

**June 19th through 21st, 2006
Flood Event**

Preliminary Report

by

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Weather Synopsis of the Heavy Rainfall Event

Heavy rains fell over Southwest Louisiana from the 16th through the 20th of June, 2006. This event developed as upper level high pressure began to break down, allowing an upper low to approach the area from the northwest. Counter clockwise flow around this low brought Pacific and Gulf moisture into the upper levels of the atmosphere. At the surface, high pressure situated over the southeastern United States brought southerly winds and Gulf moisture into the lower levels. The combination of these two features produced a deep moisture rich layer of air over the northwestern Gulf Coast.

As the low spun in the upper levels, smaller disturbances rotated around it. Each of these disturbances enhanced the instability of the atmosphere, allowing the rich moist air to rise vertically and produce showers and thunderstorms. This upper low meandered over Southeast Texas and Southwest Louisiana for about 5 days before finally drifting southwest and dissipating. As a result of the slow movement, the repeated passage of disturbances and the deep moisture, moderate to heavy rains fell from showers and thunderstorms during the period.

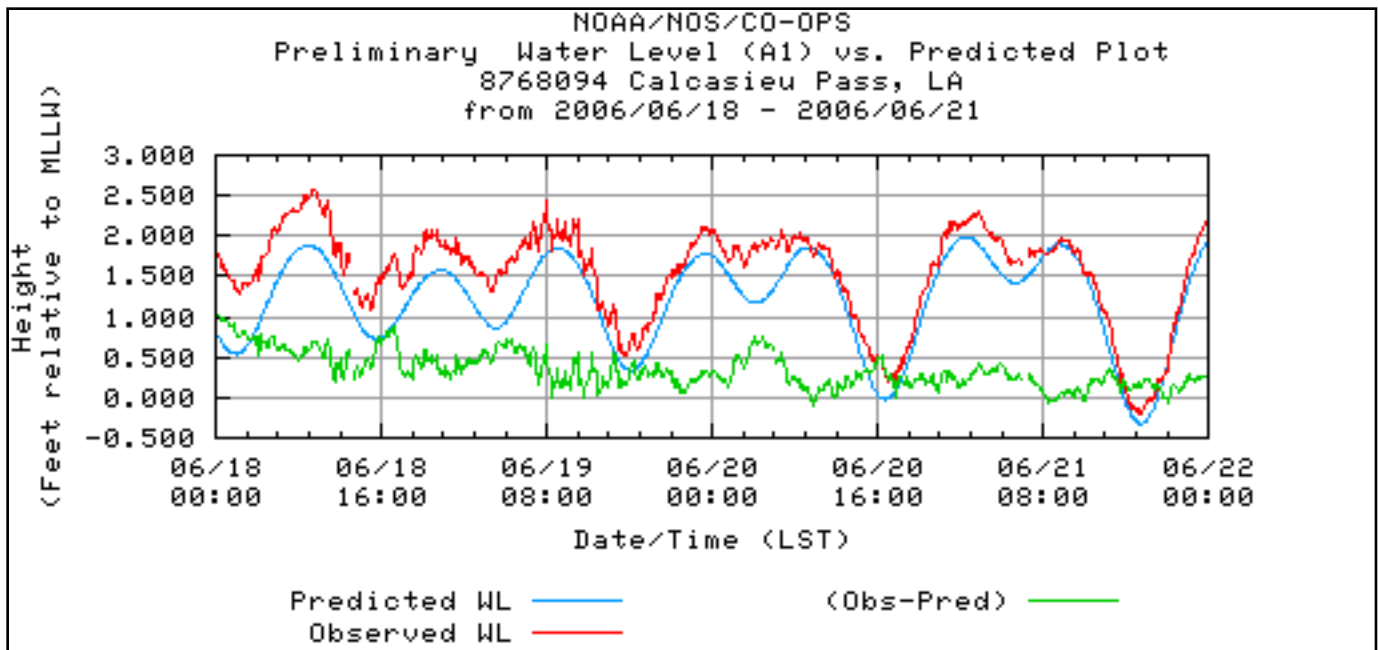
The heaviest of these rains fell during the early morning hours of June 19th. These flooding rains were the result of the low remaining stationary for several hours as an upper level shortwave rotated through. This allowed an area of rain and thunderstorms to rotate in a counter clockwise pattern around the low from Houston to Lake Charles. Locally heavier rains fell in some locations as thunderstorms "trained" or moved repeatedly across the same area during this period.

Tide Gauge Readings

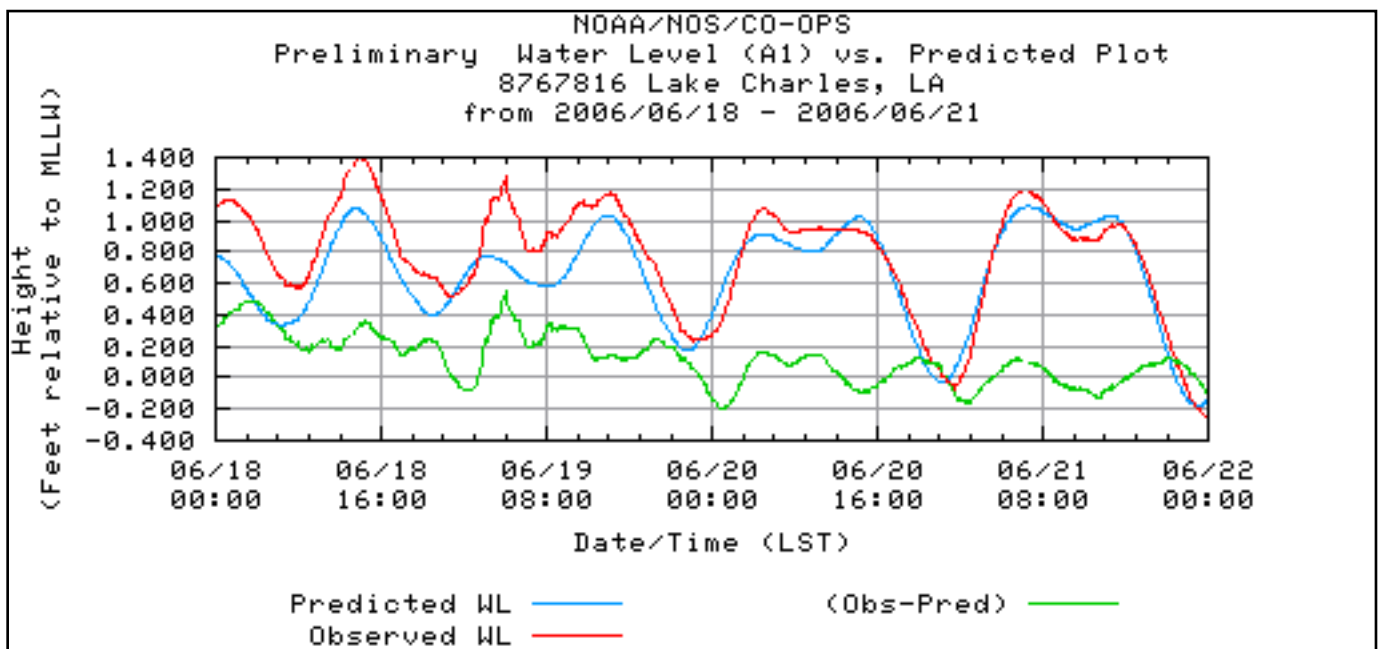
NOAA/NOS has two tide gauges along the Calcasieu River. The gauge near the coast is called Calcasieu Pass, LA, which is located near the fishing jetties in Cameron, Louisiana. Further inland, on the lake near the Civic Center in Lake Charles is the second gauge, labeled Lake Charles, LA.

The following tables show the actual water level in red, predicted water level in blue, and the difference between actual and predicted water levels in green. The datum for both locations is MLLW. The time is referenced to central standard time.

For Calcasieu Pass, LA, the tidal range varied from a high of around 2.5 on the morning of 6/18/06, to a low of -0.3 on the evening of 6/21/06. Throughout the four day period of 6/18/06 to 6/21/06, the actual tide was within a foot of the predicted tide. Time is set to local CST.



