

- Purpose of the Study
- Principal Findings
- Expert Background and Qualifications
- ADCIRC Models
- ADCIRC Models for Southern Louisiana
- SL16 Model Applied to St. Bernard Polder
 - **Katrina Hindcast - Scenario A1**
 - Katrina - *Scenario A2*
 - Katrina - *Scenario B1*
 - Katrina - *Scenario B2*
 - Katrina - *Scenario C*
 - Katrina - *Scenario D*
 - Katrina - *Scenario E*
- Conclusions
- References

Katrina Hindcast - Scenario A1

- Using the **SWAN+ADCIRC** code and the **SL16 grid**, with the geographic and storm-specific refinements I've discussed, I modeled the actual wind, surge, and wave conditions that prevailed in Southeastern Louisiana during Hurricane Katrina ("Scenario A1").
- Scenario A1 models the physical system and breaches as they occurred during Hurricane Katrina, and represents the base case conditions as they existed and developed prior to and during Hurricane Katrina.
- Employing the refinements to the **SL16 grid** and model that I've discussed, the Scenario A1 modeled here better describes the details of the water surface within the IHNC and MRGO channels, as well as the full dynamic flooding within St. Bernard Polder itself, as compared to previous versions of **SL16** and earlier **SL15**.

Katrina Hindcast - Scenario A1

- The Hurricane Katrina hindcast modeled here also incorporates advancements that supersede criticisms made concerning the **SL15** model employed in the *Robinson* case.
- The “scaling” technique employed by both the Plaintiffs and the United States to which the *Robinson* trial court objected, is a relic of older technology not employed in my **ADCIRC** modeling here.
- Furthermore, as discussed, the breach times and durations match previous studies and do not diverge in any significant way from those modeled by Dr. Kok in the *Robinson* case.
- More importantly, as discussed further below, the interior Polder hydrographs and high water levels modeled in Scenario A1 closely match the physical evidence of flooding collected in the aftermath of the storm.

Katrina Hindcast - Scenario A1

- Hurricane Katrina was a devastating storm that impacted the central Gulf of Mexico.
- Katrina's winds reached Category 5 strength in the Gulf of Mexico, but weakened to Category 3 strength as the storm approached the continental shelf.
- Its southerly track placed it within 30 miles of New Orleans and the infrastructure of southeastern Louisiana, and its storm surge of up to 29 ft along the coastline of Mississippi was the largest ever recorded in the United States.
- The following set of slides (Figures 11a-q) depict at discrete time steps the development of the Hurricane Katrina wind field as the storm made landfall, passed to the east of New Orleans, and passed its second landfall near the Louisiana-Mississippi border.
- Sustained easterly winds ranged from 55-90 mph early on in the storm, which shifted to southerly 90-100 mph winds as the storm passed through Lake Borgne, and then weakened to westerly winds.

