Table of Contents

- 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 - *Scenario B2: Modeling conditions*

- I next modeled Hurricane Katrina to isolate and study the incremental impact on flooding at each Trial Property resulting from the IHNC floodwall breaches in the *MRGO as Designed/1956 Wetlands* Scenario.
- Scenario B2 is identical to the B1 *MRGO as Designed/1956 Wetlands* Scenario except that all breaches along the MRGO Reach 2 were eliminated. Thus, in this Scenario, only the two breaches on the IHNC channel into the St. Bernard Polder were active.
- The following table compares the relevant differences in modeling conditions for Scenarios A1, A2, B1, and B2.

Scenario	MRGO Status	Marsh Status	Levee Breaches	Description
A1 (Katrina Actual Event Conditions)	2005 pre-Katrina dimensions	2005 pre-Katrina conditions	Breaching occurring as during Katrina	Base case: Actual Katrina Hindcast
A2 (2005 MRGO/ 2005 Wetlands/ IHNC Breaches Only)	2005 pre-Katrina dimensions	2005 pre-Katrina conditions	IHNC Breaches Only	Base case reflecting levee breaches only in the IHNC floodwall
B1 (MRGO As-Designed/1956 Wetlands)	MRGO at its authorized dimensions as of completion in 1968	1956 Wetland conditions	Breaching occurring as during Katrina	Katrina impact absent bank erosion channel widening/ wetland degradation
B2 (MRGO As-Designed/1956 Wetlands/IHNC Breaches Only)	MRGO at its authorized dimensions as of completion in 1968	1956 Wetland conditions	IHNC Breaches Only	Katrina impact absent bank erosion channel widening/ wetland degradation reflecting INHC breaches only

Table 9

Katrina - *Scenario B2: Flooding in St. Bernard Parish*

- The differences in the evolution of flooding inside St. Bernard Polder between the B1 and B2 Scenarios are quite similar to the differences between the A1 and A2 Scenarios.
  - That is, in Scenario B2 as in Scenario A2, the IHNC floodwall breaches - even in the absence of the Reach 2 levee breaches - lead to substantial flooding throughout the Lower Ninth Ward and the portion of St. Bernard Parish west of Paris Road.
- In Scenario B2, depicted in Figures 33a-q, floodwaters initially penetrate and inundate St. Bernard Polder in the much the same way as in Scenario B1.
- By 2:00 pm CDT, floodwaters flowing through the IHNC breaches cause maximum water elevations of 8 ft throughout the Lower Ninth Ward and the portion of St. Bernard Parish west of Paris Road - flooding that area by about a foot less than in Scenario B1.
- However, in this Scenario, because the Reach 2 levees do not breach, floodwaters do not fill the Central Wetlands and thus do not overtop the 40 Arpent levee east of Paris Road.
- Instead, flooding moves steadily east from the Lower Ninth Ward throughout August 29 and into the early morning of August 30, 2005, finally inundating much of St. Bernard Parish to Violet Canal.

