	02211459	0.0183	0.0110	0.0236	0.0133	0.0297	0.0158	0.0390	0.0194
477	02211500	0.0051	0.0043	0.0073	0.0059	0.0100	0.0077	0.0143	0.0104
478	02212500	0.0022	0.0021	0.0032	0.0029	0.0043	0.0038	0.0061	0.0053
479	02212600	0.0077	0.0060	0.0103	0.0077	0.0135	0.0096	0.0185	0.0125
480	02213000	0.0018	0.0017	0.0026	0.0024	0.0035	0.0032	0.0050	0.0044
481	02213050	0.0060	0.0049	0.0080	0.0063	0.0105	0.0080	0.0144	0.0105
482	02213350	0.0098	0.0072	0.0131	0.0092	0.0170	0.0113	0.0231	0.0145
483	02213400	0.0179	0.0108	0.0241	0.0135	0.0316	0.0163	0.0436	0.0205
484	02213470	0.0135	0.0091	0.0179	0.0113	0.0232	0.0138	0.0315	0.0174
485	02214000	0.0099	0.0073	0.0139	0.0095	0.0188	0.0121	0.0268	0.0158
486	02214280	0.0146	0.0096	0.0192	0.0118	0.0246	0.0142	0.0330	0.0178
487	02214500	0.0131	0.0089	0.0174	0.0111	0.0225	0.0135	0.0305	0.0171
488	02214820	0.0112	0.0080	0.0147	0.0099	0.0189	0.0121	0.0254	0.0153
489	02215000	0.0013	0.0013	0.0019	0.0018	0.0026	0.0024	0.0037	0.0034
490	02215100	0.0249	0.0131	0.0325	0.0157	0.0414	0.0186	0.0554	0.0228
491	02215220	0.0172	0.0106	0.0215	0.0126	0.0265	0.0148	0.0339	0.0181
492	02215230	0.0140	0.0093	0.0186	0.0115	0.0240	0.0140	0.0324	0.0176
493	02215245	0.0105	0.0076	0.0140	0.0096	0.0183	0.0119	0.0251	0.0152
494	02215280	0.0169	0.0105	0.0216	0.0127	0.0272	0.0151	0.0358	0.0186
495	02215500	0.0016	0.0015	0.0023	0.0021	0.0031	0.0028	0.0044	0.0039
496	02215800	0.0183	0.0110	0.0241	0.0135	0.0309	0.0161	0.0415	0.0200

Table 9. Variance of prediction values for rural streamgaging stations in Georgia that were considered for use in the regression equations.—Continued

[USGS, U.S. Geological Survey; G, computed from the Bulletin 17B analysis of the streamgaging station; W, weighted using equation 22; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		50-percent chance exceedance		20-percent chance exceedance		10-percent chance exceedance		4-percent chance exceedance	
		G	W	G	W	G	W	G	W
497	02216000	0.0004	0.0004	0.0006	0.0006	0.0009	0.0009	0.0016	0.0015
498	02216100	0.0005	0.0005	0.0007	0.0007	0.0012	0.0011	0.0022	0.0020
499	02216180	0.0063	0.0049	0.0072	0.0053	0.0093	0.0065	0.0134	0.0087
500	02216610	0.0072	0.0054	0.0092	0.0064	0.0125	0.0080	0.0187	0.0107
501	02217000	0.0038	0.0032	0.0051	0.0041	0.0070	0.0053	0.0108	0.0075
502	02217200	0.0016	0.0015	0.0020	0.0018	0.0026	0.0023	0.0038	0.0033
503	02217250	0.0039	—	0.0055	—	0.0077	—	0.0116	—
504	02217380	0.0015	0.0014	0.0017	0.0016	0.0021	0.0019	0.0031	0.0027
505	02217400	0.0010	0.0010	0.0016	0.0015	0.0025	0.0022	0.0042	0.0036
506	02217450	0.0021	—	0.0030	—	0.0042	—	0.0065	—
507	02217475	0.0030	0.0026	0.0037	0.0031	0.0049	0.0040	0.0073	0.0056
508	02217500	0.0006	0.0005	0.0006	0.0005	0.0007	0.0007	0.0011	0.0010
509	02217660	0.0059	—	0.0070	—	0.0091	—	0.0130	—
510	02217900	0.0020	0.0018	0.0028	0.0025	0.0040	0.0034	0.0063	0.0051
511	02218100	0.0079	0.0057	0.0104	0.0069	0.0141	0.0086	0.0207	0.0113
512	02218300	0.0005	0.0005	0.0006	0.0006	0.0008	0.0008	0.0013	0.0012
513	02218450	0.0024	0.0022	0.0033	0.0028	0.0046	0.0038	0.0073	0.0057
514	02218500	0.0007	0.0007	0.0009	0.0009	0.0014	0.0013	0.0023	0.0021
515	02219000	0.0025	0.0022	0.0029	0.0025	0.0038	0.0032	0.0056	0.0045
516	02219500	0.0017	0.0016	0.0021	0.0019	0.0028	0.0025	0.0043	0.0036
517	02220550	0.0018	0.0017	0.0024	0.0022	0.0034	0.0029	0.0053	0.0043
518	02220900	0.0015	0.0014	0.0016	0.0015	0.0020	0.0018	0.0030	0.0027
519	02221000	0.0018	0.0016	0.0021	0.0019	0.0027	0.0024	0.0040	0.0035
520	02221525	0.0017	0.0016	0.0021	0.0019	0.0027	0.0024	0.0042	0.0036
521	02223082	0.0007	0.0007	0.0008	0.0008	0.0011	0.0010	0.0016	0.0015
522	02223200	0.0012	0.0011	0.0013	0.0012	0.0017	0.0016	0.0026	0.0024
523	02223300	0.0050	0.0040	0.0066	0.0050	0.0090	0.0064	0.0138	0.0088
524	02223349	0.0055	—	0.0061	—	0.0078	—	0.0114	—
525	02223360	0.0026	0.0023	0.0032	0.0028	0.0043	0.0036	0.0062	0.0050
526	02223500	0.0006	0.0006	0.0007	0.0007	0.0009	0.0008	0.0013	0.0013
527	02223700	0.0060	0.0047	0.0074	0.0055	0.0098	0.0068	0.0140	0.0090
528	02224000	0.0056	0.0044	0.0072	0.0054	0.0099	0.0068	0.0150	0.0094

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		2-percent chance exceedance		1-percent chance exceedance		0.5-percent chance exceedance		0.2-percent chance exceedance	
		G	W	G	W	G	W	G	W
497	02216000	0.0024	0.0022	0.0034	0.0030	0.0046	0.0040	0.0066	0.0056
498	02216100	0.0034	0.0030	0.0049	0.0043	0.0069	0.0057	0.0100	0.0079
499	02216180	0.0177	0.0108	0.0229	0.0131	0.0290	0.0156	0.0386	0.0193
500	02216610	0.0249	0.0131	0.0323	0.0157	0.0410	0.0185	0.0544	0.0226
501	02217000	0.0145	0.0095	0.0191	0.0117	0.0244	0.0142	0.0327	0.0177
502	02217200	0.0051	0.0043	0.0067	0.0055	0.0085	0.0068	0.0114	0.0088
503	02217250	0.0152	—	0.0196	—	0.0245	—	0.0321	—
504	02217380	0.0040	0.0035	0.0052	0.0044	0.0066	0.0055	0.0087	0.0071
505	02217400	0.0061	0.0050	0.0083	0.0065	0.0111	0.0084	0.0155	0.0111
506	02217450	0.0085	—	0.0110	—	0.0138	—	0.0180	—
507	02217475	0.0096	0.0071	0.0124	0.0088	0.0157	0.0107	0.0207	0.0135
508	02217500	0.0015	0.0014	0.0021	0.0020	0.0029	0.0026	0.0041	0.0037
509	02217660	0.0167	—	0.0210	—	0.0259	—	0.0333	—
510	02217900	0.0087	0.0066	0.0117	0.0084	0.0152	0.0105	0.0207	0.0135
511	02218100	0.0269	0.0136	0.0341	0.0161	0.0424	0.0188	0.0550	0.0227
512	02218300	0.0019	0.0017	0.0026	0.0024	0.0035	0.0031	0.0049	0.0043
513	02218450	0.0102	0.0074	0.0137	0.0095	0.0180	0.0117	0.0247	0.0151
514	02218500	0.0033	0.0030	0.0047	0.0040	0.0063	0.0053	0.0089	0.0072
515	02219000	0.0075	0.0059	0.0098	0.0074	0.0127	0.0092	0.0172	0.0119
516	02219500	0.0059	0.0048	0.0079	0.0063	0.0103	0.0079	0.0143	0.0104
517	02220550	0.0071	0.0057	0.0094	0.0072	0.0121	0.0089	0.0164	0.0115
518	02220900	0.0041	0.0036	0.0056	0.0047	0.0074	0.0060	0.0102	0.0081
519	02221000	0.0054	0.0045	0.0072	0.0058	0.0094	0.0073	0.0128	0.0096
520	02221525	0.0057	0.0047	0.0077	0.0061	0.0101	0.0078	0.0139	0.0102
521	02223082	0.0022	0.0020	0.0029	0.0027	0.0038	0.0034	0.0053	0.0046
522	02223200	0.0037	0.0033	0.0051	0.0044	0.0069	0.0057	0.0097	0.0078
523	02223300	0.0185	0.0111	0.0242	0.0135	0.0310	0.0162	0.0415	0.0200
524	02223349	0.0152	—	0.0199	—	0.0255	—	0.0343	—
525	02223360	0.0082	0.0063	0.0105	0.0078	0.0132	0.0095	0.0173	0.0120
526	02223500	0.0019	0.0018	0.0027	0.0024	0.0036	0.0032	0.0051	0.0045
527	02223700	0.0179	0.0109	0.0225	0.0129	0.0277	0.0152	0.0355	0.0185
528	02224000	0.0202	0.0116	0.0265	0.0142	0.0340	0.0169	0.0457	0.0209

Table 9. Variance of prediction values for rural streamgaging stations in Georgia that were considered for use in the regression equations.—Continued