8/29/2005 at 2 am CDT

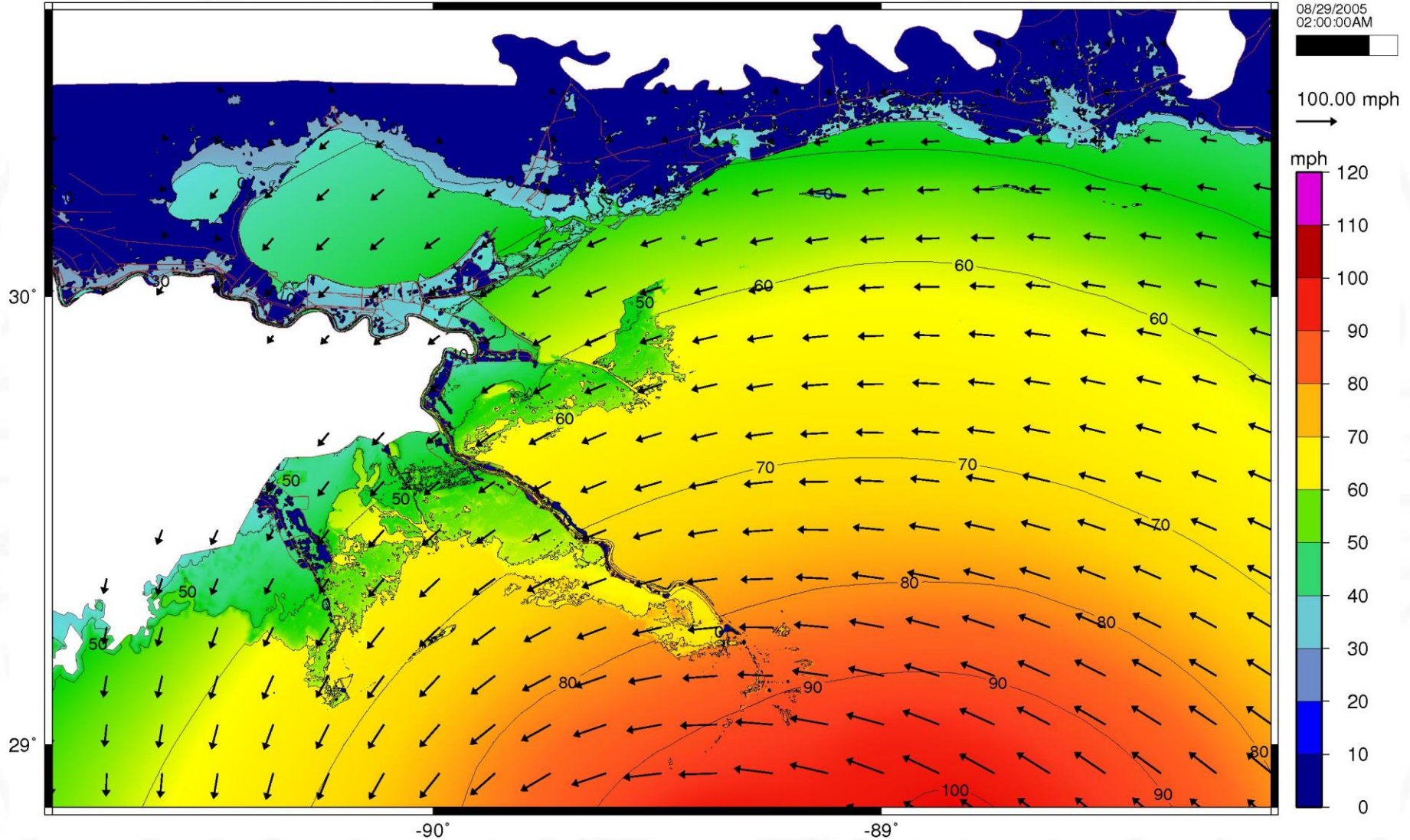


Figure 11a

8/29/2005 at 4 am CDT

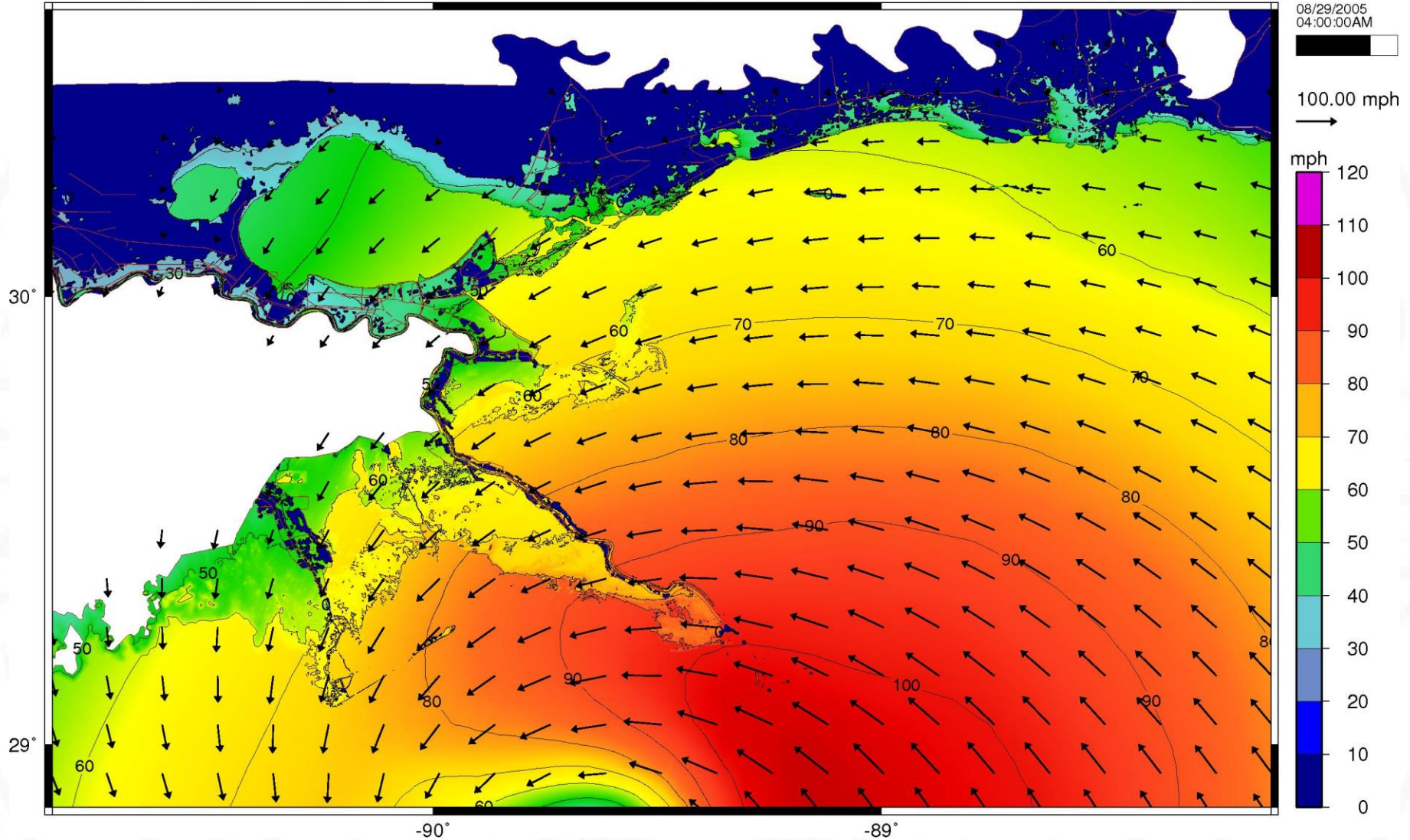


Figure 11b

8/29/2005 at 6 am CDT