Katrina - *Scenario B2: Flooding in St. Bernard Parish*

8/29/2005 at 2 am CDT

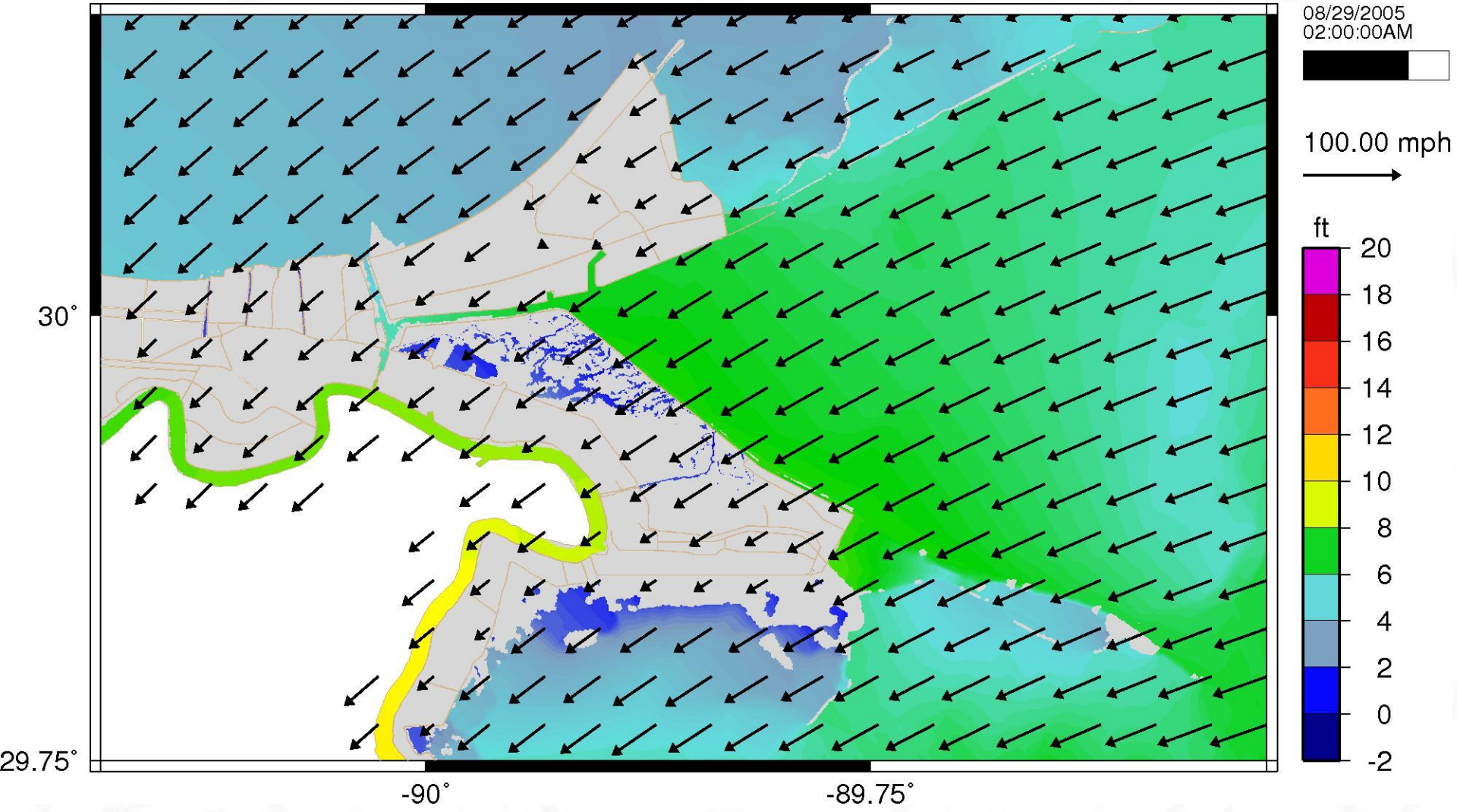

Figure 33a

Katrina - *Scenario B2: Flooding in St. Bernard Parish*

8/29/2005 at 4 am CDT

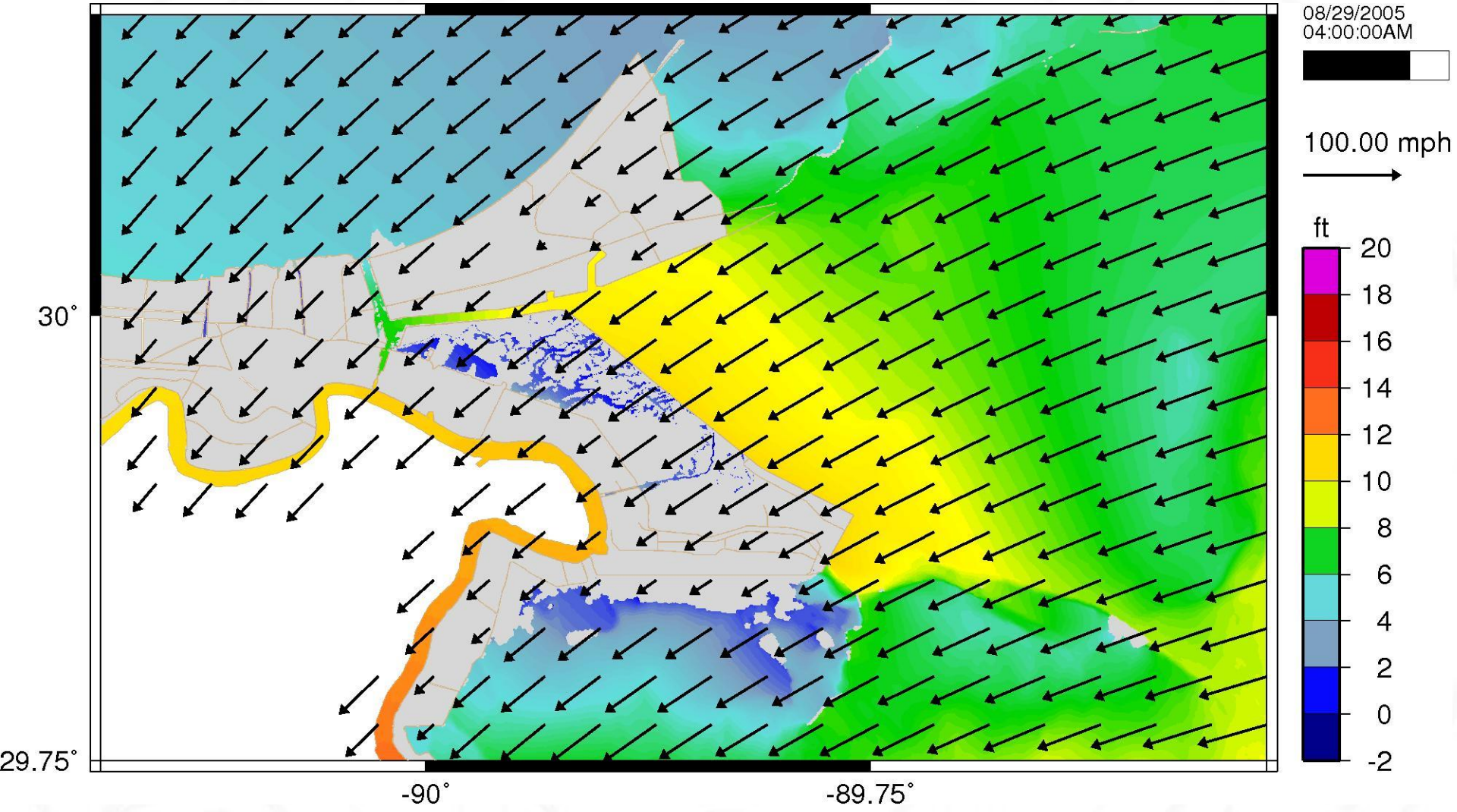

Figure 33b

Katrina - *Scenario B2: Flooding in St. Bernard Parish*

