



Philip Heilman
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2026 - 75th Anniversary of the founding of the Southwest Watershed Research Center

1951 Soil Conservation Service establishes Southwest Watershed Studies Group

1953 Both Agricultural Research Service and Walnut Gulch established



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1959 Senate document 59 recommends that the Southwest Watershed Studies Group “be provided with the means to become a headquarter for research on the watershed hydrology problems of the Southwest as well as providing for an expansion of range management research.”



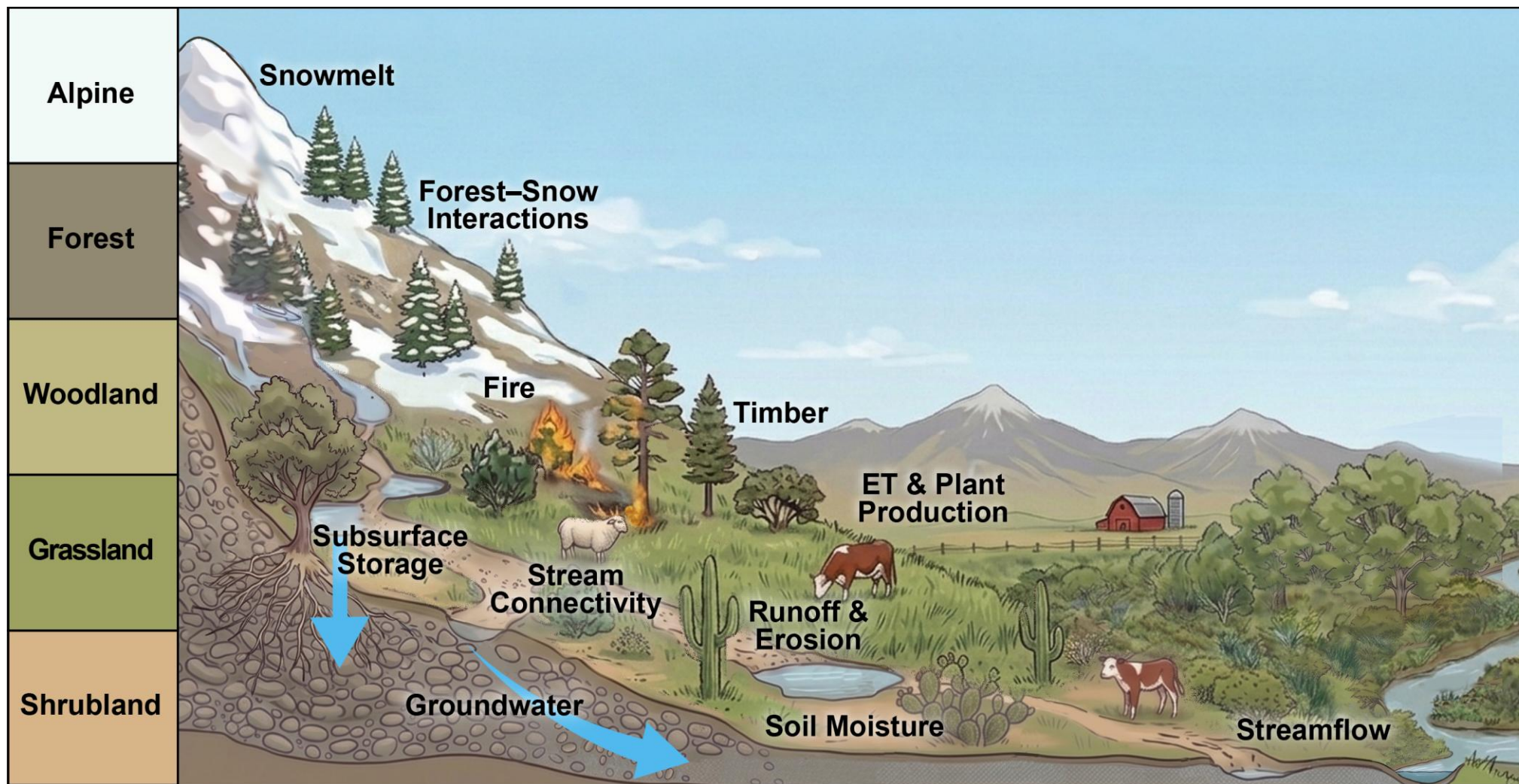
2026 - 75th Anniversary of the founding of the Southwest Watershed Research Center

