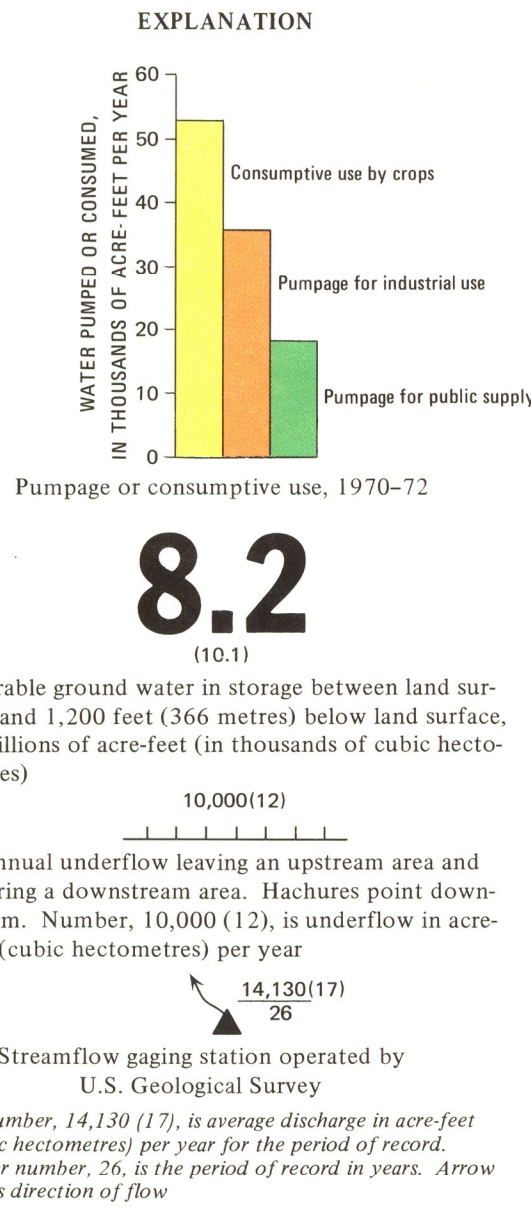
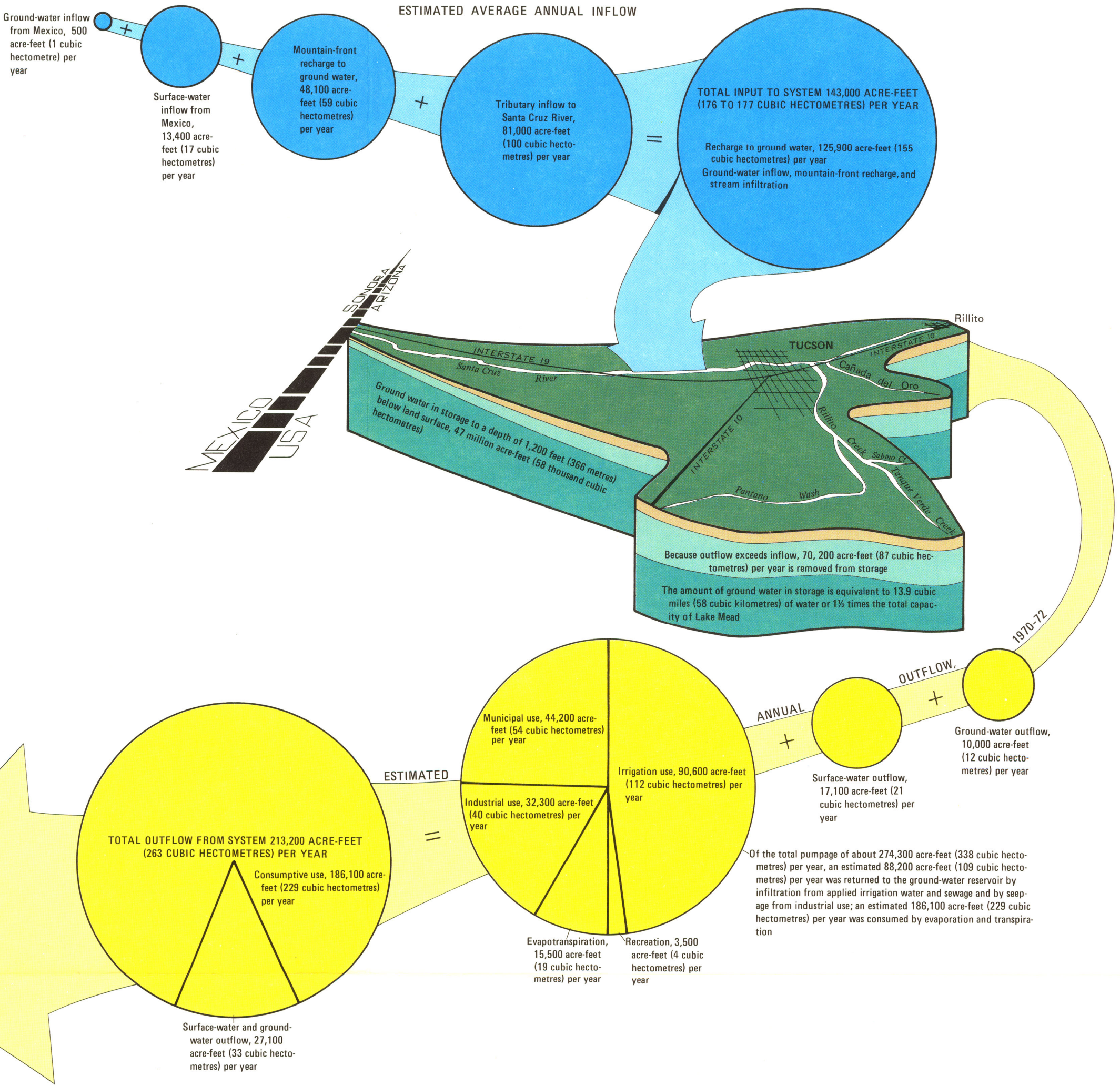
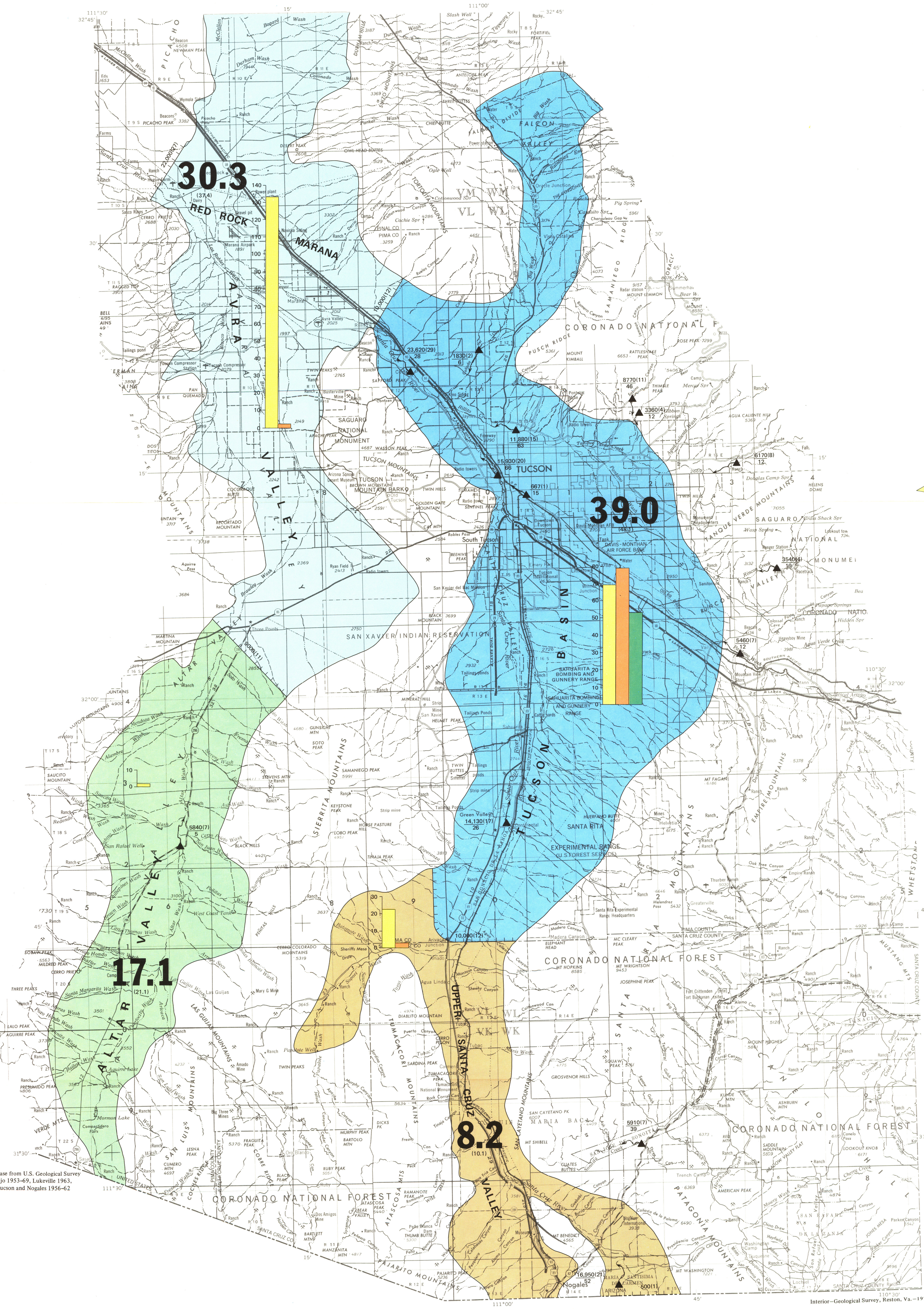




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The values used in the ground-water budget are based on values obtained from the following reports:	
Babcock, H. M., 1970, Annual report on ground water in Arizona, spring 1969 to spring 1970: Arizona State Land Dept. Water-Resources Rept. 43, 44 p.	
