



# Austin/San Antonio Weather Forecast Office WEATHER EVENT SUMMARY

## October 1998 Floods – South Central Texas

October 1998



Vehicle rescue from floodwater in San Antonio. Credit: San Antonio Express-News



# October 1998 Floods – South Central Texas

17-21 OCTOBER 1998

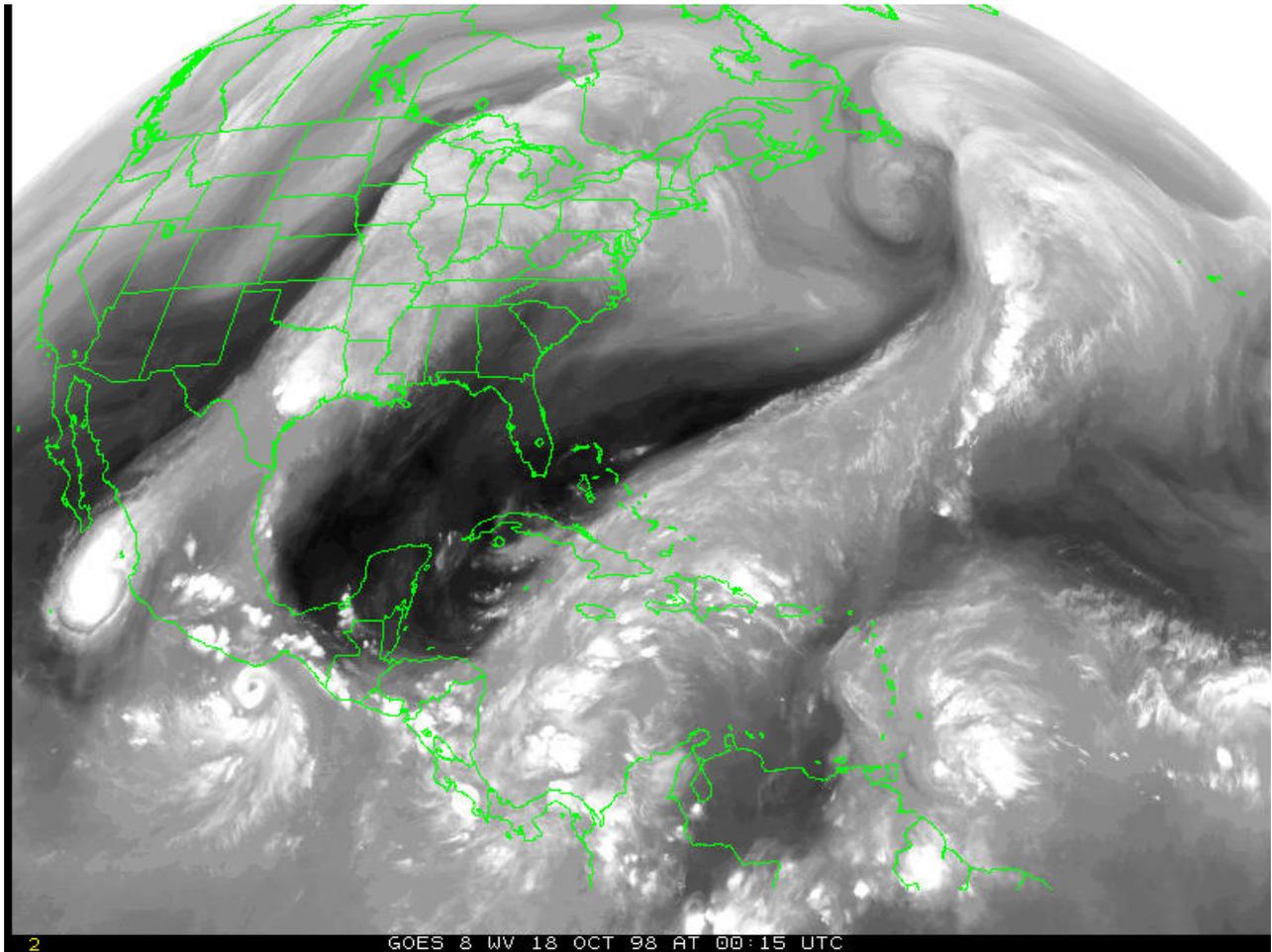
## EVENT SUMMARY

On the weekend of October 17 to 18, 1998, a pair of hurricanes over the Eastern Pacific and a near stationary cold front led to disastrous flash flooding along the Guadalupe River and over the San Antonio metro area. When heavy rains began on the morning of October 17, mid to high level moisture from the weakened remnants of Hurricane Madeline was crossing the Sierra Madre Occidental into central Texas. Meanwhile, low-level and mid-level moisture on the outer periphery of Hurricane Lester in South of Acapulco was moving across the Isthmus of Tehuantepec and up the western coast of the Gulf of Mexico toward south Texas.

A cold front was expected to provide the focusing mechanism for the heavy rains, but torrential rains began to develop along the Balcones Escarpment in the early morning hours on Saturday, October 17--well ahead of the cold front. Convection developed into a nearly stationary Mesoscale Convective System (MCS) which impacted communities along the Balcones Escarpment from San Antonio to Austin with almost continuous rainfall for up to 36 hours. By Saturday afternoon, homes along the Guadalupe River from Canyon Lake to Seguin were being washed off their foundations. Over 30 inches of rain was estimated over a small area south of San Marcos in 36-hours. As the storm complex inched slowly east and south, heavy rains of 5 to 15 inches covered downstream portions of southeast Texas and the Coastal Bend Saturday night into Sunday, right as the upstream flood waves were beginning to move into those areas. Especially hard hit among the downstream communities was the town of Cuero, which saw its downtown area inundated by diverted floodwaters that were over 2.5 miles away from the main Guadalupe River channel.

The event claimed 31 lives and produced \$750 million (USD 1998) in property losses. Many of the lives lost were from motorists driving through low water crossings. Federal disasters were declared by the Federal Emergency Management Agency (FEMA) in 31 Texas counties. The heaviest rain areas met the criteria for a 500-year flood event. The highest known peak flows were recorded at 15 locations, including portions of the San Jacinto, Colorado, Lavaca, Guadalupe, and San Antonio River basins. The flow on the Guadalupe River at Victoria peaked at 477,000 cubic feet of water per second.

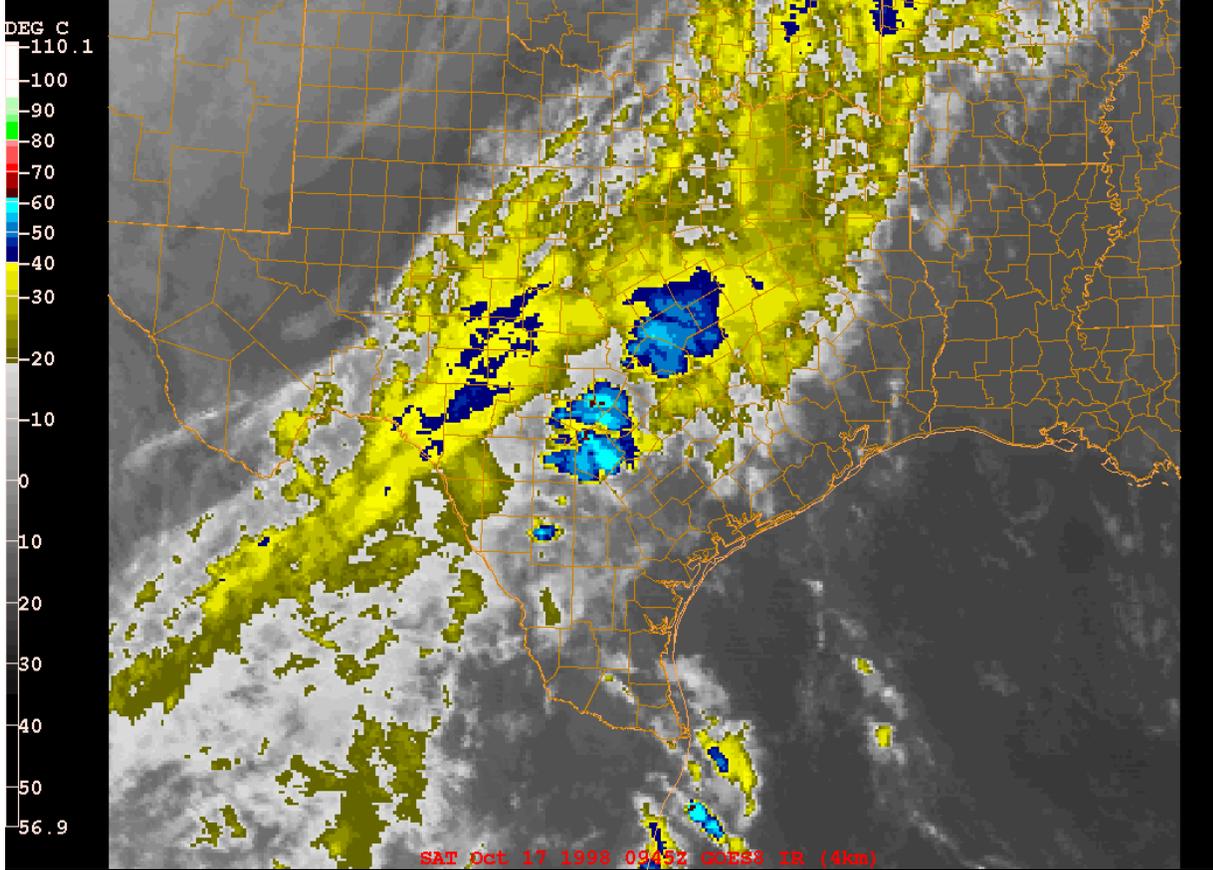
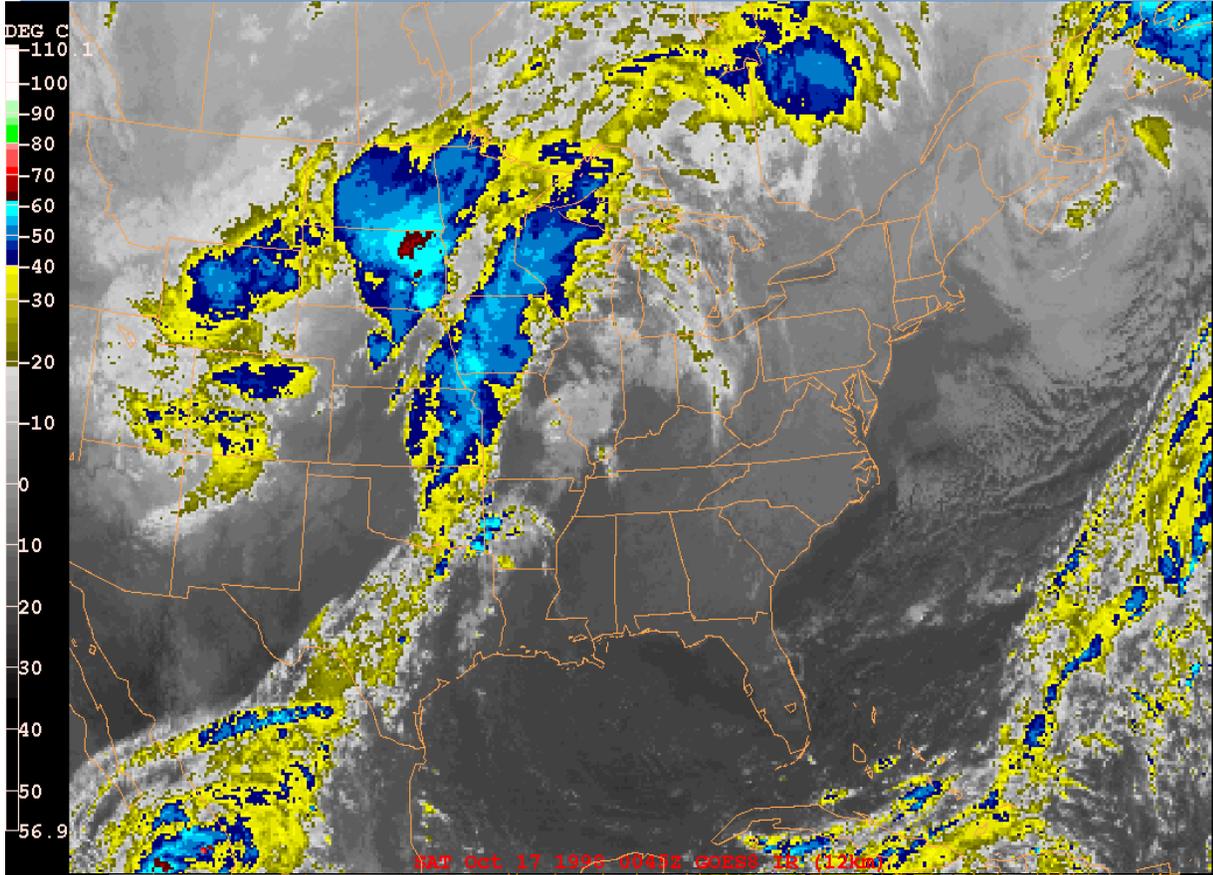
## Satellite