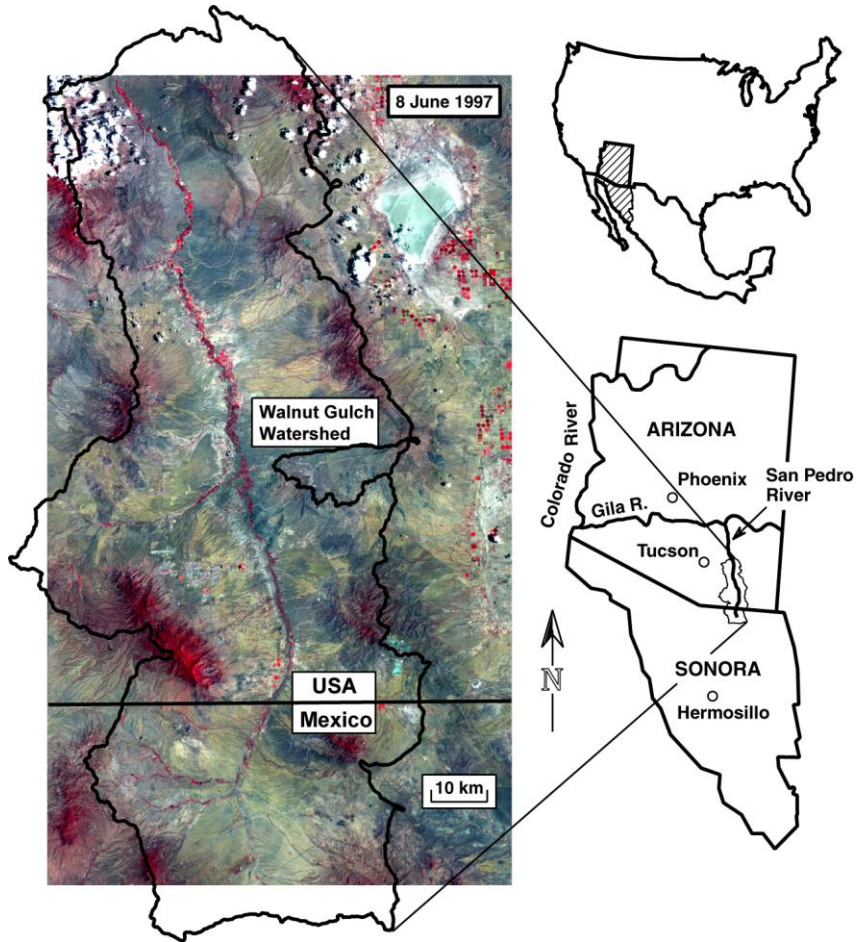
1961 Southwest Watershed Studies Group becomes Southwest Watershed Research Center.