[USGS, U.S. Geological Survey; G, computed from the Bulletin 17B analysis of the streamgaging station; W, weighted using equation 22; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		50-percent chance exceedance		20-percent chance exceedance		10-percent chance exceedance		4-percent chance exceedance	
		G	W	G	W	G	W	G	W
529	02224100	0.0015	0.0014	0.0021	0.0019	0.0031	0.0027	0.0053	0.0044
530	02224200	0.0025	0.0022	0.0034	0.0029	0.0046	0.0038	0.0068	0.0054
531	02224400	0.0028	0.0025	0.0043	0.0036	0.0064	0.0050	0.0105	0.0074
532	02224500	0.0007	0.0007	0.0007	0.0006	0.0008	0.0008	0.0012	0.0012
533	02224650	0.0024	0.0021	0.0033	0.0028	0.0045	0.0037	0.0067	0.0052
534	02224800	0.0074	0.0055	0.0097	0.0066	0.0130	0.0082	0.0189	0.0107
535	02225000	0.0004	—	0.0004	—	0.0005	—	0.0008	—
536	02225100	0.0012	0.0011	0.0015	0.0014	0.0020	0.0019	0.0033	0.0029
537	02225150	0.0017	0.0016	0.0019	0.0017	0.0024	0.0022	0.0037	0.0032
538	02225180	0.0078	0.0057	0.0097	0.0066	0.0127	0.0081	0.0182	0.0105
539	02225200	0.0012	0.0011	0.0015	0.0014	0.0021	0.0019	0.0036	0.0031
540	02225210	0.0050	0.0040	0.0063	0.0048	0.0085	0.0061	0.0128	0.0084
541	02225240	0.0126	0.0079	0.0169	0.0093	0.0231	0.0112	0.0339	0.0143
542	02225250	0.0007	0.0007	0.0011	0.0011	0.0017	0.0016	0.0030	0.0027
543	02225300	0.0009	0.0009	0.0012	0.0012	0.0018	0.0017	0.0031	0.0028
544	02225330	0.0041	0.0034	0.0053	0.0042	0.0073	0.0055	0.0115	0.0079
545	02225350	0.0035	0.0030	0.0040	0.0034	0.0052	0.0042	0.0076	0.0058
546	02225500	0.0007	0.0007	0.0008	0.0008	0.0012	0.0011	0.0019	0.0018
547	02225850	0.0038	0.0032	0.0055	0.0043	0.0079	0.0058	0.0125	0.0083
548	02226000	0.0003	—	0.0003	—	0.0004	—	0.0007	—
549	02226030	0.0025	0.0022	0.0029	0.0025	0.0037	0.0032	0.0054	0.0045
550	02226100	0.0019	0.0018	0.0020	0.0018	0.0024	0.0022	0.0035	0.0031
551	02226190	0.0047	0.0039	0.0058	0.0045	0.0077	0.0057	0.0116	0.0079
552	02226200	0.0006	0.0006	0.0009	0.0008	0.0013	0.0012	0.0022	0.0020
553	02226300	0.0010	0.0009	0.0012	0.0012	0.0018	0.0016	0.0030	0.0026
554	02226465	0.0119	0.0076	0.0140	0.0083	0.0180	0.0099	0.0253	0.0125
555	02226500	0.0009	0.0009	0.0009	0.0009	0.0012	0.0011	0.0018	0.0017
556	02226580	0.0034	0.0029	0.0041	0.0034	0.0054	0.0043	0.0081	0.0061
557	02227000	0.0016	0.0015	0.0019	0.0018	0.0026	0.0023	0.0041	0.0035
558	02227100	0.0054	0.0043	0.0061	0.0047	0.0080	0.0058	0.0122	0.0082
559	02227200	0.0026	0.0023	0.0027	0.0024	0.0034	0.0030	0.0052	0.0043
560	02227290	0.0013	0.0012	0.0017	0.0015	0.0023	0.0021	0.0037	0.0032

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		2-percent chance exceedance		1-percent chance exceedance		0.5-percent chance exceedance		0.2-percent chance exceedance	
		G	W	G	W	G	W	G	W
529	02224100	0.0076	0.0060	0.0107	0.0079	0.0144	0.0101	0.0203	0.0133
530	02224200	0.0089	0.0067	0.0113	0.0082	0.0140	0.0099	0.0181	0.0123
531	02224400	0.0147	0.0096	0.0198	0.0120	0.0259	0.0147	0.0355	0.0185
532	02224500	0.0017	0.0016	0.0024	0.0023	0.0033	0.0030	0.0048	0.0042
533	02224650	0.0087	0.0066	0.0110	0.0081	0.0136	0.0097	0.0175	0.0121
534	02224800	0.0244	0.0129	0.0307	0.0153	0.0378	0.0178	0.0484	0.0215
535	02225000	0.0012	—	0.0017	—	0.0023	—	0.0033	—
536	02225100	0.0046	0.0039	0.0063	0.0052	0.0084	0.0067	0.0117	0.0090
537	02225150	0.0050	0.0042	0.0068	0.0055	0.0089	0.0071	0.0124	0.0094
538	02225180	0.0232	0.0126	0.0290	0.0149	0.0355	0.0173	0.0453	0.0209
539	02225200	0.0051	0.0043	0.0072	0.0058	0.0097	0.0075	0.0137	0.0101
540	02225210	0.0172	0.0106	0.0226	0.0130	0.0289	0.0156	0.0389	0.0194
541	02225240	0.0439	0.0169	0.0554	0.0197	0.0685	0.0226	0.0881	0.0269
542	02225250	0.0045	0.0039	0.0063	0.0053	0.0086	0.0069	0.0123	0.0093
543	02225300	0.0046	0.0039	0.0064	0.0053	0.0087	0.0069	0.0123	0.0094
544	02225330	0.0159	0.0101	0.0214	0.0126	0.0280	0.0153	0.0384	0.0193
545	02225350	0.0100	0.0074	0.0130	0.0091	0.0165	0.0111	0.0220	0.0140
546	02225500	0.0027	0.0025	0.0038	0.0034	0.0052	0.0045	0.0074	0.0062
547	02225850	0.0171	0.0105	0.0226	0.0130	0.0291	0.0156	0.0392	0.0195
548	02226000	0.0010	—	0.0015	—	0.0020	—	0.0029	—
549	02226030	0.0072	0.0057	0.0094	0.0072	0.0119	0.0088	0.0159	0.0113
550	02226100	0.0047	0.0040	0.0063	0.0052	0.0082	0.0066	0.0112	0.0087
551	02226190	0.0156	0.0099	0.0204	0.0122	0.0262	0.0148	0.0353	0.0185
552	02226200	0.0033	0.0029	0.0046	0.0040	0.0063	0.0053	0.0090	0.0073
553	02226300	0.0043	0.0037	0.0060	0.0050	0.0082	0.0066	0.0116	0.0089
554	02226465	0.0321	0.0148	0.0400	0.0173	0.0490	0.0200	0.0624	0.0239
555	02226500	0.0026	0.0024	0.0037	0.0033	0.0050	0.0044	0.0072	0.0061
556	02226580	0.0107	0.0077	0.0140	0.0096	0.0179	0.0117	0.0240	0.0148
557	02227000	0.0057	0.0047	0.0077	0.0062	0.0102	0.0079	0.0143	0.0104
558	02227100	0.0169	0.0105	0.0230	0.0131	0.0304	0.0160	0.0423	0.0202
559	02227200	0.0072	0.0057	0.0097	0.0074	0.0129	0.0093	0.0180	0.0123
560	02227290	0.0052	0.0044	0.0071	0.0058	0.0095	0.0074	0.0133	0.0099

Table 9. Variance of prediction values for rural streamgaging stations in Georgia that were considered for use in the regression equations.—Continued

[USGS, U.S. Geological Survey; G, computed from the Bulletin 17B analysis of the streamgaging station; W, weighted using equation 22; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		50-percent chance exceedance		20-percent chance exceedance		10-percent chance exceedance		4-percent chance exceedance	
		G	W	G	W	G	W	G	W
561	02227400	0.0007	0.0007	0.0011	0.0010	0.0018	0.0017	0.0034	0.0030
562	02227422	0.0045	—	0.0050	—	0.0064	—	0.0093	—
563	02227430	0.0017	0.0015	0.0016	0.0015	0.0019	0.0018	0.0030	0.0027
564	02227470	0.0026	0.0023	0.0026	0.0023	0.0032	0.0028	0.0050	0.0042
565	02227500	0.0009	0.0009	0.0010	0.0009	0.0012	0.0012	0.0019	0.0018
566	02227990	0.0039	—	0.0052	—	0.0073	—	0.0114	—
567	02228000	0.0008	0.0008	0.0009	0.0009	0.0012	0.0012	0.0020	0.0018
568	02228050	0.0050	0.0040	0.0064	0.0049	0.0088	0.0063	0.0132	0.0086
569	02228055	0.0121	0.0077	0.0172	0.0094	0.0241	0.0115	0.0360	0.0147
579	02314500	0.0017	0.0016	0.0017	0.0015	0.0020	0.0019	0.0030	0.0027
580	02314600	0.0016	0.0015	0.0016	0.0015	0.0020	0.0018	0.0030	0.0027
581	02314700	0.0011	0.0011	0.0014	0.0013	0.0020	0.0018	0.0031	0.0028
583	02315650	0.0026	—	0.0034	—	0.0046	—	0.0067	—
584	02315670	0.0011	0.0010	0.0015	0.0014	0.0022	0.0020	0.0032	0.0029
585	02315700	0.0018	0.0017	0.0020	0.0019	0.0026	0.0023	0.0039	0.0034
586	02315900	0.0021	0.0019	0.0025	0.0023	0.0034	0.0029	0.0052	0.0043
587	02315980	0.0026	0.0023	0.0039	0.0032	0.0057	0.0045	0.0092	0.0067
588	02316000	0.0007	0.0007	0.0008	0.0007	0.0010	0.0009	0.0016	0.0015
589	02316200	0.0016	0.0015	0.0020	0.0018	0.0028	0.0025	0.0044	0.0037
590	02316220	0.0081	0.0059	0.0102	0.0068	0.0135	0.0084	0.0193	0.0109
591	02316260	0.0078	0.0057	0.0116	0.0074	0.0165	0.0094	0.0252	0.0125
592	02316390	0.0004	0.0004	0.0003	0.0003	0.0004	0.0004	0.0006	0.0006
593	02317500	0.0008	0.0008	0.0008	0.0008	0.0011	0.0010	0.0017	0.0016
594	02317600	0.0026	0.0023	0.0026	0.0023	0.0031	0.0027	0.0046	0.0039
596	02317700	0.0018	0.0017	0.0019	0.0018	0.0024	0.0022	0.0037	0.0032
597	02317710	0.0057	—	0.0068	—	0.0090	—	0.0135	—
598	02317730	0.0018	0.0017	0.0025	0.0022	0.0035	0.0030	0.0054	0.0044
599	02317734	0.0032	0.0028	0.0041	0.0034	0.0056	0.0045	0.0084	0.0063
600	023177483	0.0011	0.0011	0.0013	0.0012	0.0016	0.0015	0.0026	0.0024
601	02317760	0.0058	0.0045	0.0074	0.0054	0.0098	0.0068	0.0142	0.0090
602	02317765	0.0087	0.0062	0.0124	0.0077	0.0173	0.0097	0.0261	0.0127
603	02317770	0.0015	0.0014	0.0018	0.0016	0.0023	0.0021	0.0035	0.0031