Water Vapor Satellite View

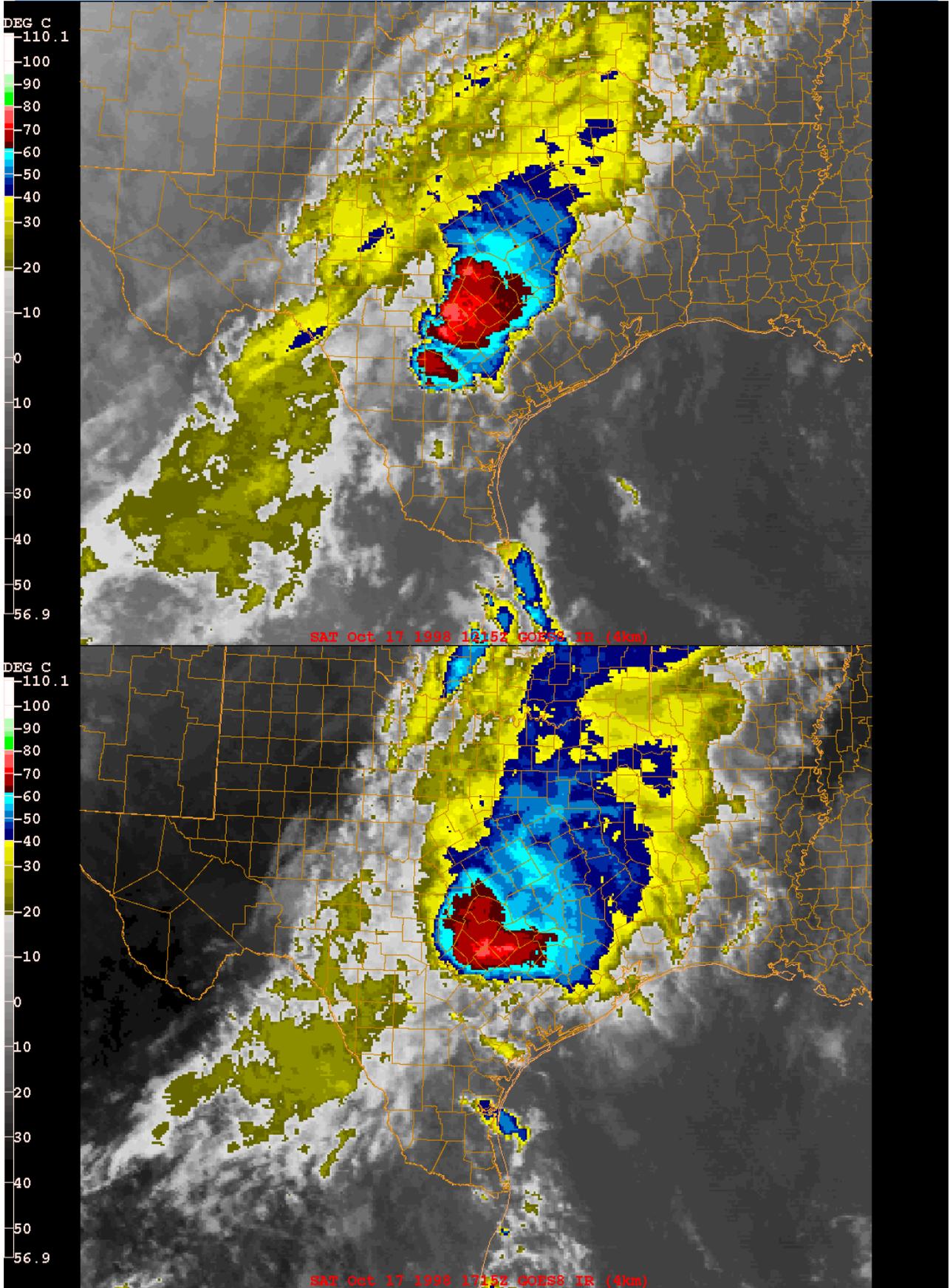


# October 1998 Floods – South Central Texas 4



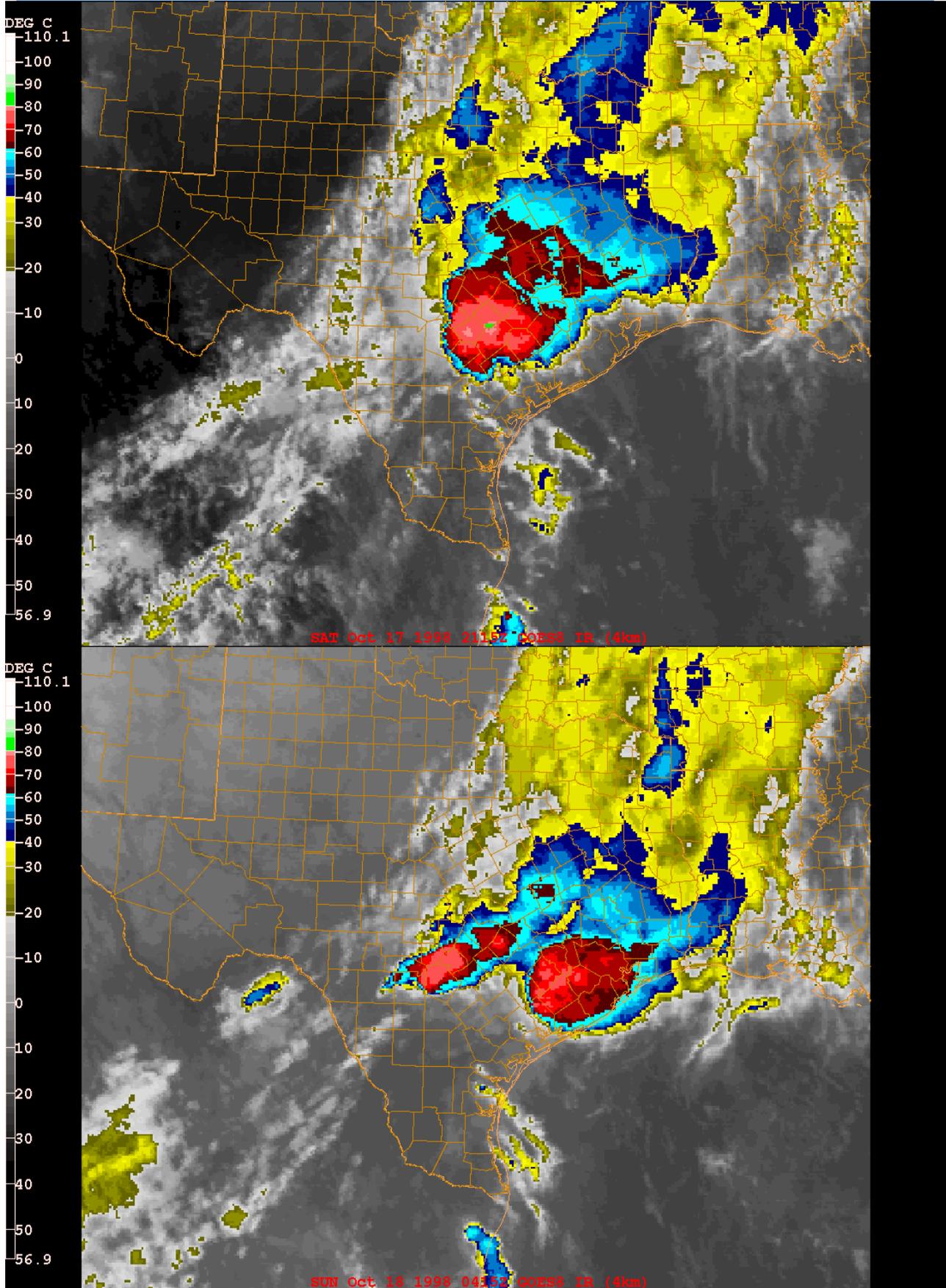


# October 1998 Floods – South Central Texas 5



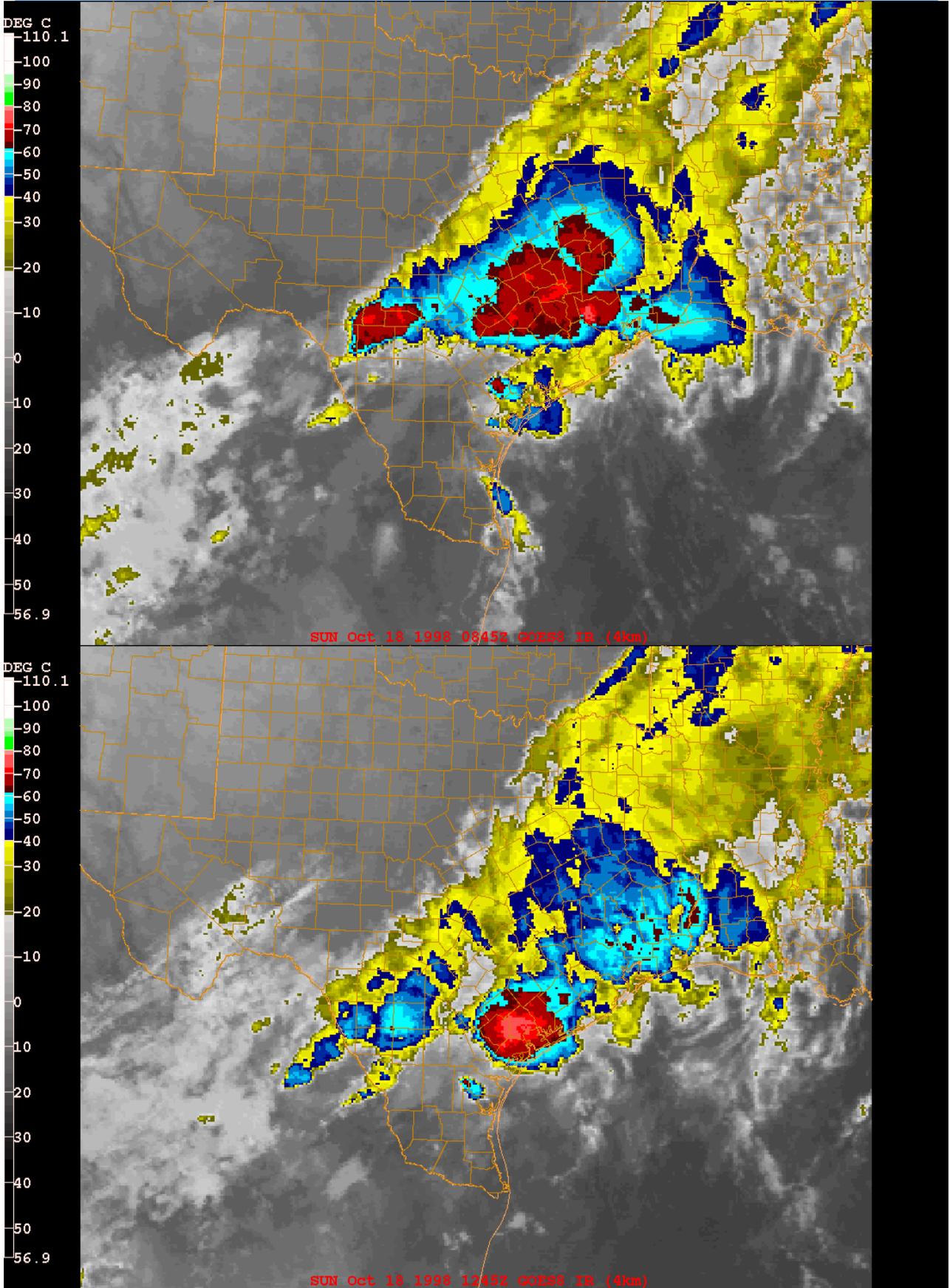


# October 1998 Floods – South Central Texas 6



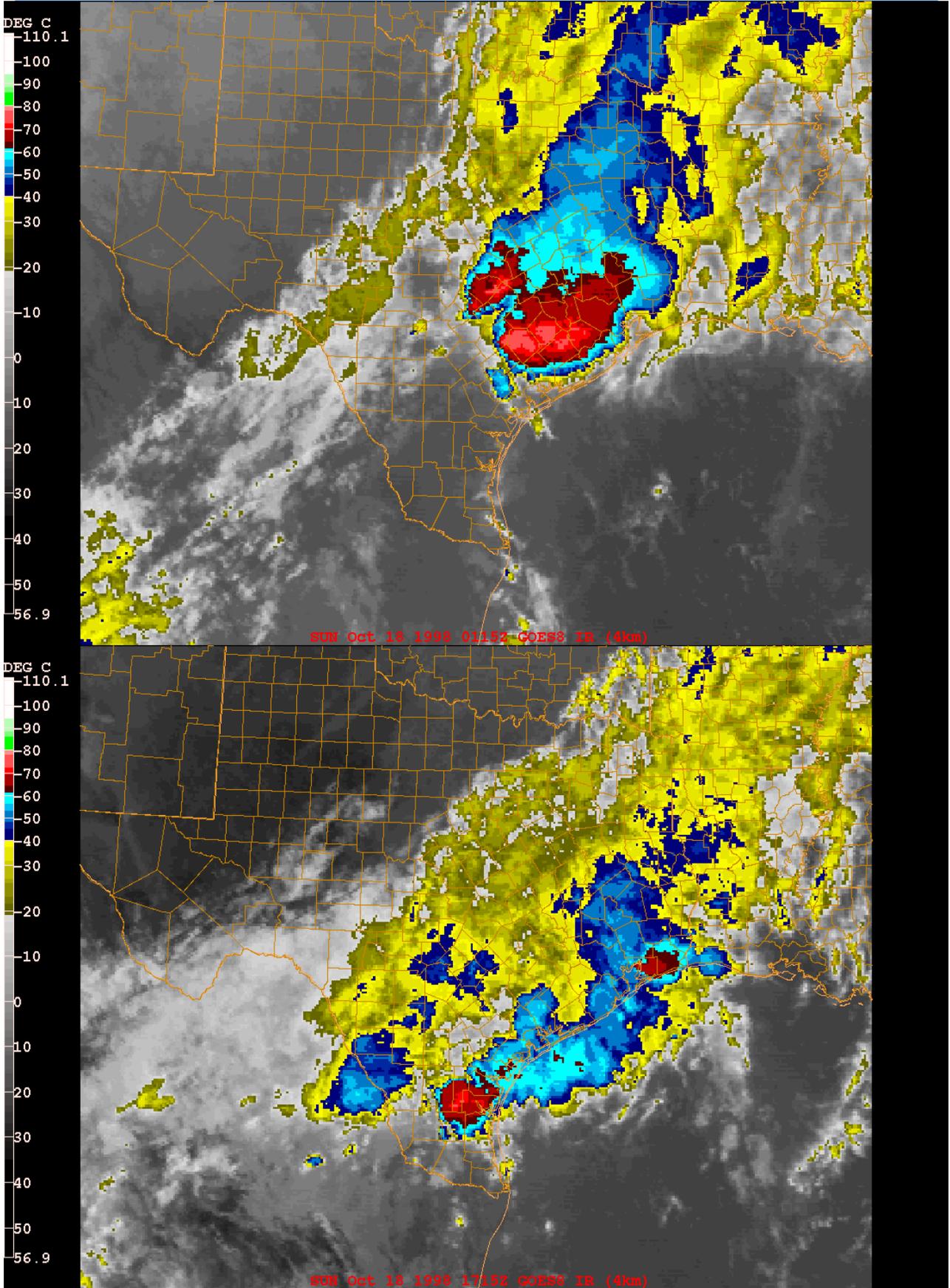


# October 1998 Floods – South Central Texas 7





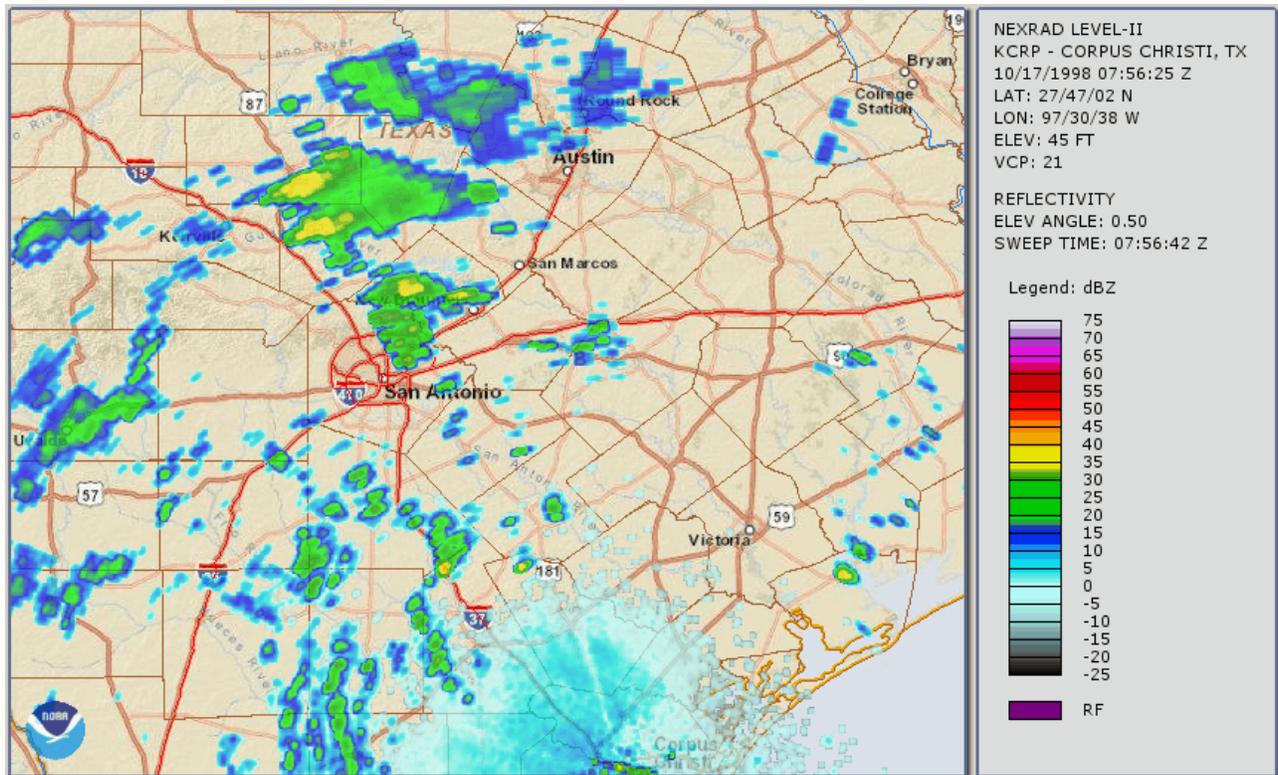
# October 1998 Floods – South Central Texas 8





Satellite Loop. Click [here](#) for animated loop online.

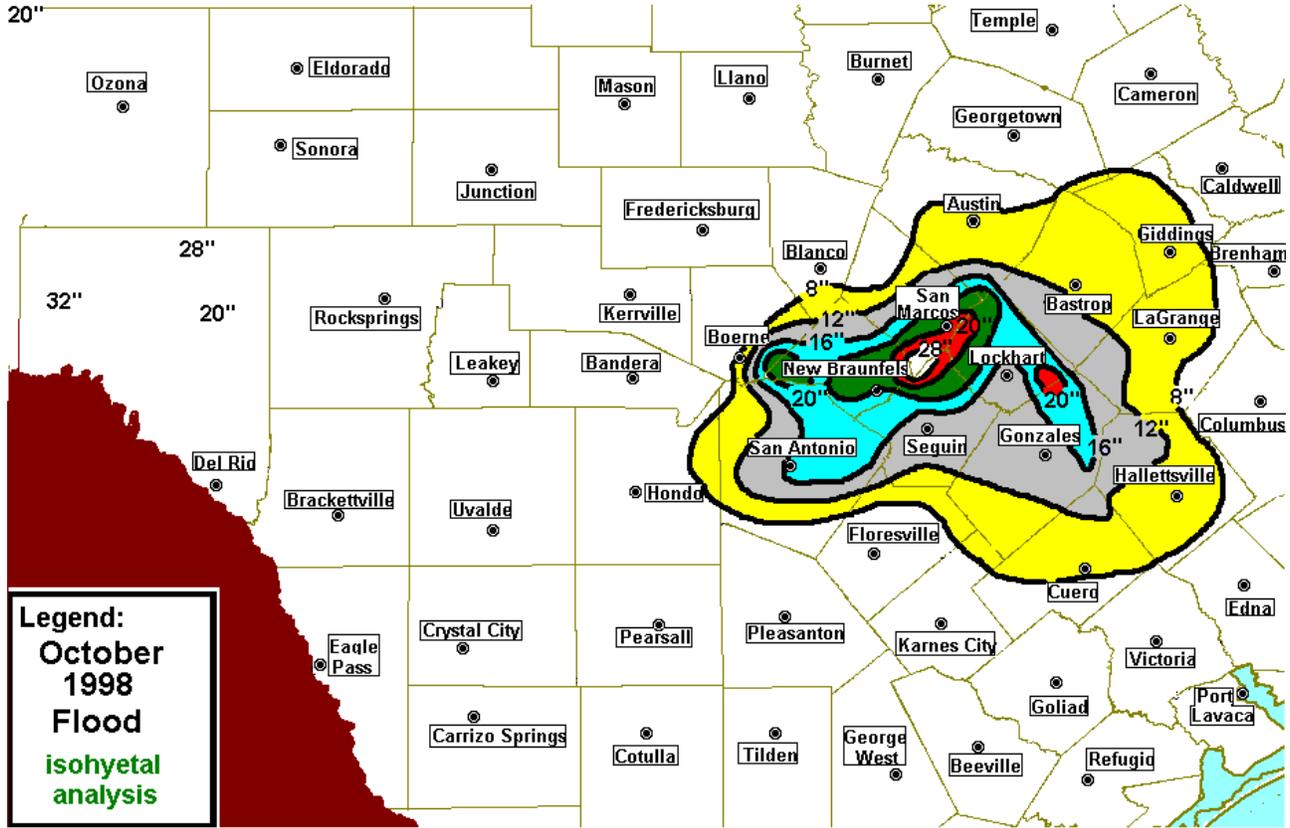
### Radar

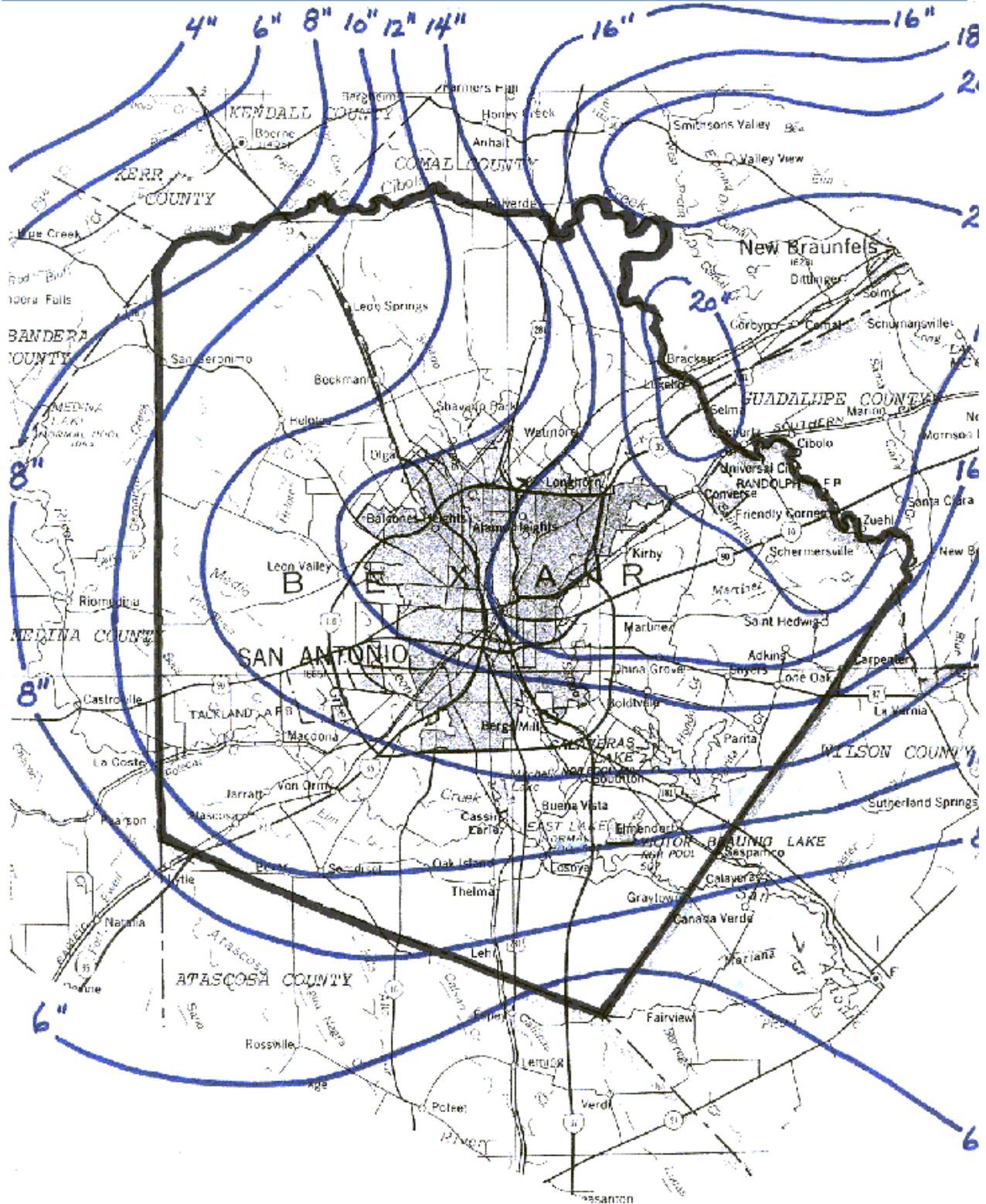


Radar image during October rainfall. Click [here](#) for animated loop.

# Rainfall

## Rainfall Analysis









## Rainfall Records

### San Antonio

The most rain recorded on any calendar day in San Antonio occurred Saturday, Oct. 17, 1998 when 11.26 inches of rain fell at the San Antonio International Airport. At that time this broke the record of 6.83 inches on September 9th, 1921. It also shattered the previous record for October 17, which was 2.13 inches in 1948. The most rainfall in a 24 hour period of 13.35 inches occurred in 1998 from October 17-18.

1998 was the wettest month of any month and wettest October of record, with 18.07 inches of rain. At that time the previous record wettest month of any month was 15.78 inches in Sep. 1946. At that time the previous wettest October was 9.74 inches in 1994.

Fall Season Precipitation (Sep-Nov) for San Antonio, TX.		
Rank	Year	Total Precipitation
1	1998	23.04
2	2004	20.85
3	1913	20.62
4	2018	20.39
5	2009	20.34
6	1946	18.95
7	1957	18.71
8	1973	18.23
9	1919	17.83
10	1942	17.70