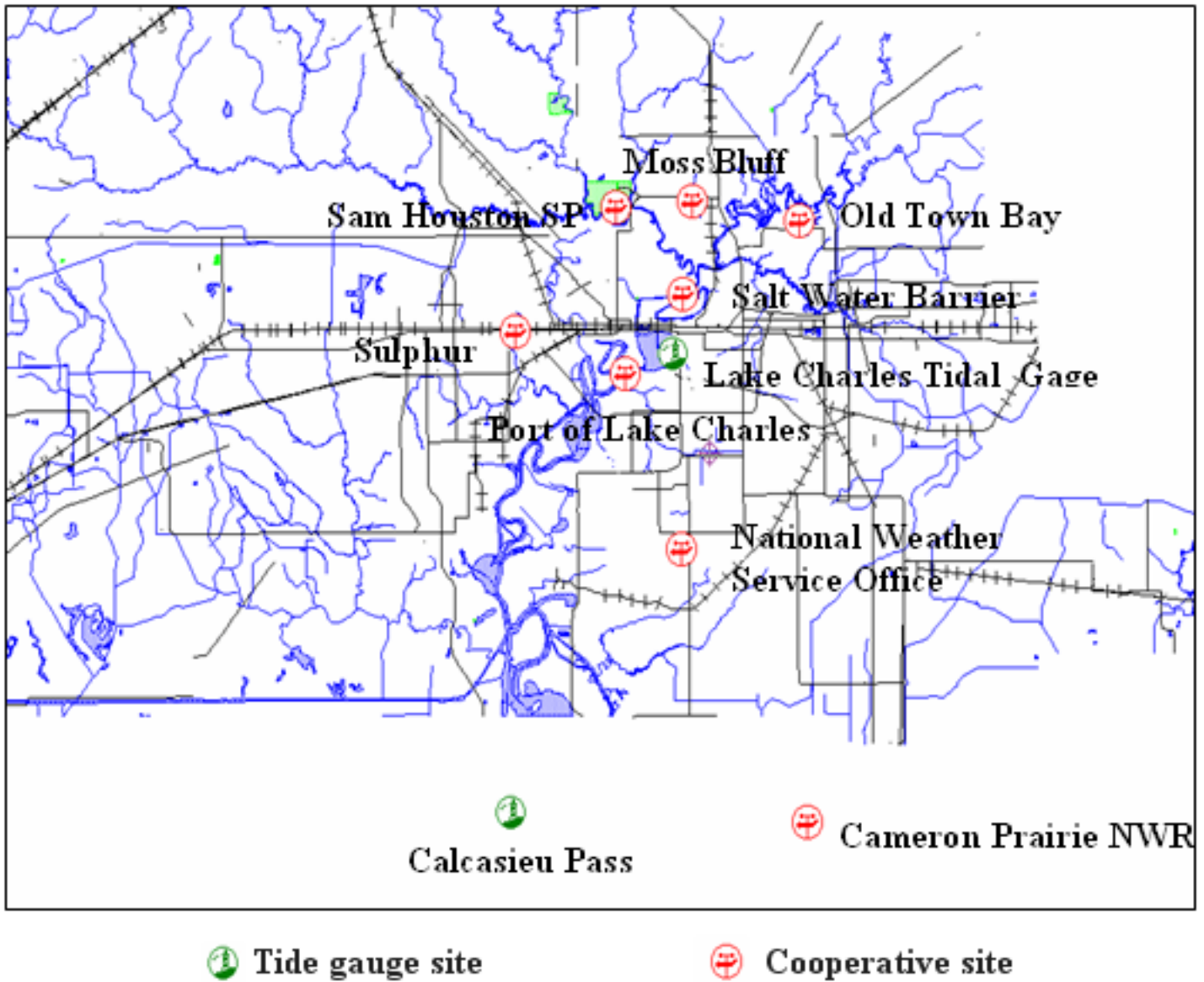
For Lake Charles, LA, the tidal range varied from a high of around 1.4 on the afternoon of 6/18/06, to a low of -0.2 on the evening of 6/21/06. Throughout the four day period of 6/18/06 to 6/21/06, the actual tide was within half a foot of the predicted tide. Time is set to local CDT.



There is a lag between the tides at Calcasieu Pass and Lake Charles. This lag occurs as tidal water travels up the ship channel from the coast inland to near or just north of Lake Charles. There is a difference of approximately 5 to 6 hours between the high and/or low tides at these two locations, with the tides at Lake Charles occurring after the high and/or low tides at Calcasieu Pass.

Data Collection Points

These are the official Co-Op and ASOS observing in Southwest Louisiana. The Co-Op site in Hackberry was destroyed during Hurricane Rita. Rainfall data from 06/17 through 06/20 for the following locations in Southwest Louisiana.



Rainfall reports for 24 hour period ending at 700 am each day

Location	06/17	06/18	06/19	06/20
WFO Lake Charles	0.05"	Trace	6.52"	Trace
Lake Arthur	N/A	N/A	2.25"	N/A
Moss Bluff	1.17"	0.96"	2.82"	0.72"
Sam Houston Jones State Park	1.10"	1.44"	3.70"	0.70"
Port of Lake Charles	1.25"	1.08"	5.21"	0.54"
Salt Walter Barrier	1.07"	1.07"	2.79"	0.78"
Sulphur	N/A	N/A	5.25"	N/A
Old Town Bay	1.00"	0.85"	2.00"	N/A
Cameron Prairie NWR	1.15"	0.01"	0.20"	2.45"

Daily Rainfall Precipitation Estimates

The next four pictures show 24 hour rainfall estimates, ending at 7 am, calculated by the NWS River Forecast Center in Slidell, Louisiana.

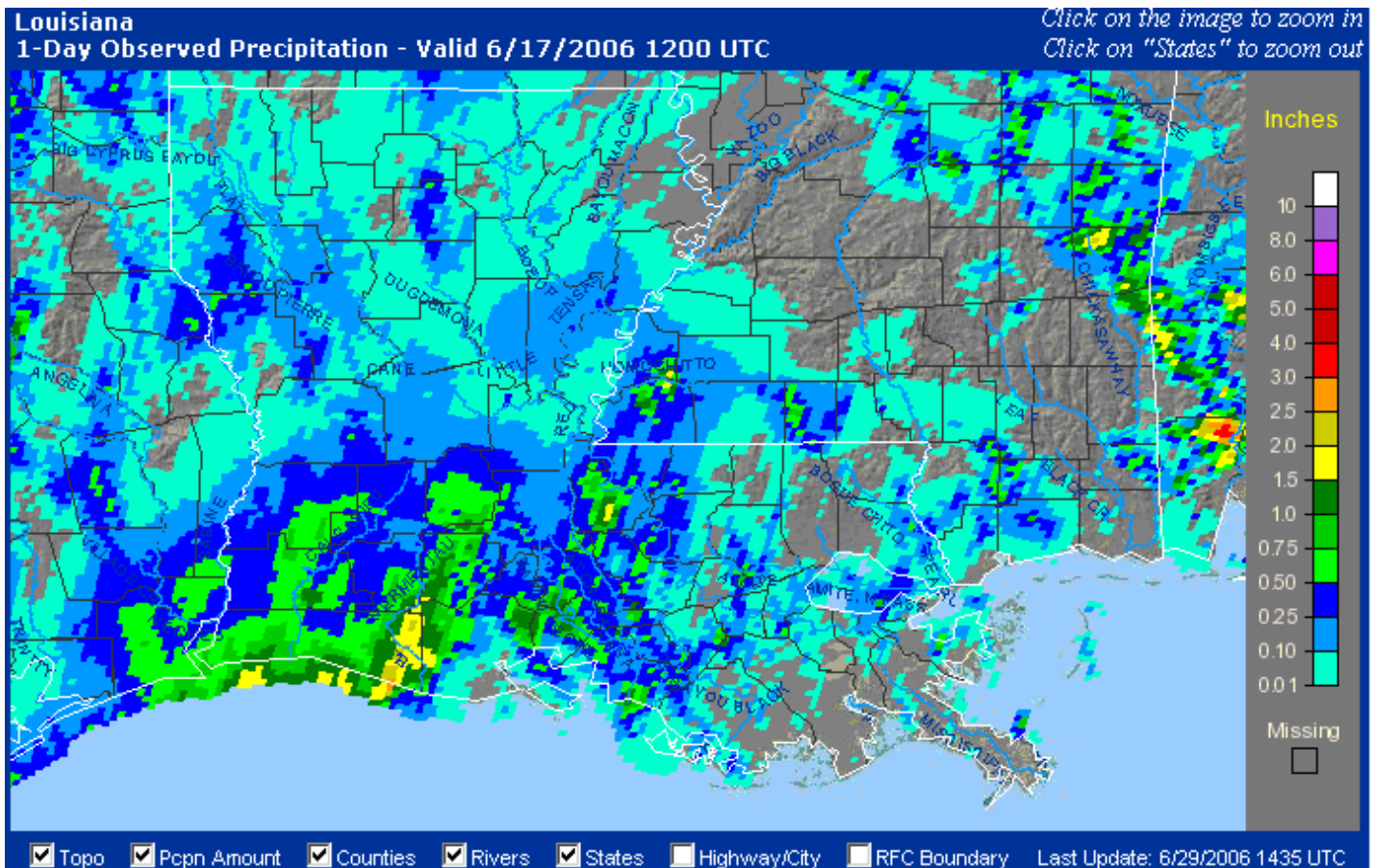


Figure 4. On June 17th, the heaviest rain of 1 to 2 inches was located along the coast, extending into parts of Cameron Parish. Calcasieu Parish had mainly between 0.25 and 0.75 inches.