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		2-percent chance exceedance		1-percent chance exceedance		0.5-percent chance exceedance		0.2-percent chance exceedance	
		G	W	G	W	G	W	G	W
561	02227400	0.0053	0.0044	0.0077	0.0062	0.0108	0.0082	0.0158	0.0112
562	02227422	0.0124	—	0.0163	—	0.0209	—	0.0282	—
563	02227430	0.0043	0.0037	0.0061	0.0051	0.0083	0.0067	0.0119	0.0091
564	02227470	0.0072	0.0057	0.0101	0.0076	0.0137	0.0097	0.0196	0.0130
565	02227500	0.0028	0.0025	0.0039	0.0034	0.0053	0.0046	0.0075	0.0063
566	02227990	0.0156	—	0.0208	—	0.0269	—	0.0365	—
567	02228000	0.0028	0.0026	0.0040	0.0035	0.0054	0.0046	0.0077	0.0064
568	02228050	0.0176	0.0107	0.0230	0.0131	0.0293	0.0157	0.0391	0.0195
569	02228055	0.0471	0.0174	0.0599	0.0202	0.0745	0.0232	0.0964	0.0276
579	02314500	0.0043	0.0037	0.0059	0.0049	0.0079	0.0064	0.0111	0.0086
580	02314600	0.0041	0.0036	0.0056	0.0048	0.0075	0.0061	0.0104	0.0082
581	02314700	0.0044	0.0038	0.0060	0.0050	0.0080	0.0065	0.0112	0.0087
583	02315650	0.0087	—	0.0110	—	0.0137	—	0.0176	—
584	02315670	0.0042	0.0037	0.0054	0.0046	0.0067	0.0056	0.0086	0.0070
585	02315700	0.0053	0.0045	0.0071	0.0057	0.0092	0.0072	0.0126	0.0095
586	02315900	0.0071	0.0056	0.0094	0.0072	0.0123	0.0090	0.0168	0.0117
587	02315980	0.0129	0.0088	0.0174	0.0111	0.0228	0.0136	0.0313	0.0173
588	02316000	0.0022	0.0021	0.0031	0.0028	0.0042	0.0037	0.0060	0.0052
589	02316200	0.0062	0.0051	0.0085	0.0066	0.0112	0.0084	0.0157	0.0112
590	02316220	0.0247	0.0130	0.0309	0.0154	0.0379	0.0179	0.0484	0.0215
591	02316260	0.0333	0.0151	0.0428	0.0178	0.0536	0.0207	0.0700	0.0249
592	02316390	0.0009	0.0009	0.0013	0.0012	0.0018	0.0017	0.0026	0.0024
593	02317500	0.0024	0.0022	0.0033	0.0030	0.0045	0.0040	0.0064	0.0055
594	02317600	0.0064	0.0052	0.0087	0.0068	0.0115	0.0086	0.0161	0.0114
596	02317700	0.0051	0.0043	0.0069	0.0056	0.0092	0.0072	0.0128	0.0096
597	02317710	0.0181	—	0.0239	—	0.0308	—	0.0417	—
598	02317730	0.0073	0.0058	0.0097	0.0074	0.0125	0.0091	0.0170	0.0118
599	02317734	0.0113	0.0080	0.0147	0.0099	0.0187	0.0121	0.0250	0.0152
600	023177483	0.0037	0.0033	0.0052	0.0044	0.0070	0.0058	0.0100	0.0080
601	02317760	0.0183	0.0110	0.0230	0.0131	0.0284	0.0154	0.0365	0.0188
602	02317765	0.0342	0.0152	0.0437	0.0180	0.0546	0.0209	0.0709	0.0250
603	02317770	0.0047	0.0040	0.0061	0.0051	0.0079	0.0064	0.0106	0.0083

Table 9. Variance of prediction values for rural streamgaging stations in Georgia that were considered for use in the regression equations.—Continued

[USGS, U.S. Geological Survey; G, computed from the Bulletin 17B analysis of the streamgaging station; W, weighted using equation 22; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		50-percent chance exceedance		20-percent chance exceedance		10-percent chance exceedance		4-percent chance exceedance	
		G	W	G	W	G	W	G	W
604	02317775	0.0050	0.0040	0.0052	0.0042	0.0065	0.0050	0.0093	0.0068
605	02317780	0.0036	0.0031	0.0039	0.0033	0.0049	0.0040	0.0071	0.0055
606	02317795	0.0056	0.0044	0.0066	0.0050	0.0087	0.0062	0.0128	0.0084
607	02317800	0.0022	0.0020	0.0025	0.0022	0.0033	0.0029	0.0049	0.0041
608	02317810	0.0030	—	0.0036	—	0.0047	—	0.0072	—
609	02317830	0.0003	0.0003	0.0004	0.0004	0.0005	0.0005	0.0007	0.0007
610	02317840	0.0063	0.0048	0.0093	0.0064	0.0132	0.0082	0.0202	0.0111
611	02317845	0.0038	0.0032	0.0049	0.0039	0.0066	0.0051	0.0096	0.0069
612	02317870	0.0018	0.0017	0.0020	0.0018	0.0025	0.0022	0.0036	0.0032
613	02317890	0.0057	—	0.0070	—	0.0093	—	0.0133	—
614	02317900	0.0013	0.0012	0.0015	0.0014	0.0019	0.0018	0.0030	0.0027
615	02317905	0.0038	0.0032	0.0041	0.0034	0.0052	0.0042	0.0075	0.0058
616	02317910	0.0022	0.0020	0.0026	0.0023	0.0034	0.0029	0.0050	0.0041
617	02317980	0.0003	0.0003	0.0004	0.0004	0.0005	0.0005	0.0008	0.0008
618	02318000	0.0006	0.0006	0.0007	0.0007	0.0009	0.0009	0.0014	0.0013
619	02318015	0.0161	0.0091	0.0195	0.0100	0.0255	0.0118	0.0362	0.0147
620	02318020	0.0062	—	0.0071	—	0.0091	—	0.0129	—
621	02318500	0.0016	0.0015	0.0020	0.0019	0.0028	0.0025	0.0045	0.0038
622	02318600	0.0007	0.0007	0.0010	0.0009	0.0015	0.0014	0.0026	0.0024
623	02318700	0.0051	0.0041	0.0064	0.0049	0.0087	0.0062	0.0131	0.0086
624	02318725	0.0013	0.0012	0.0018	0.0016	0.0027	0.0024	0.0048	0.0040
625	02326200	0.0054	0.0043	0.0062	0.0047	0.0080	0.0059	0.0121	0.0081
628	02327200	0.0005	0.0005	0.0008	0.0007	0.0012	0.0012	0.0022	0.0021
629	02327350	0.0026	0.0023	0.0031	0.0027	0.0042	0.0035	0.0064	0.0051
630	02327355	0.0022	0.0020	0.0029	0.0026	0.0041	0.0035	0.0066	0.0052
631	02327400	0.0042	0.0035	0.0052	0.0041	0.0069	0.0052	0.0102	0.0072
632	02327415	0.0052	0.0042	0.0073	0.0054	0.0103	0.0070	0.0162	0.0098
633	02327500	0.0008	0.0008	0.0011	0.0011	0.0016	0.0015	0.0028	0.0025
634	02327550	0.0039	0.0033	0.0047	0.0038	0.0062	0.0048	0.0095	0.0068
635	02327700	0.0042	0.0035	0.0056	0.0044	0.0079	0.0058	0.0125	0.0083
636	02327810	0.0008	0.0008	0.0012	0.0011	0.0019	0.0017	0.0035	0.0031
637	02327860	0.0034	0.0029	0.0047	0.0038	0.0067	0.0051	0.0105	0.0074