1988 Aridland (Range) research unit closed.

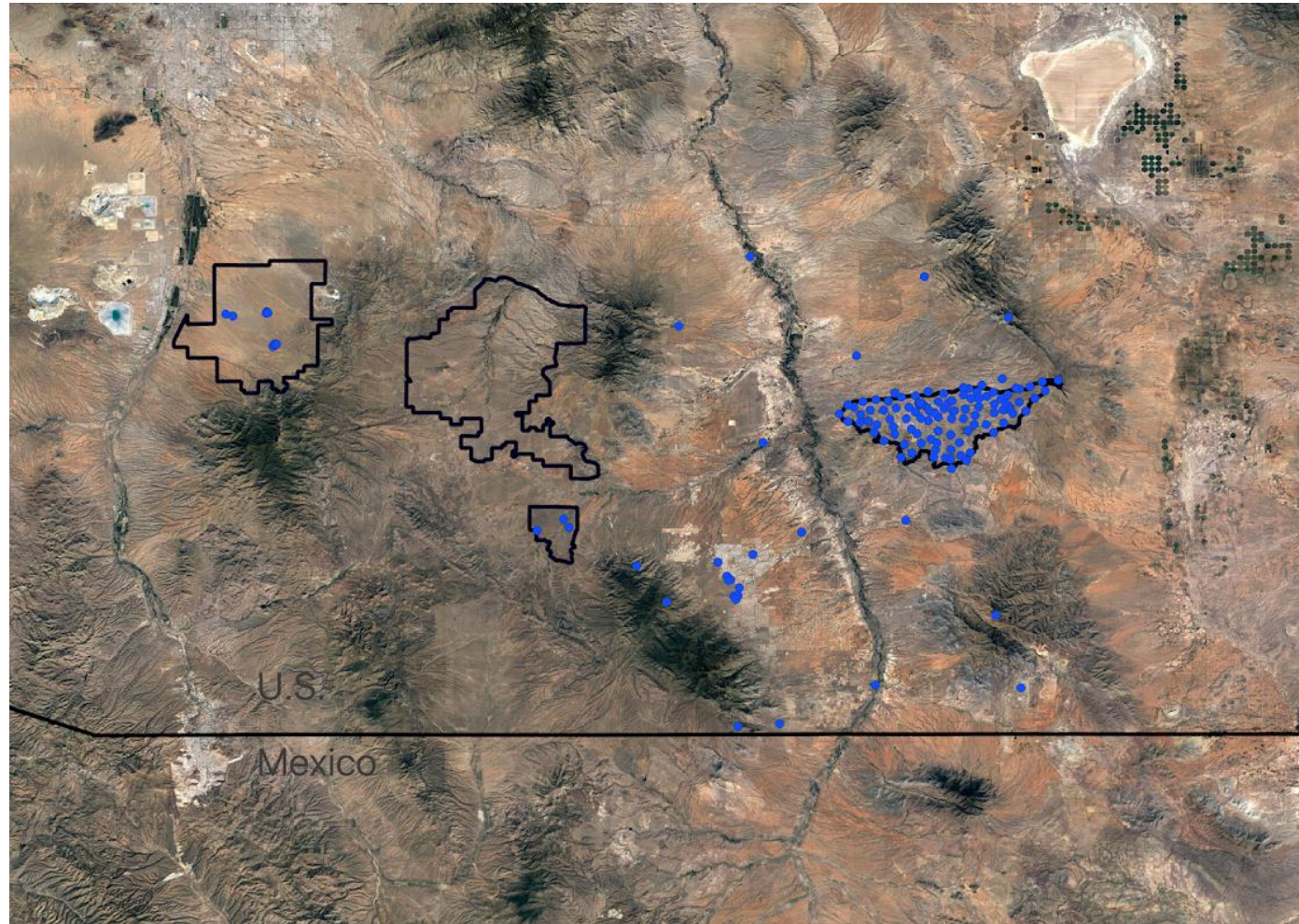


Photo by Mariano Hernandez





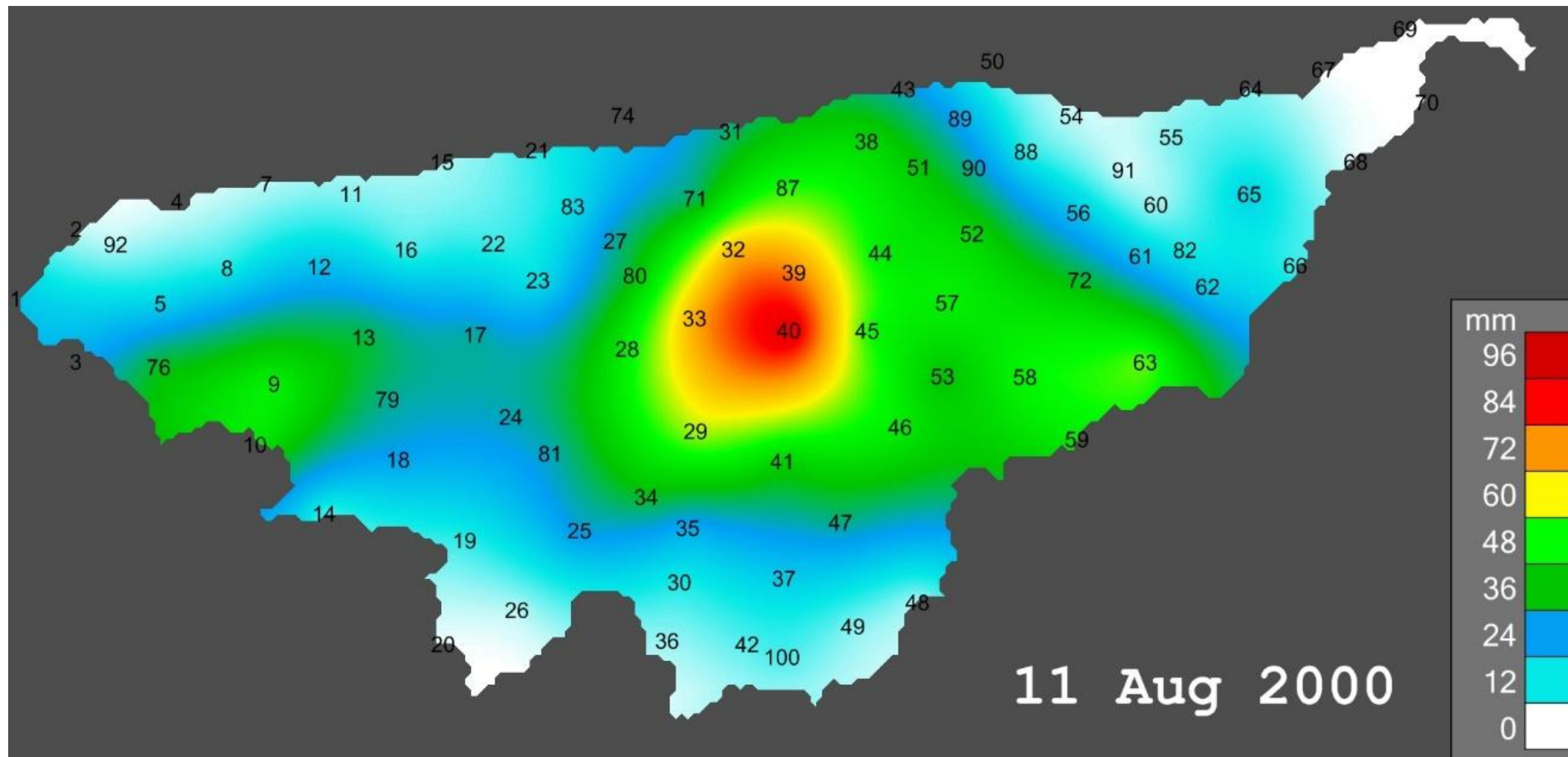
- Walnut Gulch Experimental Watershed (WGEW)
- Located in southeastern Arizona
- Area: 150 km²
- Representative of 60 million hectares of brush and grass rangeland
- 1953-2026 with the first 10 years devoted to instrumentation, so 60 years of reliable data
- Watershed elevation 1250 to 1585 meters MSL