October Total Precipitation for San Antonio, TX		
Rank	Year	October Total
1	1998	18.07
2	2009	11.90
3	1994	9.75
4	1942	9.56
5	2004	9.47
6	1913	8.86
7	1919	8.66
8	1981	8.61
9	1976	8.48
10	1960	7.84

Maximum 1-Day Total Precipitation for San Antonio, TX		
Rank	Value	Date
1	11.26	1998-10-17
2	9.87	2013-05-25
3	9.52	2002-07-01
4	6.83	1921-09-09
5	6.82	1937-05-31
6	6.78	1915-04-18
7	6.54	1973-09-26
8	6.26	1993-05-05
9	6.18	1951-06-03
10	6.07	2018-09-03



Austin

For October 1998 Austin received 12.39 inches of rain making October 1998. This is the 3rd wettest October on record for the Austin City climate location. On October 17<sup>th</sup>, 6.24 inches of rain fell at the Robert Mueller Airport in Austin. This broke the old record for October 17<sup>th</sup> of 2.48 inches set back in 1937.

Fall Season Precipitation (Sep-Nov) for Austin, TX Area.		
Rank	Year	Total Precipitation
1	1998	23.19
2	1923	22.57
3	2013	22.53
4	1921	22.43
5	2004	20.29
6	1925	20.05
7	1913	19.16
8	1973	19.13
9	1957	18.17
10	1919	17.90

October Total Precipitation for Austin, TX Area.		
Rank	Year	October Total
1	2013	13.28
2	1925	12.63
3	1998	12.39
4	1960	12.31
5	2015	11.85
6	1919	11.55
7	1973	11.11
8	1984	10.34
9	1923	9.25
10	1913	8.92



Maximum 1-Day Total Precipitation for Austin, TX Area.		
Rank	Value	Date
1	15.00	1921-09-09
2	10.00	1915-04-22
3	8.56	1919-07-21
4	7.55	2001-11-15
5	7.39	1923-10-14
6	7.04	2010-09-07
7	6.95	1925-10-13
8	6.50	1900-04-06
9	6.34	1913-12-03
10	6.24	1998-10-17

Austin Bergstrom International Airport received 6.89 inches of rain on October 17th 1998. For the Austin Bergstrom location, the 12.73 inches in October 1998 was at that time the 2nd wettest October.