8/29/2005 at 6 am CDT

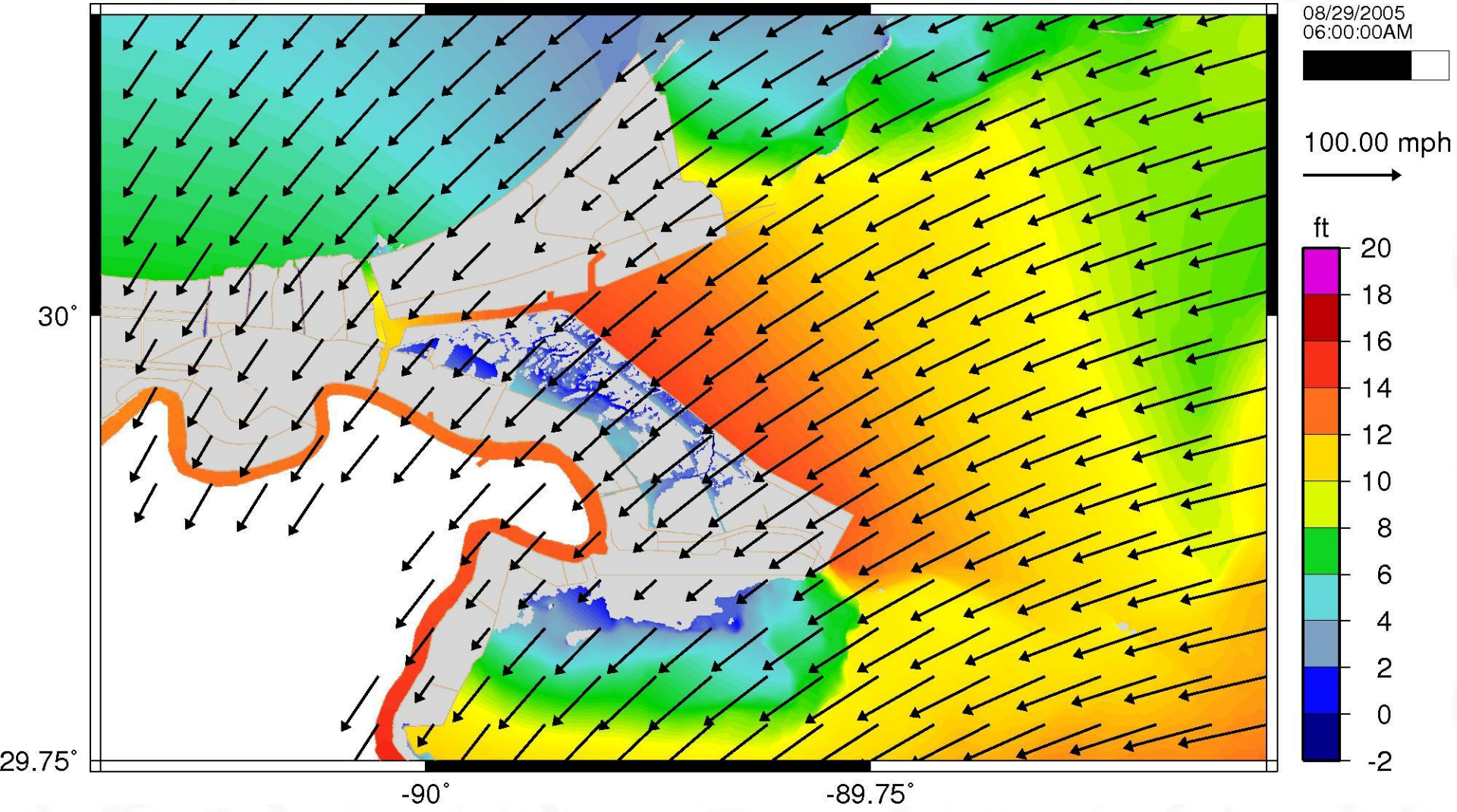

Figure 33c

Katrina - *Scenario B2: Flooding in St. Bernard Parish*

8/29/2005 at 7 am CDT

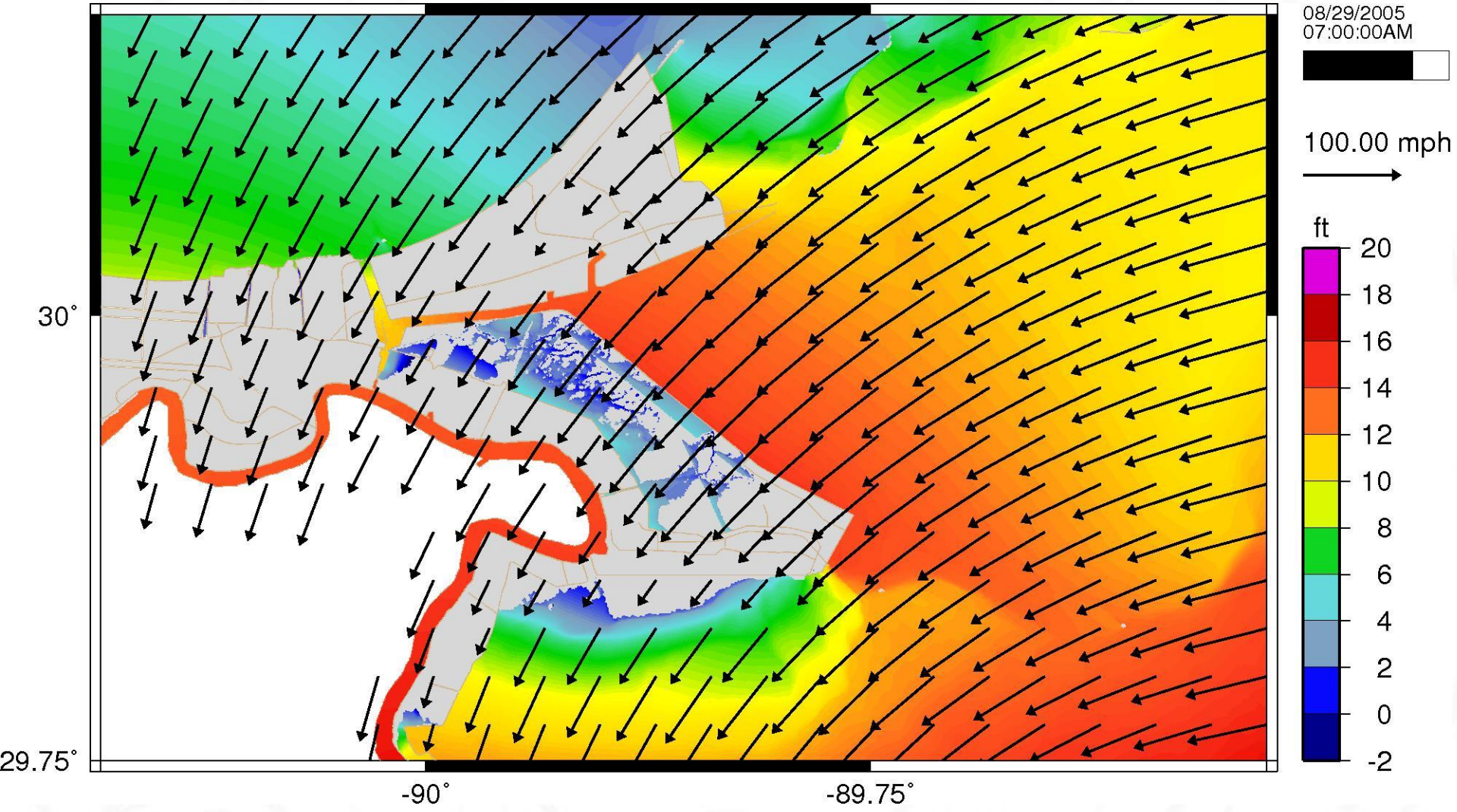

Figure 33d

Katrina - *Scenario B2: Flooding in St. Bernard Parish*

8/29/2005 at 8 am CDT

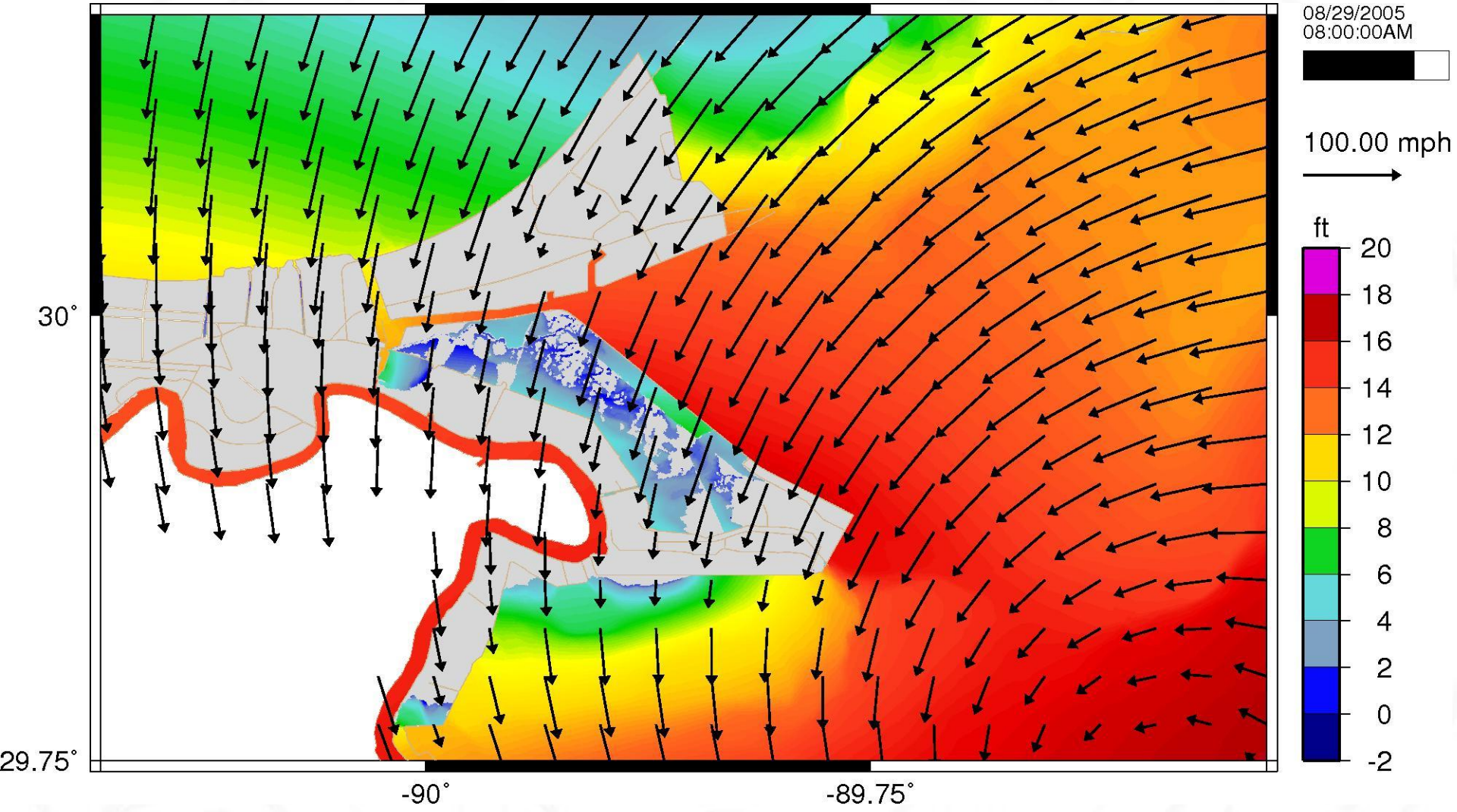