Agricultural Research Service
U.S. DEPARTMENT OF AGRICULTURE

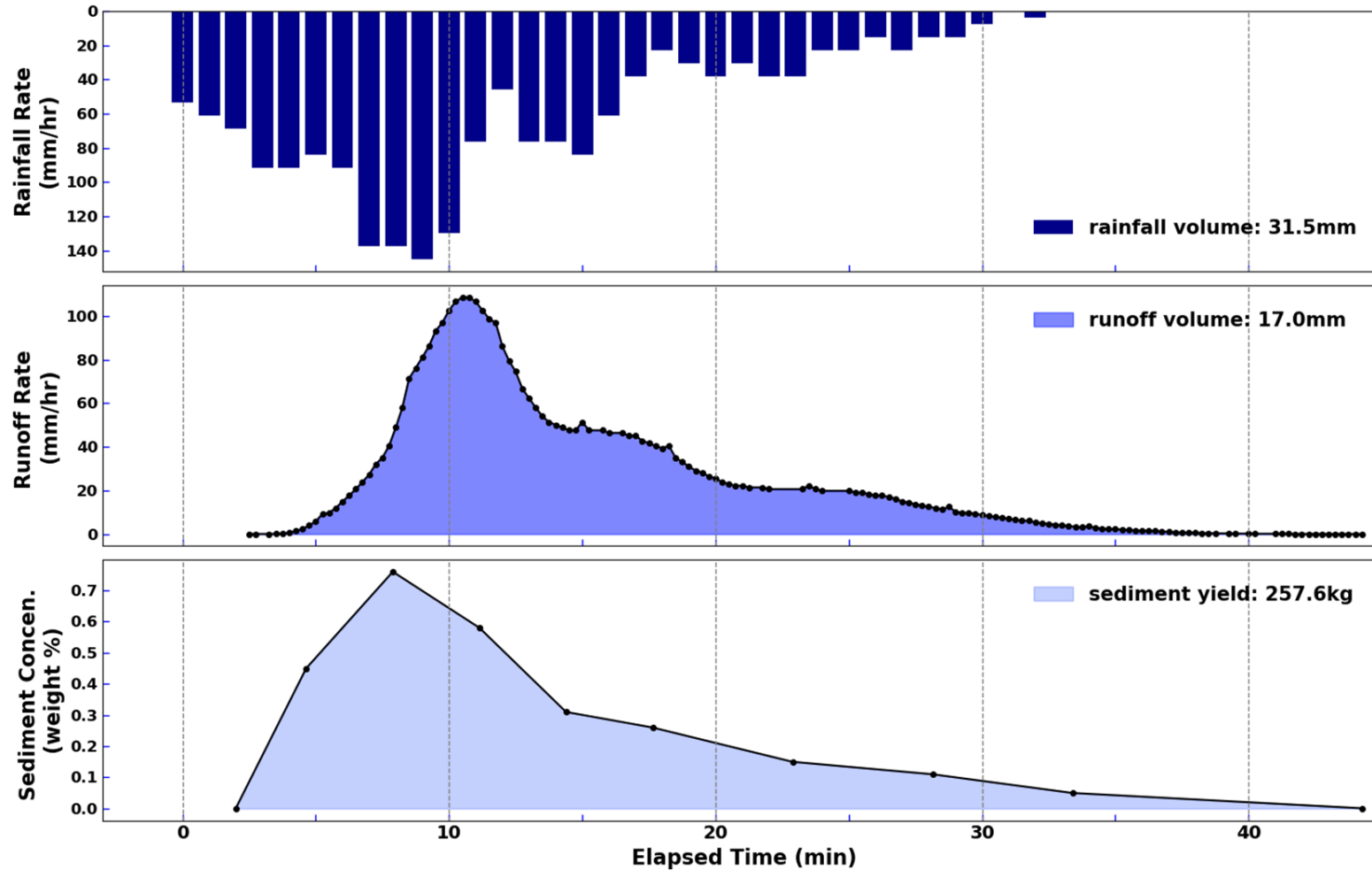








Rainfall, Runoff, and Sediment Recorded at Flume 106, Gauge 384 on Aug. 4, 2002







The foundations of scientific hydrology and evidence base for sustainable water management are the observational data collected from long-term experimental watersheds distributed around the world. (Tetzlaff and others, 2017; doi:10.1002/2017WR020838)

EVENT COUNTS THROUGH 2025			
	Analog	Digital	Total
Precipitation	250,364	221,028	471,392
Runoff (WG small flume)	3,337	4,836	8,173
Runoff (SR small flume)	3,113	2,113	5,226
Runoff (WG large flume)	4,136	1,934	6,070
Sediment			1,845

tucson.ars.ag.gov/dap





Remote Sensing Campaigns on WGEW

Precipitation - NEXRAD, Global

Precipitation Mission (GPM), TRMM

Vegetation - Landsat, MODIS (EVI)

Soil Moisture – AMSR-E, SMOS, SMAP

Surface Temperature - SALSTICE





Walnut Gulch Experimental Watershed	Santa Rita Experimental Range
Not a ranch (part of 5 ranches, plus town of Tombstone)	Not a watershed
Work with cooperating ranchers	Owned by state, managed by University
Water budget intensely monitored	Water budget monitored
Vegetation monitored (similar vegetation communities)	Vegetation intensely monitored (similar vegetation communities)
Funded data collection (and platform)	Platform (and funded data collection)
Hour and half from Tucson	Forty-five minutes from Tucson



If you need a deep understanding of the
water budget for your research, let's talk.

Questions?