Louisiana
1-Day Observed Precipitation - Valid 6/18/2006 1200 UTC

Click on the image to zoom in
Click on "States" to zoom out

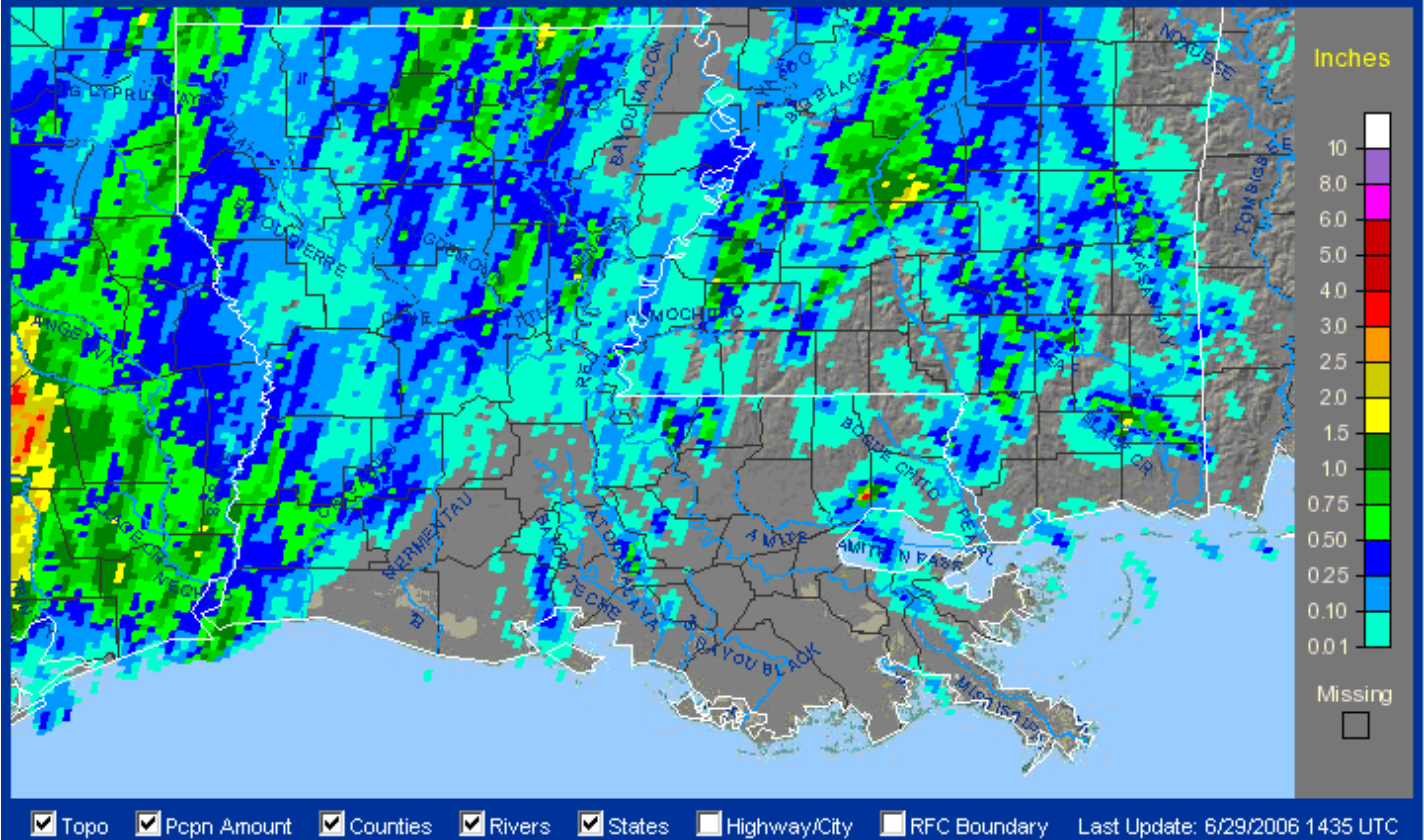


Figure 5. On June 18th, the heaviest rain of up to 3 inches was located in Southeast Texas. Calcasieu Parish averaged between 0.25 and 0.75 inches.

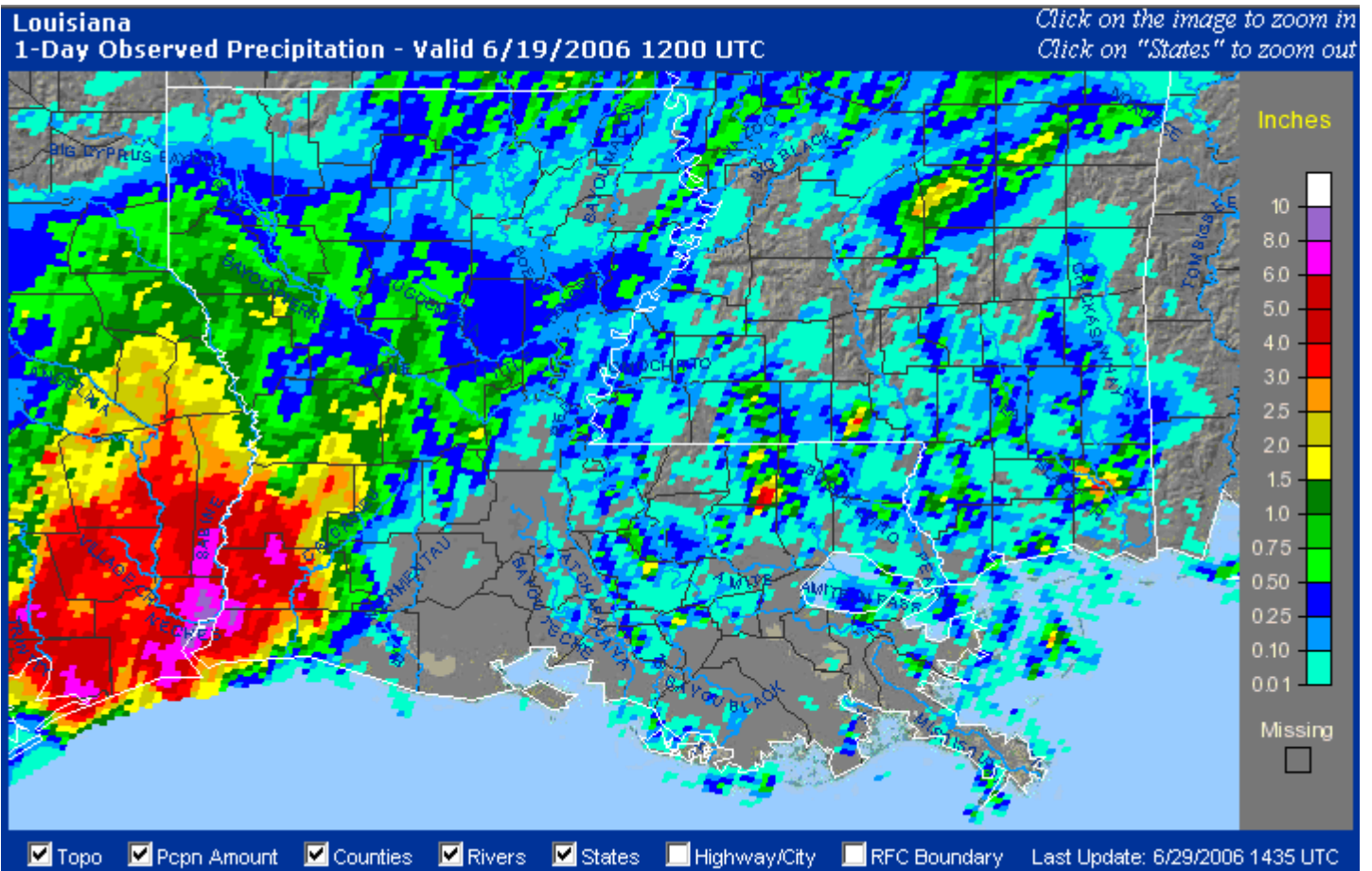


Figure 6. On June 19th, the heaviest rain of over 8 inches was located in Southeast Texas in Jefferson and Orange counties. Calcasieu Parish had some locations see between 6 and 8 inches of rain.

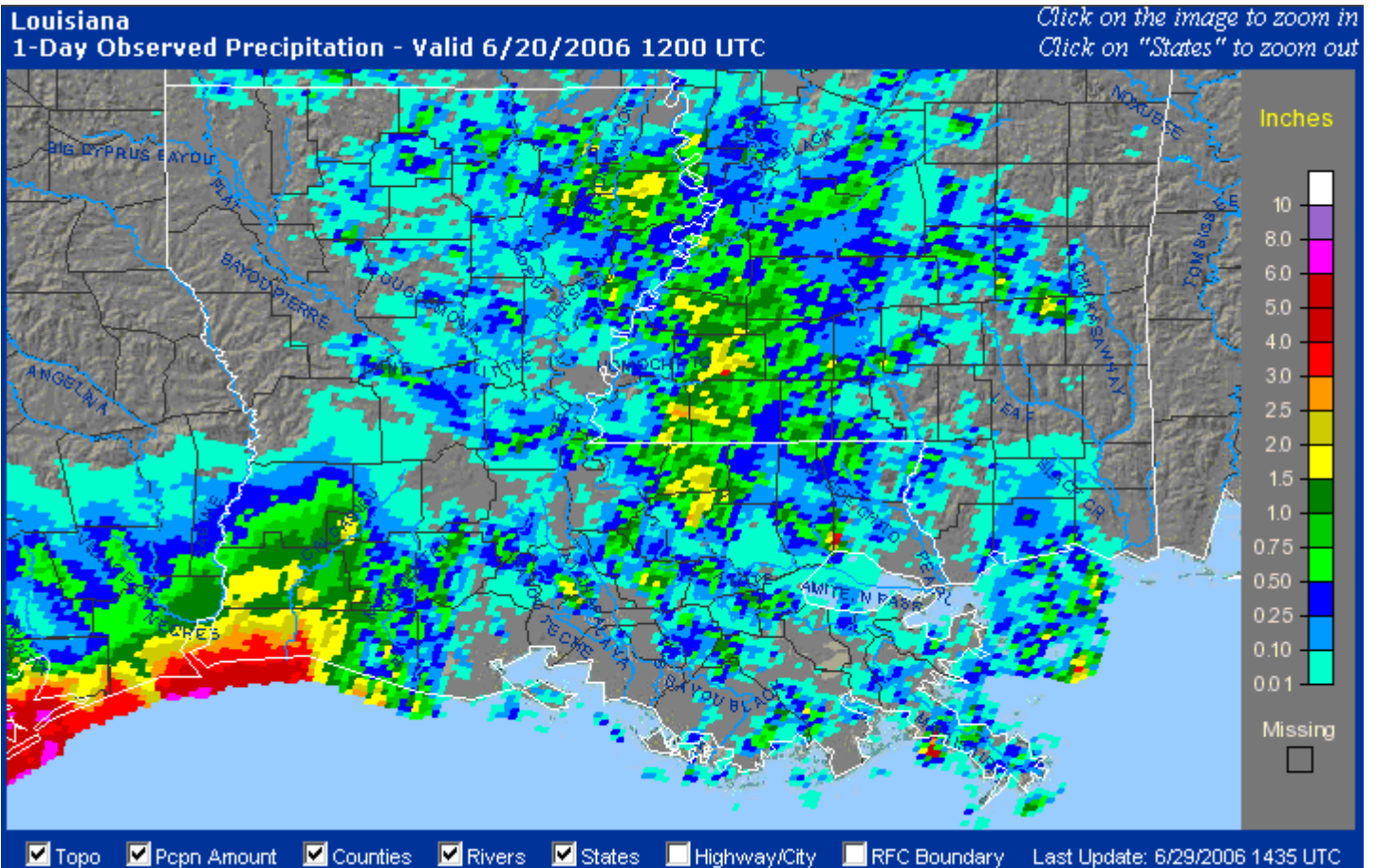


Figure 7. On June 20th, the heaviest rain of over 3 inches was located along the Texas and Louisiana coast. Calcasieu Parish had 1 to 2 inches of rain.

