EXPLANATION

Mean annual precipitation, in inches (1951–80)

Boundary between Missouri and Arkansas River Basins

Sub-basin boundary

9.6   Mean annual runoff, in inches, for the outlined parts of the drainage basins

▲   Continuous-record streamflow-gaging station

OTHER HYDROLOGIC DATA

The mean annual discharge for the period of record through the 1980 water year (October 1 through September 30) and the drainage area of the continuous-record gaging stations are shown in table 1. Values of the mean annual precipitation (1951–80) and values of mean annual runoff for subareas are shown on sheet 4. Runoff, in inches, was computed for subareas in the drainage basins of the available streamflow-gaging stations. Only records for active or recently discontinued gaging stations with drainage areas of more than 5 square miles and periods of record of more than 5 years were used. The major rivers with extremely large discharge and drainage areas were not used.

Runoff for the subareas was computed by subtracting the discharge and the drainage areas for upstream gaging stations from the discharge and drainage area of the downstream station. For basins with major reservoirs, a common period of record was used. For basins with recently constructed reservoirs, the record prior to construction was used. For basins with older reservoirs, the period of record after regulation began was used, and adjustments were made for evaporation from the reservoirs. The values of the runoff, in inches, are plotted near the centroid of the subareas. The drainage boundaries are approximate and cannot be used to determine drainage areas. The drainage areas used to compute the runoff values are from the Water Resources Data reports for the various States (U.S. Geological Survey, 1980; 1981; 1982).

Subtraction of the subarea runoff from the subarea precipitation gives the precipitation-runoff residual or mean annual water loss. This loss represents the algebraic total of the consumptive use (evaporation and transpiration) and ground-water recharge or ground-water discharge that leaves or enters the subareas as ground-water underflow. The loss has a nearly uniform average value of about 29 inches (except for subareas of known recharge or discharge) across the subregion although the annual precipitation varies from 34 to 56 inches. The loss varies significantly for the subareas that are known to have significant ground-water recharge leaving the subareas as underflow—for example, the Eleven Point River basin near Thomasville, Missouri (07070500, map number 109)—and those that are known to have large quantities of ground-water discharge entering the subareas as underflow—for example, the Current River basin between Van Buren, Missouri (07067000, map number 103) and Doniphan, Missouri (07068000, map number 105). This exchange of water through underflow occurs because the boundaries of the ground-water aquifers do not coincide with the surface boundaries of the subareas. These variations of the water loss indicate the interchange of water between the streams and the aquifers they traverse. The uniform loss for other areas indicate that the consumptive use is relatively constant across the subregion.

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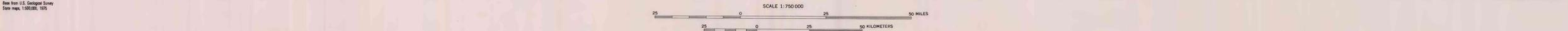U.S. Water Resources Council, 1967, A uniform technique for determining floodflow frequencies: U.S. Water Resources Council Bulletin 15, 15 p.

MEAN ANNUAL PRECIPITATION AND RUNOFF

CONVERSION FACTORS

Inch-pound units of measurement used in this report may be converted to the International System of Units (SI) using the following factors:

Multiply inch-pound unit	By	To obtain SI units
inch (in)	25.4	millimeter (mm)
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
square mile (mi²)	2.59	square kilometer (km²)
cubic foot per second (ft³/s)	0.02832	cubic meter per second (m³/s)

SCALE 1:750 000

25   0   25   50 MILES

25   0   25   50 KILOMETERS

Base from U.S. Geological Survey
State maps, 1:500,000, 1975

FLOW CHARACTERISTICS FOR SELECTED SPRINGS AND STREAMS IN THE OZARK SUBREGION, ARKANSAS, KANSAS, MISSOURI, AND OKLAHOMA

By

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1987