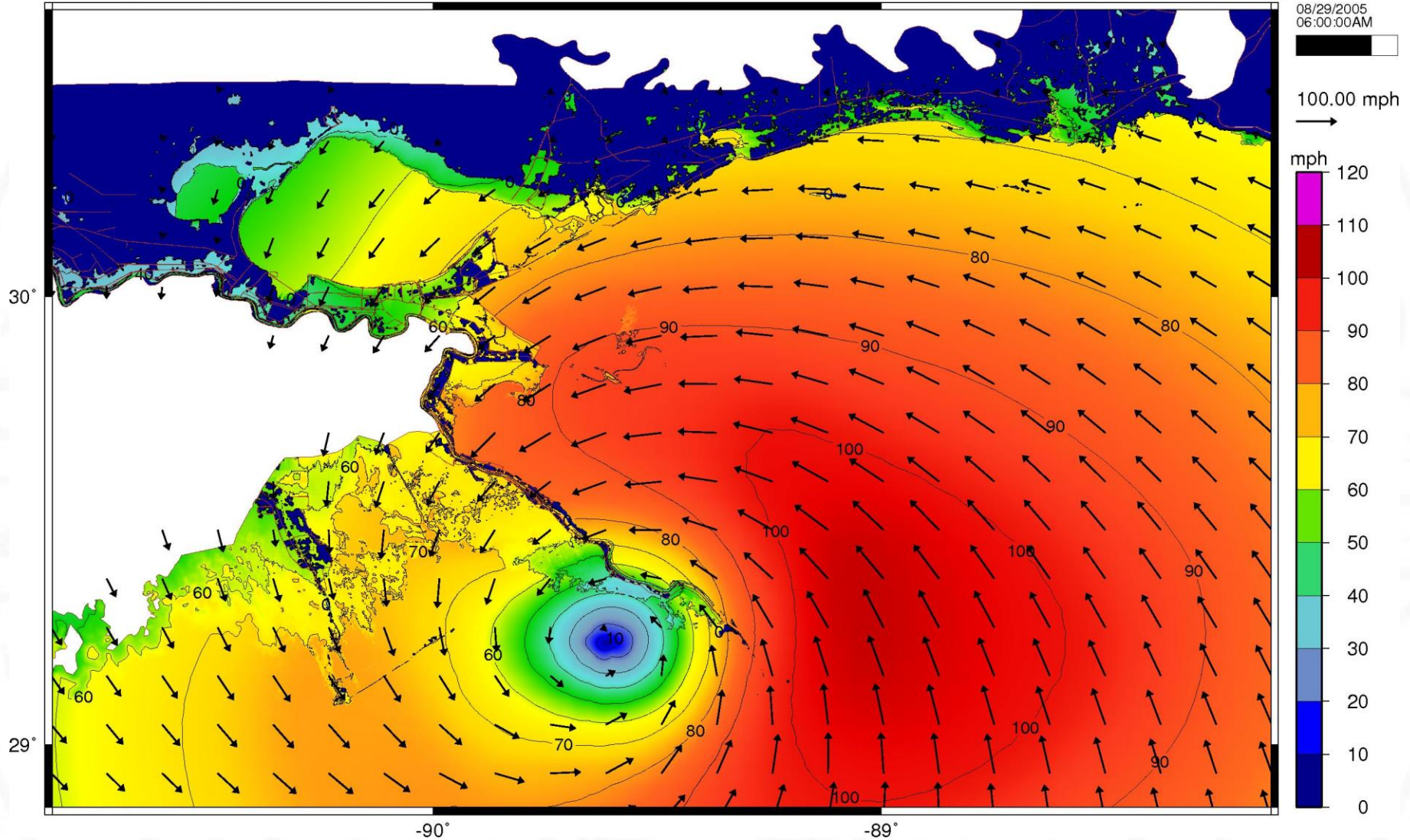


Figure 11c

8/29/2005 at 7 am CDT

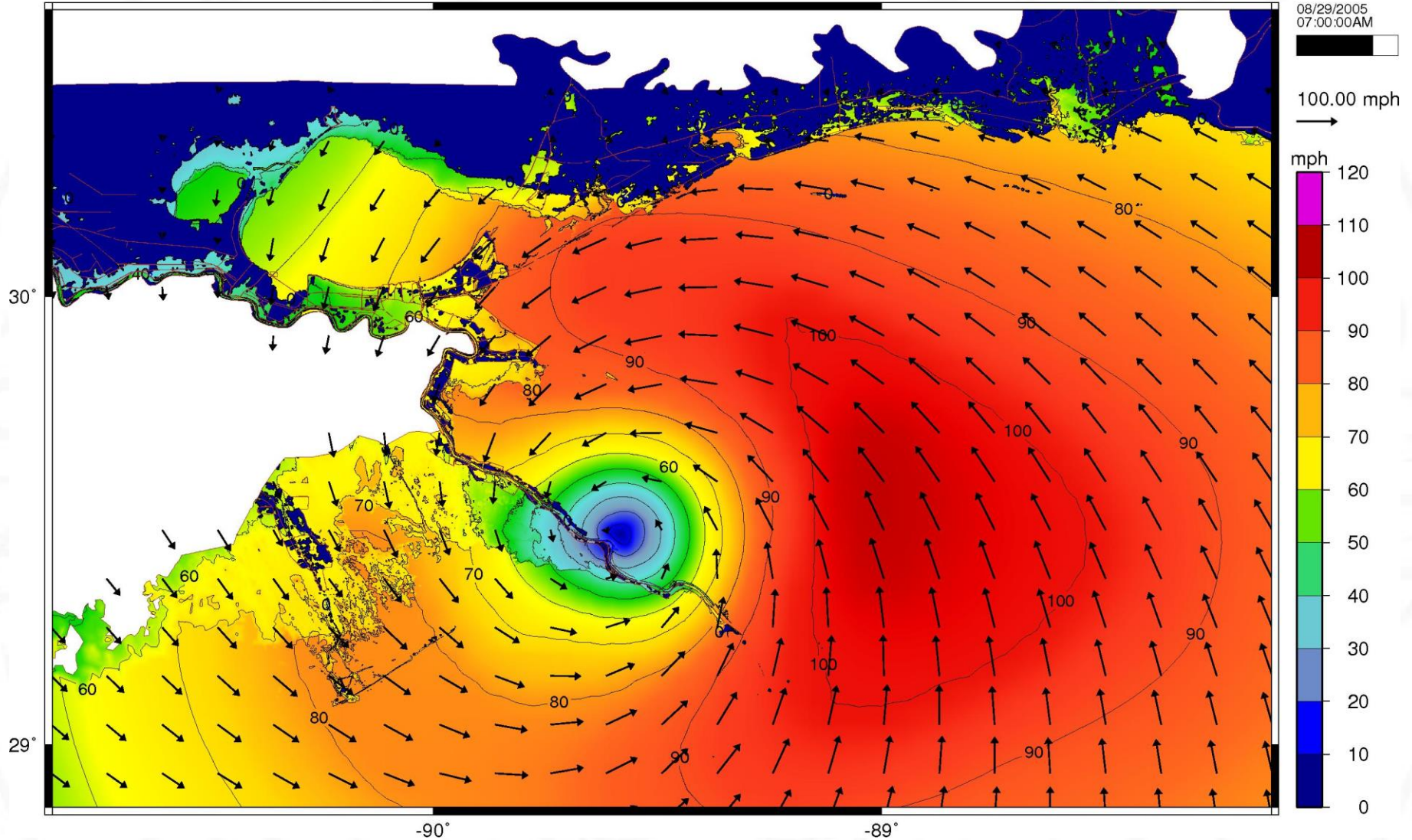


Figure 11d

8/29/2005 at 8 am CDT

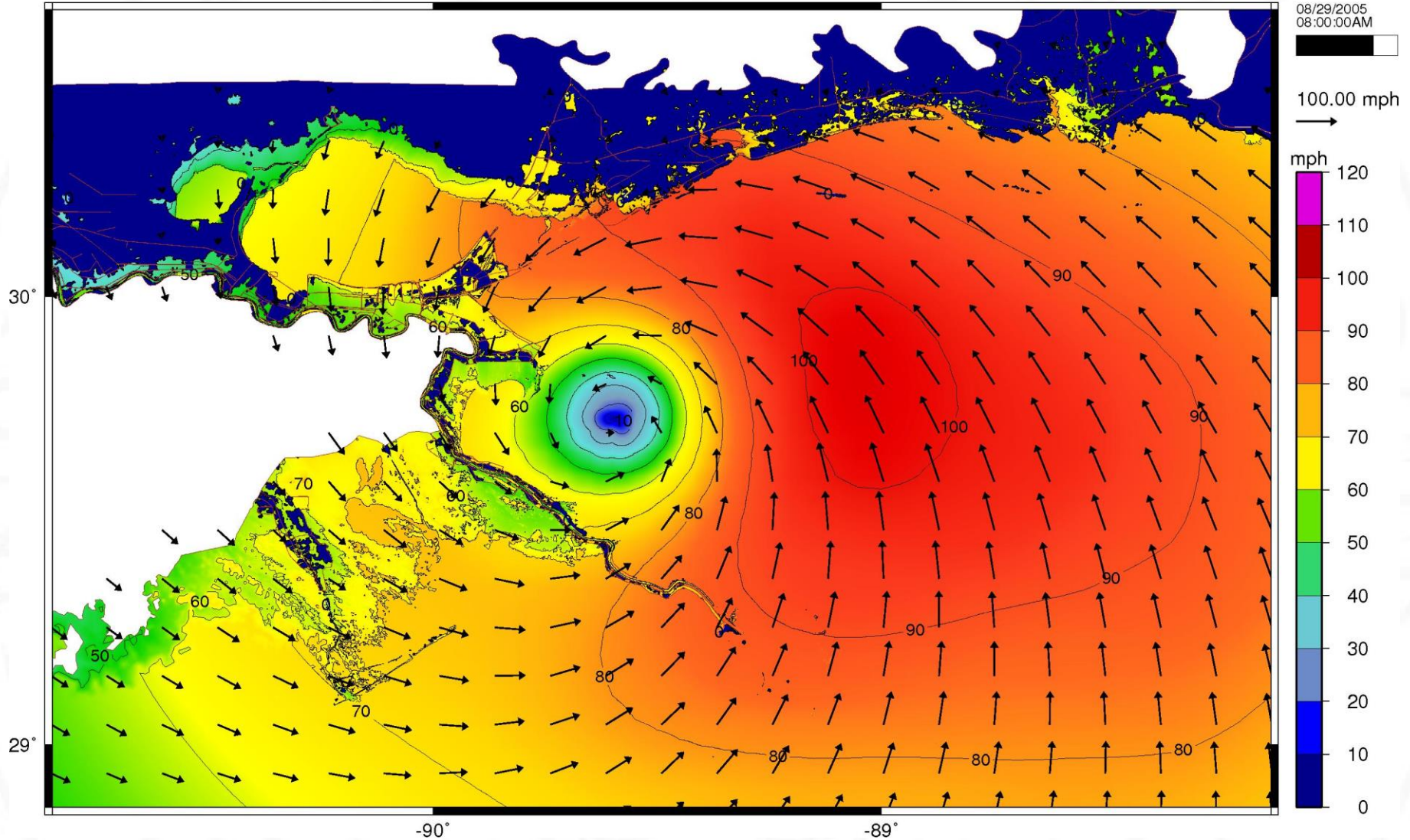