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		2-percent chance exceedance		1-percent chance exceedance		0.5-percent chance exceedance		0.2-percent chance exceedance	
		G	W	G	W	G	W	G	W
604	02317775	0.0122	0.0085	0.0160	0.0105	0.0204	0.0127	0.0274	0.0160
605	02317780	0.0095	0.0070	0.0124	0.0088	0.0158	0.0108	0.0213	0.0137
606	02317795	0.0170	0.0105	0.0222	0.0128	0.0284	0.0154	0.0380	0.0192
607	02317800	0.0067	0.0054	0.0089	0.0069	0.0117	0.0087	0.0160	0.0113
608	02317810	0.0097	—	0.0129	—	0.0167	—	0.0228	—
609	02317830	0.0011	0.0010	0.0015	0.0014	0.0020	0.0019	0.0029	0.0027
610	02317840	0.0267	0.0135	0.0342	0.0161	0.0429	0.0189	0.0560	0.0229
611	02317845	0.0124	0.0085	0.0156	0.0103	0.0193	0.0123	0.0248	0.0151
612	02317870	0.0048	0.0041	0.0063	0.0052	0.0080	0.0065	0.0108	0.0084
613	02317890	0.0170	—	0.0213	—	0.0262	—	0.0336	—
614	02317900	0.0041	0.0036	0.0056	0.0047	0.0074	0.0061	0.0104	0.0082
615	02317905	0.0099	0.0073	0.0129	0.0091	0.0164	0.0110	0.0220	0.0140
616	02317910	0.0066	0.0053	0.0086	0.0067	0.0111	0.0083	0.0148	0.0107
617	02317980	0.0012	0.0012	0.0017	0.0016	0.0023	0.0022	0.0033	0.0030
618	02318000	0.0020	0.0019	0.0028	0.0026	0.0038	0.0034	0.0054	0.0048
619	02318015	0.0463	0.0172	0.0579	0.0200	0.0710	0.0229	0.0908	0.0271
620	02318020	0.0166	—	0.0210	—	0.0261	—	0.0339	—
621	02318500	0.0064	0.0052	0.0088	0.0068	0.0117	0.0087	0.0165	0.0116
622	02318600	0.0039	0.0034	0.0055	0.0046	0.0075	0.0061	0.0107	0.0084
623	02318700	0.0176	0.0107	0.0232	0.0132	0.0297	0.0158	0.0400	0.0197
624	02318725	0.0071	0.0056	0.0101	0.0076	0.0138	0.0098	0.0198	0.0131
625	02326200	0.0165	0.0103	0.0220	0.0128	0.0287	0.0155	0.0395	0.0195
628	02327200	0.0034	0.0030	0.0049	0.0042	0.0067	0.0056	0.0097	0.0078
629	02327350	0.0087	0.0066	0.0117	0.0084	0.0152	0.0105	0.0209	0.0136
630	02327355	0.0093	0.0070	0.0128	0.0090	0.0170	0.0113	0.0236	0.0147
631	02327400	0.0137	0.0091	0.0179	0.0113	0.0229	0.0136	0.0307	0.0171
632	02327415	0.0220	0.0122	0.0291	0.0149	0.0374	0.0178	0.0505	0.0219
633	02327500	0.0040	0.0035	0.0057	0.0048	0.0077	0.0063	0.0111	0.0086
634	02327550	0.0129	0.0088	0.0172	0.0110	0.0223	0.0135	0.0306	0.0171
635	02327700	0.0174	0.0107	0.0235	0.0133	0.0309	0.0161	0.0426	0.0203
636	02327810	0.0053	0.0044	0.0076	0.0061	0.0105	0.0080	0.0152	0.0109
637	02327860	0.0143	0.0094	0.0190	0.0117	0.0245	0.0142	0.0332	0.0179

Table 9. Variance of prediction values for rural streamgaging stations in Georgia that were considered for use in the regression equations.—Continued

[USGS, U.S. Geological Survey; G, computed from the Bulletin 17B analysis of the streamgaging station; W, weighted using equation 22; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		50-percent chance exceedance		20-percent chance exceedance		10-percent chance exceedance		4-percent chance exceedance	
		G	W	G	W	G	W	G	W
638	02327900	0.0009	0.0009	0.0011	0.0010	0.0015	0.0014	0.0024	0.0022
639	02328000	0.0011	0.0011	0.0017	0.0015	0.0026	0.0023	0.0046	0.0039
648	02330450	0.0021	0.0019	0.0031	0.0027	0.0045	0.0038	0.0076	0.0058
649	02331000	0.0011	0.0011	0.0012	0.0012	0.0016	0.0015	0.0024	0.0022
650	02331500	0.0008	0.0007	0.0010	0.0010	0.0014	0.0014	0.0024	0.0022
651	02331600	0.0009	0.0008	0.0009	0.0008	0.0011	0.0010	0.0016	0.0015
652	02333000	0.0006	0.0006	0.0007	0.0007	0.0010	0.0009	0.0015	0.0014
653	02333500	0.0007	0.0007	0.0009	0.0008	0.0012	0.0011	0.0019	0.0018
654	02337000	0.0005	0.0005	0.0006	0.0006	0.0008	0.0008	0.0013	0.0013
655	02337400	0.0024	0.0022	0.0026	0.0023	0.0034	0.0029	0.0050	0.0042
656	02337448	0.0028	—	0.0036	—	0.0049	—	0.0076	—
657	02337500	0.0017	0.0015	0.0017	0.0015	0.0020	0.0018	0.0029	0.0026
658	02338660	0.0039	0.0033	0.0046	0.0038	0.0061	0.0048	0.0091	0.0066
659	02338840	0.0011	0.0010	0.0014	0.0013	0.0019	0.0017	0.0028	0.0025
660	02339000	0.0055	0.0044	0.0074	0.0054	0.0102	0.0070	0.0155	0.0095
662	02340250	0.0029	0.0026	0.0036	0.0030	0.0048	0.0039	0.0072	0.0056
663	02340500	0.0041	0.0035	0.0057	0.0045	0.0081	0.0059	0.0129	0.0085
665	02341220	0.0041	0.0034	0.0058	0.0045	0.0081	0.0059	0.0126	0.0084
666	02341600	0.0016	0.0015	0.0024	0.0021	0.0035	0.0031	0.0060	0.0048
667	02341723	0.0031	0.0027	0.0048	0.0039	0.0071	0.0054	0.0116	0.0079
668	02341800	0.0018	0.0017	0.0028	0.0025	0.0042	0.0035	0.0070	0.0055
669	02341900	0.0045	0.0037	0.0067	0.0051	0.0099	0.0068	0.0161	0.0098
674	02343200	0.0027	0.0024	0.0038	0.0032	0.0055	0.0044	0.0093	0.0067
675	02343219	0.0017	0.0016	0.0026	0.0023	0.0039	0.0033	0.0065	0.0052
676	02343225	0.0033	0.0029	0.0052	0.0041	0.0079	0.0058	0.0137	0.0088
677	02343244	0.0020	0.0018	0.0031	0.0027	0.0047	0.0039	0.0081	0.0061
678	02343267	0.0022	0.0020	0.0034	0.0029	0.0052	0.0042	0.0091	0.0067
682	02344700	0.0034	0.0030	0.0046	0.0038	0.0065	0.0050	0.0105	0.0074
683	02345000	0.0014	0.0013	0.0015	0.0014	0.0019	0.0018	0.0029	0.0026
684	02345500	0.0023	0.0021	0.0029	0.0025	0.0038	0.0033	0.0058	0.0047
685	02346180	0.0007	0.0006	0.0008	0.0007	0.0010	0.0010	0.0016	0.0015
686	02346193	0.0028	0.0025	0.0035	0.0030	0.0048	0.0039	0.0073	0.0056

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		2-percent chance exceedance		1-percent chance exceedance		0.5-percent chance exceedance		0.2-percent chance exceedance	
		G	W	G	W	G	W	G	W
638	02327900	0.0034	0.0030	0.0048	0.0041	0.0064	0.0054	0.0091	0.0074
639	02328000	0.0069	0.0055	0.0098	0.0074	0.0134	0.0096	0.0194	0.0129
648	02330450	0.0107	0.0077	0.0147	0.0099	0.0194	0.0123	0.0270	0.0159
649	02331000	0.0033	0.0029	0.0045	0.0039	0.0059	0.0050	0.0082	0.0068
650	02331500	0.0034	0.0030	0.0046	0.0040	0.0062	0.0052	0.0087	0.0071
651	02331600	0.0023	0.0021	0.0031	0.0028	0.0041	0.0037	0.0057	0.0050
652	02333000	0.0021	0.0020	0.0029	0.0026	0.0038	0.0034	0.0054	0.0047
653	02333500	0.0027	0.0025	0.0038	0.0033	0.0050	0.0044	0.0071	0.0060
654	02337000	0.0019	0.0018	0.0027	0.0025	0.0036	0.0033	0.0051	0.0045
655	02337400	0.0067	0.0054	0.0089	0.0069	0.0116	0.0086	0.0159	0.0113
656	02337448	0.0103	—	0.0137	—	0.0176	—	0.0239	—
657	02337500	0.0040	0.0035	0.0054	0.0046	0.0070	0.0058	0.0097	0.0078
658	02338660	0.0121	0.0084	0.0159	0.0104	0.0203	0.0127	0.0273	0.0160
659	02338840	0.0036	0.0032	0.0046	0.0040	0.0057	0.0049	0.0074	0.0062
660	02339000	0.0208	0.0118	0.0271	0.0144	0.0346	0.0171	0.0461	0.0210
662	02340250	0.0096	0.0071	0.0126	0.0089	0.0162	0.0110	0.0219	0.0140
663	02340500	0.0177	0.0108	0.0236	0.0133	0.0307	0.0161	0.0418	0.0201
665	02341220	0.0171	0.0105	0.0225	0.0129	0.0289	0.0156	0.0388	0.0194
666	02341600	0.0085	0.0065	0.0117	0.0085	0.0156	0.0107	0.0218	0.0139
667	02341723	0.0161	0.0102	0.0217	0.0127	0.0283	0.0154	0.0387	0.0194
668	02341800	0.0100	0.0073	0.0137	0.0094	0.0181	0.0118	0.0252	0.0153
669	02341900	0.0224	0.0123	0.0301	0.0151	0.0393	0.0182	0.0537	0.0225
674	02343200	0.0133	0.0090	0.0184	0.0115	0.0247	0.0143	0.0348	0.0183
675	02343219	0.0091	0.0068	0.0123	0.0088	0.0162	0.0109	0.0223	0.0141
676	02343225	0.0198	0.0115	0.0275	0.0144	0.0367	0.0176	0.0516	0.0221
677	02343244	0.0119	0.0083	0.0166	0.0107	0.0223	0.0134	0.0316	0.0174
678	02343267	0.0133	0.0090	0.0186	0.0116	0.0251	0.0144	0.0356	0.0185
682	02344700	0.0146	0.0095	0.0197	0.0120	0.0259	0.0147	0.0358	0.0186
683	02345000	0.0040	0.0035	0.0054	0.0046	0.0072	0.0059	0.0099	0.0079
684	02345500	0.0077	0.0060	0.0101	0.0076	0.0130	0.0094	0.0175	0.0121
685	02346180	0.0023	0.0022	0.0032	0.0029	0.0043	0.0038	0.0061	0.0053
686	02346193	0.0098	0.0072	0.0128	0.0090	0.0165	0.0111	0.0221	0.0141

Table 9. Variance of prediction values for rural streamgaging stations in Georgia that were considered for use in the regression equations.—Continued