Fall Season Precipitation (Sep-Nov) for Austin-Bergstrom Airport, TX		
Rank	Year	Total Precipitation
1	2015	26.47
2	1957	22.93
3	1998	21.72
4	1986	20.19
5	2001	18.72
6	2004	17.84
7	1974	17.75
8	2013	16.96
9	2009	16.68
10	1973	16.67

October Total Precipitation for Austin-Bergstrom Airport, TX		
Rank	Year	October Total
1	2015	21.15
2	1960	13.08
3	1998	12.79
4	1973	10.40
5	2013	9.80
6	1984	9.30
7	2002	9.11
8	1986	9.11
9	1957	9.00
10	1994	7.79

Maximum 1-Day Total Precipitation for Austin-Bergstrom Airport, TX		
Rank	Value	Date
1	12.49	2015-10-30
2	8.79	2016-05-26
3	8.70	1974-11-23
4	8.68	2001-11-15
5	8.53	1974-05-09
6	7.47	2017-08-26
7	6.89	1998-10-17
8	5.99	2018-03-28
9	5.97	1986-09-06
10	5.93	1966-08-03



# River Information

## Notable Impacts

### Guadalupe River Basin

08168500	GUADALUPE RIVER ABOVE COMAL RIVER AT NEW BRAUNFELS, TX	1929-present	35.57	142,000	100-year peak discharge
08169500	GUADALUPE RIVER AT NEW BRAUNFELS	1915-27, 1974-present	38.54	222,000	Greater than 100 year peak discharge
08170500	SAN MARCOS RIVER AT SAN MARCOS, TX	1957-present	21.29	21,500	highest since 1970
08171000	BLANCO RIVER AT WIMBERLEY, TX	1925-present	28.50	116,000	100-year peak discharge
08171300	BLANCO RIVER NEAR KYLE, TX	1929-present	35.82	105,000	50-year peak discharge
08172000	SAN MARCOS RIVER AT LULING, TX	1940-present	41.85	206,000	2.0 times greater than 100 year peak discharge
08172400	PLUM CREEK AT LOCKHART, TX	1959-present	23.09	47,200	1.7 times greater than 2nd largest discharge
08173900	GUADALUPE RIVER AT GONZALES, TX	1977-present	50.44	340,000	Much greater than 100 year peak discharge
08175000	SANDIES CREEK NEAR WESTHOFF, TX	1931-present	28.80	36,200	15-year peak discharge
08175800	GUADALUPE RIVER AT CUERO, TX	1965-present	50.35	473,000	3-4 times greater than 100-year peak discharge
08176500	GUADALUPE RIVER AT VICTORIA, TX	1936-present	34.04	466,000	3-4 times greater than 100-year peak discharge

### San Antonio River Basin

08177700	OLMOS CREEK AT DRESDEN DRIVE, AT SAN ANTONIO, TX	1969-present	14.01	18,600	3rd highest peak stage
08178050	SAN ANTONIO RIVER AT MITCHELL ST, AT SAN ANTONIO, TX	1993-present	12.94	14,300	4.5 feet higher than 2nd highest peak stage
08178565	SAN ANTONIO RIVER AT LOOP 410	1990-present	32.57	79,400	4 feet higher than 2nd highest peak stage
08178700	SALADO CREEK (UPPER STATION), AT SAN ANTONIO, TX	1961-present	22.4	64,400	2.4 times greater than 2nd largest discharge
08178800	SALADO CREEK (LOWER STATION), AT SAN ANTONIO, TX	1961-present	34.07	47,800	at least 2 times greater than 2nd largest discharge
08180640	MEDINA RIVER AT LACOSTE, TX	1987-present	21.30	13,400	3rd largest discharge
08180700	MEDINA RIVER AT MACDONA, TX	1982-present	17.39	16,300	3rd largest discharge
08180800	MEDINA RIVER NEAR SOMERSET, TX	1971-present	22.70	13,500	4th largest discharge
08181400	HELOTES CREEK AT HELOTES, TX	1969-present	15.21	12,600	1.6 times greater than 2nd largest discharge
08181480	LEON CREEK AT IH35, AT SAN ANTONIO, TX	1985-present	29.31	93,300	4 feet higher than 2nd highest peak stage
08181500	MEDINA RIVER AT SAN ANTONIO, TX	1940-present	49.45	30,000	3rd largest discharge
08181800	SAN ANTONIO RIVER NEAR ELMENDORF, TX	1963-present	64.2	75,000	2 times greater than 2nd largest discharge
08183500	SAN ANTONIO RIVER NEAR FALLS CITY, TX	1926-present	33.6	70,000	1.5 times greater than 2nd largest discharge
08185000	CIBOLO CREEK AT SELMA, TX	1947-present	35.37	98,100	greater than 100-year peak discharge
08186000	CIBOLO CREEK NEAR FALLS CITY, TX	1931-present	39.86	47,500	greater than 100-year peak discharge
08188500	SAN ANTONIO RIVER AT GOLIAD, TX	1939-present	51.78	59,200	2nd largest discharge

ACTIVE STREAMFLOW-GAGING STATIONS FOR WHICH THE OCTOBER, 1998 FLOOD PEAK REPRESENTS THE HIGHEST KNOWN PEAK

### Colorado River Basin

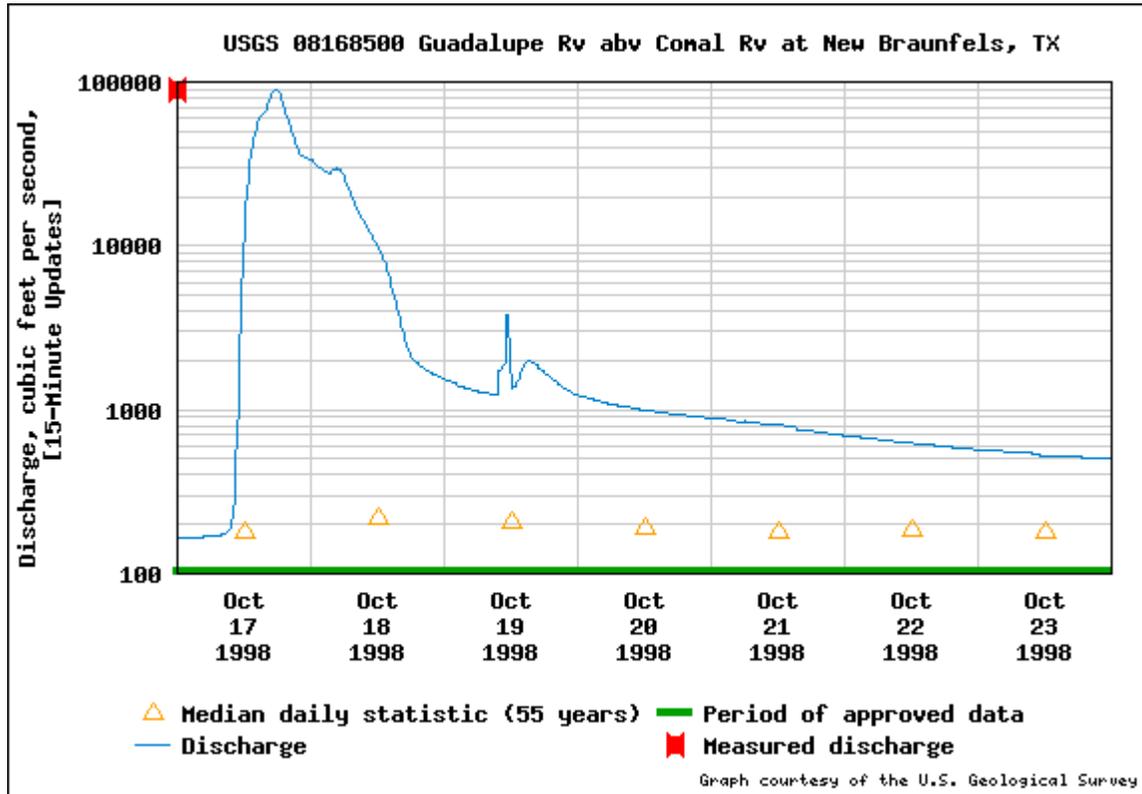
08156800	SHOAL CREEK AT WEST 12TH STREET, AUSTIN	1967-present	15.61	5,350	5th largest discharge
08158000	COLORADO RIVER AT AUSTIN, TX	1938-present	24.40	39,400	4th largest discharge
08158050	BOGGY CREEK AT US 183, AUSTIN, TX	1976-86, 1989-present	16.71	5,700	3rd largest discharge
08158700	ONION CREEK NEAR DRIFTWOOD, TX	1980-present	25.10	15,800	20-year peak discharge
08158810	BEAR CREEK BELOW FM 1826 NEAR DRIFTWOOD, TX	1979-present	12.01	6,430	10-year peak discharge
08158840	SLAUGHTER CREEK AT FM 1826 NEAR AUSTIN, TX	1978-present	9.87	4,100	15-year peak discharge
08158922	WILLIAMSON CREEK AT BRUSH COUNTRY ROAD, AUSTIN	1979-present	7.10	2,700	3rd largest discharge
08159000	ONION CREEK AT US 183, AUSTIN	1924-29, 1976-present	32.36	53,900	20-year peak discharge
08159500	COLORADO RIVER AT SMITHVILLE, TX	1938-present	34.60	96,000	2nd largest discharge (largest was 209,000 in 1938)
08160400	COLORADO RIVER AT LAGRANGE, TX	1938-present	45.50	90,000	4th largest discharge (largest was 200,000 in 1938)
08161000	COLORADO RIVER AT COLUMBUS, TX	1938-present	43.66	87,700	4th highest since 1941
08162000	COLORADO RIVER AT WHARTON, TX	1939-present	48.72	74,800	4th highest since 1941
08162500	COLORADO RIVER NEAR BAY CITY, TX	1949-present	40.95	81,800	2nd largest discharge

### Lavaca River Basin

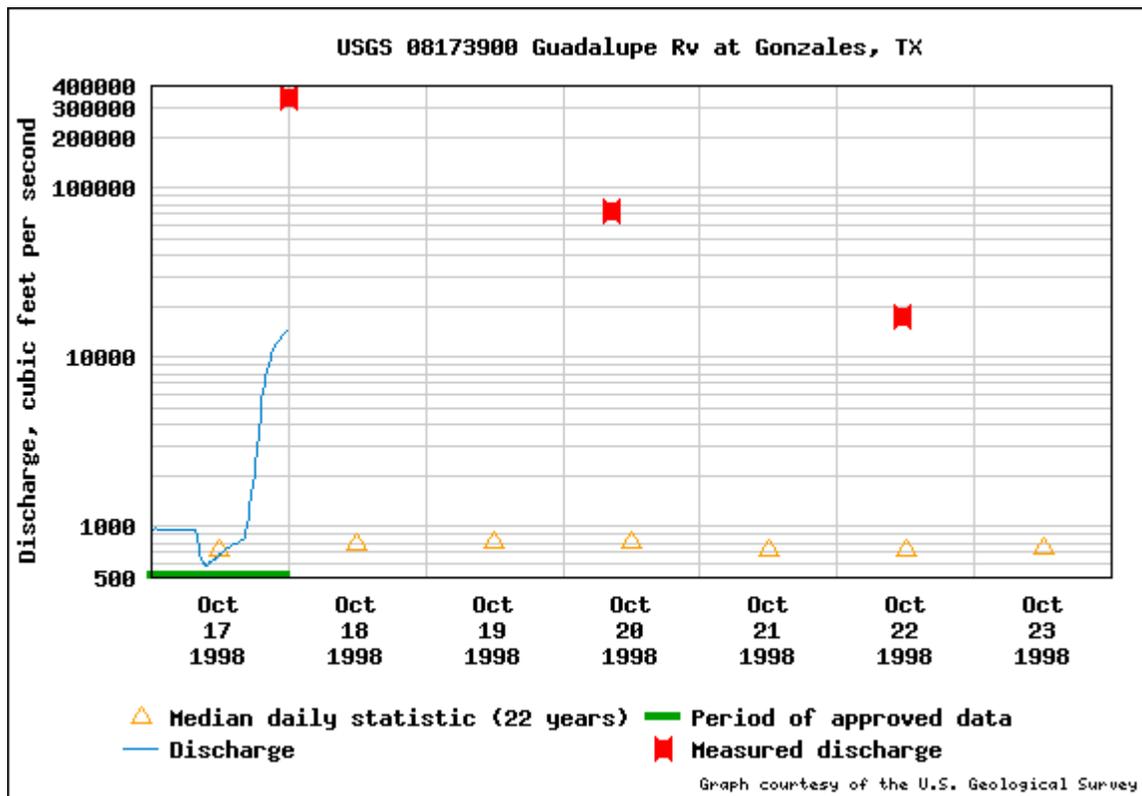
08164000	LAVACA RIVER NEAR EDNA, TX	1939-present	32.38	80,000	1.2 times greater than 100-year peak discharge
08164300	NAVIDAD RIVER NEAR HALLETTSVILLE, TX	1962-present	32.22	28,700	3rd largest discharge
08164450	SANDY CREEK NEAR LOUISE, TX	1978-present	32.44	60,000	2 times greater than 100-year peak discharge
08164503	WEST MUSTANG CREEK NEAR GANADO, TX	1978-present	19.72	7,100	10-year peak discharge