Figure 33e

Katrina - *Scenario B2: Flooding in St. Bernard Parish*

8/29/2005 at 9 am CDT

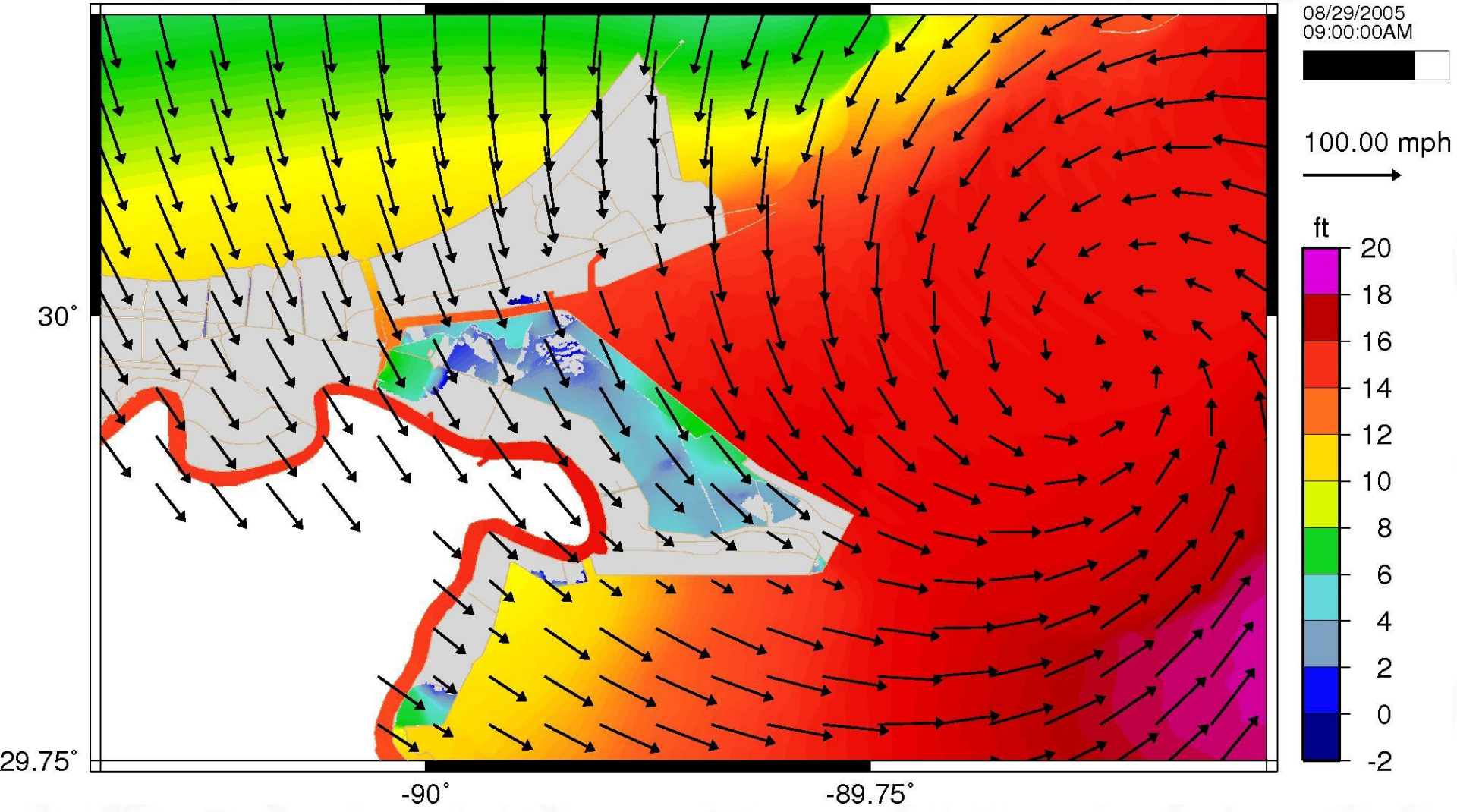

Figure 33f

Katrina - *Scenario B2: Flooding in St. Bernard Parish*

8/29/2005 at 10 am CDT

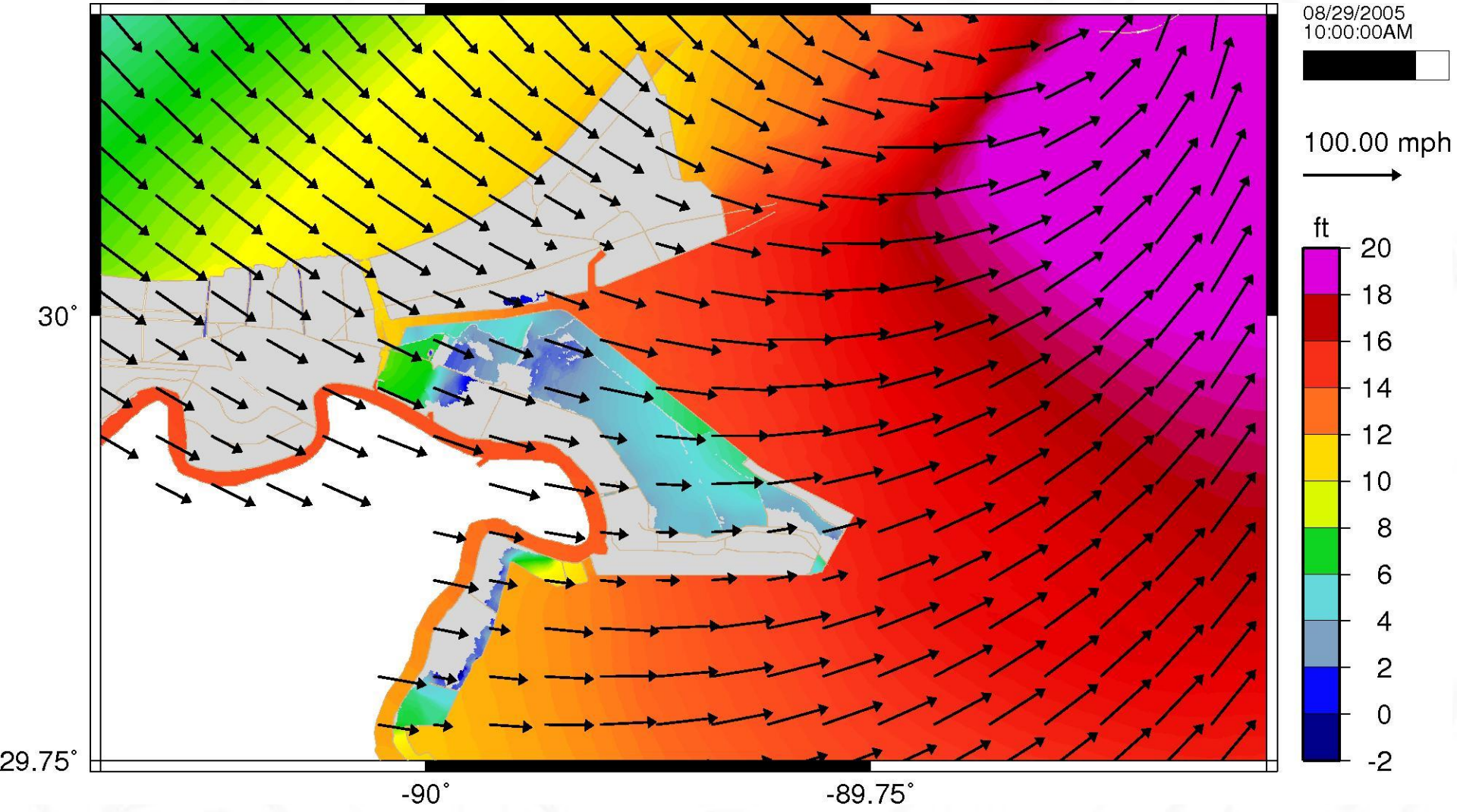

Figure 33g

Katrina - *Scenario B2: Flooding in St. Bernard Parish*