[USGS, U.S. Geological Survey; G, computed from the Bulletin 17B analysis of the streamgaging station; W, weighted using equation 22; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		50-percent chance exceedance		20-percent chance exceedance		10-percent chance exceedance		4-percent chance exceedance	
		G	W	G	W	G	W	G	W
687	02346195	0.0034	0.0029	0.0051	0.0041	0.0077	0.0057	0.0129	0.0085
688	02346210	0.0013	0.0012	0.0015	0.0014	0.0019	0.0017	0.0028	0.0026
689	02346217	0.0030	0.0026	0.0035	0.0030	0.0046	0.0038	0.0070	0.0054
690	02346500	0.0015	0.0014	0.0020	0.0018	0.0028	0.0025	0.0045	0.0038
691	02347500	0.0008	0.0008	0.0008	0.0008	0.0011	0.0010	0.0016	0.0015
692	02348300	0.0036	0.0031	0.0055	0.0044	0.0083	0.0060	0.0138	0.0089
693	02348485	0.0006	0.0006	0.0009	0.0008	0.0013	0.0012	0.0021	0.0019
694	02349000	0.0010	0.0010	0.0016	0.0015	0.0024	0.0022	0.0041	0.0035
695	02349030	0.0028	0.0025	0.0044	0.0036	0.0065	0.0050	0.0106	0.0074
696	02349330	0.0017	—	0.0022	—	0.0031	—	0.0047	—
697	02349350	0.0049	0.0040	0.0063	0.0048	0.0085	0.0061	0.0129	0.0085
698	02349605	0.0008	0.0008	0.0009	0.0009	0.0012	0.0011	0.0019	0.0018
699	02349695	0.0039	—	0.0043	—	0.0055	—	0.0079	—
700	02349900	0.0025	0.0022	0.0030	0.0026	0.0040	0.0034	0.0063	0.0050
701	02350512	0.0006	0.0006	0.0008	0.0007	0.0011	0.0010	0.0018	0.0017
702	02350520	0.0011	0.0011	0.0017	0.0016	0.0025	0.0023	0.0041	0.0035
703	02350600	0.0009	0.0009	0.0012	0.0011	0.0016	0.0015	0.0027	0.0024
704	02350685	0.0153	—	0.0202	—	0.0279	—	0.0431	—
705	02350900	0.0009	0.0009	0.0013	0.0013	0.0020	0.0019	0.0036	0.0031
706	02351500	0.0033	0.0029	0.0048	0.0039	0.0070	0.0053	0.0111	0.0077
707	02351700	0.0047	0.0039	0.0069	0.0052	0.0099	0.0068	0.0154	0.0095
708	02351800	0.0017	0.0016	0.0020	0.0018	0.0027	0.0024	0.0043	0.0037
709	02351890	0.0009	0.0008	0.0012	0.0012	0.0018	0.0017	0.0032	0.0028
710	02351900	0.0007	0.0007	0.0010	0.0009	0.0014	0.0013	0.0023	0.0021
711	02352500	0.0005	0.0005	0.0006	0.0006	0.0008	0.0008	0.0013	0.0013
712	02353000	0.0004	0.0004	0.0005	0.0005	0.0007	0.0007	0.0011	0.0011
713	02353100	0.0024	0.0021	0.0028	0.0025	0.0037	0.0032	0.0054	0.0044
714	02353200	0.0073	0.0055	0.0107	0.0071	0.0152	0.0090	0.0232	0.0120
715	02353400	0.0011	0.0010	0.0015	0.0014	0.0021	0.0020	0.0037	0.0032
716	02353500	0.0009	0.0009	0.0011	0.0010	0.0015	0.0014	0.0024	0.0022
717	02354500	0.0009	0.0008	0.0009	0.0009	0.0012	0.0011	0.0019	0.0017
718	02354800	0.0147	0.0087	0.0202	0.0102	0.0279	0.0123	0.0416	0.0155

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		2-percent chance exceedance		1-percent chance exceedance		0.5-percent chance exceedance		0.2-percent chance exceedance	
		G	W	G	W	G	W	G	W
687	02346195	0.0182	0.0109	0.0248	0.0137	0.0327	0.0166	0.0453	0.0209
688	02346210	0.0039	0.0034	0.0052	0.0044	0.0067	0.0056	0.0092	0.0074
689	02346217	0.0094	0.0070	0.0125	0.0089	0.0162	0.0109	0.0220	0.0140
690	02346500	0.0064	0.0052	0.0088	0.0068	0.0117	0.0087	0.0163	0.0115
691	02347500	0.0023	0.0021	0.0032	0.0029	0.0044	0.0039	0.0062	0.0053
692	02348300	0.0194	0.0114	0.0263	0.0141	0.0346	0.0171	0.0478	0.0214
693	02348485	0.0030	0.0027	0.0041	0.0036	0.0054	0.0047	0.0076	0.0064
694	02349000	0.0059	0.0049	0.0082	0.0065	0.0110	0.0083	0.0155	0.0111
695	02349030	0.0148	0.0096	0.0199	0.0120	0.0259	0.0147	0.0355	0.0185
696	02349330	0.0065	—	0.0086	—	0.0111	—	0.0151	—
697	02349350	0.0174	0.0107	0.0229	0.0131	0.0295	0.0158	0.0398	0.0196
698	02349605	0.0027	0.0025	0.0037	0.0033	0.0050	0.0044	0.0071	0.0060
699	02349695	0.0105	—	0.0137	—	0.0176	—	0.0237	—
700	02349900	0.0087	0.0066	0.0118	0.0085	0.0156	0.0107	0.0217	0.0139
701	02350512	0.0026	0.0023	0.0036	0.0032	0.0048	0.0042	0.0068	0.0058
702	02350520	0.0058	0.0048	0.0078	0.0062	0.0102	0.0078	0.0139	0.0102
703	02350600	0.0038	0.0034	0.0053	0.0045	0.0072	0.0059	0.0102	0.0081
704	02350685	0.0586	—	0.0777	—	0.1003	—	0.1359	—
705	02350900	0.0053	0.0045	0.0076	0.0061	0.0103	0.0079	0.0148	0.0107
706	02351500	0.0153	0.0098	0.0204	0.0122	0.0265	0.0149	0.0360	0.0186
707	02351700	0.0207	0.0118	0.0269	0.0143	0.0343	0.0170	0.0455	0.0209
708	02351800	0.0061	0.0050	0.0083	0.0065	0.0111	0.0084	0.0156	0.0111
709	02351890	0.0047	0.0040	0.0066	0.0054	0.0090	0.0071	0.0128	0.0096
710	02351900	0.0033	0.0030	0.0046	0.0040	0.0063	0.0053	0.0089	0.0072
711	02352500	0.0019	0.0018	0.0027	0.0025	0.0036	0.0033	0.0051	0.0045
712	02353000	0.0016	0.0015	0.0022	0.0021	0.0030	0.0028	0.0043	0.0039
713	02353100	0.0071	0.0056	0.0092	0.0070	0.0116	0.0086	0.0154	0.0110
714	02353200	0.0308	0.0145	0.0396	0.0172	0.0497	0.0201	0.0650	0.0243
715	02353400	0.0054	0.0045	0.0075	0.0060	0.0102	0.0078	0.0145	0.0106
716	02353500	0.0034	0.0030	0.0048	0.0041	0.0064	0.0054	0.0091	0.0073
717	02354500	0.0027	0.0024	0.0037	0.0033	0.0050	0.0043	0.0070	0.0059
718	02354800	0.0543	0.0183	0.0690	0.0212	0.0859	0.0243	0.1113	0.0287

Table 9. Variance of prediction values for rural streamgaging stations in Georgia that were considered for use in the regression equations.—Continued

[USGS, U.S. Geological Survey; G, computed from the Bulletin 17B analysis of the streamgaging station; W, weighted using equation 22; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		50-percent chance exceedance		20-percent chance exceedance		10-percent chance exceedance		4-percent chance exceedance	
		G	W	G	W	G	W	G	W
719	02355000	0.0021	0.0019	0.0024	0.0021	0.0031	0.0027	0.0046	0.0039
720	02356000	0.0005	0.0005	0.0006	0.0005	0.0007	0.0007	0.0012	0.0011
721	02356100	0.0051	0.0041	0.0061	0.0047	0.0080	0.0059	0.0118	0.0080
722	02356640	0.0051	0.0041	0.0069	0.0051	0.0095	0.0066	0.0147	0.0092
723	02357000	0.0024	0.0022	0.0025	0.0022	0.0030	0.0027	0.0046	0.0039
734	02379500	0.0008	0.0008	0.0009	0.0009	0.0013	0.0012	0.0020	0.0019
735	02380000	0.0010	0.0009	0.0012	0.0011	0.0016	0.0015	0.0026	0.0023
736	02380500	0.0006	0.0006	0.0007	0.0007	0.0009	0.0009	0.0015	0.0014
737	02381100	0.0086	0.0061	0.0122	0.0077	0.0171	0.0096	0.0256	0.0126
738	02381300	0.0027	0.0024	0.0039	0.0033	0.0056	0.0045	0.0090	0.0066
739	02381600	0.0020	0.0018	0.0024	0.0022	0.0033	0.0029	0.0052	0.0043
740	02381900	0.0037	0.0032	0.0042	0.0035	0.0055	0.0044	0.0080	0.0060
741	02382200	0.0017	0.0015	0.0022	0.0020	0.0031	0.0027	0.0051	0.0042
742	02382600	0.0016	0.0015	0.0018	0.0017	0.0023	0.0021	0.0034	0.0030
743	02382800	0.0015	0.0014	0.0020	0.0018	0.0027	0.0024	0.0042	0.0036
744	02382900	0.0013	0.0013	0.0021	0.0019	0.0032	0.0028	0.0054	0.0044
745	02383000	0.0021	0.0019	0.0027	0.0024	0.0037	0.0032	0.0057	0.0047
746	02383200	0.0019	0.0018	0.0024	0.0021	0.0032	0.0028	0.0049	0.0041
747	02384500	0.0014	0.0013	0.0018	0.0017	0.0025	0.0023	0.0040	0.0034
748	02384540	0.0046	0.0038	0.0059	0.0046	0.0079	0.0058	0.0118	0.0080
749	02384600	0.0013	0.0012	0.0016	0.0015	0.0022	0.0020	0.0034	0.0030
751	02385000	0.0017	0.0016	0.0021	0.0019	0.0028	0.0025	0.0044	0.0037
752	02385700	0.0022	0.0020	0.0033	0.0029	0.0049	0.0040	0.0080	0.0061
753	02385800	0.0014	0.0013	0.0019	0.0017	0.0027	0.0024	0.0043	0.0037
754	02387000	0.0003	0.0003	0.0003	0.0003	0.0004	0.0004	0.0006	0.0006
755	02387100	0.0014	0.0013	0.0021	0.0019	0.0031	0.0027	0.0050	0.0041
756	02387200	0.0033	0.0028	0.0048	0.0039	0.0068	0.0052	0.0104	0.0073
757	02387300	0.0029	—	0.0034	—	0.0044	—	0.0065	—
758	02387560	0.0021	0.0019	0.0032	0.0028	0.0048	0.0039	0.0078	0.0059
759	02387570	0.0018	0.0017	0.0028	0.0025	0.0042	0.0035	0.0068	0.0053
760	02387700	0.0039	0.0033	0.0058	0.0045	0.0083	0.0060	0.0130	0.0085
761	02387800	0.0047	0.0038	0.0066	0.0050	0.0093	0.0065	0.0147	0.0092