Total Rainfall Precipitation Estimates

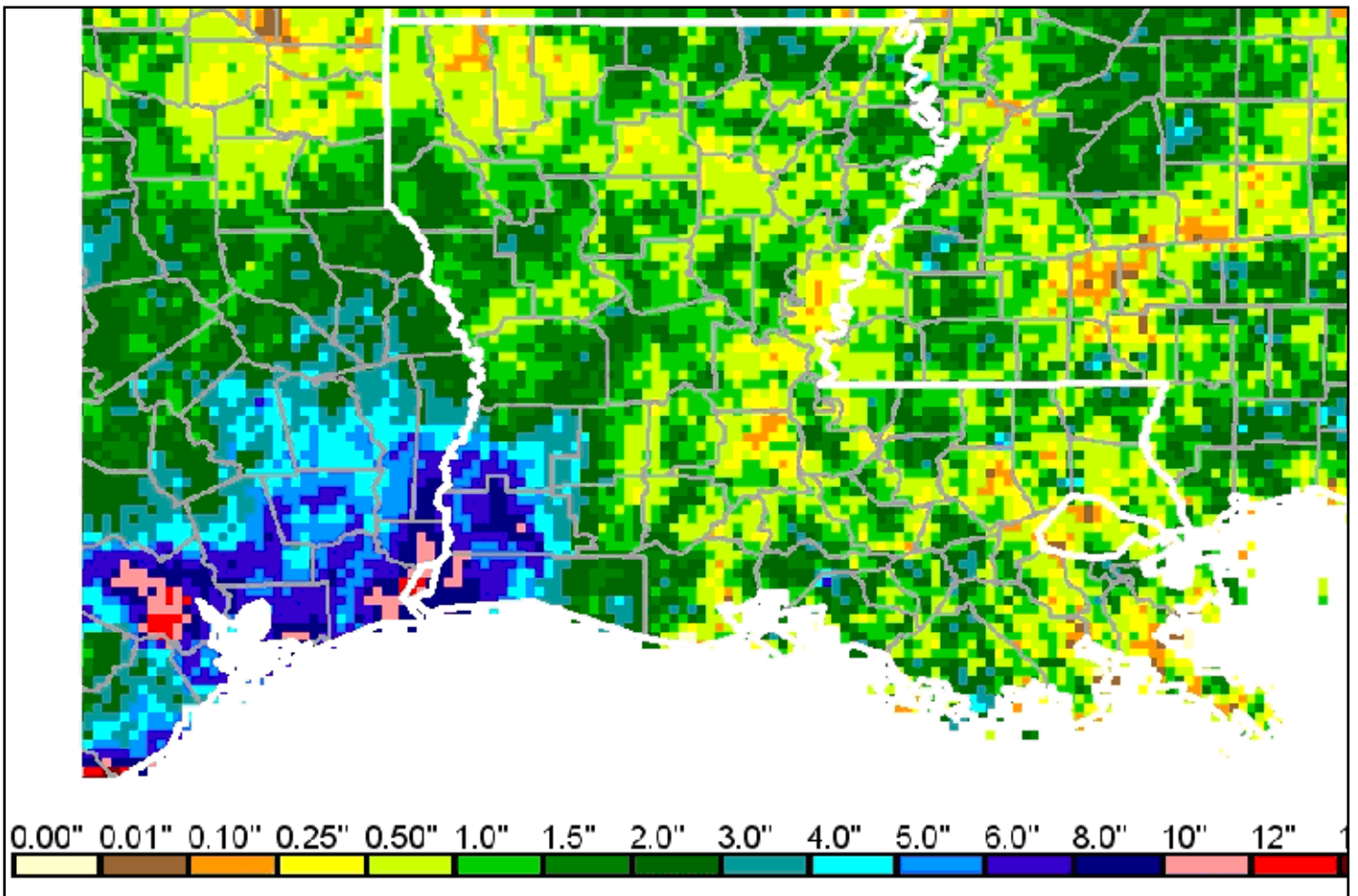


Figure 8. The five day total of rain from the 17th through the 22nd. The heaviest rain of 10 to 14 inches can be found in Southeast Texas near the Houston area, Port Arthur, and Orange. In Calcasieu Parish, a small area received between 10 and 12 inches, while a larger area received between 6 and 10 inches of rain.

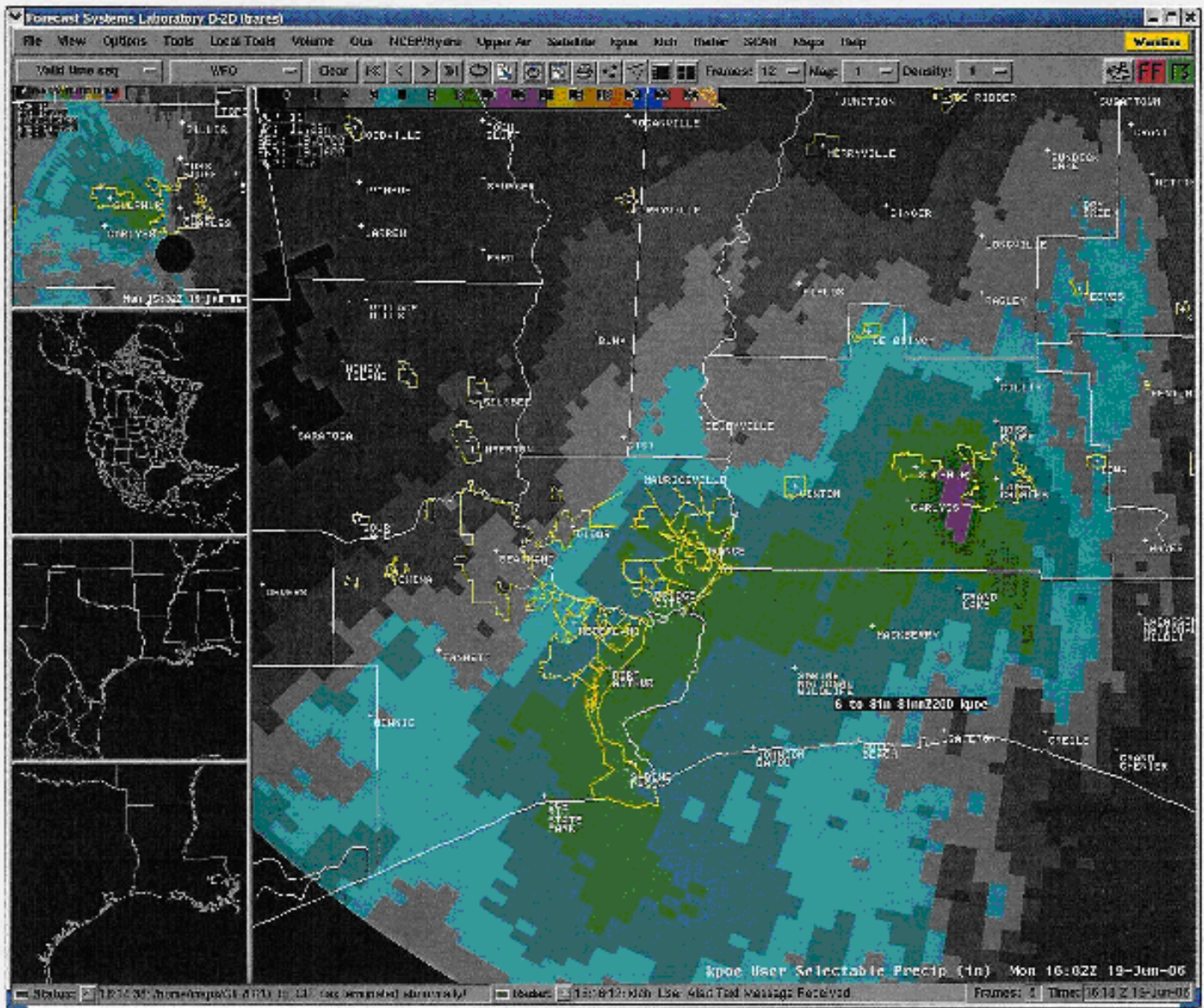


Figure 9. The Fort Polk WSR-88D (Doppler radar) estimated 10 to 12 inches of rain fell across portions of the Sulphur to Lake Charles area between 2 am and 11 am on Monday, June 19th.

IR Satellite Images

June 17th through June 20th

NOAA satellites depicted the clouds of a nearly stationary upper level (10-20 thousand feet) low pressure system over Southeast Texas and Southwest Louisiana between June 17th and 19th. By June 20th, this upper level low started moving southwest, down the Texas coast towards Corpus Christi.