## River Hydrographs

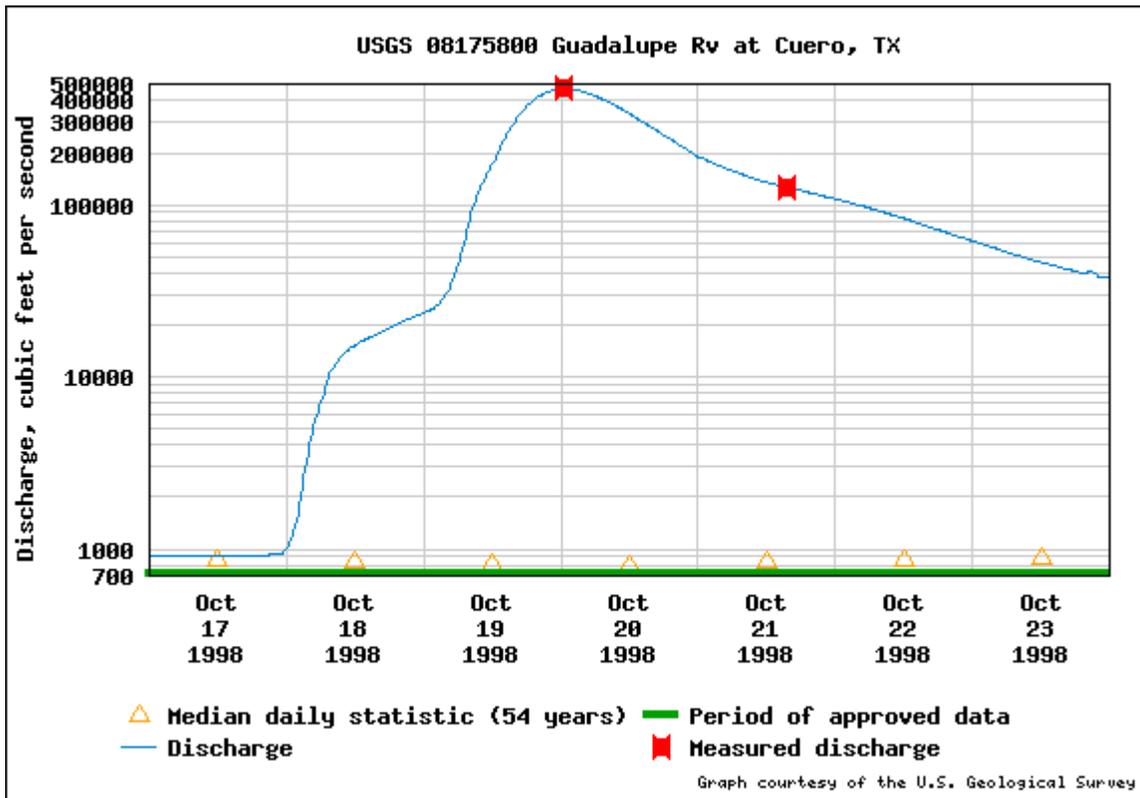
### Guadalupe River



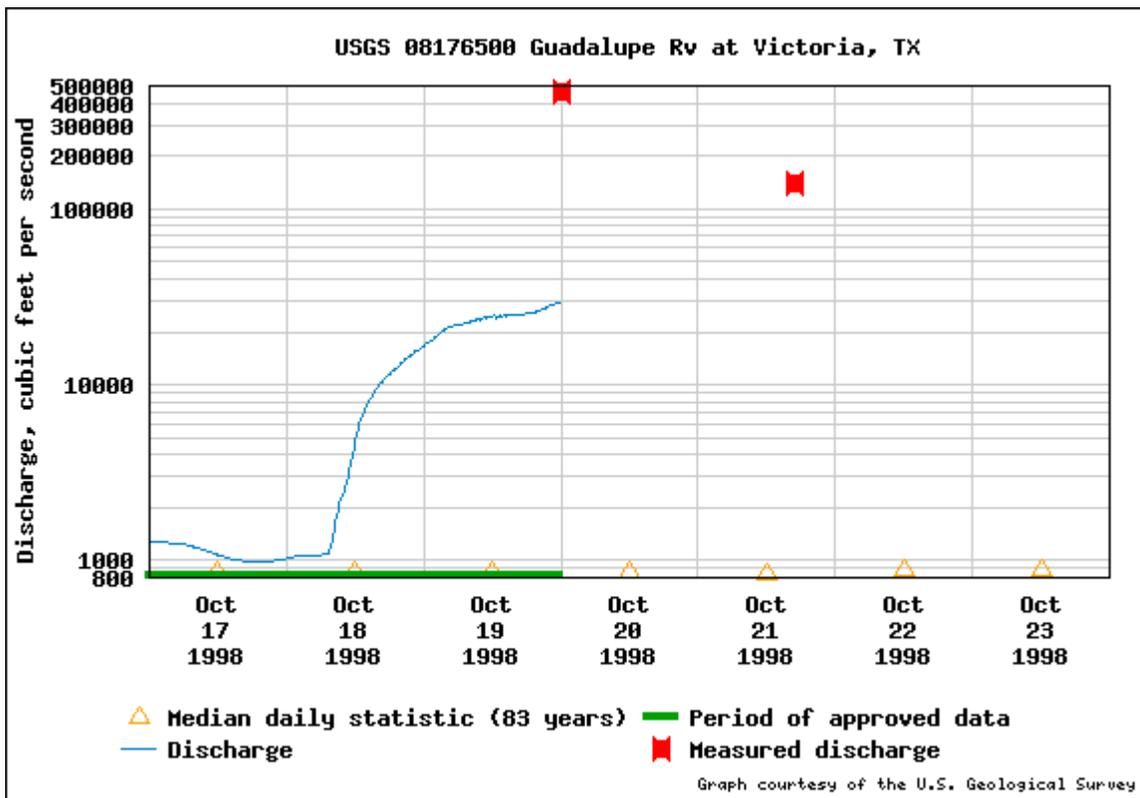
Guadalupe River at Bastrop



Guadalupe River at Gonzales

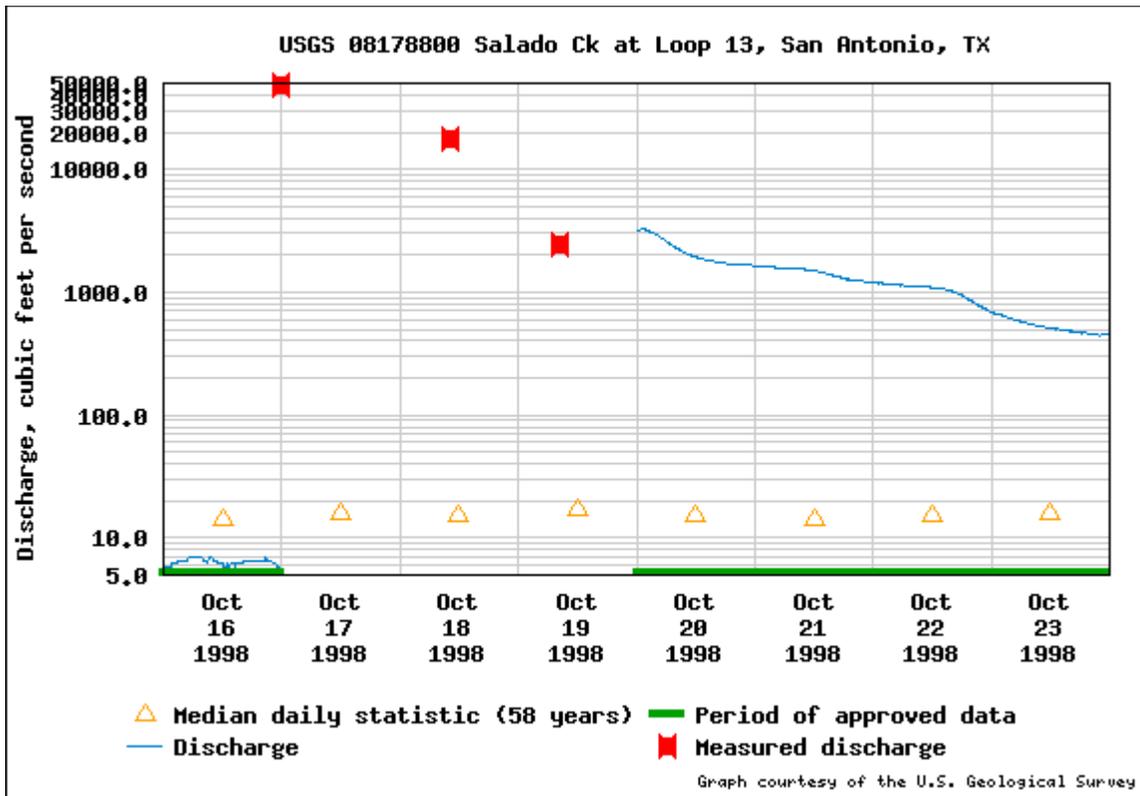


Guadalupe River at Cuero

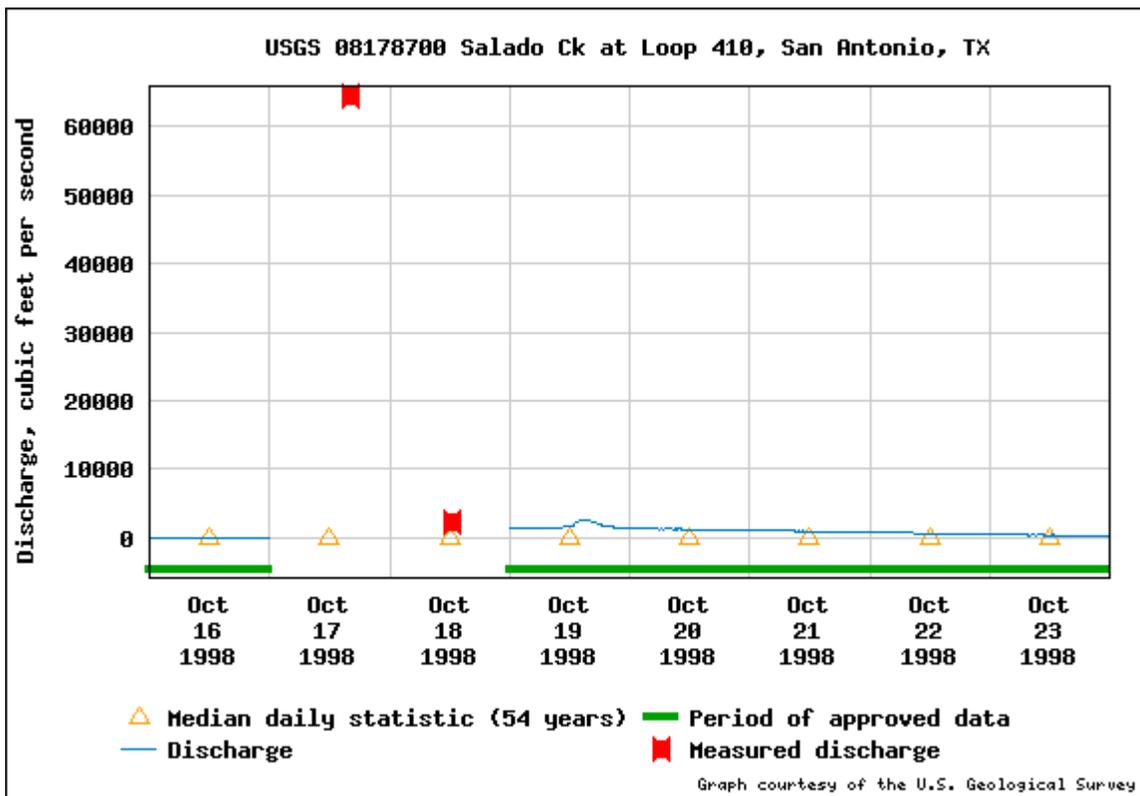


Guadalupe River at Victoria

Salado Creek

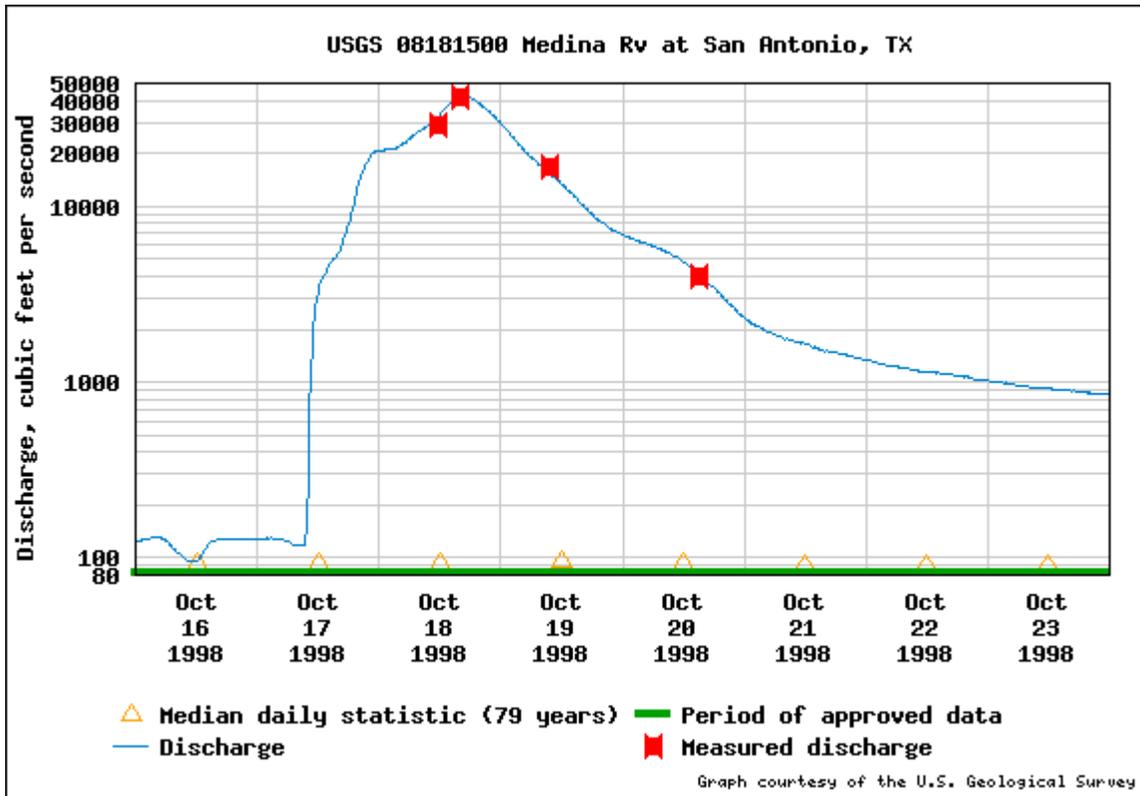


Salado Creek at SE Military



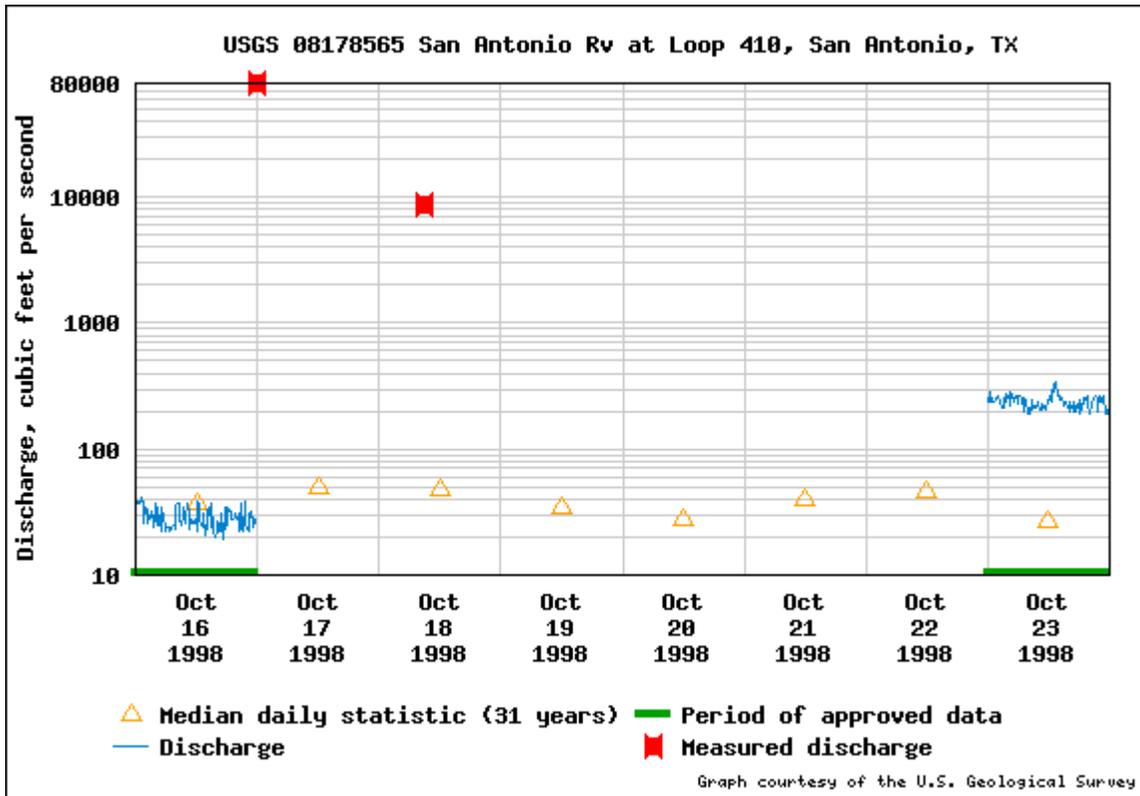
Salado Creek at Loop 410

Medina River

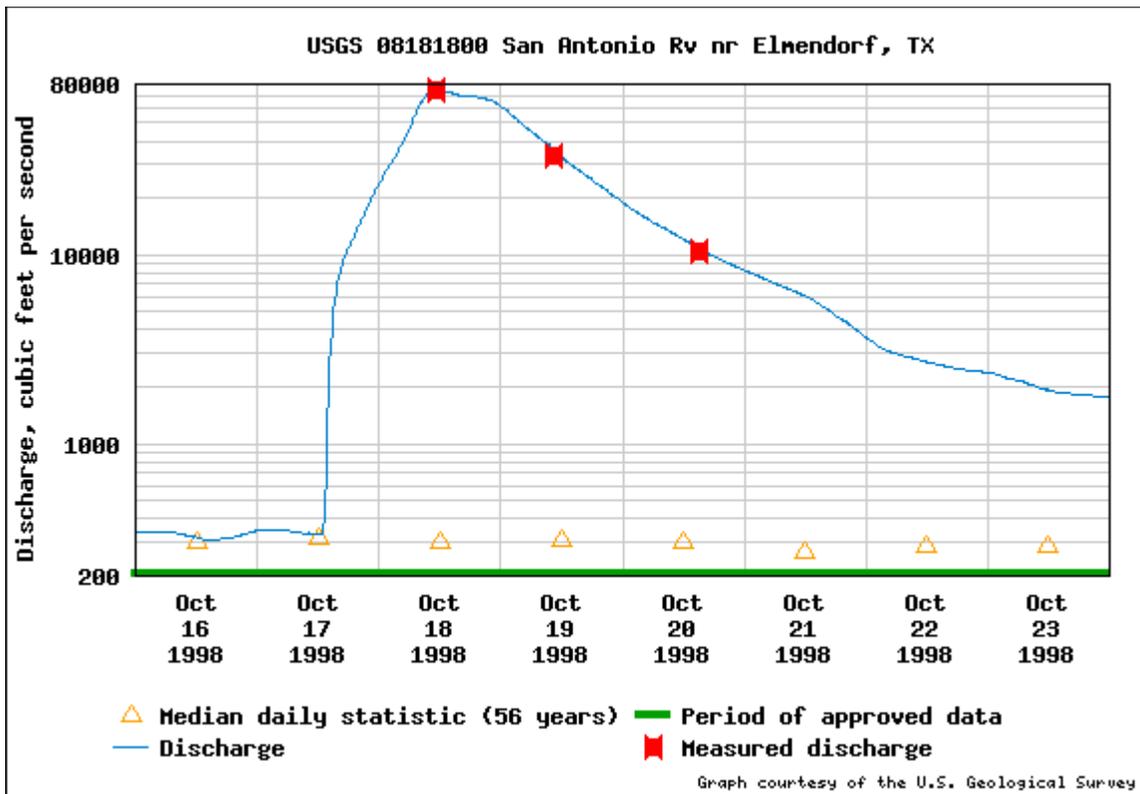


Medina River at U.S. 281

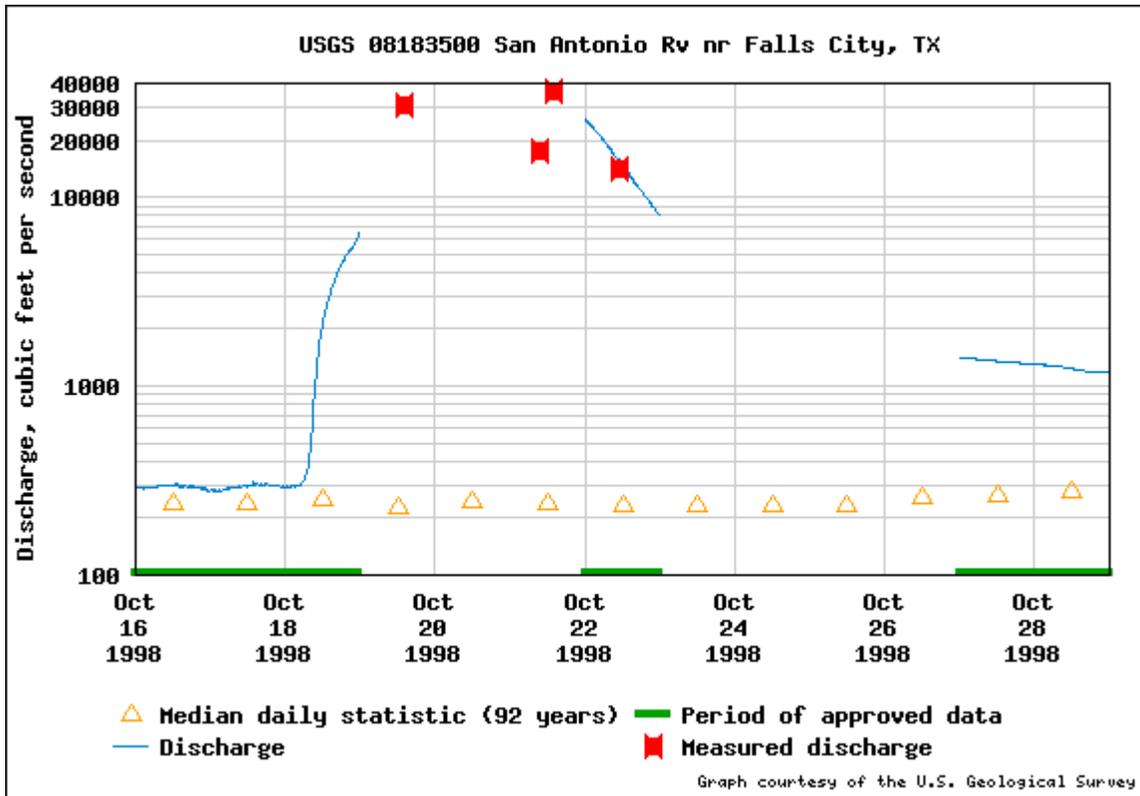
San Antonio River



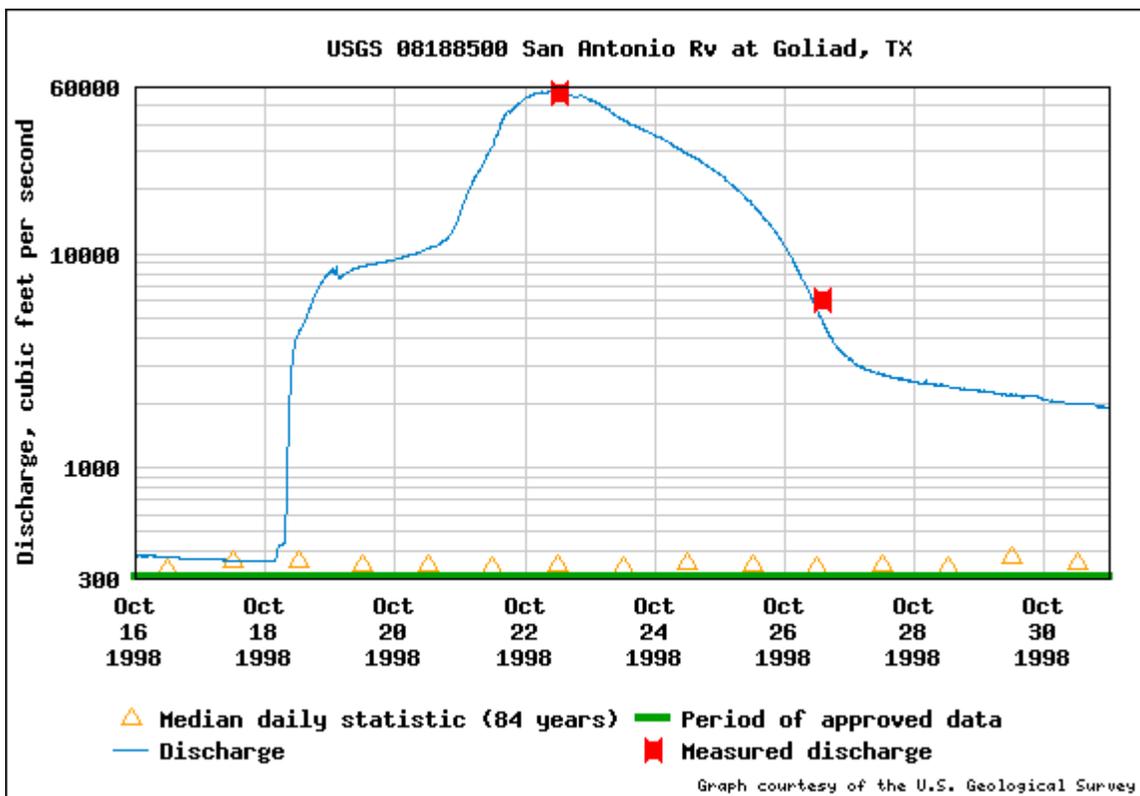
San Antonio River at Loop 410



San Antonio River at Elmendorf