8/29/2005 at 11 am CDT

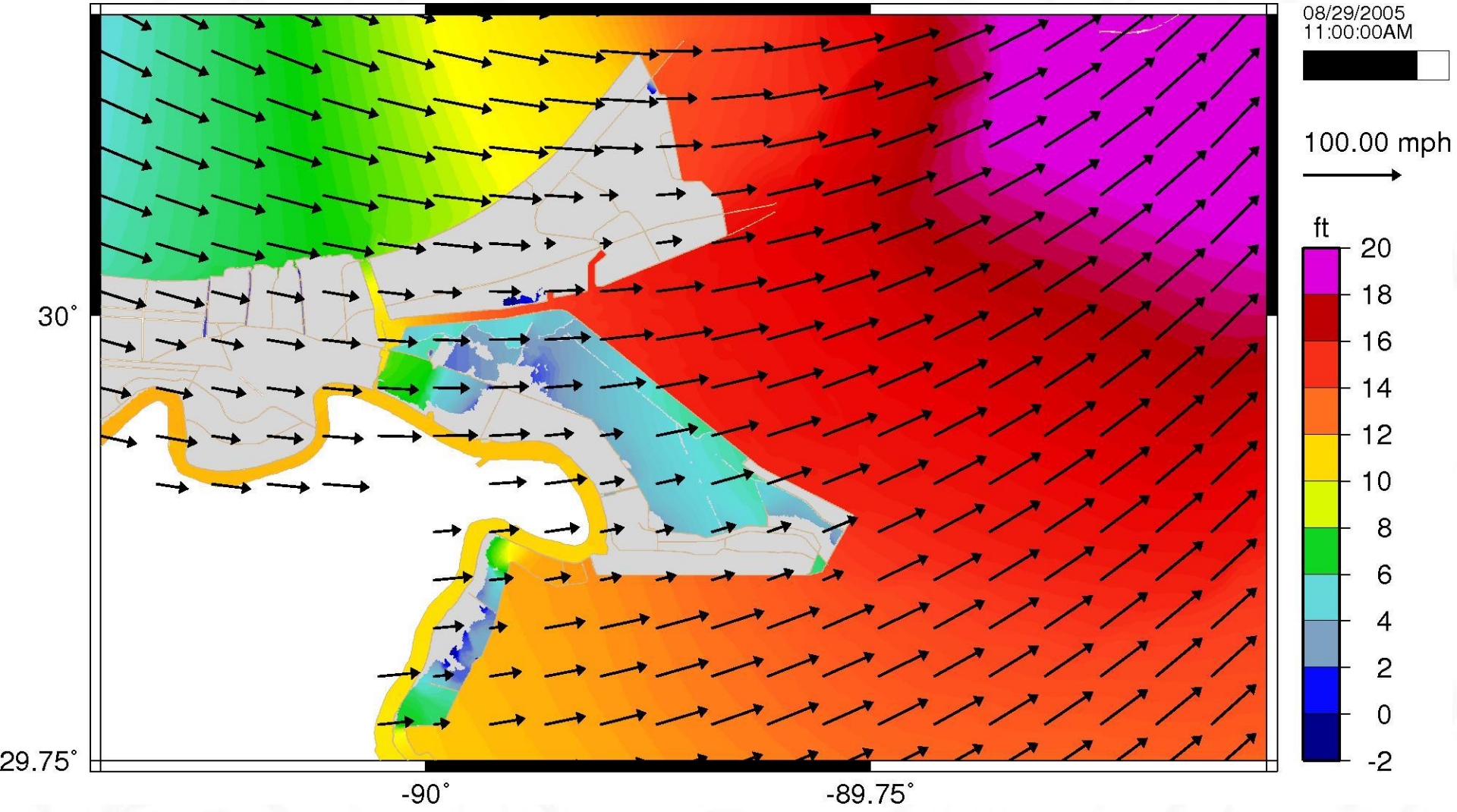

Figure 33h

Katrina - *Scenario B2: Flooding in St. Bernard Parish*

8/29/2005 at 12 pm CDT

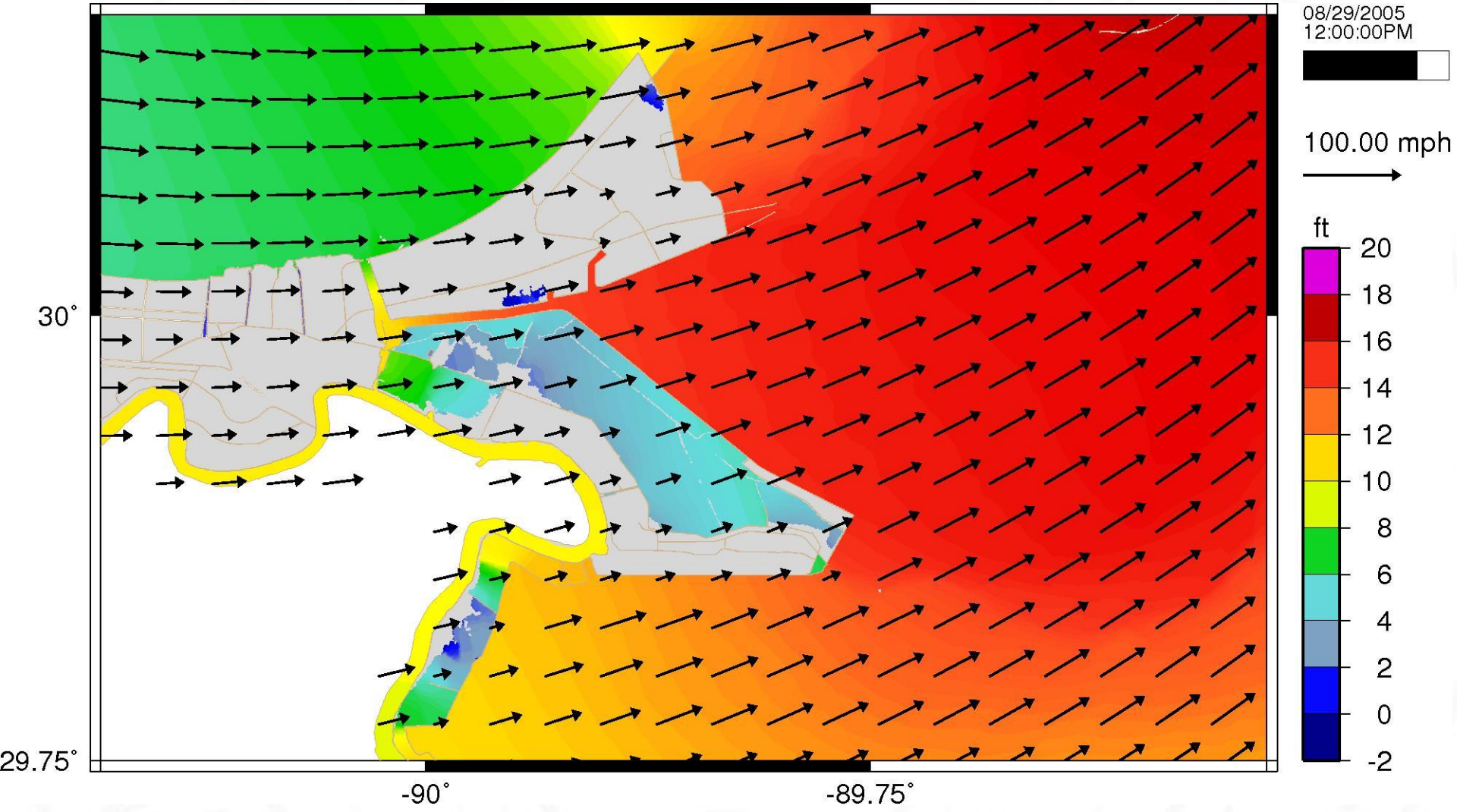

Figure 33i

Katrina - *Scenario B2: Flooding in St. Bernard Parish*

8/29/2005 at 1 pm CDT

