The surge occurred at high tide, adding to Katrina’s surge evolution as shown in Fig. 2. Camille’s surge are shown in Table 1. The surge traveled past Interstate 10 (Figure 4). The inland penetration of Katrina’s storm surge was truly remarkable. The Mississippi River levee system held and confined most of the surge east of the river except for the landfall region of Buras, LA. Regions west of the Mississippi River experienced little surge, suggesting that the river levee system may have augmented Katrina’s surge on the east side. Most of Plaquemines, St. Bernard, and eastern Orleans Parishes were inundated with surge which overwove levees and destroyed them with scouring action. Buildings outside the levee system became cement slabs. Tide gauges also show the surge traveled up the Mississippi River, with elevation spikes reaching 14 feet at the Bonnet Carre Spillway 10 miles west of New Orleans. Levees along some canals south of Lake Pontchartrain were not overtopped but experienced failures that are still under investigation, causing well-publicized flooding of New Orleans. The surge also penetrated through inoperative flood pumps which, when combined with the inability to remove rainwater, caused moderate flooding in the suburban region west of New Orleans. The eastern end of St. Tammany Parish suffered an extreme surge which came from Lake Borgne as well as up the Pearl and Bonfouca river systems, traveling miles inland in Slidell. St. Tammany experienced a second surge when the wind shifted, sloshing piled-up water in Lake Pontchartrain northeastward. A video is shown of the surge along northern Lake Pontchartrain.

The entire Mississippi coast experienced the storm surge. The western region from Pearl River to Bay St. Louis suffered the worst, as the surge traveled past Interstate 10 (Figure 1). The official peak surge occurred in this region, estimated at 28 feet. However, high water marks indicate even higher elevations, although some may be impacted by wave action (Table 1). Comparisons to Hurricane Camille’s surge are shown in Table 1. The surge also traveled far up the Jordan River and Biloxi River, decimating towns such as Kiln, MS. An ADCIRC simulation of Katrina’s surge evolution is shown in Fig. 2. The surge occurred at high tide, adding another foot of water.