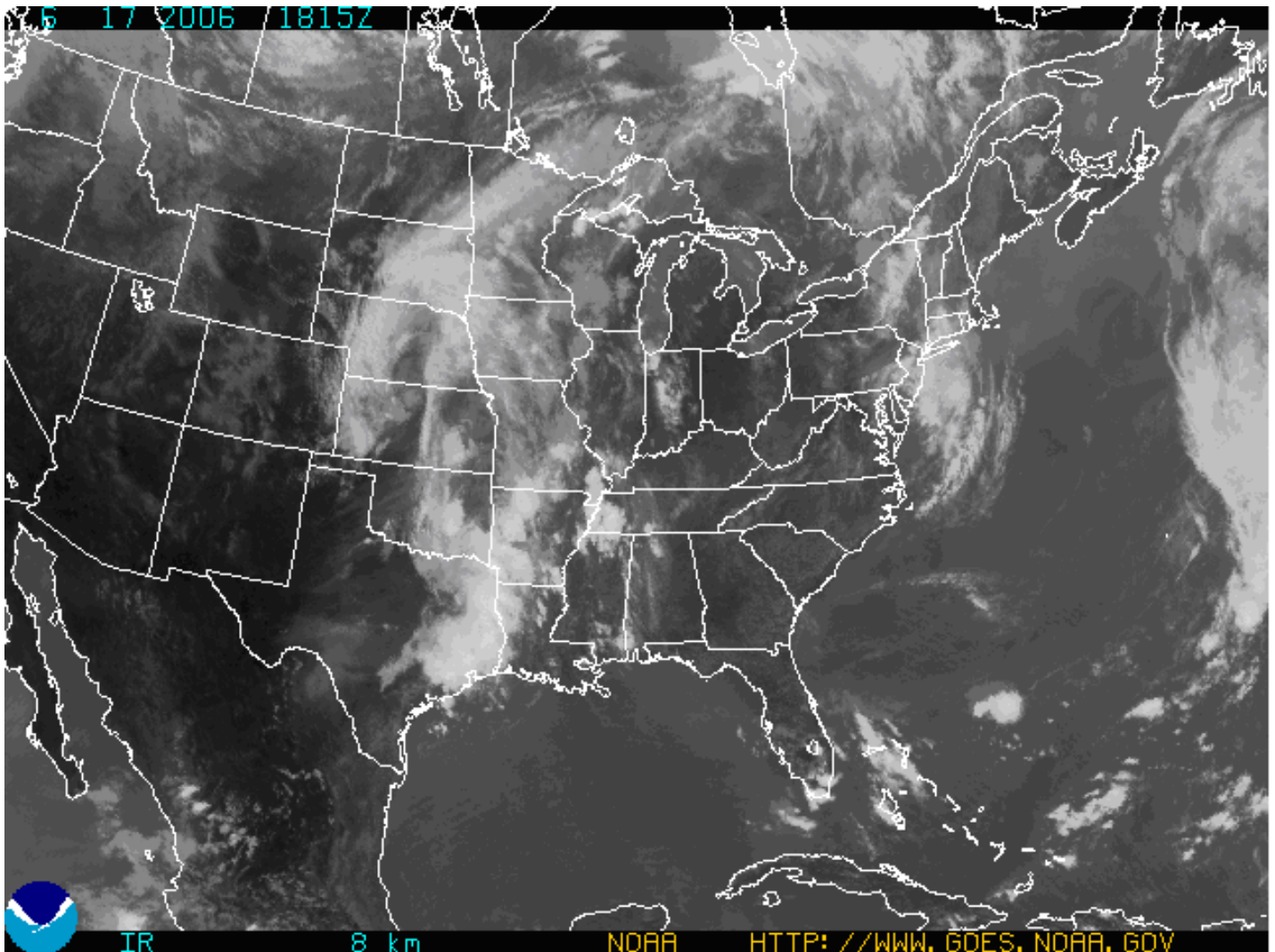


Figure 10. June 17, 2006 IR Satellite Image at 1815Z.

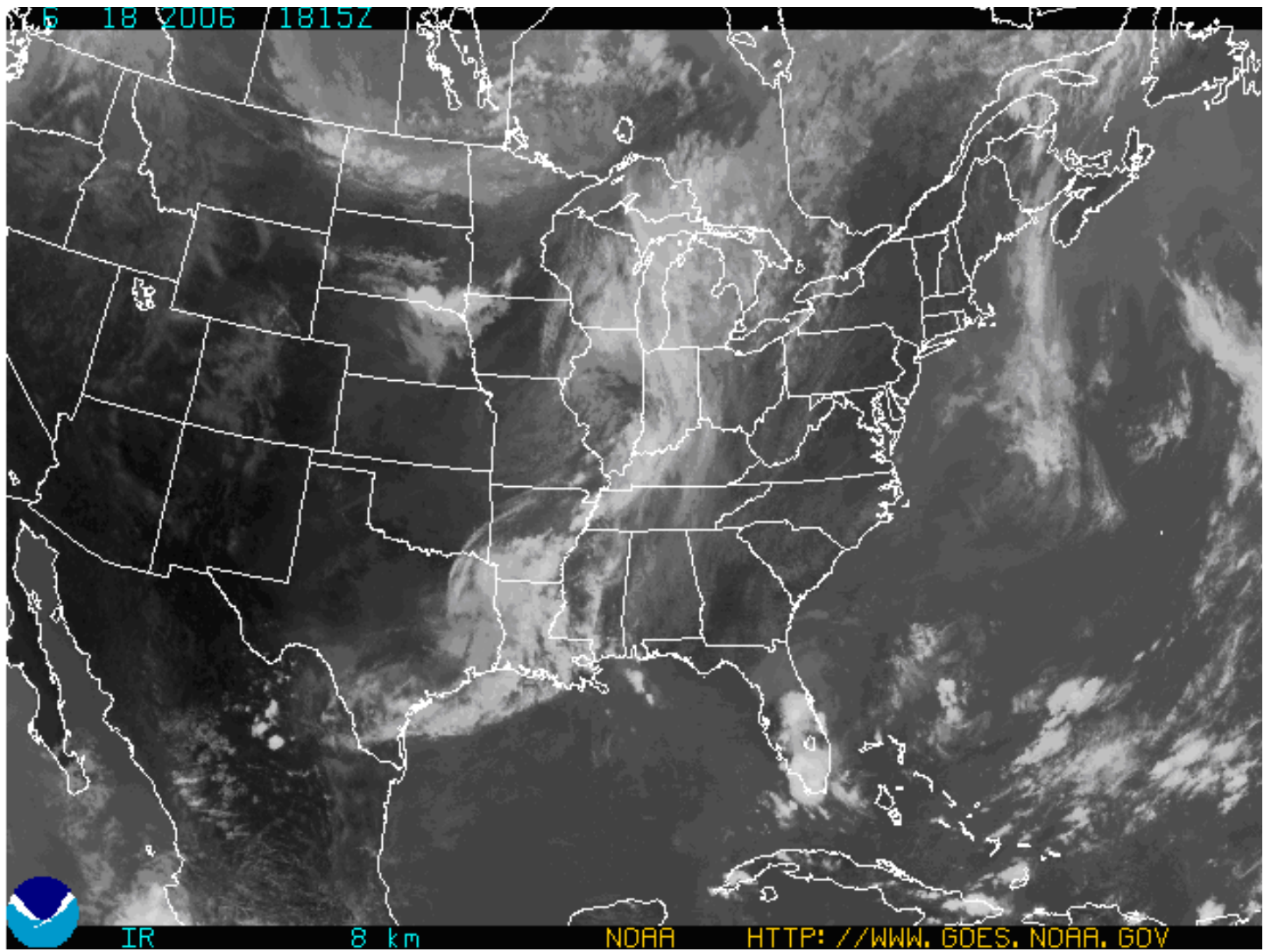


Figure 11. June 18, 2006 IR Satellite Image at 1815Z.

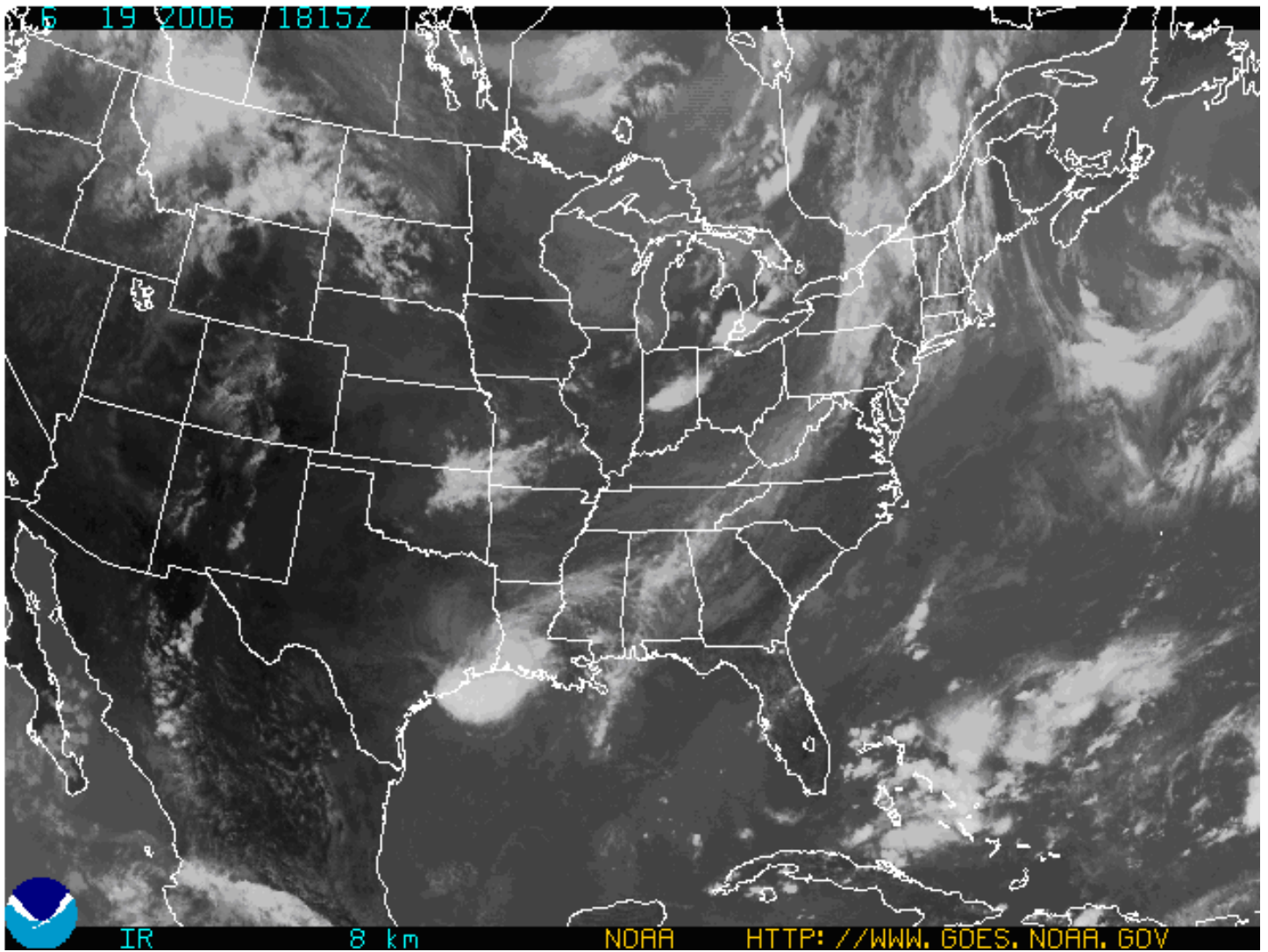


Figure 12. June 19, 2006 IR Satellite Image at 1815Z.