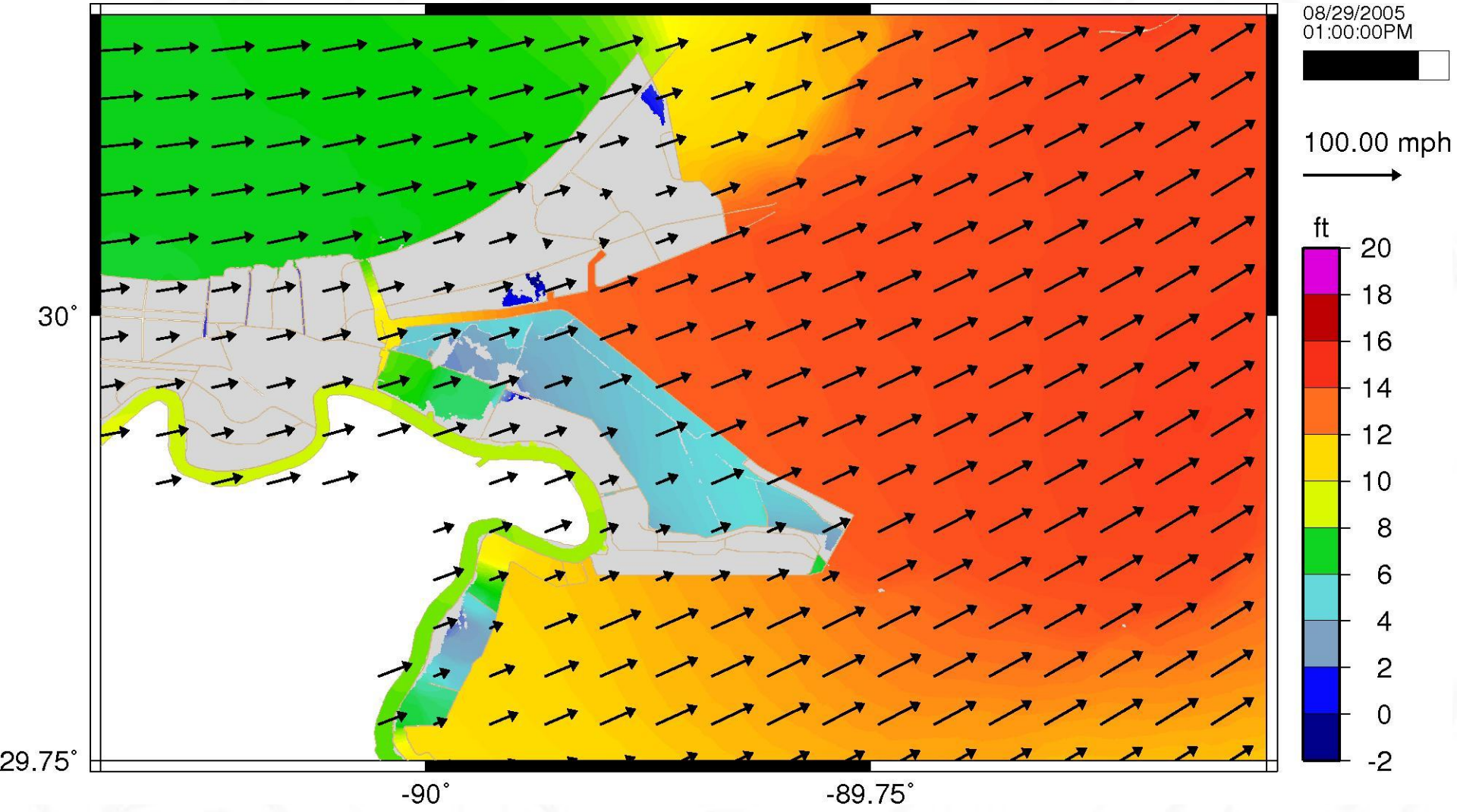

Figure 33j

Katrina - *Scenario B2: Flooding in St. Bernard Parish*

8/29/2005 at 2 pm CDT

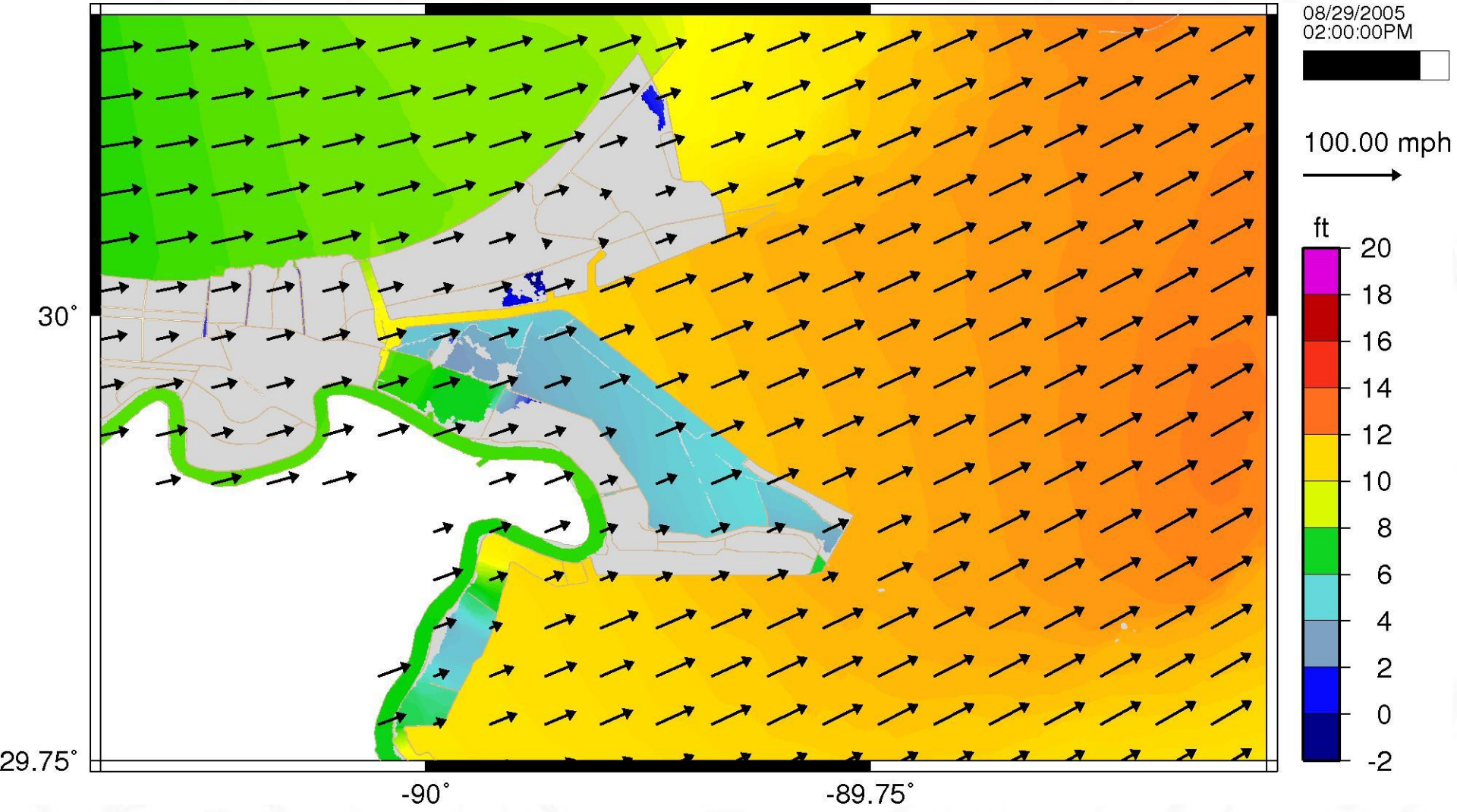

Figure 33k

Katrina - *Scenario B2: Flooding in St. Bernard Parish*

8/29/2005 at 3 pm CDT

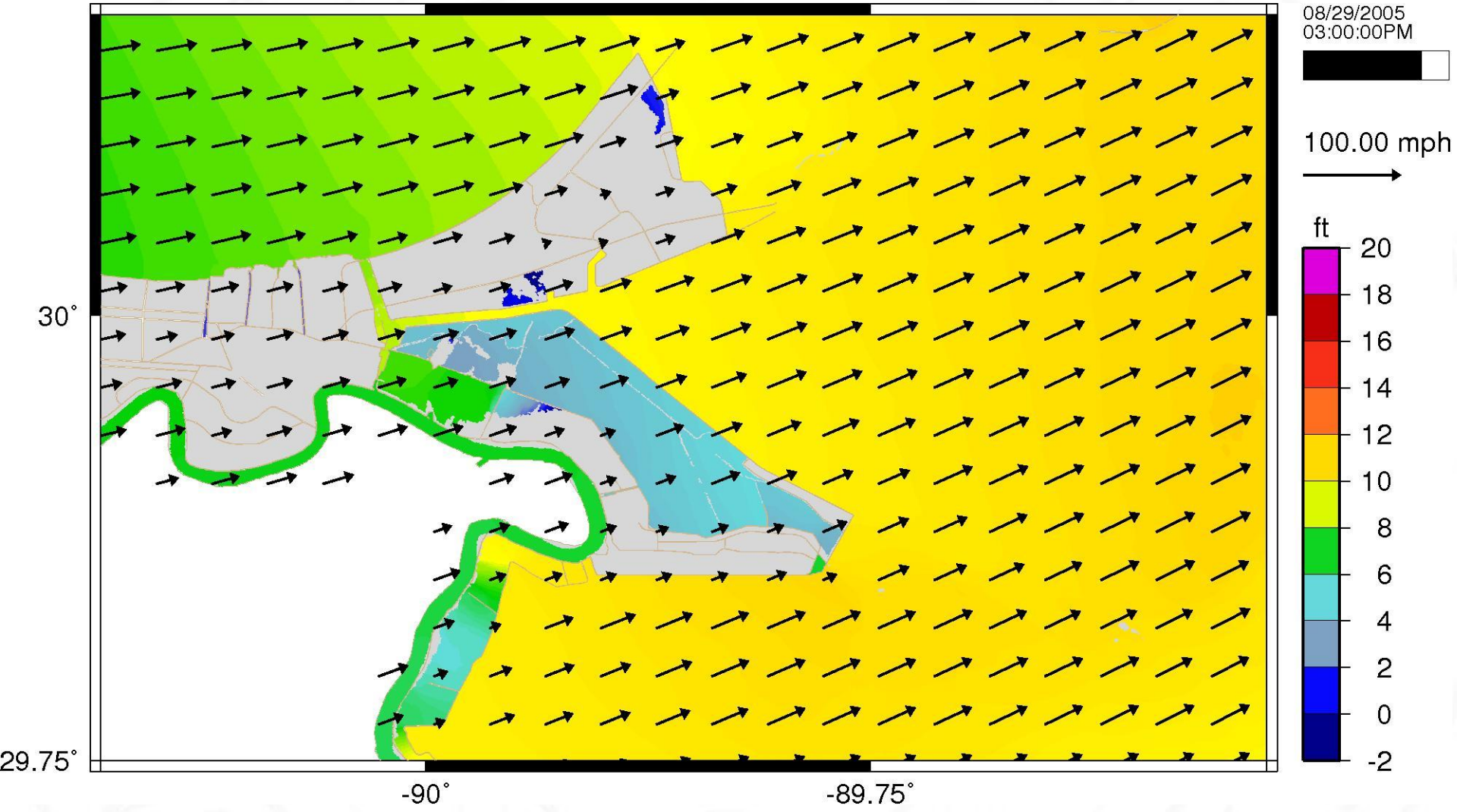

Figure 33l