Figure 11e

8/29/2005 at 9 am CDT

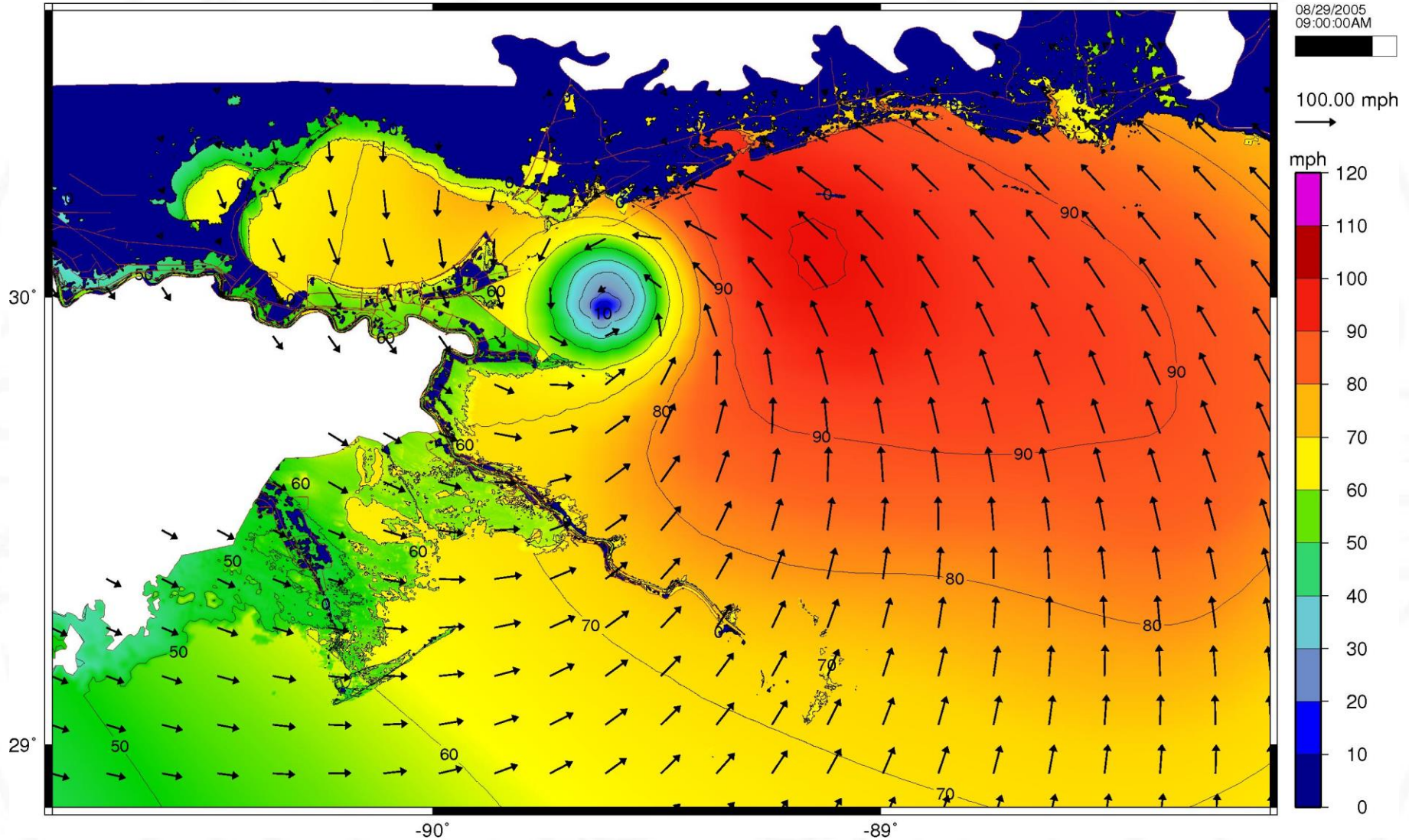


Figure 11f

8/29/2005 at 10 am CDT

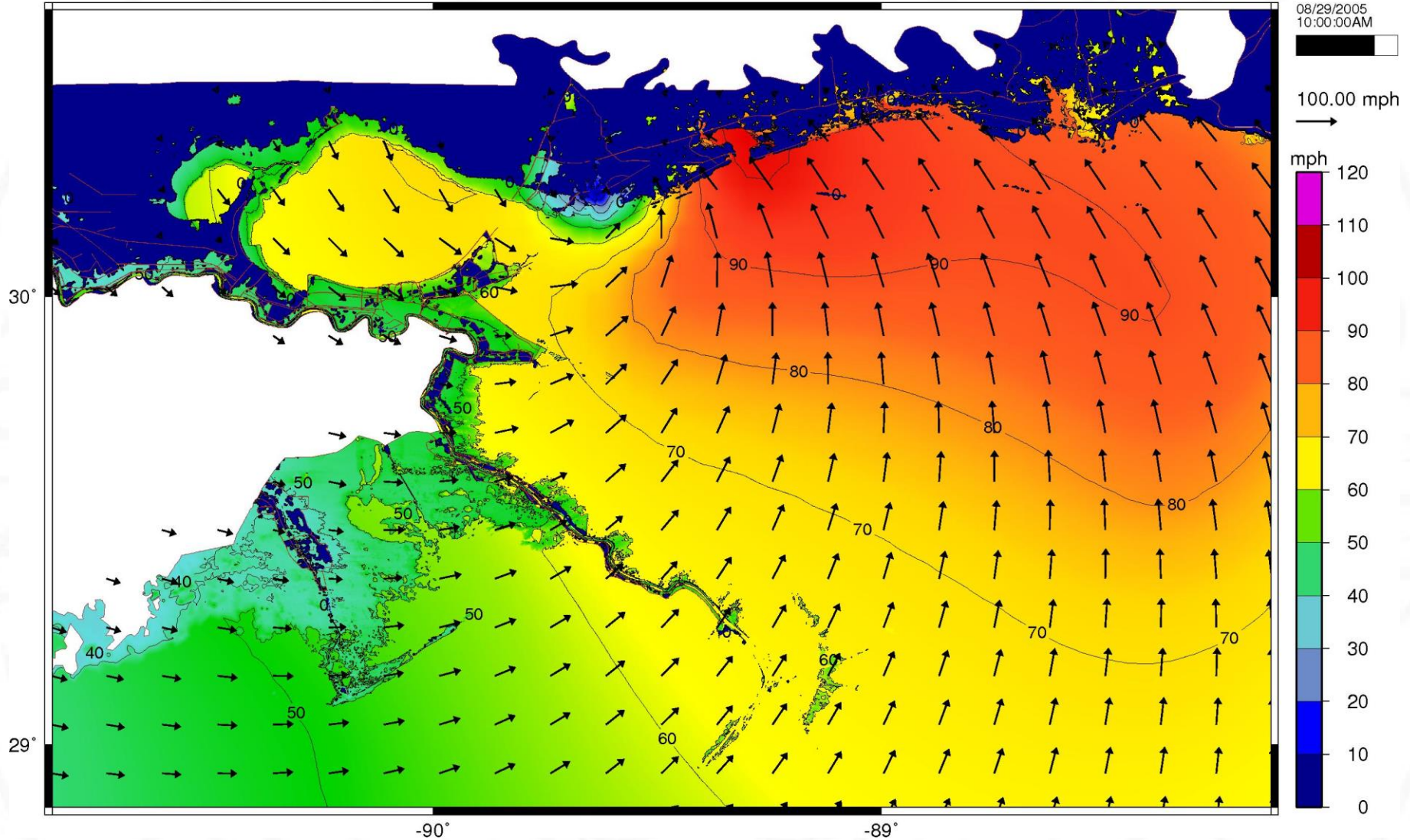


Figure 11g

8/29/2005 at 11 am CDT