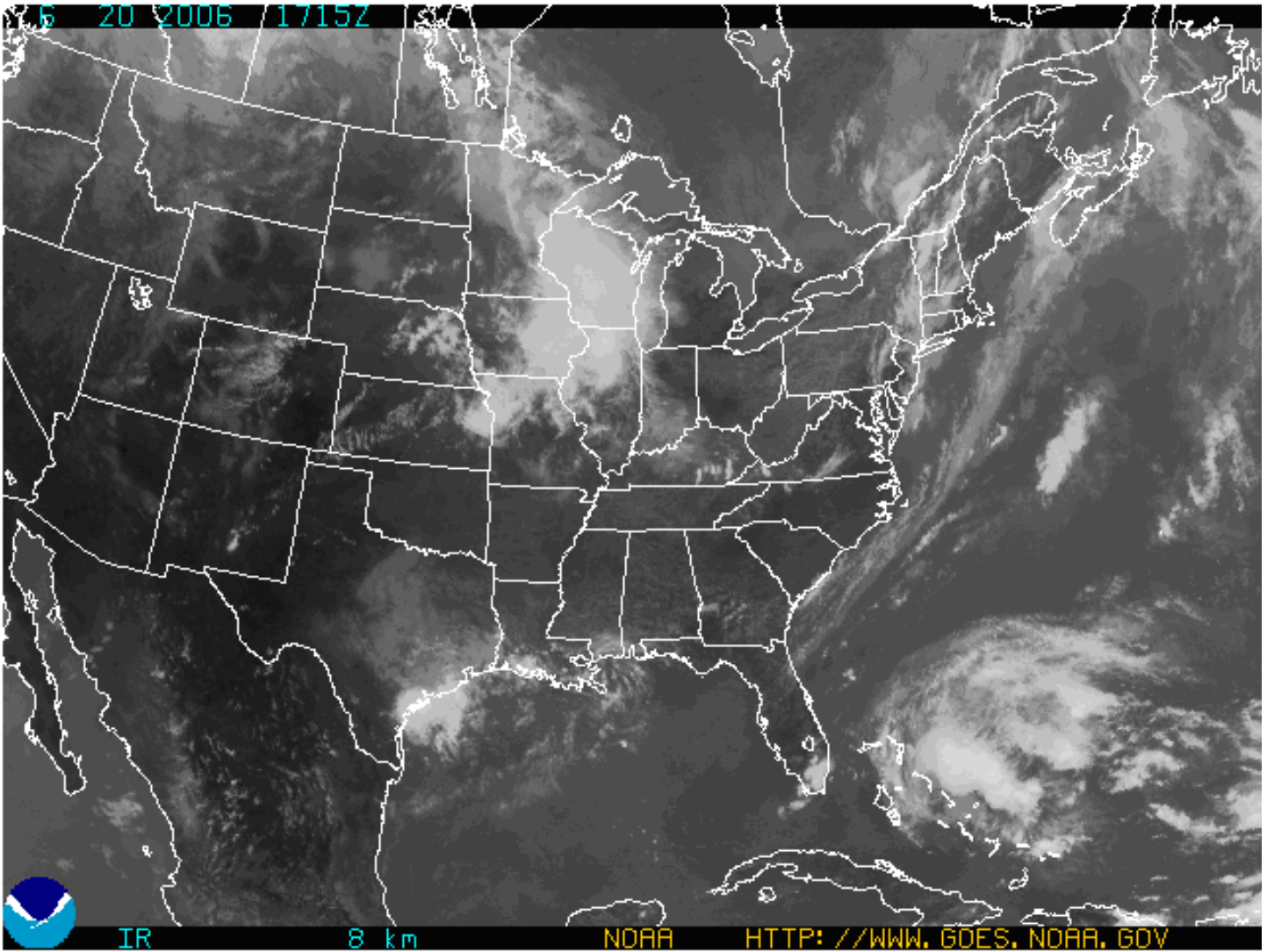


Figure 13. June 20, 2006 IR Satellite Image at 1815Z.

Surface Charts

June 17th through June 20th

High pressure was the dominant weather feature over the southeastern United States between June 17th and June 20th. Because this high was east of Southwest Louisiana, southerly winds were steered in off the Gulf of Mexico, giving the region plenty of moisture to produce clouds with showers and thunderstorms.

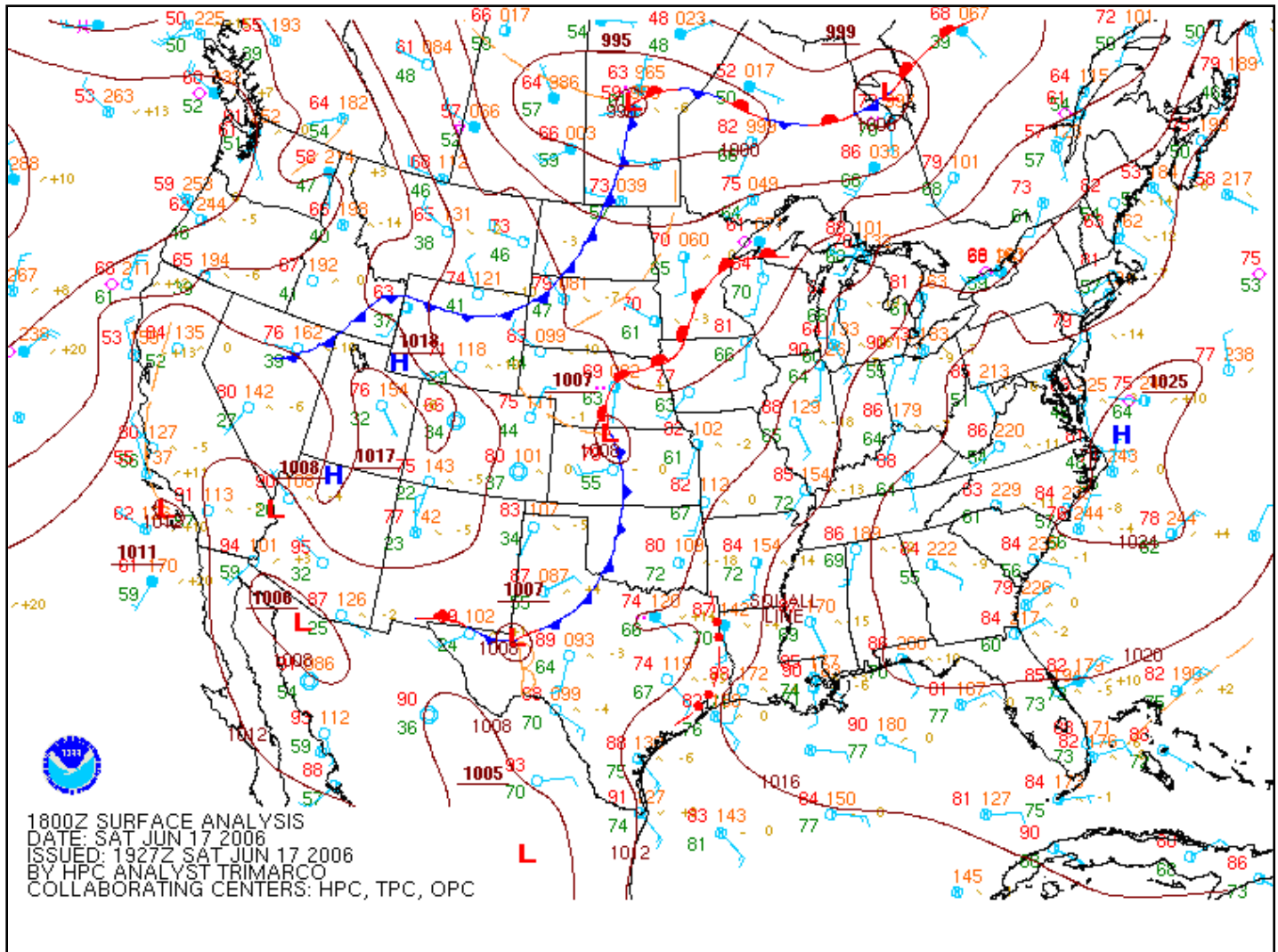


Figure 14. Surface Analysis for 1800Z on June 17, 2006.