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		2-percent chance exceedance		1-percent chance exceedance		0.5-percent chance exceedance		0.2-percent chance exceedance	
		G	W	G	W	G	W	G	W
719	02355000	0.0063	0.0052	0.0085	0.0067	0.0111	0.0084	0.0154	0.0110
720	02356000	0.0017	0.0016	0.0023	0.0022	0.0032	0.0029	0.0045	0.0040
721	02356100	0.0156	0.0100	0.0203	0.0122	0.0259	0.0147	0.0346	0.0183
722	02356640	0.0198	0.0115	0.0261	0.0141	0.0335	0.0168	0.0450	0.0208
723	02357000	0.0063	0.0051	0.0086	0.0067	0.0115	0.0086	0.0160	0.0113
734	02379500	0.0029	0.0026	0.0040	0.0035	0.0053	0.0046	0.0075	0.0063
735	02380000	0.0036	0.0032	0.0049	0.0042	0.0066	0.0055	0.0092	0.0074
736	02380500	0.0021	0.0020	0.0030	0.0027	0.0040	0.0036	0.0057	0.0050
737	02381100	0.0335	0.0151	0.0426	0.0178	0.0529	0.0206	0.0685	0.0247
738	02381300	0.0123	0.0085	0.0164	0.0107	0.0212	0.0130	0.0287	0.0165
739	02381600	0.0072	0.0057	0.0098	0.0074	0.0129	0.0094	0.0180	0.0123
740	02381900	0.0106	0.0076	0.0137	0.0095	0.0175	0.0115	0.0235	0.0146
741	02382200	0.0072	0.0057	0.0098	0.0074	0.0130	0.0094	0.0181	0.0123
742	02382600	0.0045	0.0039	0.0059	0.0049	0.0075	0.0061	0.0100	0.0079
743	02382800	0.0058	0.0048	0.0078	0.0062	0.0102	0.0078	0.0140	0.0103
744	02382900	0.0077	0.0060	0.0106	0.0079	0.0141	0.0099	0.0196	0.0130
745	02383000	0.0079	0.0061	0.0106	0.0078	0.0138	0.0098	0.0189	0.0127
746	02383200	0.0068	0.0054	0.0090	0.0070	0.0118	0.0087	0.0162	0.0114
747	02384500	0.0056	0.0046	0.0075	0.0060	0.0099	0.0077	0.0137	0.0101
748	02384540	0.0158	0.0100	0.0205	0.0123	0.0261	0.0147	0.0348	0.0183
749	02384600	0.0047	0.0040	0.0063	0.0052	0.0082	0.0066	0.0112	0.0087
751	02385000	0.0060	0.0049	0.0081	0.0064	0.0105	0.0080	0.0145	0.0105
752	02385700	0.0111	0.0079	0.0149	0.0100	0.0194	0.0123	0.0265	0.0157
753	02385800	0.0061	0.0050	0.0083	0.0065	0.0110	0.0083	0.0153	0.0110
754	02387000	0.0009	0.0009	0.0012	0.0012	0.0017	0.0016	0.0024	0.0023
755	02387100	0.0069	0.0055	0.0093	0.0071	0.0122	0.0089	0.0166	0.0116
756	02387200	0.0137	0.0091	0.0175	0.0111	0.0219	0.0133	0.0286	0.0164
757	02387300	0.0085	—	0.0110	—	0.0140	—	0.0186	—
758	02387560	0.0109	0.0078	0.0146	0.0099	0.0190	0.0122	0.0259	0.0155
759	02387570	0.0095	0.0071	0.0128	0.0090	0.0167	0.0112	0.0228	0.0144
760	02387700	0.0175	0.0107	0.0228	0.0131	0.0291	0.0156	0.0386	0.0193
761	02387800	0.0201	0.0116	0.0267	0.0142	0.0345	0.0171	0.0467	0.0212

Table 9. Variance of prediction values for rural streamgaging stations in Georgia that were considered for use in the regression equations.—Continued

[USGS, U.S. Geological Survey; G, computed from the Bulletin 17B analysis of the streamgaging station; W, weighted using equation 22; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		50-percent chance exceedance		20-percent chance exceedance		10-percent chance exceedance		4-percent chance exceedance	
		G	W	G	W	G	W	G	W
762	02388000	0.0019	0.0018	0.0029	0.0025	0.0042	0.0035	0.0070	0.0055
763	02388200	0.0013	0.0012	0.0017	0.0016	0.0024	0.0022	0.0038	0.0033
764	02388300	0.0023	0.0021	0.0027	0.0024	0.0036	0.0031	0.0053	0.0044
765	02388400	0.0030	0.0026	0.0039	0.0033	0.0054	0.0043	0.0082	0.0062
766	02388900	0.0024	0.0022	0.0034	0.0029	0.0049	0.0040	0.0078	0.0059
767	02389000	0.0007	0.0007	0.0008	0.0008	0.0010	0.0010	0.0015	0.0014
768	02389300	0.0033	0.0029	0.0037	0.0031	0.0047	0.0039	0.0067	0.0053
769	02390000	0.0022	0.0020	0.0028	0.0025	0.0037	0.0032	0.0054	0.0044
770	02391000	0.0026	0.0023	0.0036	0.0030	0.0049	0.0040	0.0073	0.0056
771	02392000	0.0005	0.0005	0.0006	0.0006	0.0009	0.0008	0.0015	0.0014
772	02394400	0.0016	0.0015	0.0020	0.0018	0.0026	0.0023	0.0039	0.0034
773	02394820	0.0004	0.0004	0.0005	0.0005	0.0006	0.0006	0.0011	0.0010
774	02394950	0.0030	0.0026	0.0041	0.0034	0.0059	0.0047	0.0094	0.0068
775	02395120	0.0032	0.0028	0.0039	0.0033	0.0051	0.0042	0.0076	0.0058
776	02397410	0.0006	0.0006	0.0009	0.0008	0.0013	0.0012	0.0022	0.0020
777	02397500	0.0005	0.0005	0.0005	0.0005	0.0007	0.0007	0.0011	0.0010
778	02397750	0.0014	0.0013	0.0021	0.0019	0.0031	0.0027	0.0050	0.0042
779	02397830	0.0025	0.0023	0.0031	0.0027	0.0041	0.0035	0.0062	0.0050
780	02398000	0.0009	0.0008	0.0011	0.0010	0.0014	0.0013	0.0023	0.0021
790	02411735	0.0011	—	0.0017	—	0.0026	—	0.0042	—
791	02411800	0.0021	0.0019	0.0027	0.0024	0.0037	0.0032	0.0057	0.0046
792	02411900	0.0006	0.0006	0.0008	0.0008	0.0011	0.0011	0.0018	0.0017
793	02411902	0.0018	—	0.0024	—	0.0035	—	0.0055	—
796	02413000	0.0014	0.0013	0.0017	0.0016	0.0022	0.0020	0.0033	0.0029
797	02413200	0.0008	0.0008	0.0008	0.0008	0.0010	0.0010	0.0015	0.0014
919	03544947	0.0091	0.0064	0.0122	0.0077	0.0169	0.0095	0.0259	0.0127
920	03545000	0.0011	0.0010	0.0013	0.0012	0.0018	0.0016	0.0028	0.0025
924	03550500	0.0005	0.0005	0.0006	0.0006	0.0007	0.0007	0.0012	0.0011
928	03558000	0.0004	0.0004	0.0004	0.0004	0.0006	0.0006	0.0010	0.0009
929	03560000	0.0009	0.0009	0.0014	0.0014	0.0022	0.0020	0.0038	0.0033
936	03566660	0.0001	0.0001	0.0002	0.0002	0.0003	0.0003	0.0006	0.0006
937	03566685	0.0007	0.0006	0.0008	0.0008	0.0011	0.0011	0.0019	0.0017