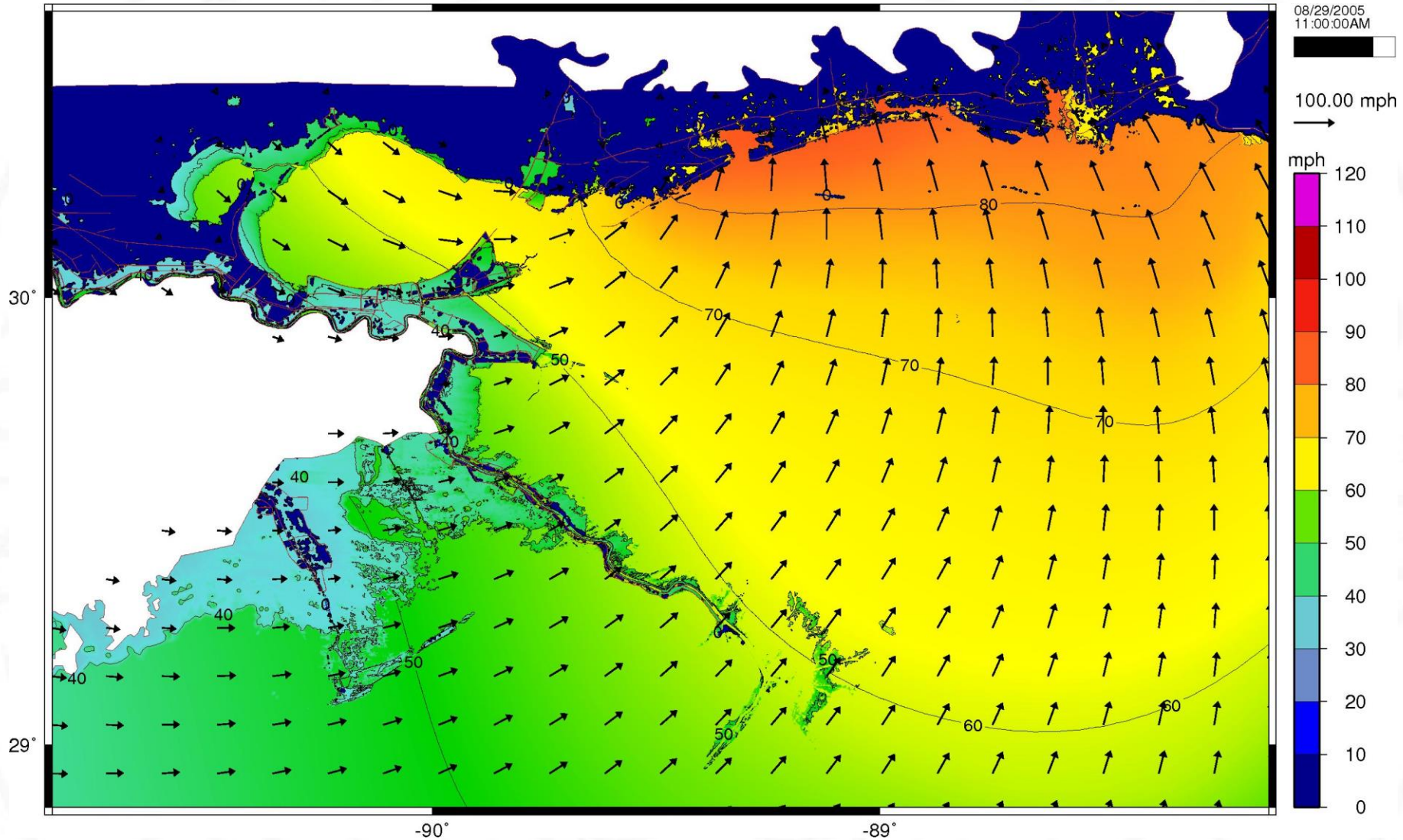


Figure 11h

8/29/2005 at 12 pm CDT

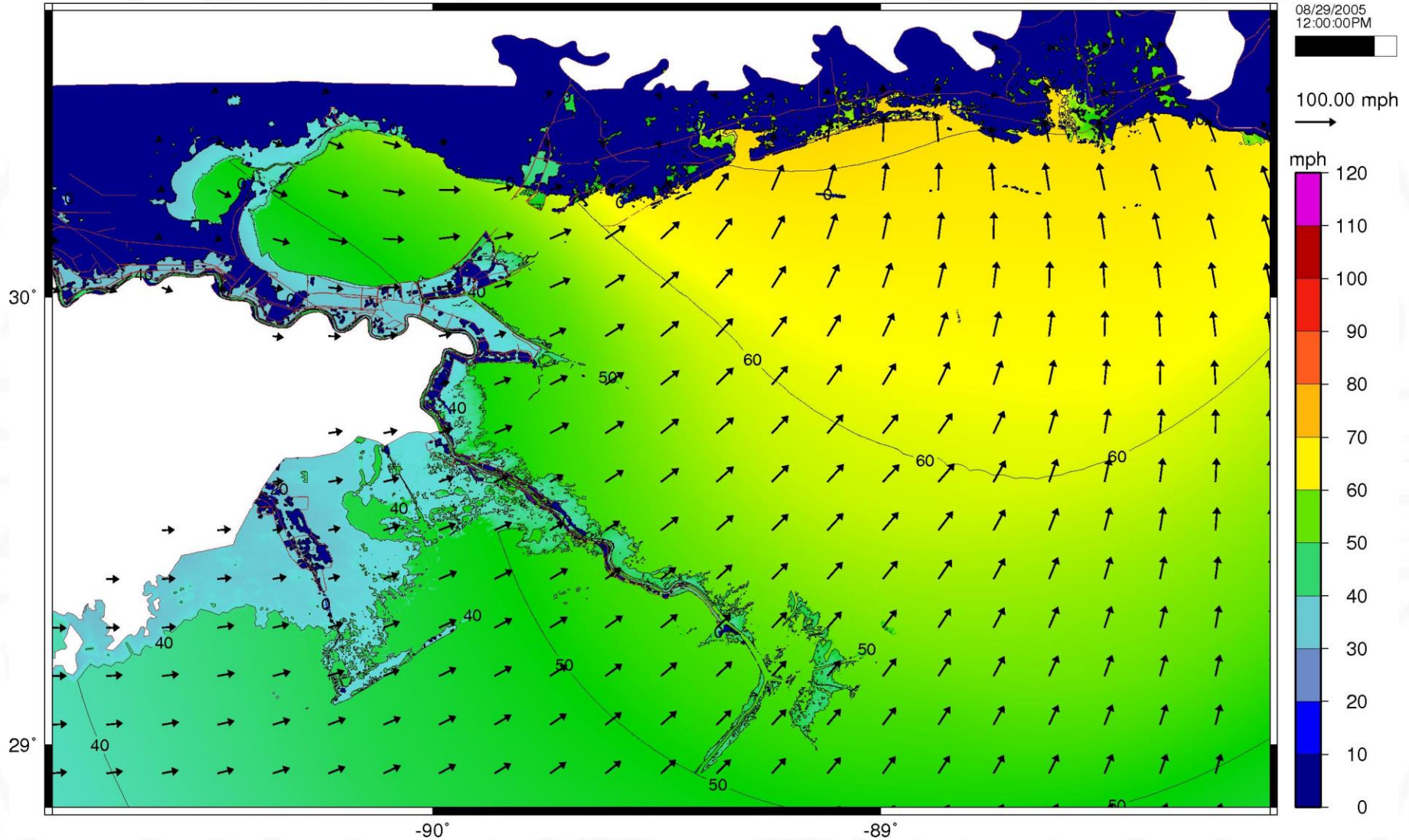


Figure 11i

8/29/2005 at 1 pm CDT

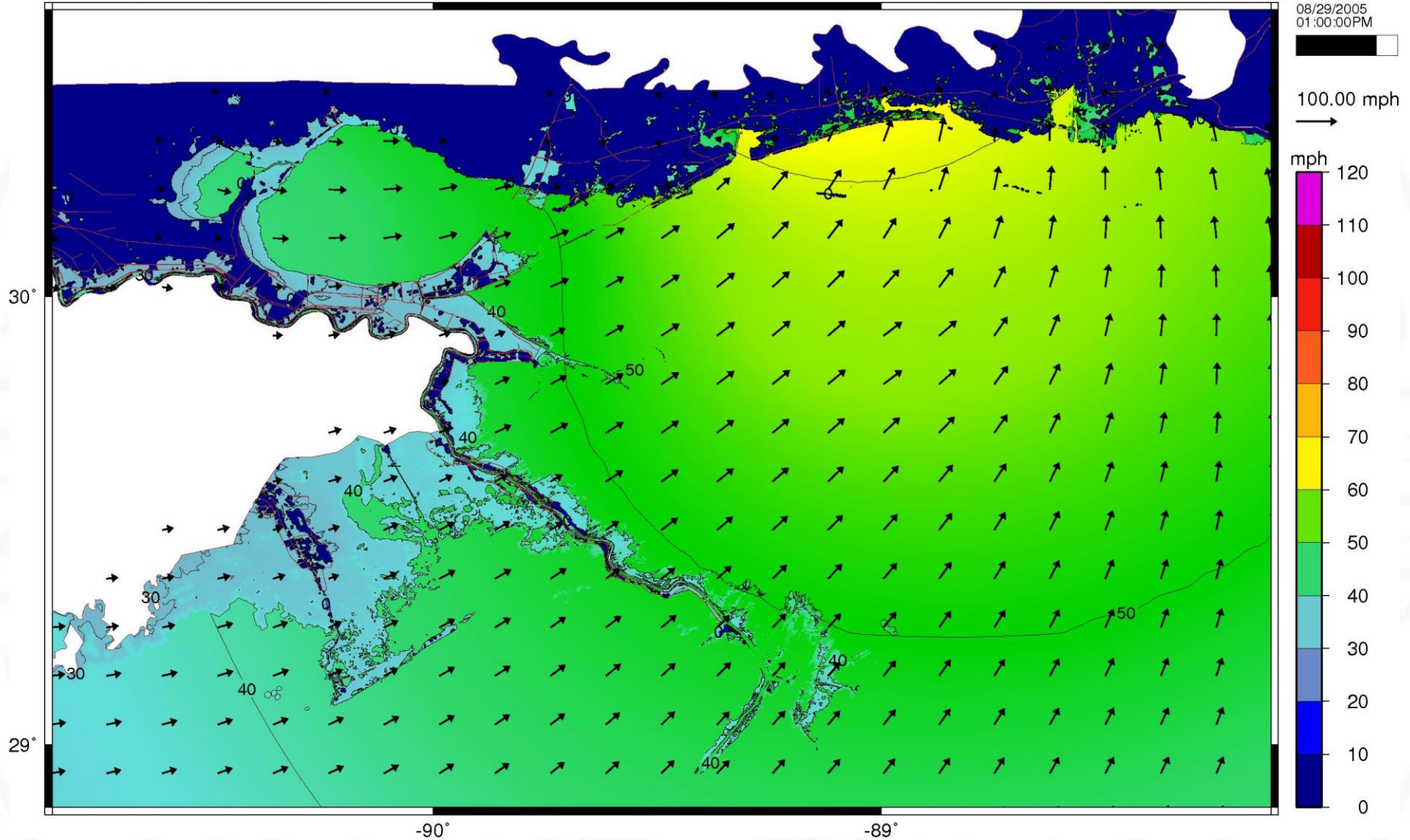