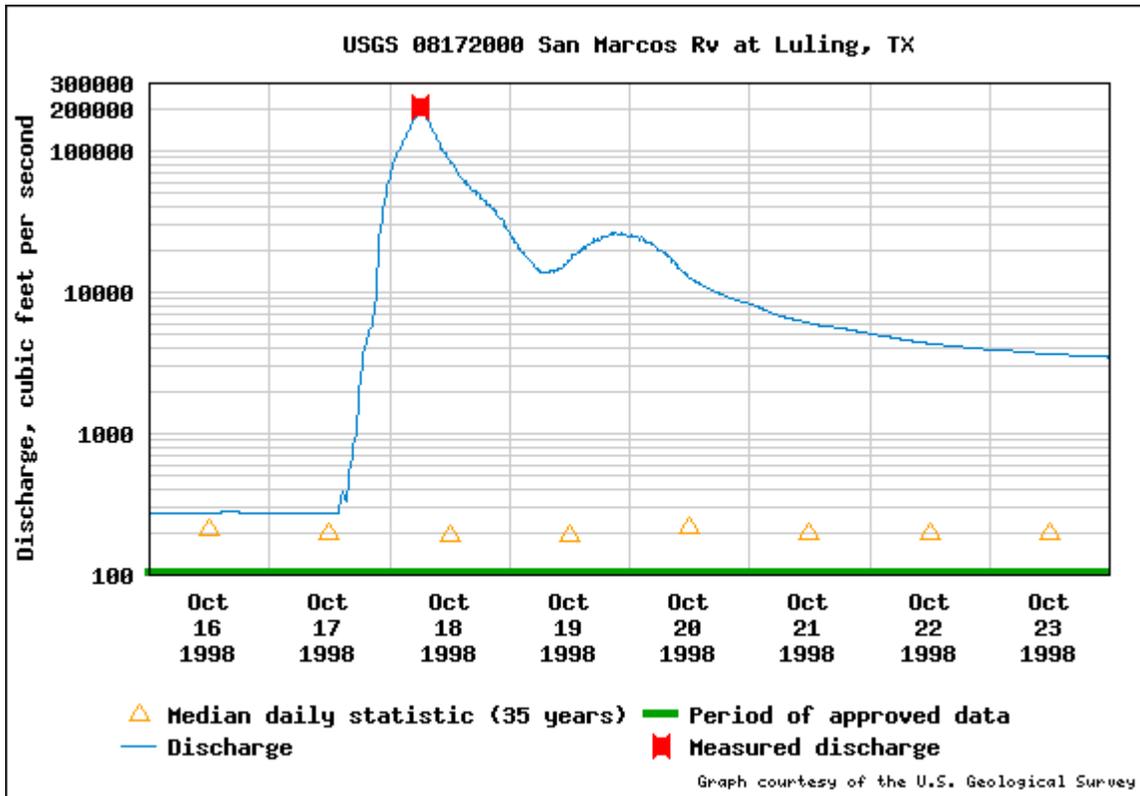


San Antonio River at Falls City



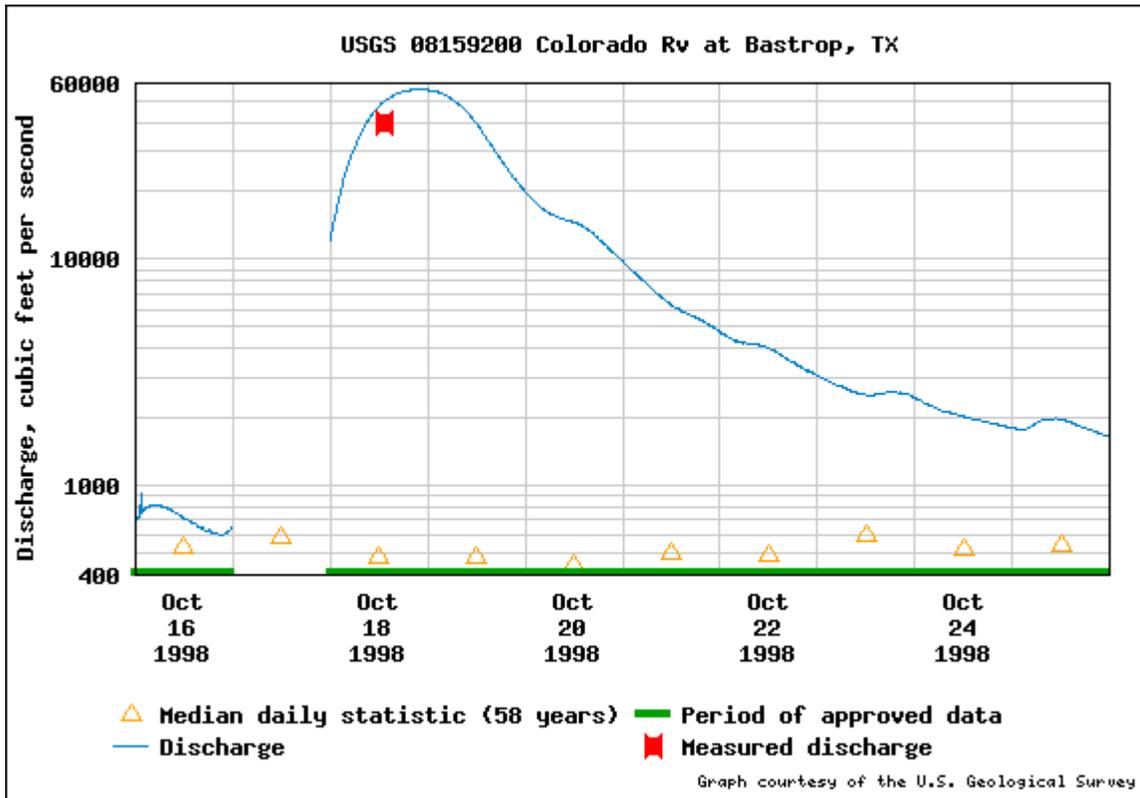
San Antonio River at Goliad

San Marcos River

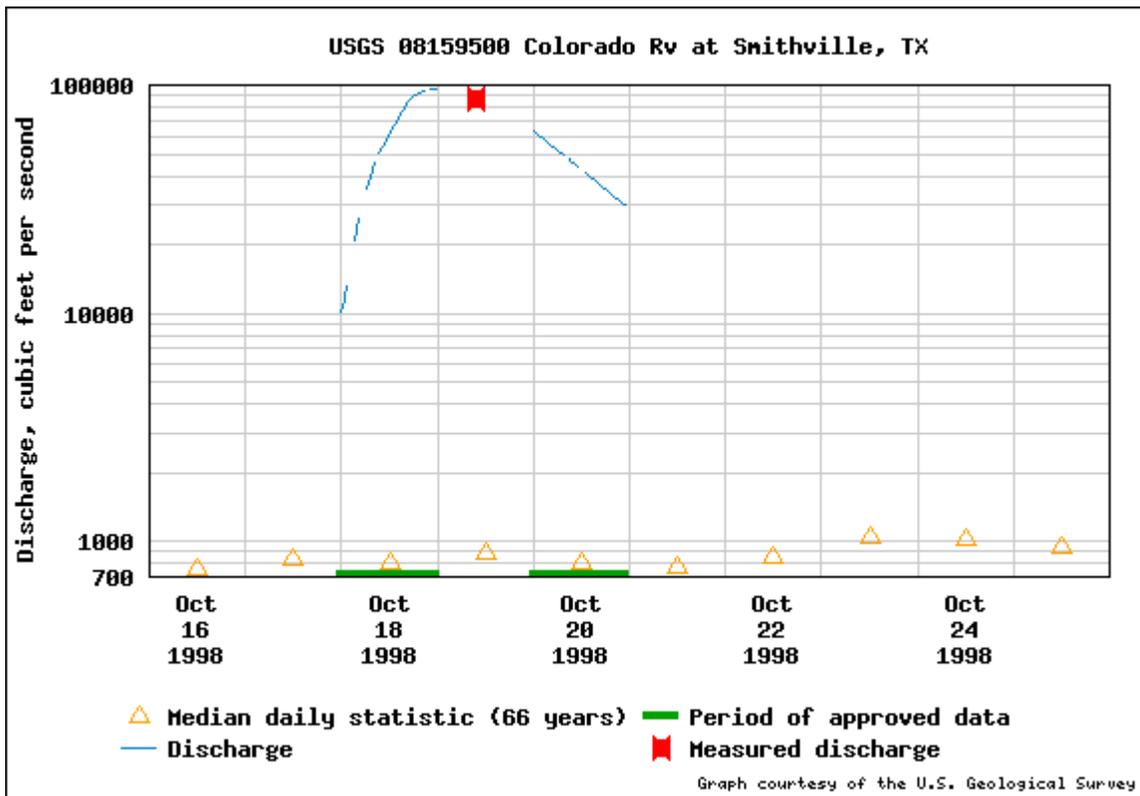


San Marcos River at Luling

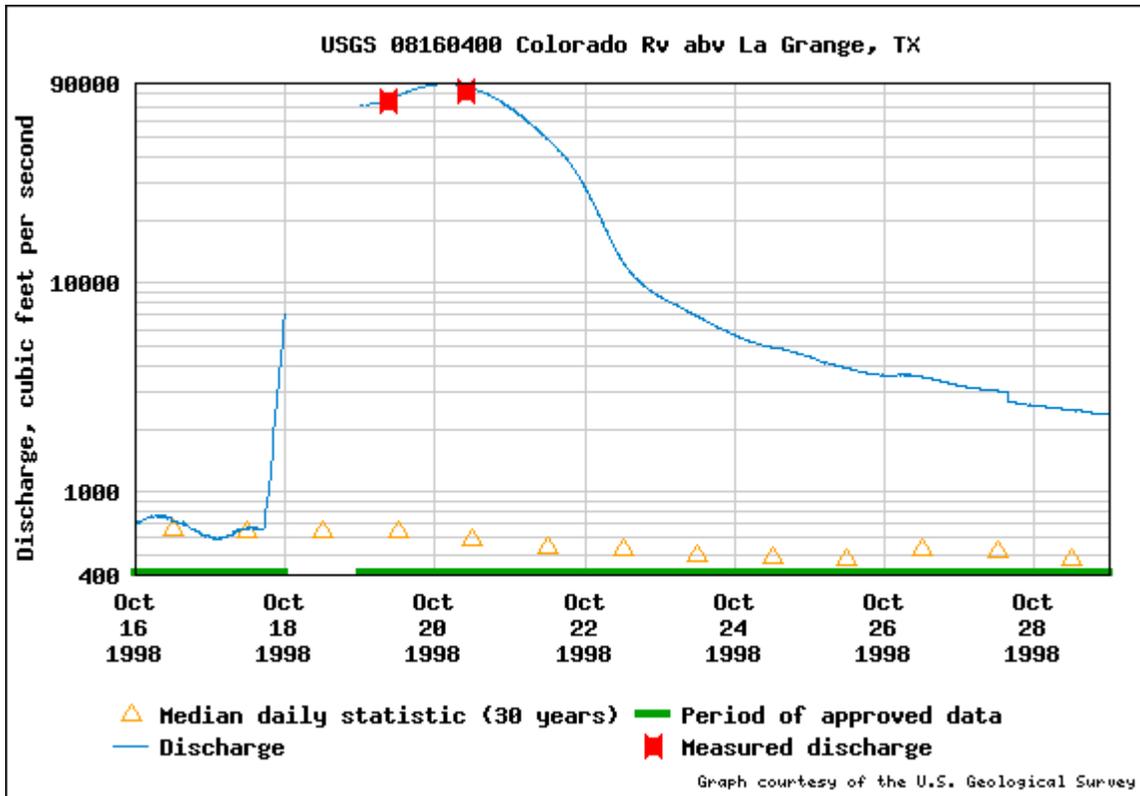
Colorado River



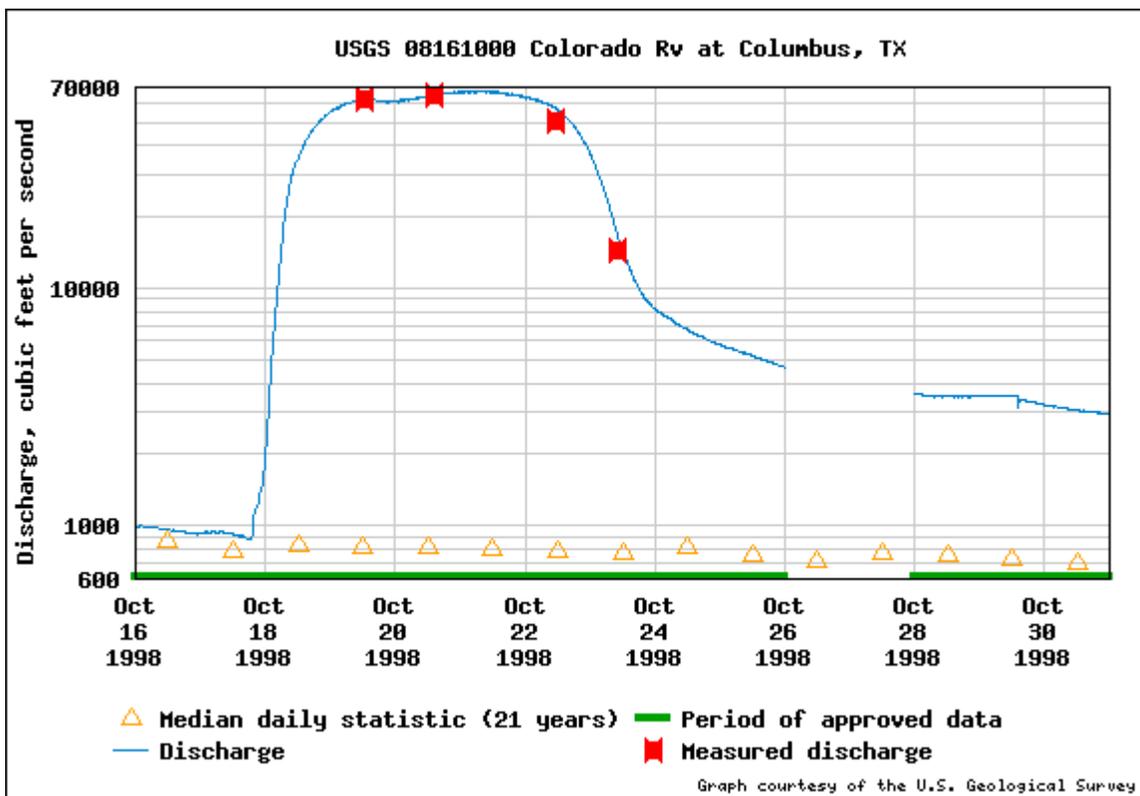
Colorado River at Bastrop



Colorado River at Smithville



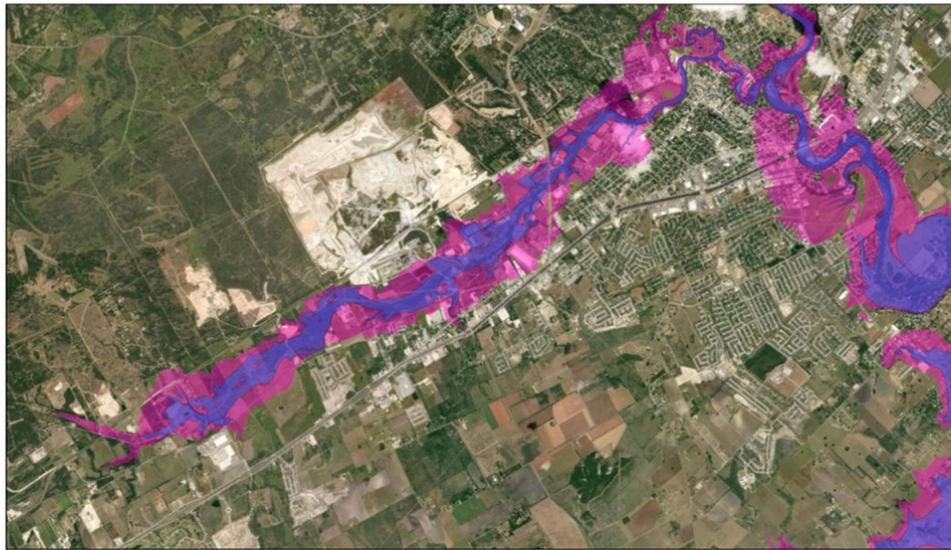
Colorado River at La Grange



Colorado River at Columbus

## Inundation Maps

Historic Flood - Oct 17-19 1998



10/17/2018, 9:01:09 AM

- Modeled Dry Comal + Comal Major Stage
- Modeled Dry Comal + Comal Record Stage

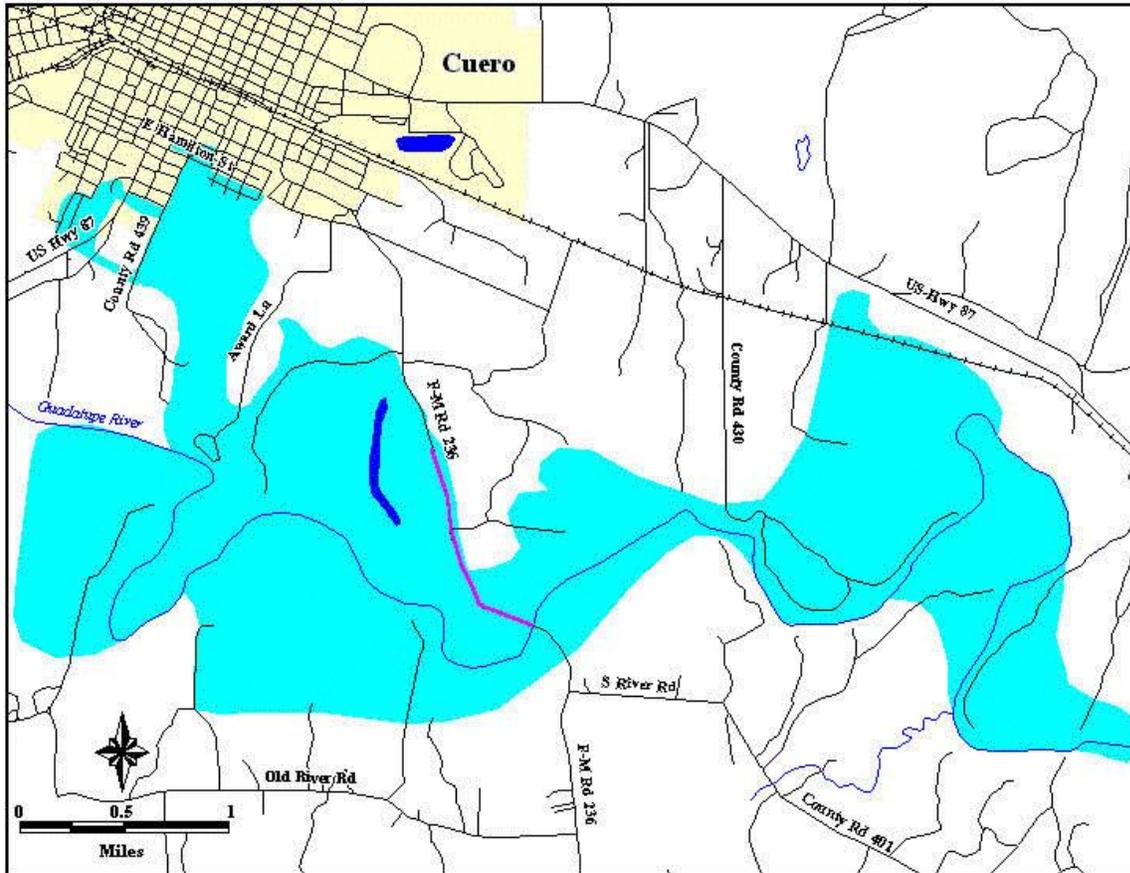
1:72,224  