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		2-percent chance exceedance		1-percent chance exceedance		0.5-percent chance exceedance		0.2-percent chance exceedance	
		G	W	G	W	G	W	G	W
762	02388000	0.0099	0.0073	0.0135	0.0094	0.0178	0.0117	0.0247	0.0151
763	02388200	0.0052	0.0044	0.0070	0.0057	0.0092	0.0072	0.0127	0.0095
764	02388300	0.0070	0.0056	0.0090	0.0070	0.0114	0.0085	0.0152	0.0109
765	02388400	0.0112	0.0079	0.0147	0.0099	0.0189	0.0121	0.0255	0.0154
766	02388900	0.0108	0.0077	0.0144	0.0098	0.0187	0.0120	0.0255	0.0154
767	02389000	0.0021	0.0019	0.0028	0.0025	0.0036	0.0033	0.0050	0.0044
768	02389300	0.0088	0.0067	0.0114	0.0083	0.0144	0.0101	0.0192	0.0128
769	02390000	0.0070	0.0056	0.0089	0.0069	0.0111	0.0084	0.0144	0.0105
770	02391000	0.0096	0.0071	0.0121	0.0087	0.0151	0.0104	0.0196	0.0130
771	02392000	0.0021	0.0020	0.0029	0.0027	0.0040	0.0036	0.0057	0.0049
772	02394400	0.0053	0.0045	0.0071	0.0058	0.0093	0.0073	0.0127	0.0096
773	02394820	0.0015	0.0014	0.0021	0.0020	0.0029	0.0026	0.0040	0.0037
774	02394950	0.0130	0.0088	0.0174	0.0111	0.0227	0.0136	0.0310	0.0172
775	02395120	0.0101	0.0074	0.0132	0.0092	0.0169	0.0113	0.0227	0.0143
776	02397410	0.0033	0.0029	0.0046	0.0040	0.0062	0.0053	0.0089	0.0072
777	02397500	0.0016	0.0015	0.0022	0.0020	0.0029	0.0027	0.0041	0.0037
778	02397750	0.0069	0.0055	0.0092	0.0071	0.0120	0.0088	0.0163	0.0115
779	02397830	0.0083	0.0064	0.0109	0.0080	0.0139	0.0099	0.0187	0.0126
780	02398000	0.0032	0.0028	0.0043	0.0038	0.0058	0.0049	0.0081	0.0067
790	02411735	0.0059	—	0.0080	—	0.0104	—	0.0143	—
791	02411800	0.0077	0.0060	0.0102	0.0077	0.0132	0.0095	0.0179	0.0123
792	02411900	0.0026	0.0024	0.0036	0.0032	0.0048	0.0042	0.0067	0.0057
793	02411902	0.0075	—	0.0100	—	0.0130	—	0.0177	—
796	02413000	0.0044	0.0038	0.0058	0.0048	0.0074	0.0061	0.0099	0.0079
797	02413200	0.0021	0.0020	0.0028	0.0026	0.0038	0.0034	0.0052	0.0046
919	03544947	0.0349	0.0154	0.0458	0.0183	0.0587	0.0214	0.0787	0.0259
920	03545000	0.0039	0.0034	0.0053	0.0046	0.0071	0.0059	0.0099	0.0079
924	03550500	0.0017	0.0016	0.0023	0.0021	0.0031	0.0028	0.0043	0.0039
928	03558000	0.0014	0.0014	0.0020	0.0019	0.0027	0.0025	0.0039	0.0035
929	03560000	0.0055	0.0046	0.0076	0.0061	0.0102	0.0078	0.0143	0.0104
936	03566660	0.0009	0.0009	0.0014	0.0013	0.0019	0.0018	0.0028	0.0026
937	03566685	0.0027	0.0024	0.0037	0.0033	0.0050	0.0044	0.0071	0.0060

Table 9. Variance of prediction values for rural streamgaging stations in Georgia that were considered for use in the regression equations.—Continued

[USGS, U.S. Geological Survey; G, computed from the Bulletin 17B analysis of the streamgaging station; W, weighted using equation 22; —, drainage area of station exceeds upper or lower limit of regional regression model]

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		50-percent chance exceedance		20-percent chance exceedance		10-percent chance exceedance		4-percent chance exceedance	
		G	W	G	W	G	W	G	W
938	03566687	0.0003	0.0003	0.0004	0.0004	0.0007	0.0006	0.0012	0.0012
939	03566700	0.0003	0.0003	0.0004	0.0004	0.0006	0.0005	0.0009	0.0009
940	03567200	0.0015	0.0014	0.0021	0.0019	0.0029	0.0026	0.0048	0.0040
942	03568500	0.0019	0.0017	0.0025	0.0022	0.0034	0.0029	0.0052	0.0043
943	03568933	0.0025	0.0023	0.0034	0.0029	0.0047	0.0039	0.0074	0.0057

Map identification number (figs. 2, 4)	USGS station number	Variance of prediction, in log units							
		2-percent chance exceedance		1-percent chance exceedance		0.5-percent chance exceedance		0.2-percent chance exceedance	
		G	W	G	W	G	W	G	W
938	03566687	0.0019	0.0018	0.0028	0.0025	0.0038	0.0034	0.0056	0.0049
939	03566700	0.0013	0.0013	0.0019	0.0017	0.0025	0.0023	0.0036	0.0033
940	03567200	0.0067	0.0054	0.0090	0.0070	0.0119	0.0088	0.0165	0.0116
942	03568500	0.0070	0.0056	0.0092	0.0071	0.0119	0.0088	0.0159	0.0113
943	03568933	0.0100	0.0073	0.0132	0.0092	0.0171	0.0113	0.0231	0.0145

Appendix. Development of Generalized-Skew Coefficient

By Andrea Gruber and Dr. Jery R. Stedinger
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Tasker and Stedinger (1986) developed a weighted least-squares (WLS) procedure for estimating generalized-skew coefficients based on sample skew coefficients corresponding to the logarithms of peak-flow data. They illustrated how a regional analysis of skewness estimators must take into account the precision of the skewness estimator for each gaged station, which depends on the length of record for each station. More recently, Reis and others (2005) and Gruber and others (2007) developed a Bayesian generalized least-squares (GLS) regression model. While WLS regression accounts for the precision of the regional model and the effect of record length on the variance of skewness estimators, GLS regression also considers the cross-correlation of the skewness estimators, which is an important distinction. The new Bayesian GLS regression procedures have other advantages, including a description of the precision of the estimated model error variance, a pseudo-analysis of variance, and better diagnostic statistics.

The basic GLS model for generalized skew when k explanatory variables are included is as follows:

$$g = X\beta + \varepsilon \quad , \qquad \text{(A1)}$$

where

m $= k + 1$,

g is a (n × 1) vector of the estimated at-site skew coefficients for every station,

X is a (n × m) matrix of k basin characteristics with a column of ones corresponding to a constant in the model,

β is a (m × 1) vector of model coefficients,

ε is the (n × 1) vector of model and sampling errors where E[ε] = 0 and Λ is the covariance matrix E[$\varepsilon\,\varepsilon^T$].

Following Reis and others (2005), the matrix Λ can be written as σ_δ^2 I + $\Sigma(g)$ wherein σ_δ^2 is the model error variance describing the precision with which the proposed model $X\beta$ can predict the true skews, which are denoted γ_i, and the matrix $\Sigma(g)$ contains the sampling variances and covariances of the skewness estimators g_i. The GLS estimator of β is:

$$\hat{\beta} = \left(X^T \Lambda^{-1} X\right)^{-1} X^T \Lambda^{-1} g \ . \qquad \text{(A2)}$$

One wants to find a model with a small value of σ_δ^2, where the value of $\Sigma(g)$ is determined by the length of record at each gaged station and the cross-correlation of the concurrent flows.

A critical step in GLS analysis is estimation of the cross-correlation of the skewness estimators g_i. Martins and Stedinger (2002) used Monte Carlo experiments to derive a relation between the cross-correlation of the skew-coefficient estimators at two stations i and j as a function of the cross-correlation of concurrent annual maximum flows, ρ_{ij}:

$$\hat{\rho}\left(g_i, g_j\right) = Sign\left(\rho_{ij}\right) cf_{ij} \left|\rho_{ij}\right|^{\kappa} \qquad \text{(A3)}$$

where

ρ_{ij} is the cross-correlation of concurrent annual maximum flows for two gaged stations,

$cf_{ij} = n_{ij} \,/\, \sqrt{\left(n_{ij} + n_i\right)\left(n_{ij} + n_j\right)}$,

n_{ij} is the length of the period of concurrent record,

n_i and n_j are the numbers of non-concurrent observations corresponding to sites i and j, respectively, and

κ is a constant between 2.8 and 3.3.

The factor cf_{ij} accounts for the sample-size difference between stations and the concurrent record lengths.

Data Compilation

The annual peak-flow data from 489 gaged stations compiled for this Bayesian GLS regression study of generalized skew are located in seven States in the southeastern United States. As shown in table A1, most stations are in Georgia, North Carolina, and South Carolina. The locations of the streamgages employed in the study are shown in figure A1. Symbols indicate to which of nine U.S. Environmental Protection Agency ecoregions each gage was assigned: Blue Ridge, Central Appalachians, Middle Atlantic Coastal Plain, Piedmont, Ridge and Valley, Sand Hills, Southeastern Plains, Southern Coastal Plain, and Southwestern Appalachians (U.S. Environmental Protection Agency, 2007).

Table A1. Number of streamgaging stations, by State, used in the study.

State	Number of gaged stations
Alabama	25
Florida	19
Georgia	169
North Carolina	127
South Carolina	38
Tennessee	64
Virginia	47

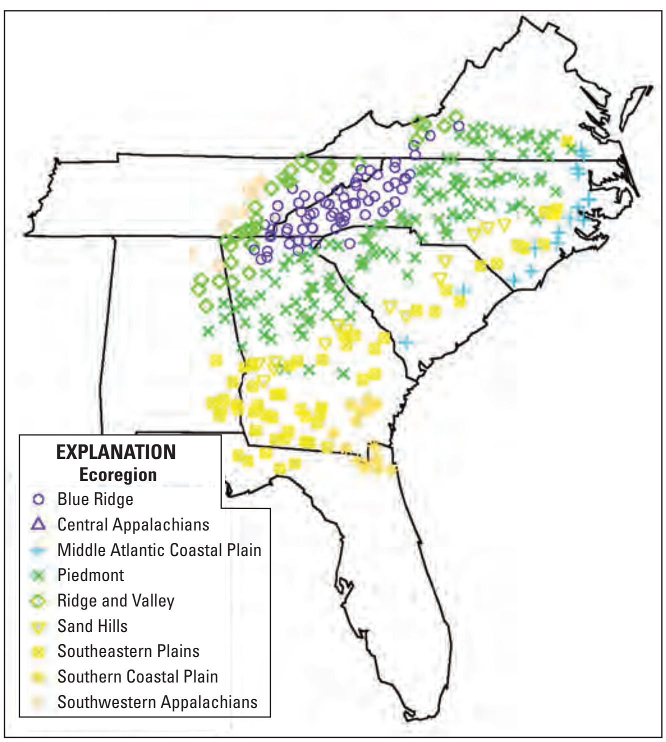

Figure A1. Locations of streamgaging stations used in the generalized-skew study (from Timothy A. Cohn, U.S. Geological Survey, Office of Surface Water).