Katrina - *Scenario B2: Flooding in St. Bernard Parish*

8/29/2005 at 4 pm CDT

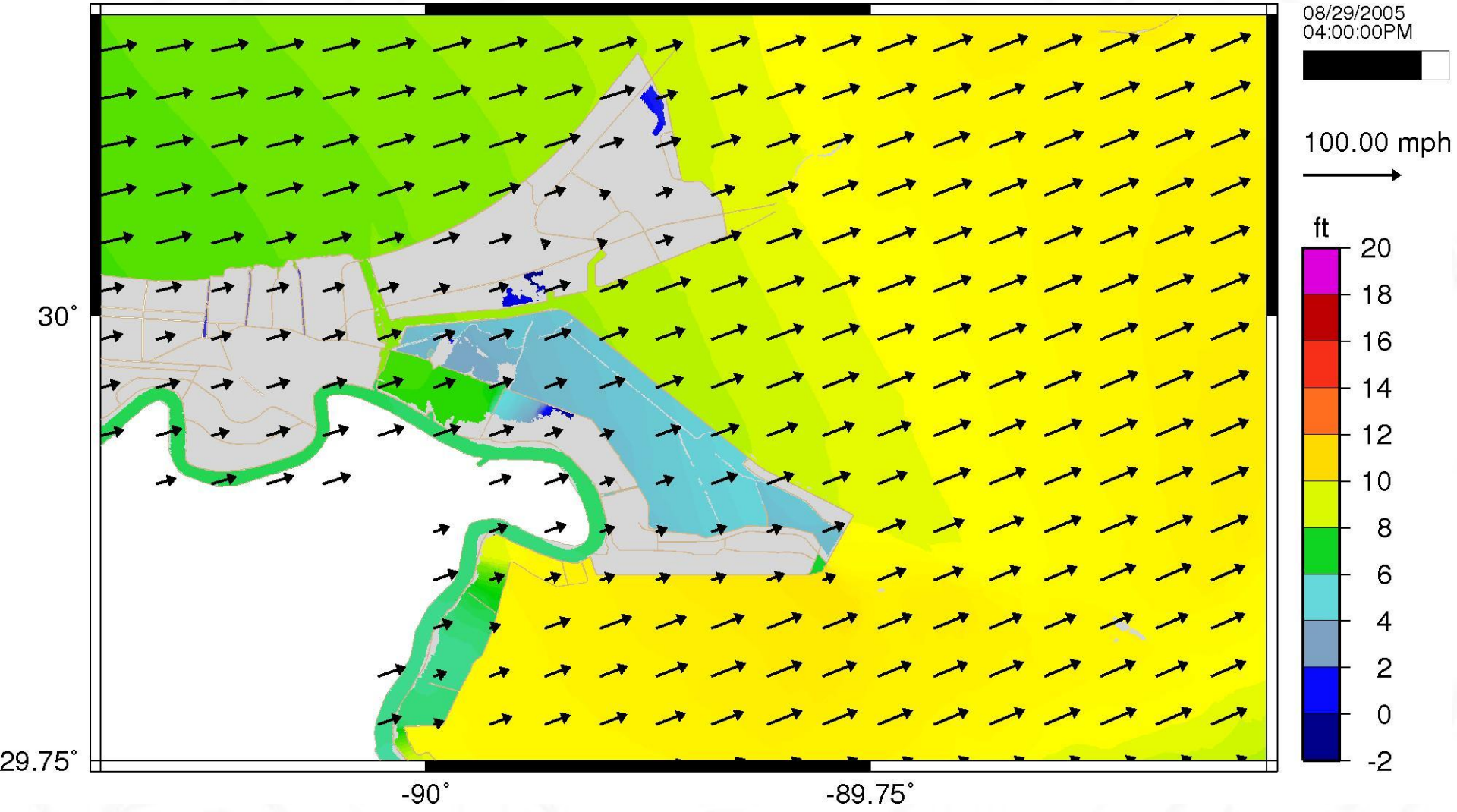

Figure 33m

Katrina - *Scenario B2: Flooding in St. Bernard Parish*

8/29/2005 at 6 pm CDT

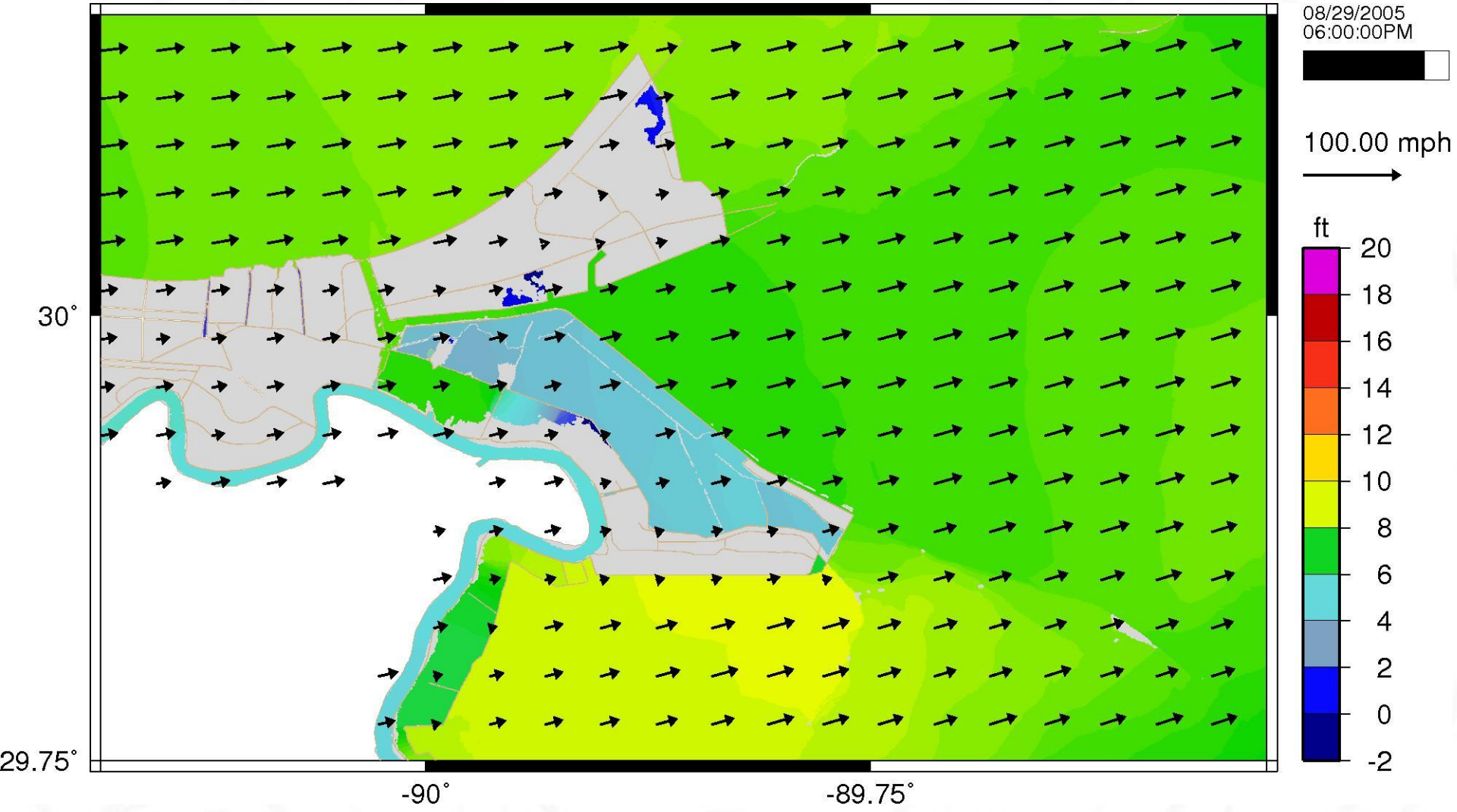

Figure 33n

Katrina - *Scenario B2: Flooding in St. Bernard Parish*

8/29/2005 at 8 pm CDT

