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WATER FACT SHEET

U.S. GEOLOGICAL SURVEY, U.S. DEPARTMENT OF THE INTERIOR

COLLECTION OF CONTINUOUS HYDROLOGIC DATA BY THE U.S. GEOLOGICAL SURVEY IN INDIANA

INTRODUCTION

The U.S. Geological Survey (USGS) has worked to develop a long-term base of water-resources data in Indiana since the early part of the 20th Century. A primary part of the mission of the USGS is to collect the systematic data that is needed for the ongoing evaluation of quantity, quality, and use of the Nation's water resources. The availability of this vital information to water managers and the general public is a product of cooperative efforts between the USGS and other Federal, State, and local agencies.

COLLECTION OF CONTINUOUS HYDROLOGIC DATA

To fulfill its mission in the area of data collection, the USGS operates a variety of stations designed to measure the quantity and quality of surface water and ground water. The networks of continuous-record data-collection stations, which store data for every day of the year, provide the types of information fundamental for carrying out numerous State and local programs. Records from these networks also form the foundation for natural resource planning and management activities at the national level.

The types of data collected by the Indiana network of continuous-record surface-water stations include streamflow, river stage, physical and chemical characteristics, sediment, lake stage, and reservoir contents. Ground-water levels are collected at continuous-record ground-water stations located throughout the State.

The Indiana Department of Natural Resources (IDNR), Division of Water is the principal State agency cooperating in USGS data-collection programs. Currently, over 80 percent of the continuous hydrologic data-collection activity is maintained through efforts cooperatively funded by the IDNR and the USGS. Other cooperators in the data program include the U.S. Army Corps of Engineers, the Indiana Department of Environmental Management, the Indiana Department of Transportation, and the Indianapolis Department of Public Works.

In 1991, the continuous-record data-collection networks included 183 surface-water streamflow stations, 7 stage-only stations, 95 ground-water observation-well stations, and 80 lake stations.

DATA USERS AND USES

Water-resource data from the continuous-record data-collection stations are stored, analyzed, and distributed by the staff of the USGS District Office in Indianapolis, Indiana. Much of this information is provided to water managers on a routine basis. In addition, each year the staff also responds to hundreds of requests for hydrologic data from consultants, academic institutions, local organizations, and private citizens.

The USGS annual water report for Indiana, which contains data from all continuous-record stations, was mailed to nearly 130 people and organizations in 1991.

Principal users of these hydrologic data include Federal, State, and local agencies that cooperate with the USGS in collection of continuous data. Federal agencies depend upon the data when managing reservoirs for flood control, navigation, and maintaining streamflow during periods of drought. The data also are necessary tools for habitat preservation, recreation, and analysis of potential uses such as water supply and hydropower. Other Federal activities require continuous data as a basic component for research on wetlands, pesticide transport, and surface-water contamination by runoff. State and local agencies use the data for flood-plain management, drought planning and response, water-supply planning and management, wildlife management, wetland preservation, and the regulation of sewage disposal, stormwater management, and point-source discharges. Private contractors and engineering firms use the data in construction and consultant work. Academic institutions use the data for training in water resources, and incorporate the data into various forms of research in environmental sciences and engineering.

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Private citizens use the data to gain insight into pressing environmental issues, and to promote the betterment of their home and community.

To agencies, organizations, and private individuals that are involved in all phases of water-resource planning and management, it is of critical importance that hydrologic data be accurate and unbiased. The USGS is not a regulatory agency and therefore has no stake in the outcome of regulatory decisions. The USGS is committed to maintaining its role as an objective scientific organization, and to providing the objective data necessary for effective decision making.

DATA-COLLECTION EQUIPMENT

The types of equipment used to collect continuous-record data has changed dramatically over the decades. The early forms of automation included strip-chart recorders, on which stage data were traced with ink on rolls of graph paper. In the late 1960's, stage was logged as punches on paper tapes with automatic digital recorders (ADRs). This digital format ushered in the growth of computerized data collection and analysis. In the 1970's telemetry was introduced. With a convenient telephone call, real-time information could be obtained on streamflow events, such as flash floods. These telephone-accessible gaging stations have progressed from audible bells to computer-readable/synthesized-voice outputs. Additionally, over 53 streamflow-gaging stations in Indiana now are equipped with modern data-collection platforms (DCPs) that constantly update computer files through satellite-relay transmissions.