The following 20 basin characteristics were computed for the stations and considered in this study: drainage area, basin perimeter, mean basin slope, basin shape factor, main channel length, main channel slope, minimum basin elevation, maximum basin elevation, mean basin elevation, percentage of basin that is impervious, percentage of basin that is forested, mean annual precipitation, 2-year 24-hour precipitation, 10-year 24-hour precipitation, 25-year 24-hour precipitation, 50-year 24-hour precipitation, 100-year 24-hour precipitation, soil drainage index, hydrologic soil index, and drainage density.

Analysis of pairs of gaged stations with concurrent records greater than 30 years revealed many station pairs with very large cross-correlations. Cross-correlations at 13 pairs of stations were in excess of 0.98. Among 489 stations, 38 pairs had 30 concurrent years of flows and a sample correlation greater than 0.95. These results indicate a physical redundancy. A normalized distance *ND* was defined to be

$$ND = \frac{D_{ij}}{\left[A_i A_j\right]^{1/4}} , \qquad \text{(A4)}$$

where

D_{ij} is the distance between centroids of basin *i* and basin *j*, and

A_i and A_j are the drainage areas for basin *i* and basin *j*.

The fourth root is required to make *ND* dimensionless. The drainage area ratio (*DAR*) is

$$DAR = Max\left[\frac{A_i}{A_j}, \frac{A_j}{A_i}\right]. \qquad \text{(A5)}$$

Simple examples indicate that station pairs with *ND* less than 0.5 and *DAR* less than 5 are likely to be physically nested, and observed cross-correlations are consistent with this hypothesis. A screening analysis of all 489 gaged stations flagged station pairs with *ND* less than (<) 0.5 and *DAR* < 5 as redundant pair stations. If the station with the smaller drainage area had 30 years or more of record, the station with the larger drainage area was removed from the analysis. Similarly, if the smaller station had less than 30 years of record and the record length of the smaller station was greater than the record length of the larger station by 5 or more years, the station with the larger drainage area was removed from the analysis. Otherwise, the station with the smaller drainage area was removed.

Of the 489 stations, 92 stations were removed from the analysis because of redundancy. In addition, 59 stations had censored data (observations recorded at less than a recording threshold), so these stations were not used in the analysis. Thus, in addition to the 92 redundant stations removed from the study, some of which also had censored data, 55 stations were removed because they contained censored data, leaving a total of 342 stations that were used in the generalized-skew coefficient study.

Cross-Correlation of Concurrent Flows

As stated in Bulletin 17B (Interagency Advisory Committee on Water Data, 1982), the log-Pearson Type III distribution is recommended to define annual flood series. This distribution is characterized by three parameters—the mean, the standard deviation, and the skew. Reis and others (2005) illustrate how regional regression models can be developed for generalized-skew estimators that can be used in conjunction with at-site skews to produce a weighted skew estimator as noted in Bulletin 17B. The GLS regression framework requires that the correlations among skew estimators be specified to reflect the sampling characteristics of the estimators. As noted above, Martins and Stedinger (2002) provided approximations for the cross-correlation of the skewness estimators as a function of the cross-correlation of concurrent annual peak flows used to compute the skewness coefficients and characteristics of the record lengths.

A relation was derived between the cross-correlation of the concurrent annual peak flows ρ_{ij} and covariates, including the distance between the centroids D_{ij} of two basins. A number of different functional forms were explored using these different covariates. The adopted model for the cross-correlations of concurrent annual peak flows at two stations as a function of the distance between the centroids is

$$\rho_{ij} = \frac{\exp\left(2Z_{ij}\right)-1}{\exp\left(2Z_{ij}\right)+1}\ , \qquad \text{(A6)}$$

where

$$Z_{ij} = 0.136 + \exp\left(0.290 - 0.042 D_{ij}^{0.609}\right).$$

Based on 1,317 station pairs with at least 70 concurrent years of record, a regression analysis indicated that this model is as accurate as having 150 years of concurrent annual peak flows to estimate a cross-correlation. For this study, the distance between centroids of the drainage basins is used instead of the distance between gaged stations, which generally has been employed in other studies. The distance between the centroids is thought to be a better measure of separation.

Bayesian GLS Regression

After identifying and screening redundant gaged sites and developing a model of the cross-correlations of annual peak flows, Bayesian GLS regression was used on the remaining 342 gaged stations to identify the best regional estimators of the generalized-skew coefficients. The results for the three best Bayesian GLS skew regression models and the constant Bayesian GLS skew regression model for the 342 stations are shown in table A2. Model B-GLS C is the constant model; model B-GLS 1 includes a constant and an indicator for the Blue Ridge ecoregion; model B-GLS 2 includes a constant and an indicator for the Middle Atlantic Coastal Plain ecoregion; and model B-GLS 3 includes a constant and an indicator for both the Blue Ridge and Middle Atlantic Coastal Plain ecoregions.

None of the available explanatory variables was of much value in explaining the variation of skew from site to site. The indicators for the Blue Ridge and Middle Atlantic Coastal Plain had only marginal values, with a pseudo R^2 together of only 6.9 percent. The pseudo R^2 values describe the fraction of the variability in the true skews explained by each model (Gruber and others, 2007). A constant model does not explain any variability so the pseudo R^2 is equal to 0.0 percent. Analysis of the spatial pattern of the sample skews did not reveal any pattern that appeared to be statistically significant. Figure A2 displays the data in a way that would allow one to see the relations between the sample skew estimators, physiographic ecoregion, and drainage area. No relations are evident, which reaffirms the conclusions of the statistical analysis.

The generalized-skew model recommended by this study is the constant model with a generalized-skew coefficient equal to −0.019 and corresponding mean square error (MSE) of prediction that is equal to 0.143. Because the generalized-skew regression model is constant, the variance of prediction also is constant.

As shown in table A2, the posterior mean of the model error variance, σ_δ^2, for the constant model is 0.139 with a standard error of 0.021. This standard error of the model error variance is much smaller than those obtained in previous Bayesian GLS studies because of the large number of stations used in this study. The constant model has an average variance of prediction (AVP) at a new station equal to 0.143. Setting this AVP equal to the mean square error of a biased sample

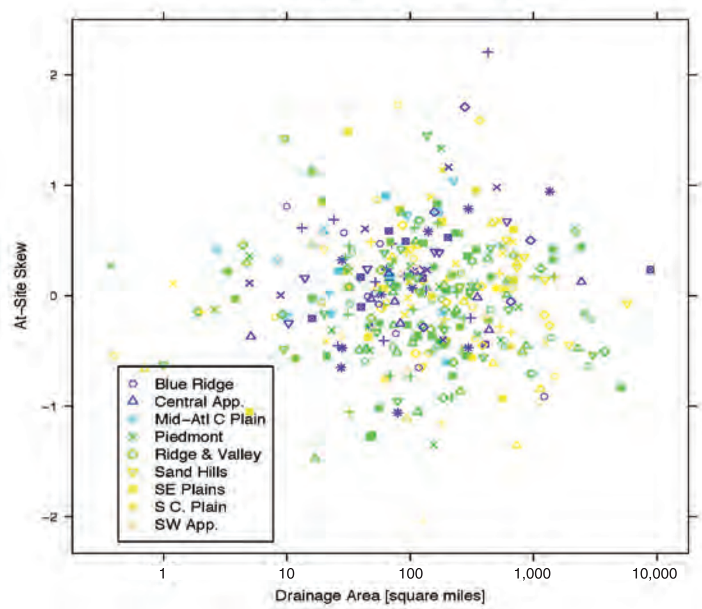

Figure A2. Relation of at-site skews to basin drainage area by U.S. Environmental Protection Agency ecoregion. (from Timothy A. Cohn, U.S. Geological Survey, Office of Surface Water).

Table A2. Summary statistics for the Bayesian GLS models for generalized-skew coefficient.

[σ_δ^2, model error variance; *ASV*, average sampling variance; AVP_{new}, average variance of prediction for a new site; pseudo R^2, coefficient of determination appropriate for generalized least-squares regression; standard errors and Bayesian p-values, in percent (%), are in parentheses; —, not applicable]

Model	Coefficients			σ_δ^2	*ASV*	AVP_{new}	Pseudo R^2
	Constant	Blue Ridge ecoregion	Middle Atlantic Coastal Plain ecoregion				
B-GLS C	–0.019 (0.063)	—	—	0.139 (0.021)	0.004	0.143	0.0%
B-GLS 1	0.003 (0.063)	0.003 (0.001) (0.6%)	—	0.134 (0.021)	0.006	0.140	3.3%
B-GLS 2	–0.021 (0.063)	—	0.005 (0.002) (0.3%)	0.134 (0.021)	0.005	0.139	3.6%
B-GLS 3	0.003 (0.063)	0.003 (0.001) (0.3%)	0.005 (0.002) (0.2%)	0.129 (0.034)	0.007	0.136	6.9%

skewness estimator yields an effective record length (ERL) of about 39 years. The AVP corresponds to the MSE given in Bulletin 17B to describe the precision of the generalized skew. The low AVP is a significant improvement over the skew map value with a MSE of 0.302 in Bulletin 17B (Interagency Advisory Committee on Water Data, 1982) and a corresponding effective record length of 17 years.

The use of B-GLS is important. A sensitivity analysis revealed that Bayesian weighted least-squares (B-WLS) would have overestimated the precision (sampling error variance) of the estimated constant skew by a factor of 5.4. Thus, to neglect the cross-correlation of the skewness estimators would have resulted in a major distortion in the estimated precision of the overall average skew and the differences among ecoregions. On average, the variance of the sample at-site skewness estimators (g) was more than twice as large as the variance (σ_δ^2) of the regional model errors.

Conclusions

Based on a Bayesian generalized least-squares analysis of the selected 342 stations, a constant generalized skew was selected for the Southeast described by the following equation:

$$\hat{\gamma} = -0.019 \qquad \text{(A7)}$$

with a MSE of 0.143. More complicated models were evaluated but resulted in very modest improvements in accuracy. Thus, the more complicated models did not seem justified in view of the increased complexity. The constant model with a MSE of 0.143 is a definite improvement when compared with the Bulletin 17B skew map which reported a MSE of 0.302. Much of the difference occurs because the GLS analysis correctly reflects the difference between the sampling error in at-site skew coefficient estimators and the precision of the regional model (Hardison, 1971; Stedinger and Tasker, 1985; and Stedinger and Tasker, 1986).

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