Figure 11j

8/29/2005 at 2 pm CDT

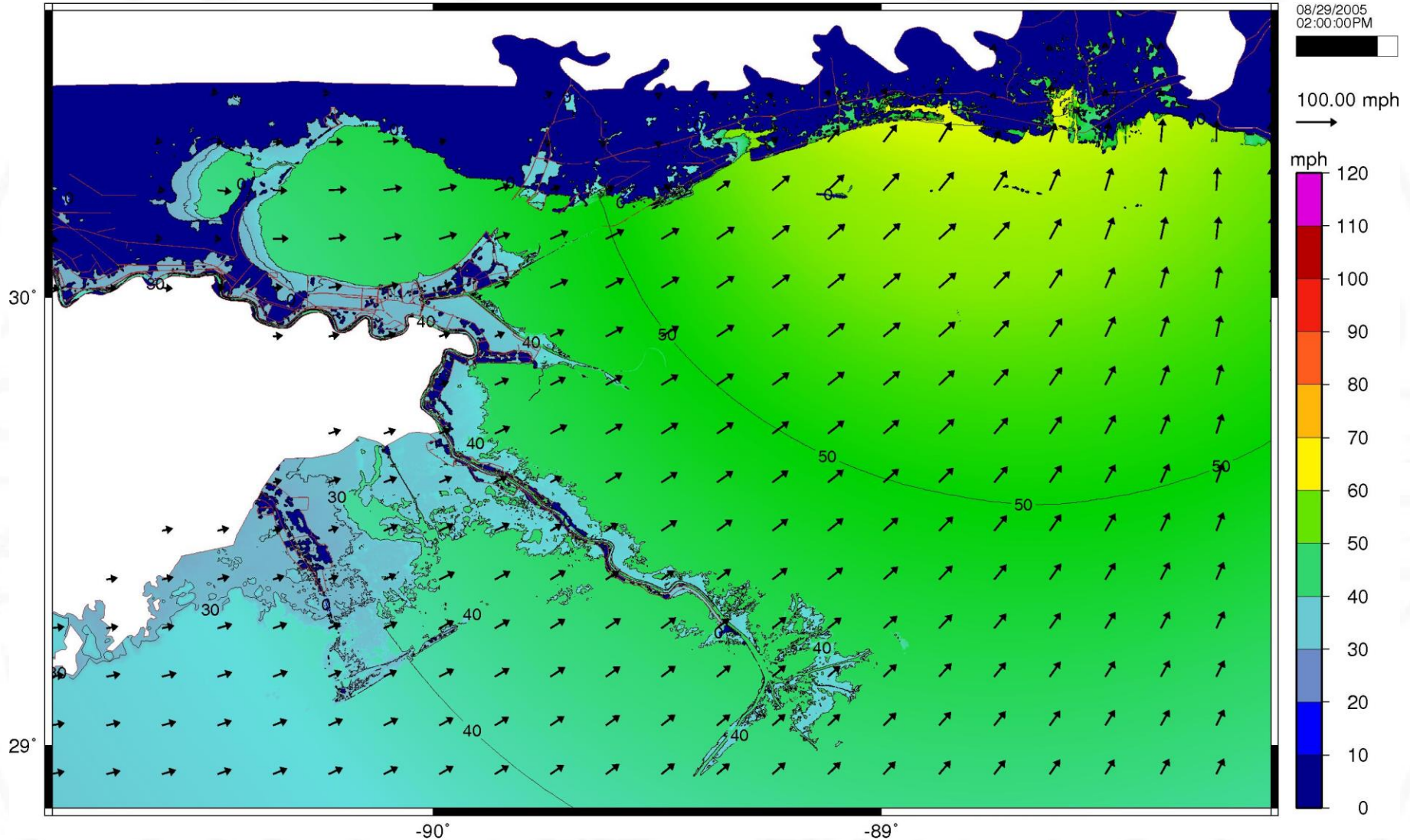


Figure 11k

8/29/2005 at 3 pm CDT

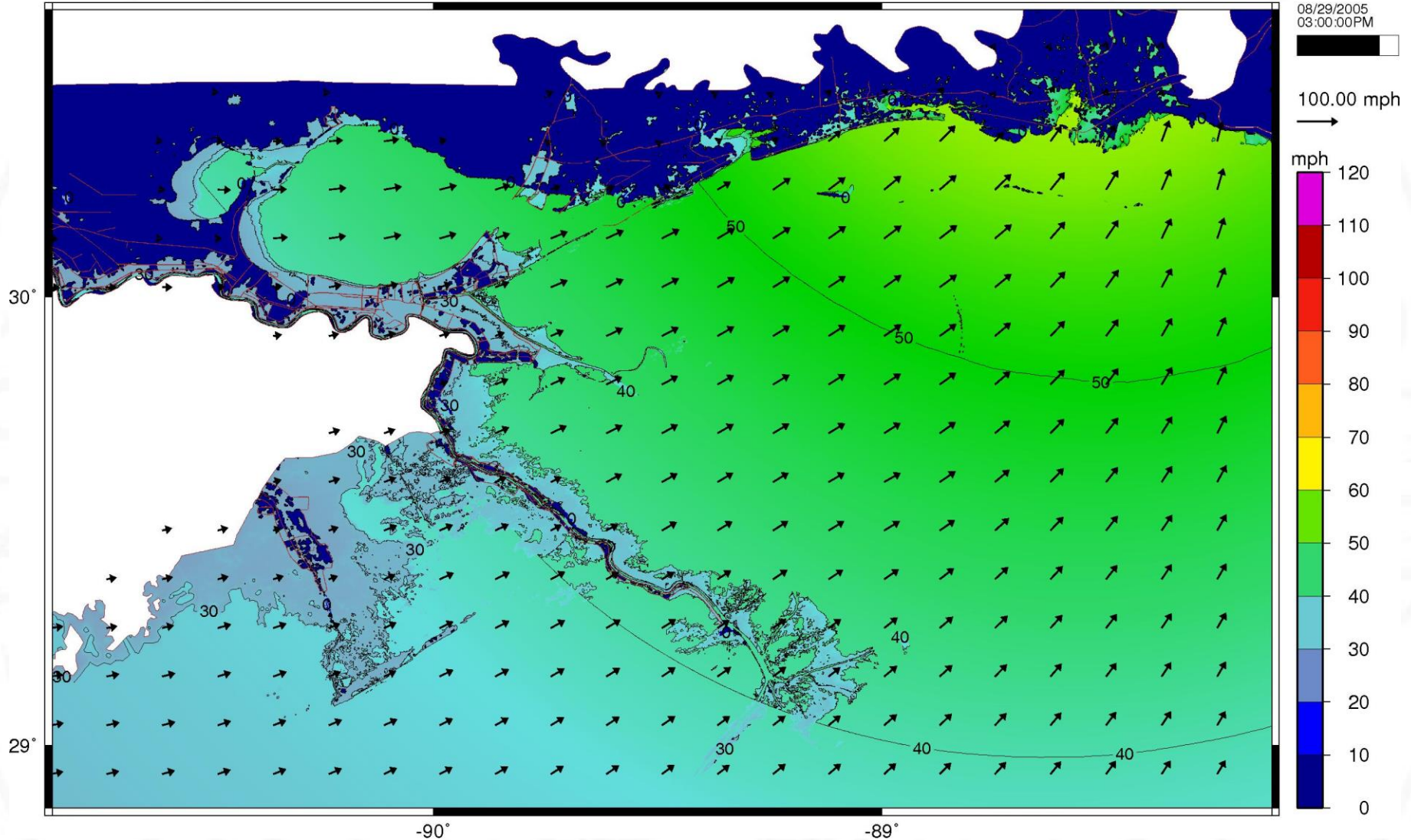


Figure 11l