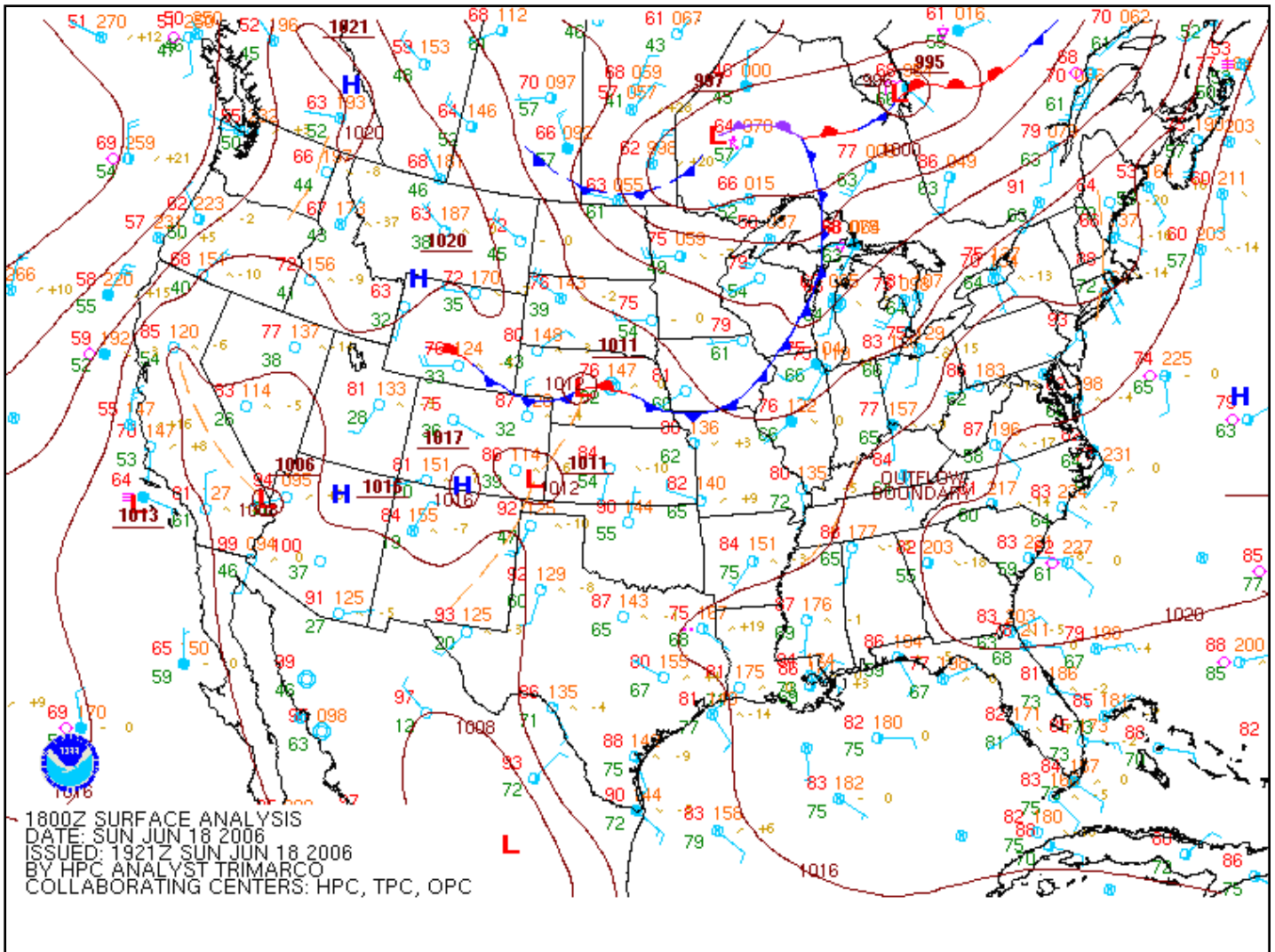


Figure 15. Surface Analysis for 1800Z on June 18, 2006.

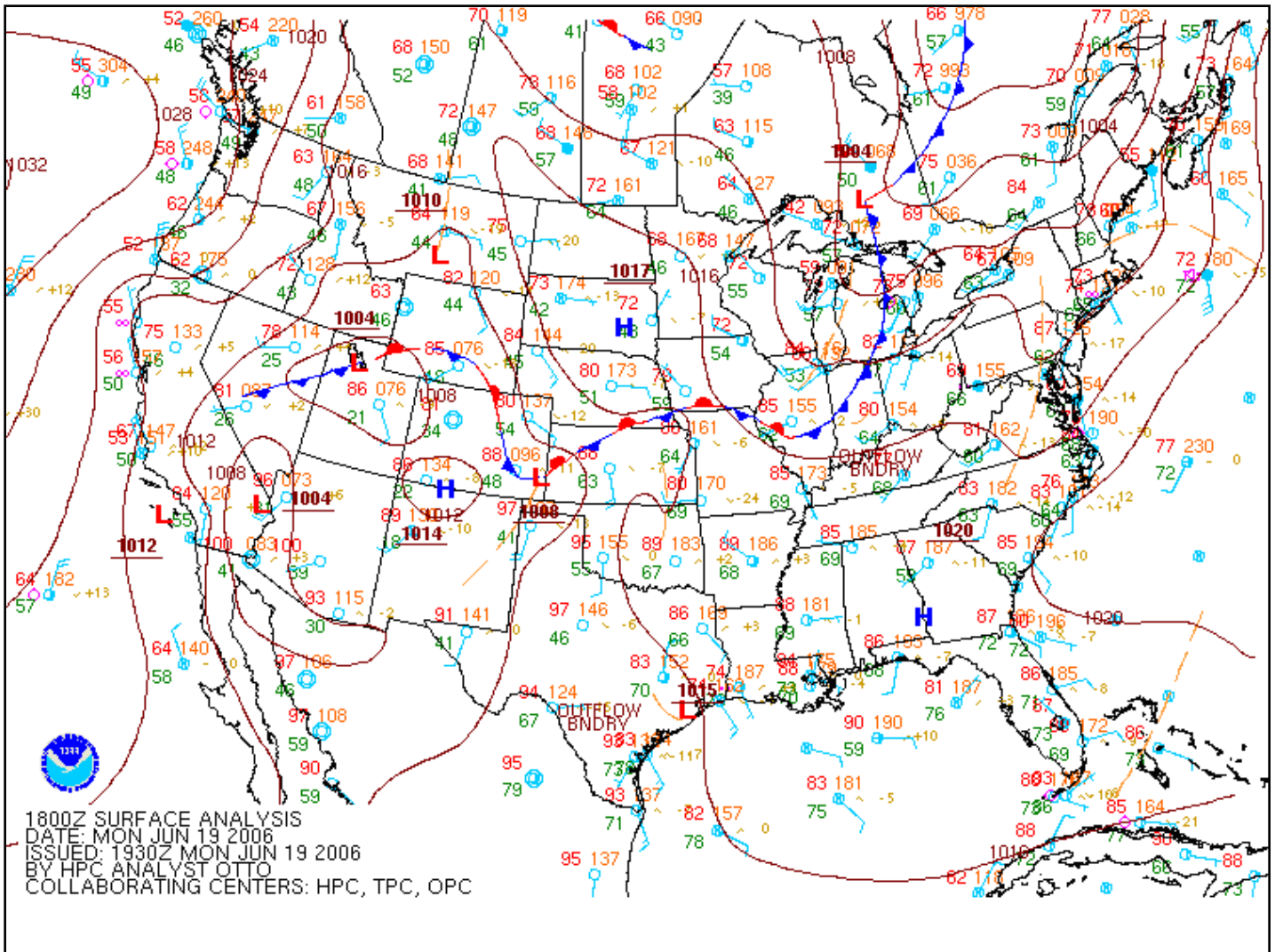


Figure 16. Surface Analysis for 1800Z on June 19, 2006.