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City of Tucson, 1970, Annual report, 1969-1970: Tucson, Dept. Water and Sewers duplicated report, 111 p.	
1971, Annual report, 1970-1971: Tucson, Dept. Water and Sewers duplicated report, 114 p.	
Davidson, E. S., 1973, Geohydrology and water resources of the Tucson basin, Arizona: U.S. Geol. Survey Water-Supply Paper 1939-E, 81 p.	
Moosburner, Otto, 1972, Analysis of the ground-water system by electrical-analog model, Avra Valley, Pima and Pinal Counties, Arizona: U.S. Geol. Survey Hydrol. Inv. Atlas HA-215, 2 sheets.	
Osterkamp, W. R., 1973, Ground-water recharge in the Tucson area, Arizona: U.S. Geol. Survey Misc. Inv. Ser. Map I-844-E, 1 sheet.	
1973, Map showing distribution of recoverable ground water in the Tucson area, Arizona: U.S. Geol. Survey Misc. Inv. Ser. Map I-844-F, 1 sheet.	
University of Arizona, 1972, 1971 crop survey results: Univ. Arizona, Dept. Soils, Water, and Engineering duplicated report.	
White, N. D., Matlock, W. G., and Schwalen, H. C., 1966, An appraisal of the ground-water resources of Avra and Altar Valleys, Pima County, Arizona: Arizona State Land Dept. Water-Resources Rept. 25, 66 p.	

GROUND-WATER BUDGET	
(In acre-feet per year; 1 acre-foot per year equals 1.233 x 10 ⁻³ cubic hectometres per year)	
AVRA-MARANA-RED ROCK AREA	
INFLOW:	
Streamflow infiltration	19,000
Mountain-front recharge	5,300
TOTAL INFLOW	36,400
OUTFLOW:	
Ground-water outflow	22,000
Consumptive use by crops	133,000
Municipal pumpage	2,600
TOTAL OUTFLOW	157,600
WITHDRAWAL FROM STORAGE	121,000
(Rounded to three significant figures)	
ALTAR VALLEY	
INFLOW:	
Ground-water inflow	0
Streamflow infiltration	6,950
Mountain-front recharge	5,490
TOTAL INFLOW	20,440
OUTFLOW:	
Ground-water outflow	9,000
(Inflow to Avra-Marana-Red Rock area; small uncalculated amount of water flows south to Mexico)	
Consumptive use by crops	1,680
TOTAL OUTFLOW	10,680
CALCULATED ACCRETION TO STORAGE	9,760
(Rounded to three significant figures)	
The long-term average inflow to Altar Valley probably is about equal to the 9,000 acre-feet (11 cubic hectometres) per year of ground-water underflow near Three Points; the long-term average inflow to Avra Valley may be from 10,000 to 20,000 acre-feet (12 to 25 cubic hectometres) per year less than that shown in the ground-water budget. Water-level records collected since 1940 in Altar Valley and in the southern part of Avra Valley show an increase in ground-water storage, which may be a short-term condition.	
The consumptive use of water by crops in the Avra-Marana-Red Rock area and in Altar Valley was calculated by the Department of Soils, Water, and Engineering of the University of Arizona.	

COMPONENTS OF THE WATER BUDGET IN THE TUCSON AREA, ARIZONA, 1970-72

Compiled by
S. G. Brown
1976