0 0.5 1 2 mi  
0 0.75 1.5 3 km

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

NWS Austin/San Antonio, TX  
Earthstar Geographics

### Comal River in New Braunfels/Schertz

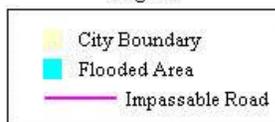
## Cuero, De Witt County, Texas Remote Sensing as of 10/25/98



**Location Map**



**Legend**



*ITS Mapping and Analysis Center  
Washington, DC  
10/25/98 -- 1130 EST*

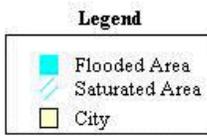
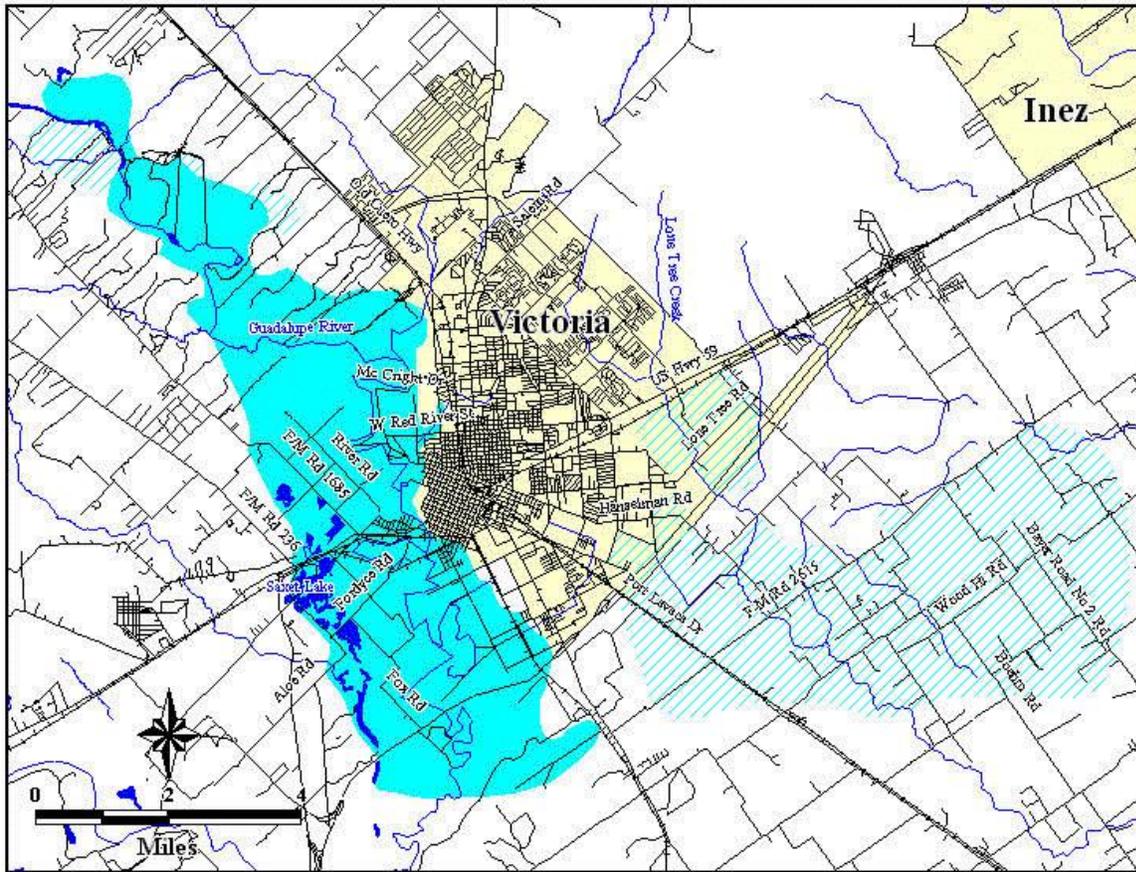
**Estimated Number in Flooded Area:**

**Population: 91    Housing Units: 42**

rs\_dewitt25.wor

**Guadalupe River near Cuero**

# Victoria, Victoria County, Texas Remote Sensing as of 10/25/98



Estimated Number Within Flooded Area:  