8/29/2005 at 4 pm CDT

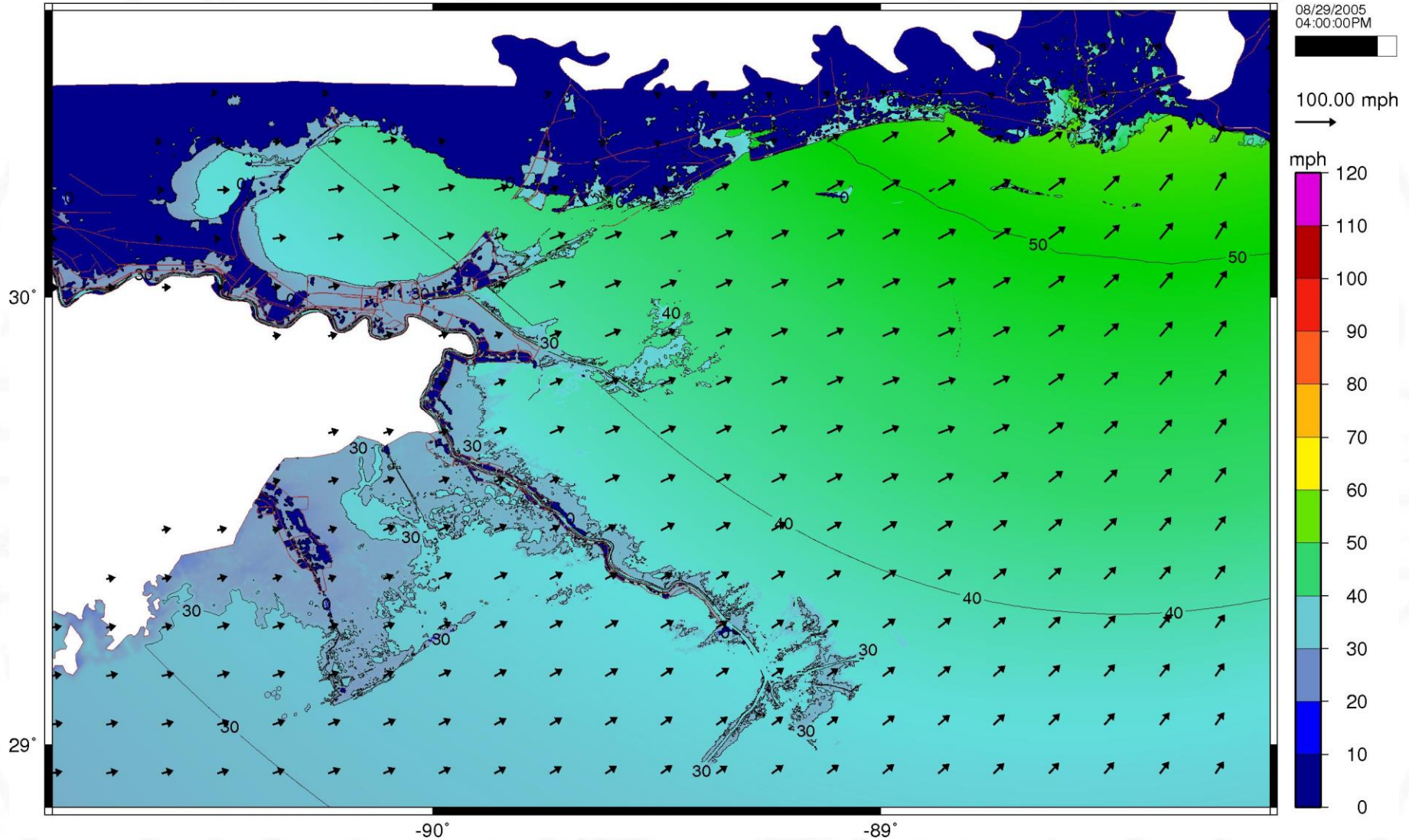


Figure 11m

8/29/2005 at 6 pm CDT

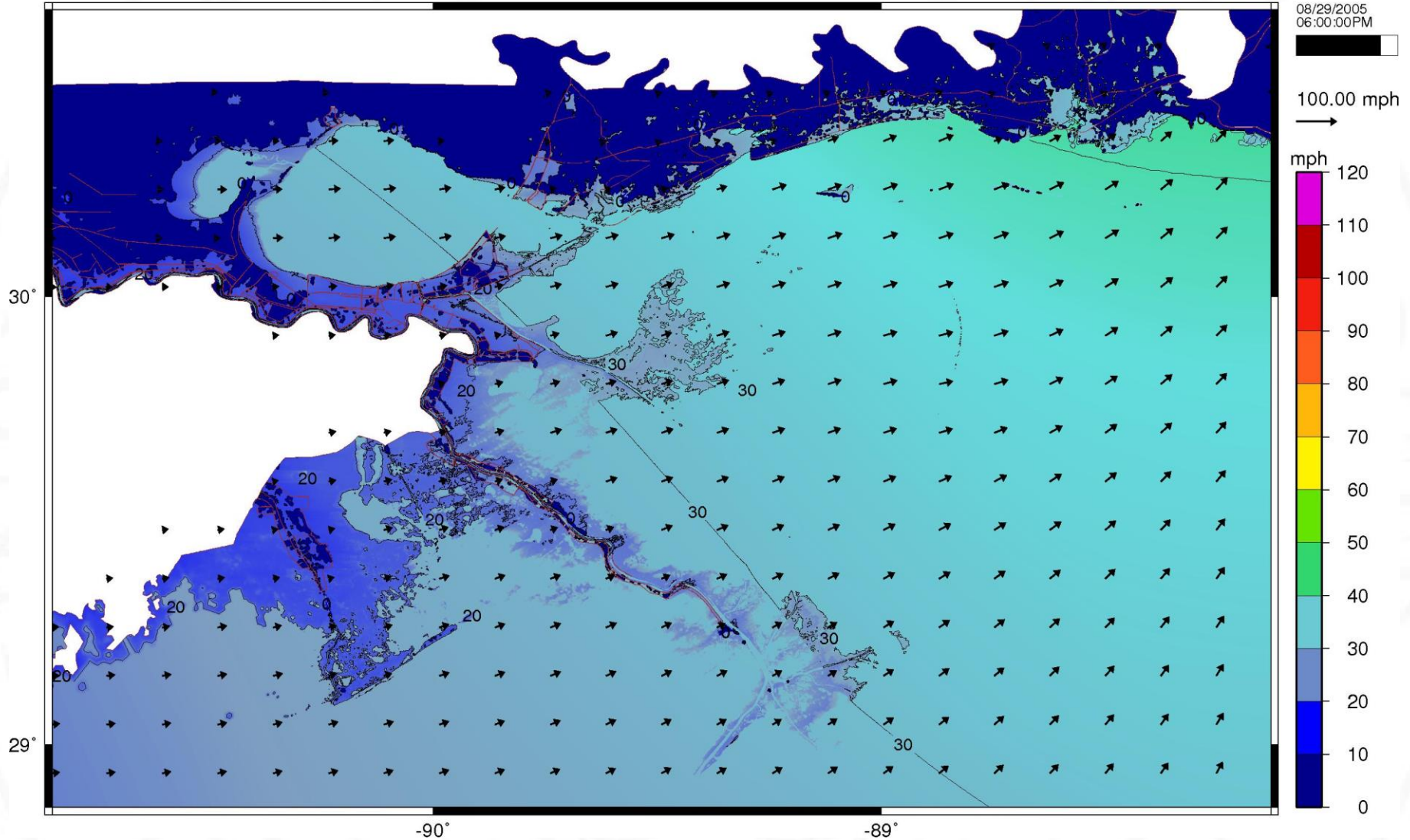


Figure 11n

8/29/2005 at 8 pm CDT