The introduction of electronic automation has provided the means to collect massive amounts of water-resource information and to quickly process and analyze the data, making valuable informational tools available to water managers and the general public in a timely manner. But since the early 20th Century, one vital link in the data-collection process has not changed. Throughout the State, the network of 25 dedicated observers provide the types of daily and weekly information that may never be replaced by machines. The insight and commitment of these human observers are as important today as they were 90 years ago.

ADDITIONAL INFORMATION

Additional information on collection of continuous hydrologic data in Indiana can be obtained by contacting:

District Chief, Water Resources Division
U.S. Geological Survey
5957 Lakeside Boulevard
Indianapolis, IN 46278

REFERENCES CITED

Stewart, J.A., and Deiwert, C.E., 1991. Water resources data, Indiana, water year 1991: U.S. Geological Survey Water-Data Report, IN-91-1, 349 p.

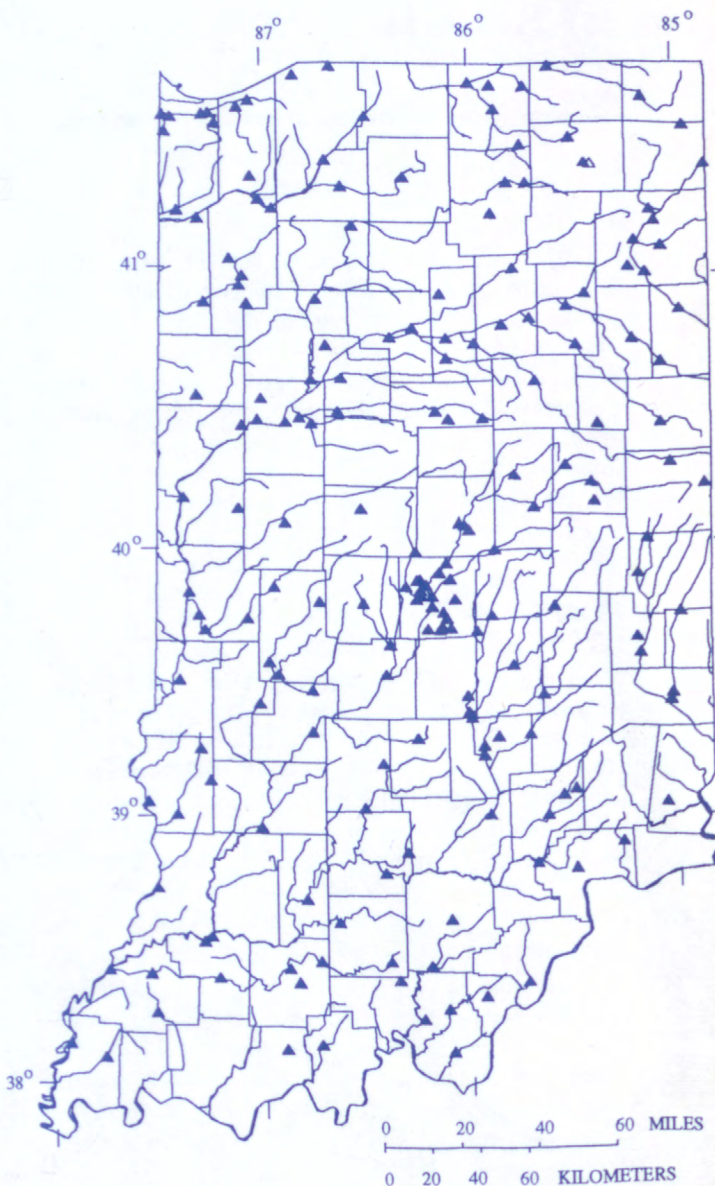


Figure 1. Locations of streamflow and water-quality gaging stations in Indiana in 1991.

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