Population: 1387    Housing Units: 558

Estimated Number Within Saturated Area:  
Population: 555    Housing Units: 208

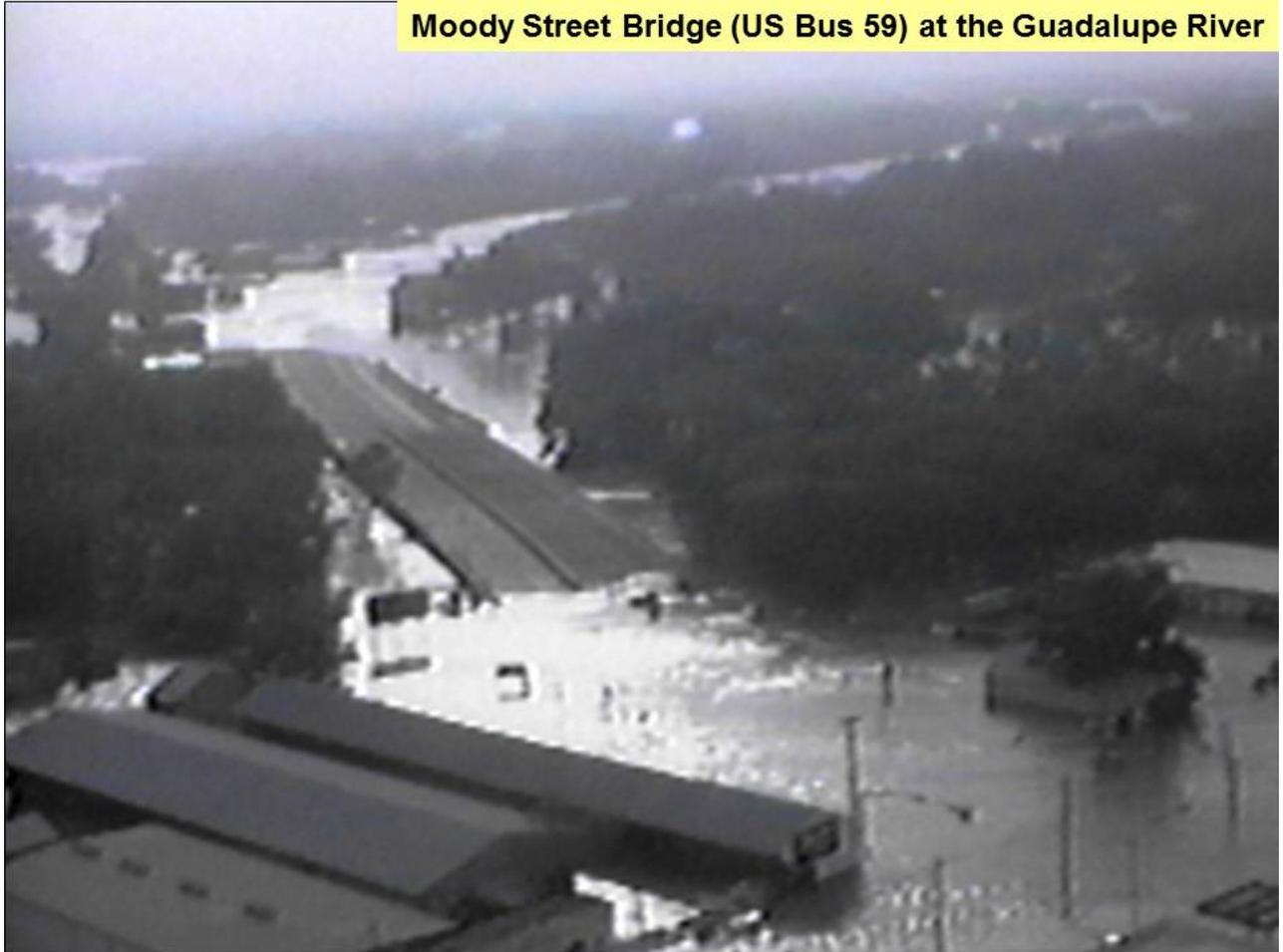
*ITS Mapping and Analysis Center  
Washington, DC  
10/26/98 -- 1630 EST*

rs\_victoria25.wor

Guadalupe River near Victoria

## Photos

**Moody Street Bridge (US Bus 59) at the Guadalupe River**







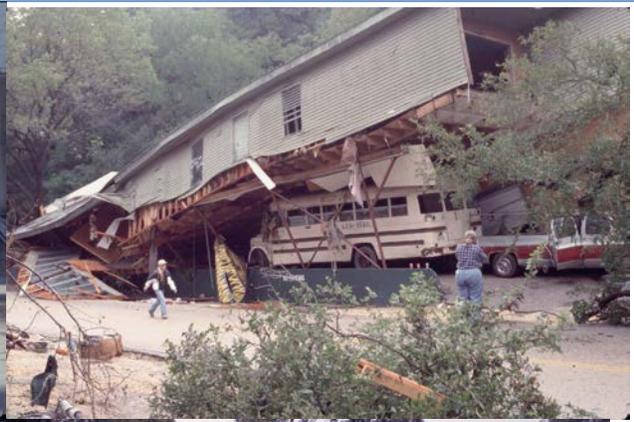


### E. San Antonio St. Bridge toward Schlitterbahn



### Comal River toward Tube Shoot







**Near the city of Cuero on the Guadalupe River, 1998 flood**



**More of the Colorado River around Garwood, 1998 flood**



*Credit: Guadalupe-Blanco River Authority*



*Credit: San Antonio Express-News*