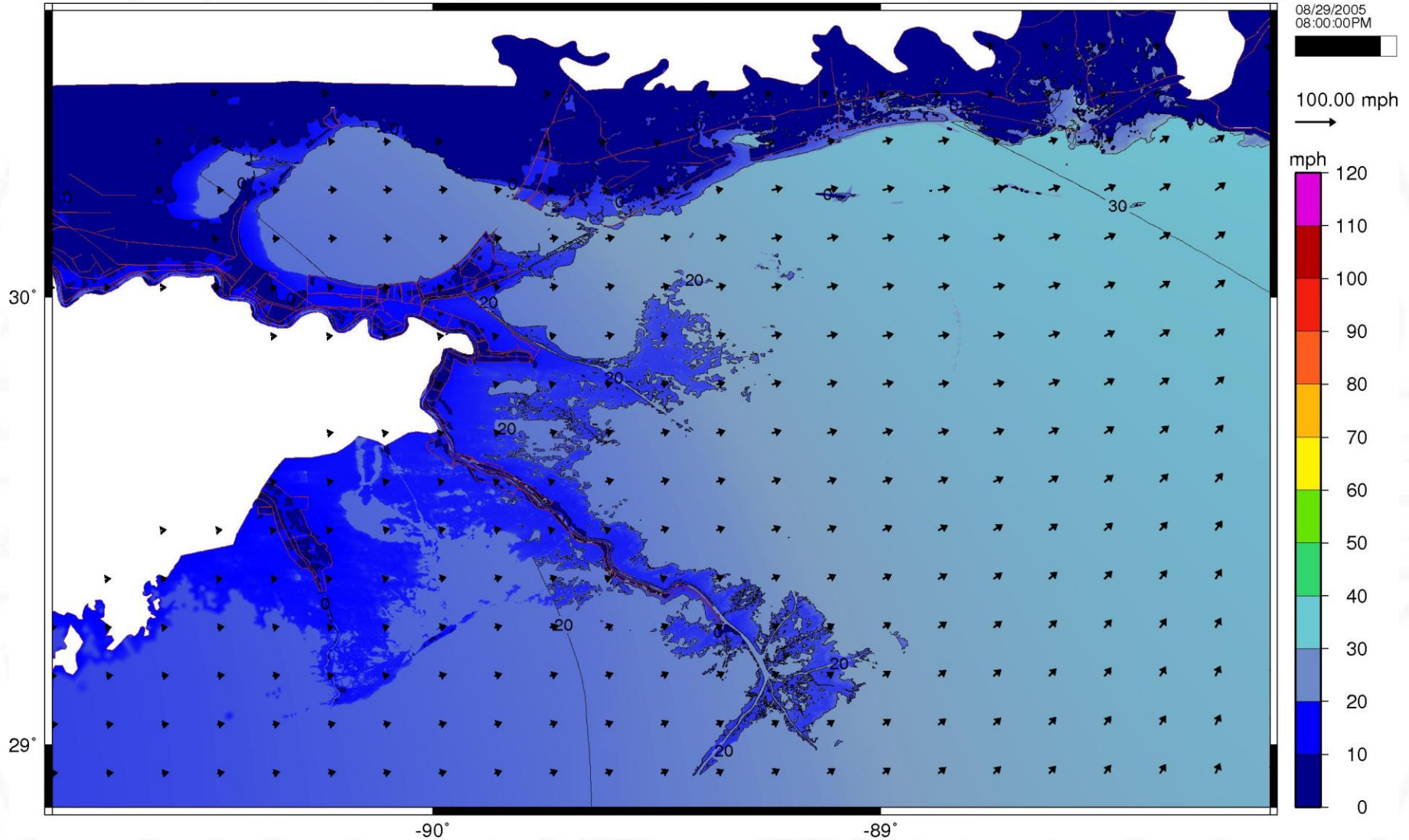


Figure 11o

8/29/2005 at 10 pm CDT

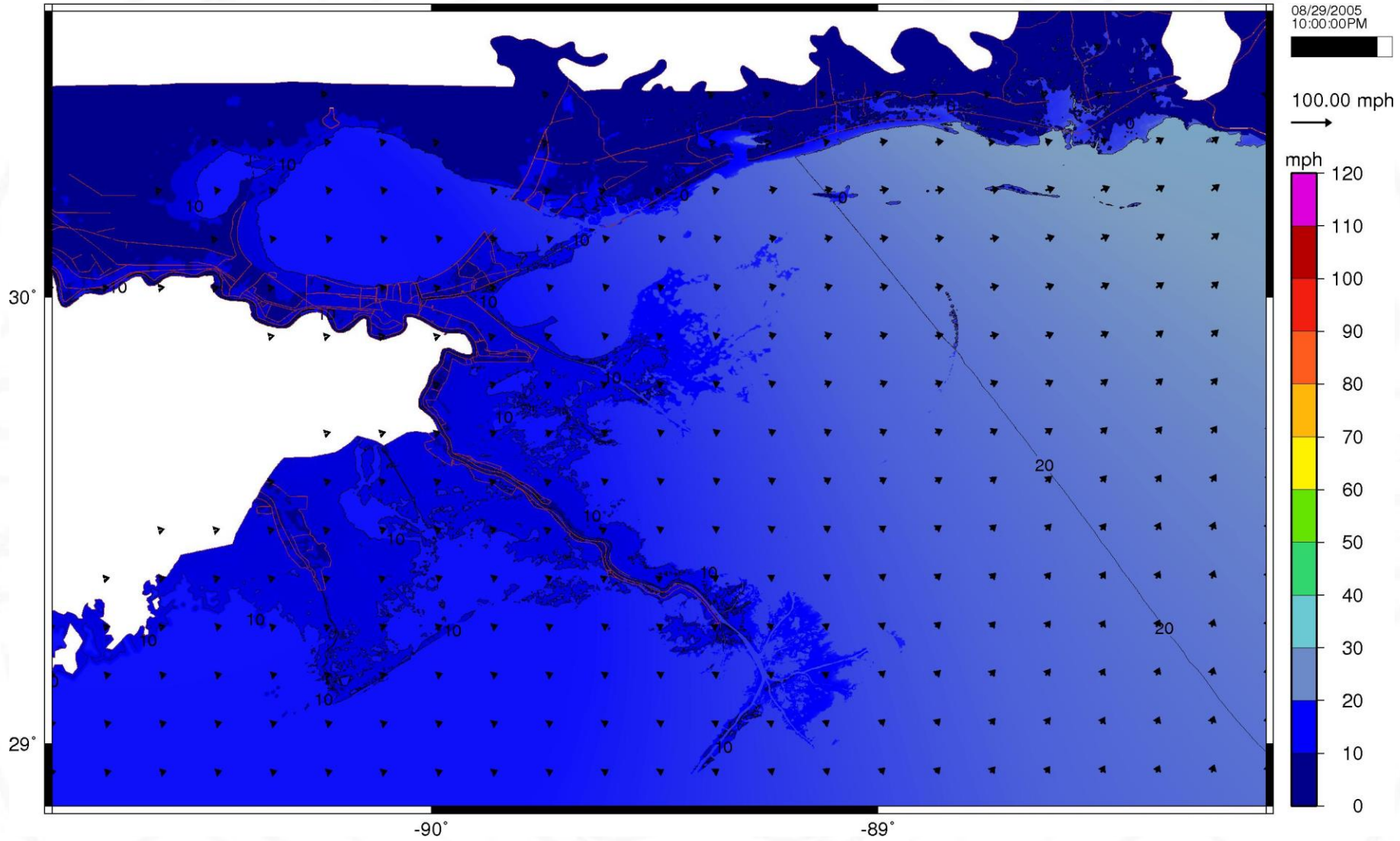


Figure 11p

8/30/2005 at 12 am CDT

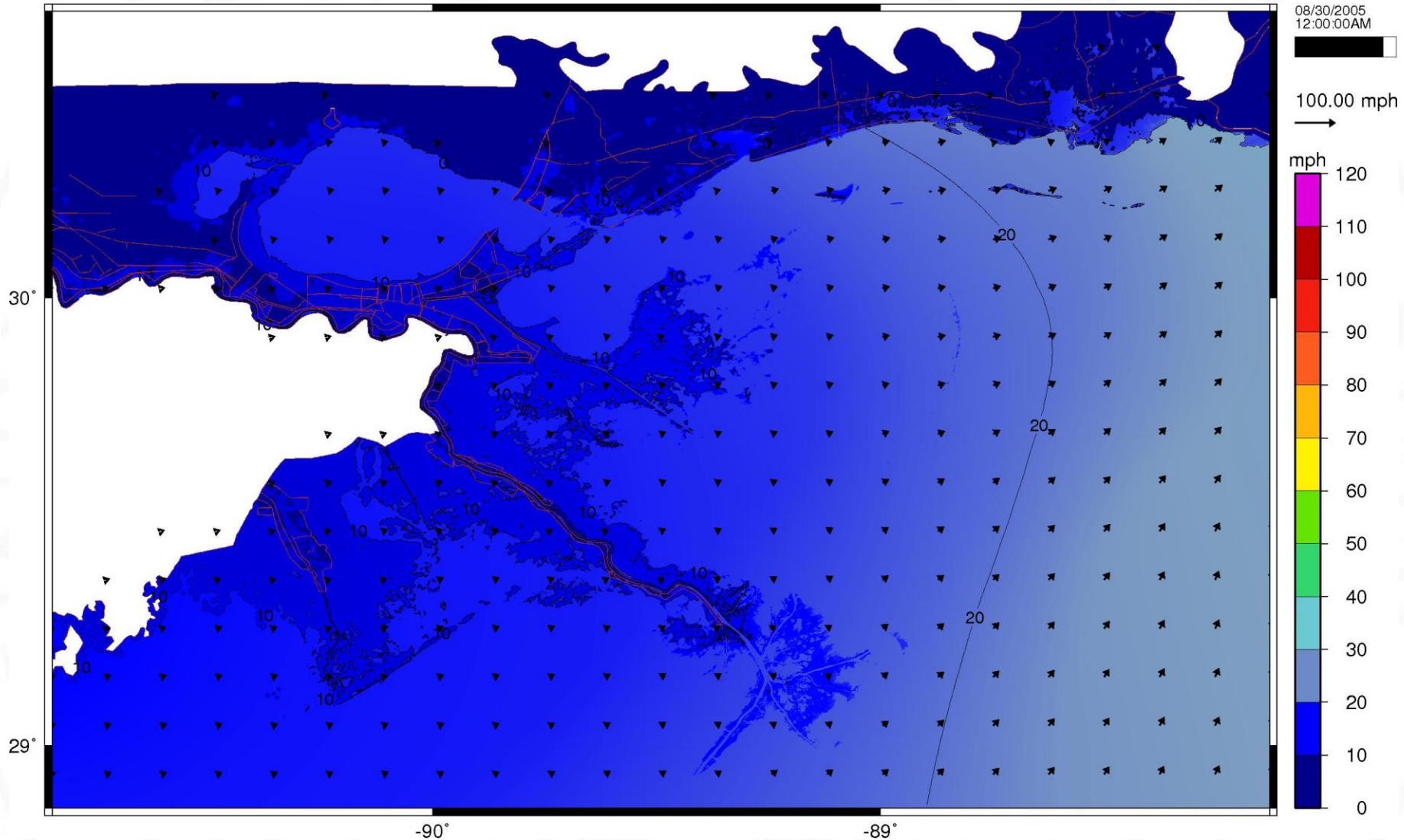


Figure 11q