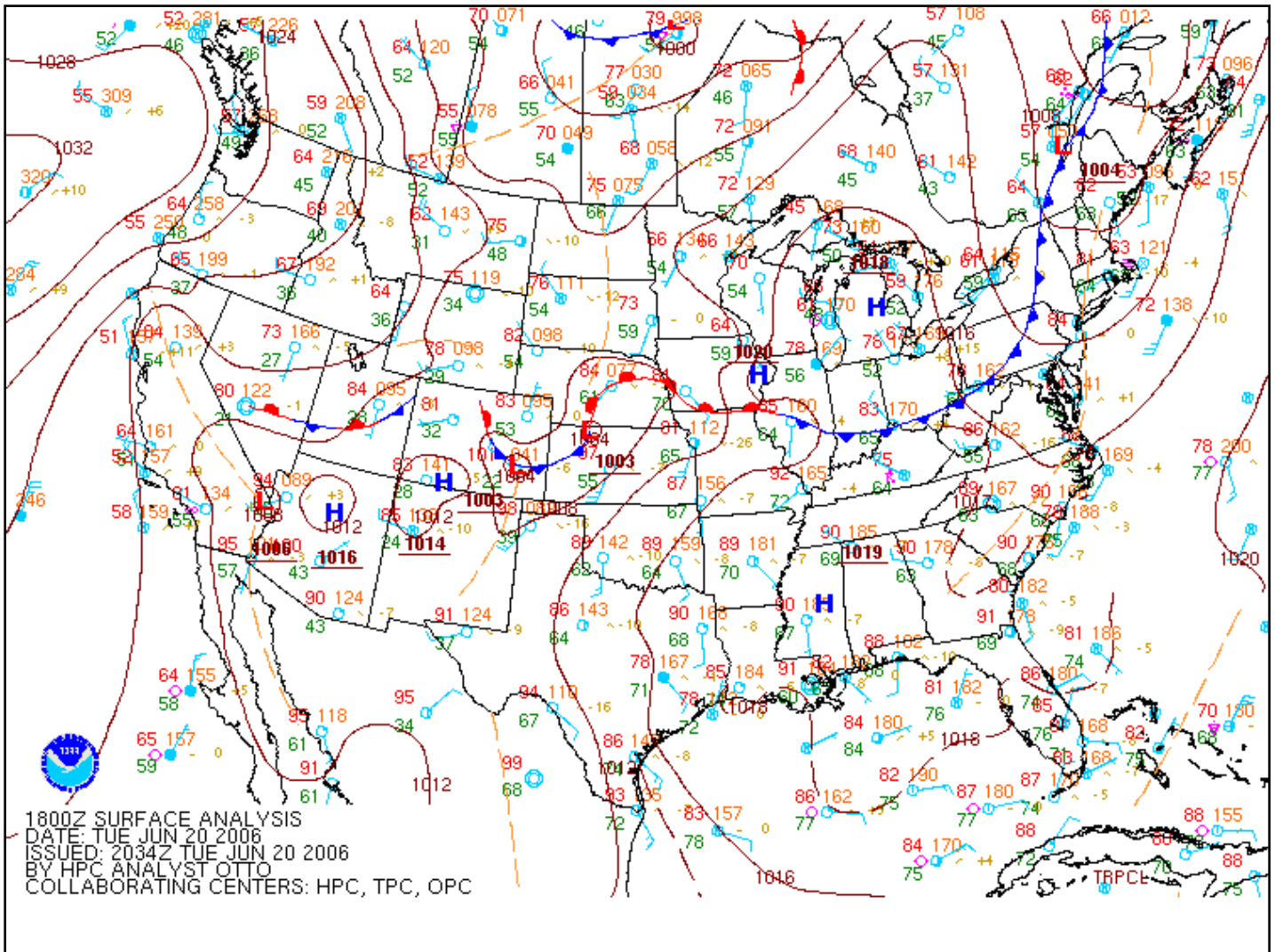


Figure 17. Surface Analysis for 1800Z on June 20, 2006.

Upper Air Charts

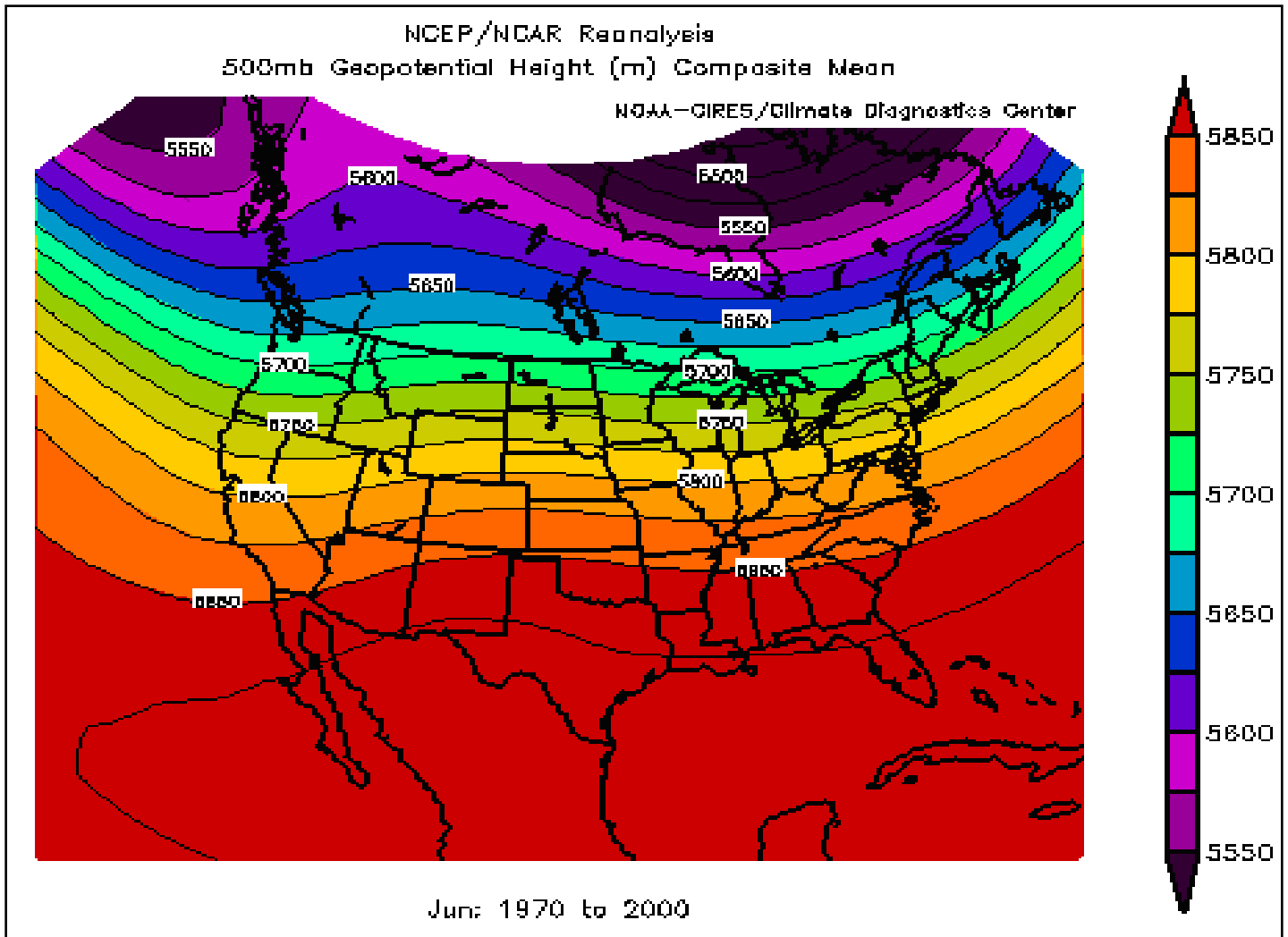


Figure 18. The average climatological map average (taken from 1970 to 2000) of the 500 millibar heights for the month of June. The typical pattern is for nearly zonal (or due west-to-east) flow.

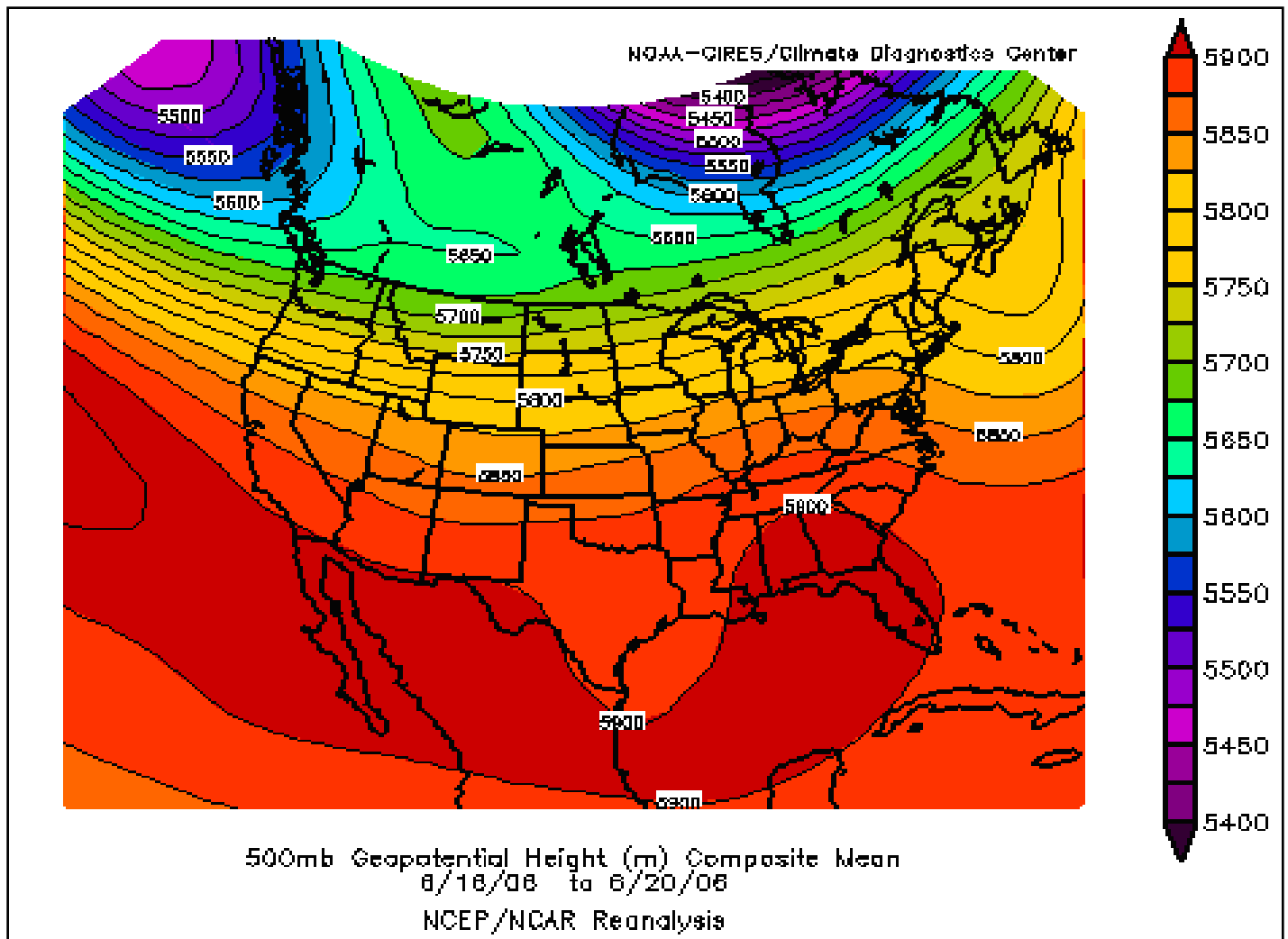


Figure 19. The upper level pattern over the region during the period of June 16 to 20, 2006.