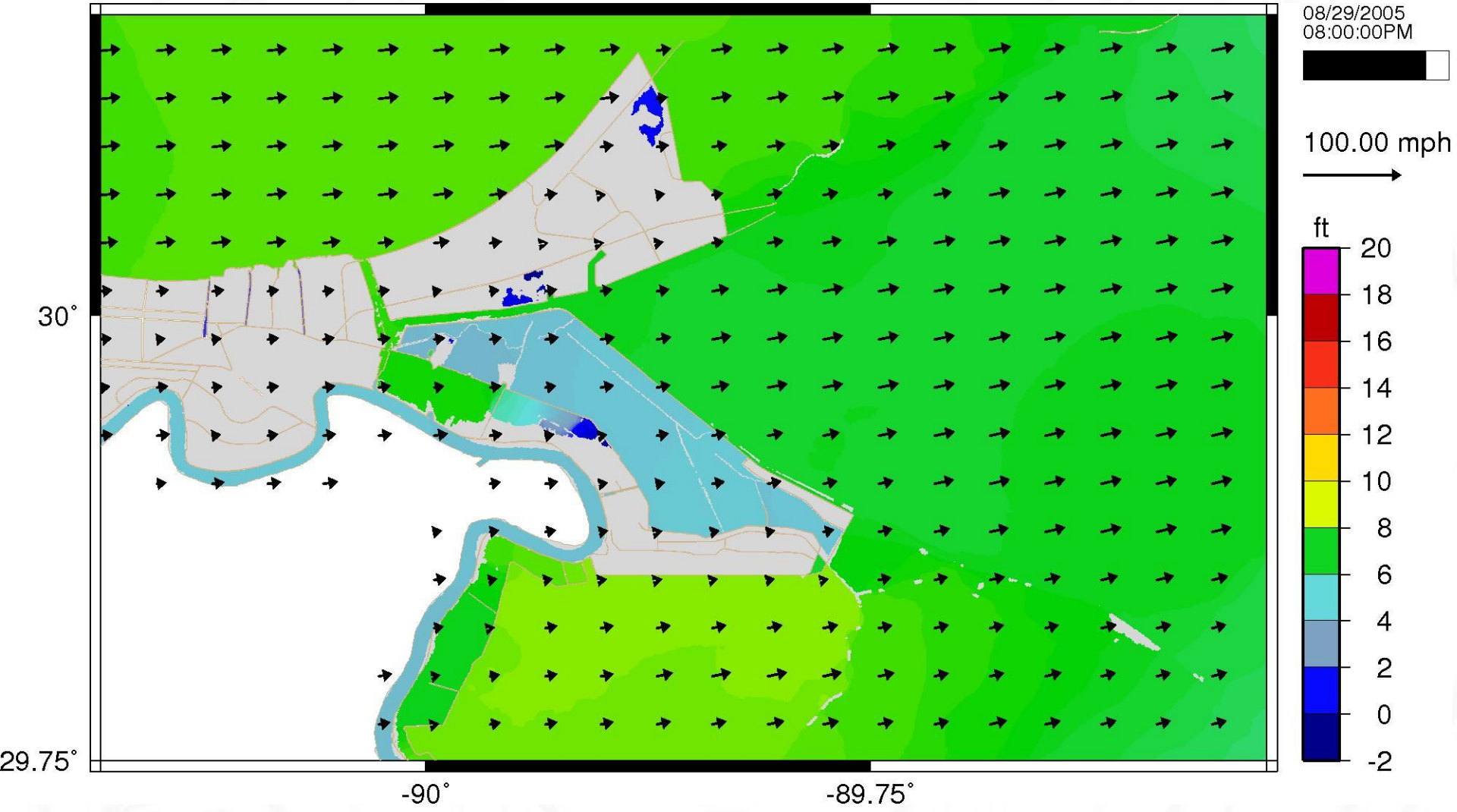

Figure 33o

Katrina - *Scenario B2: Flooding in St. Bernard Parish*

8/29/2005 at 10 pm CDT

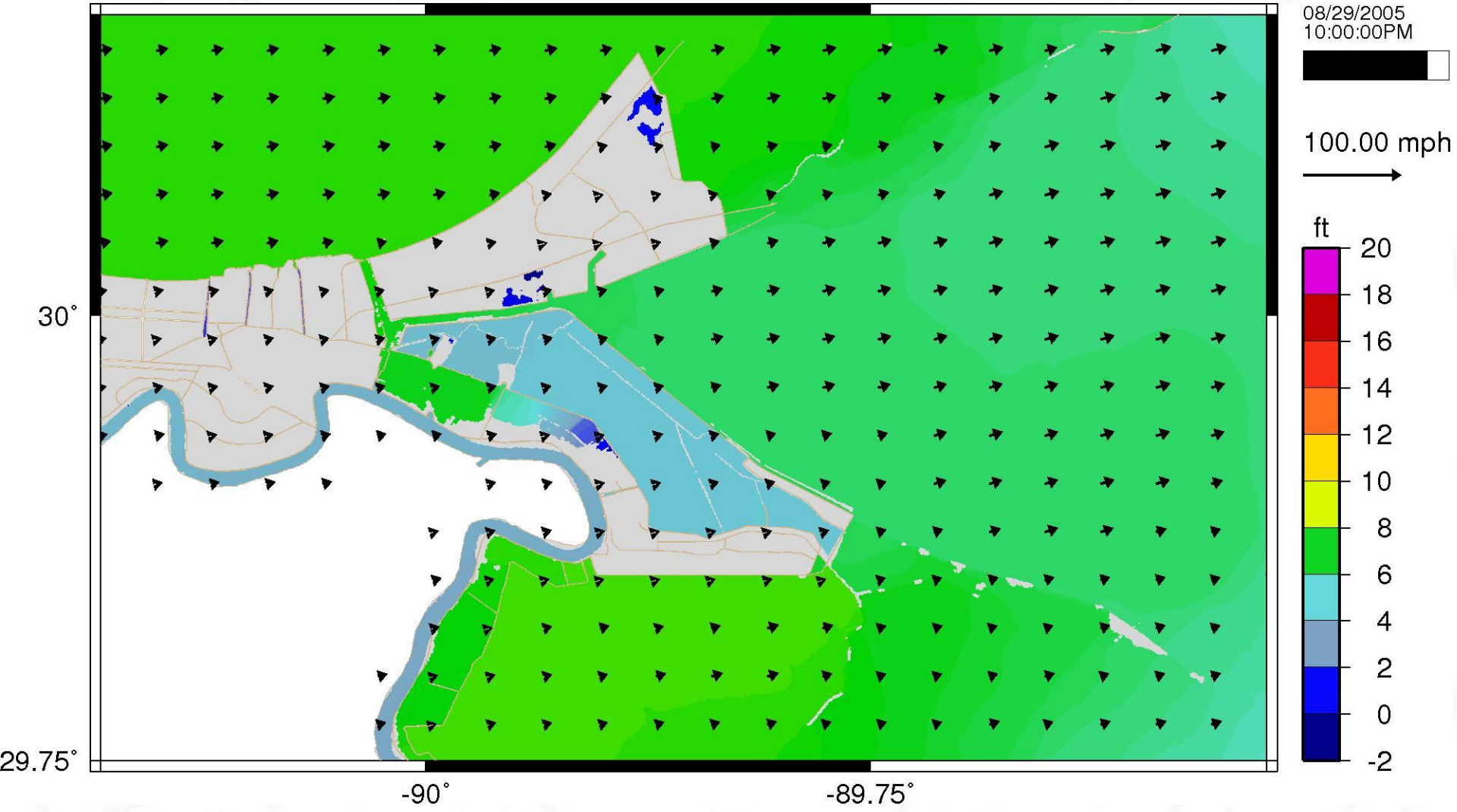

Figure 33p

Katrina - *Scenario B2: Flooding in St. Bernard Parish*

8/30/2005 at 12 am CDT

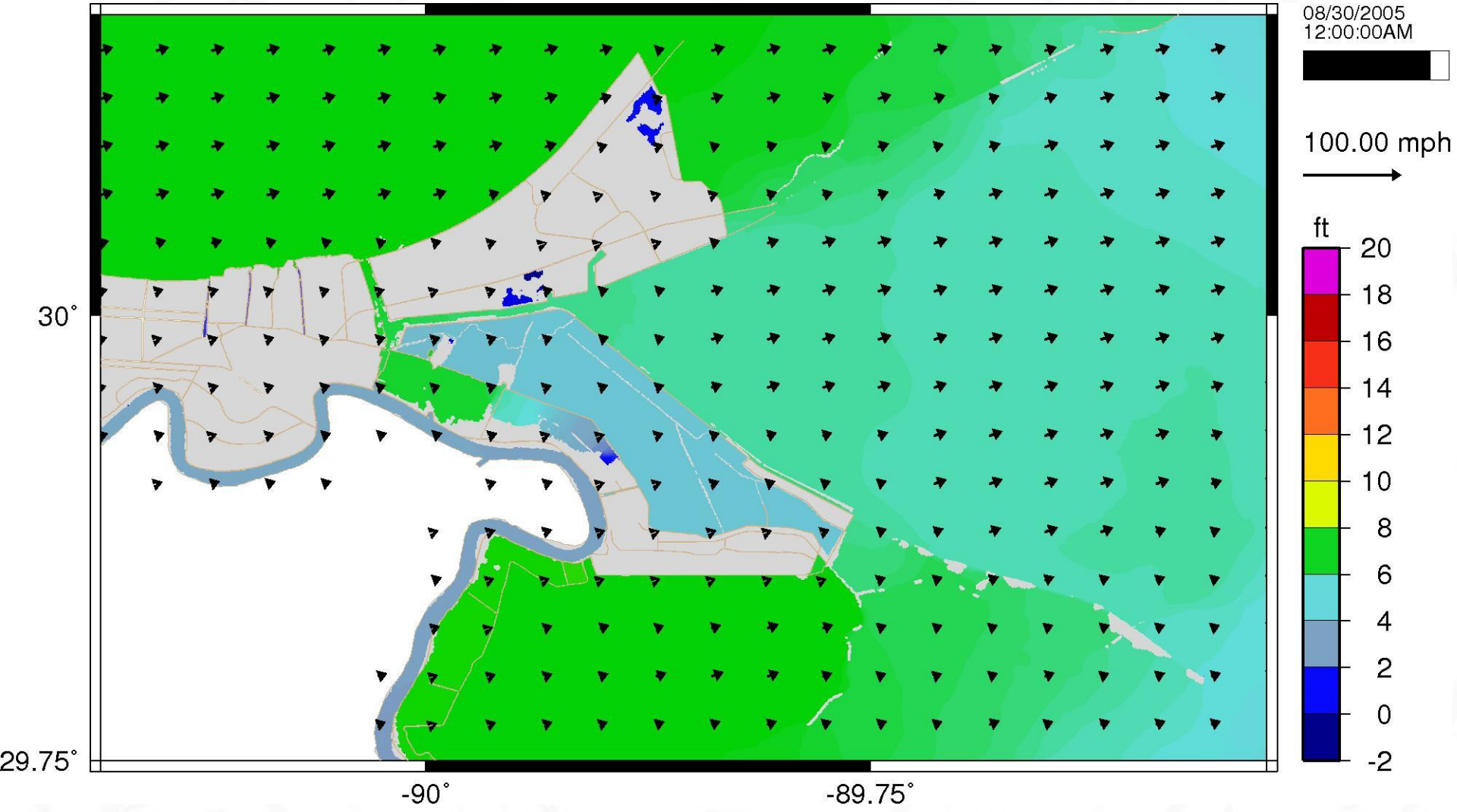

Figure 33q