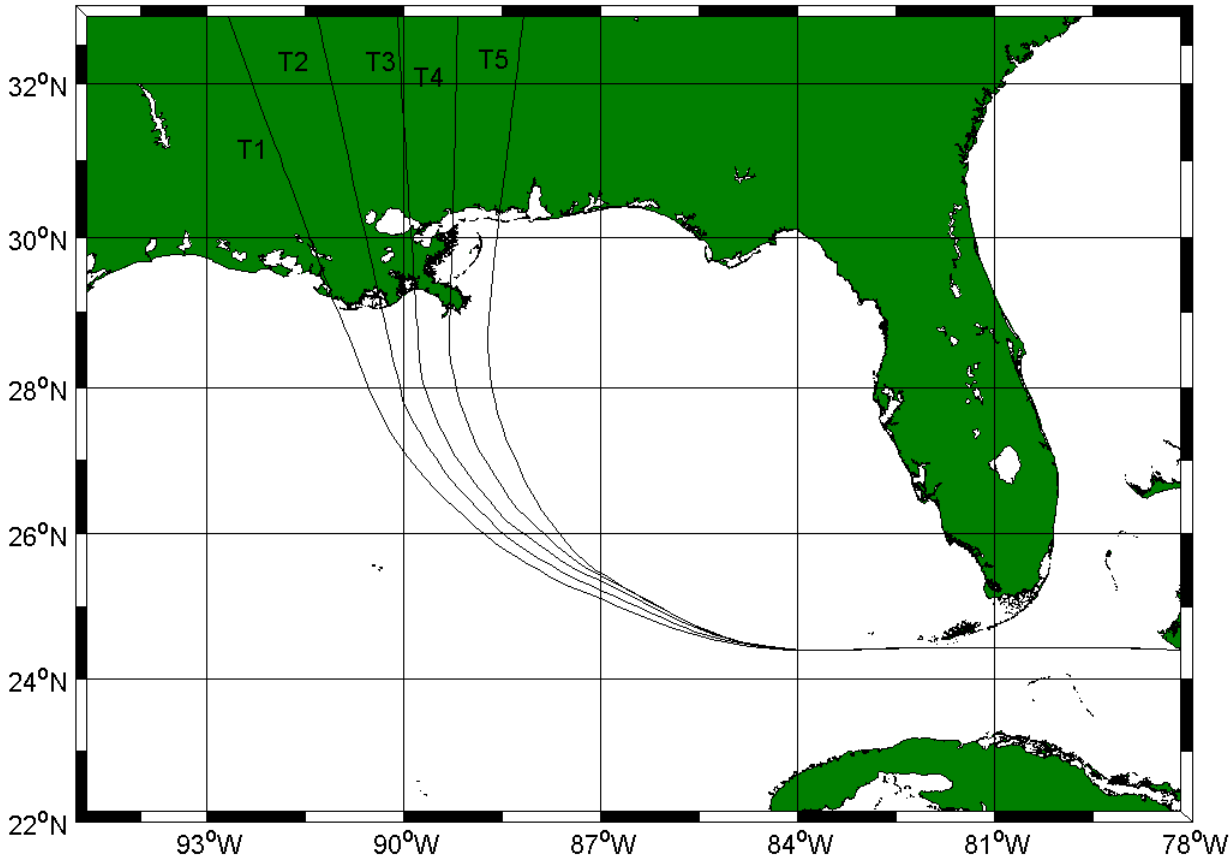

Figure 28: Central angle tracks (RICK-fan set).

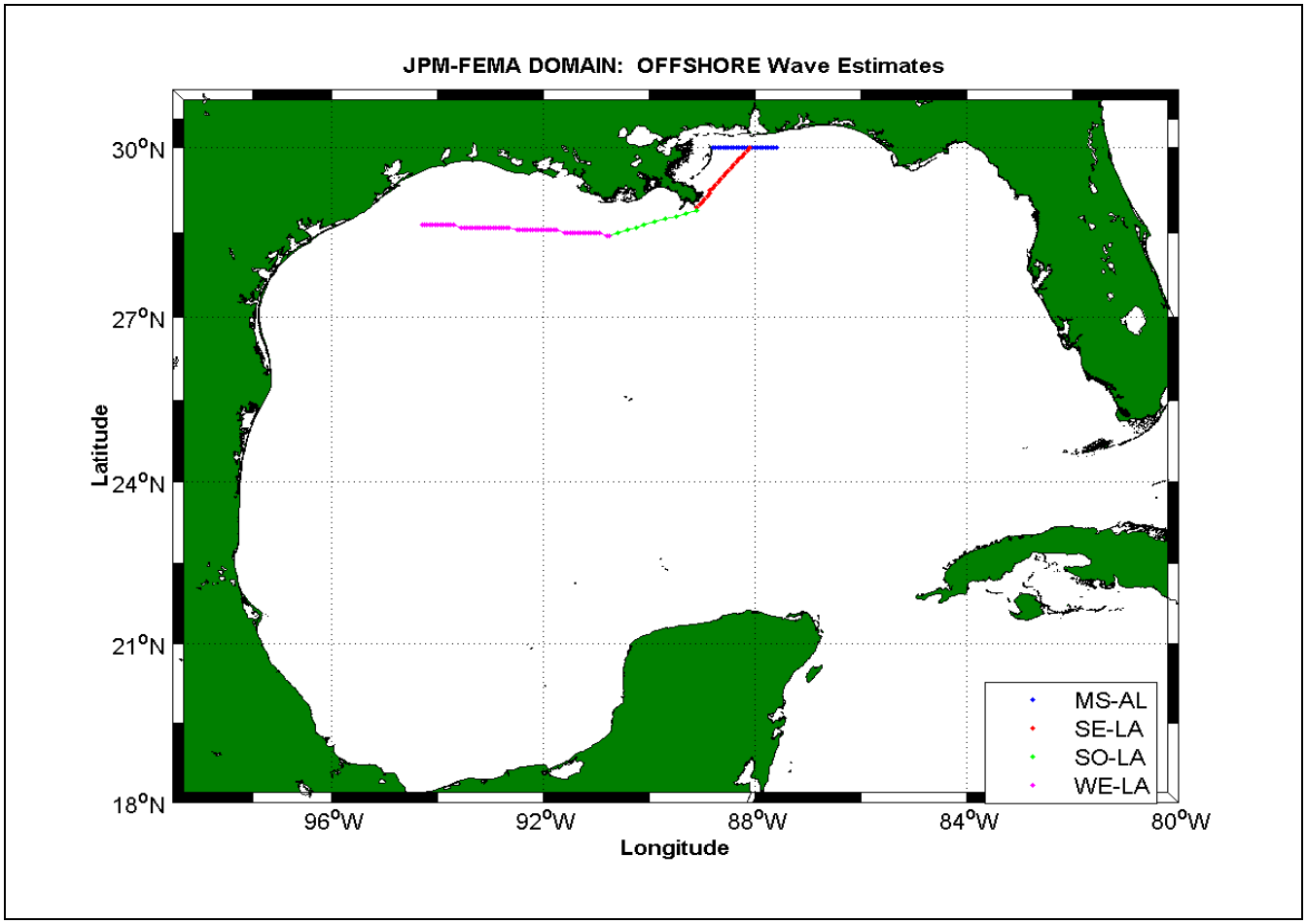

Figure 29: Target domain for wind, pressure, and offshore wave estimates.

Colored lines indicate location of boundary points directed to STWAVE simulations.

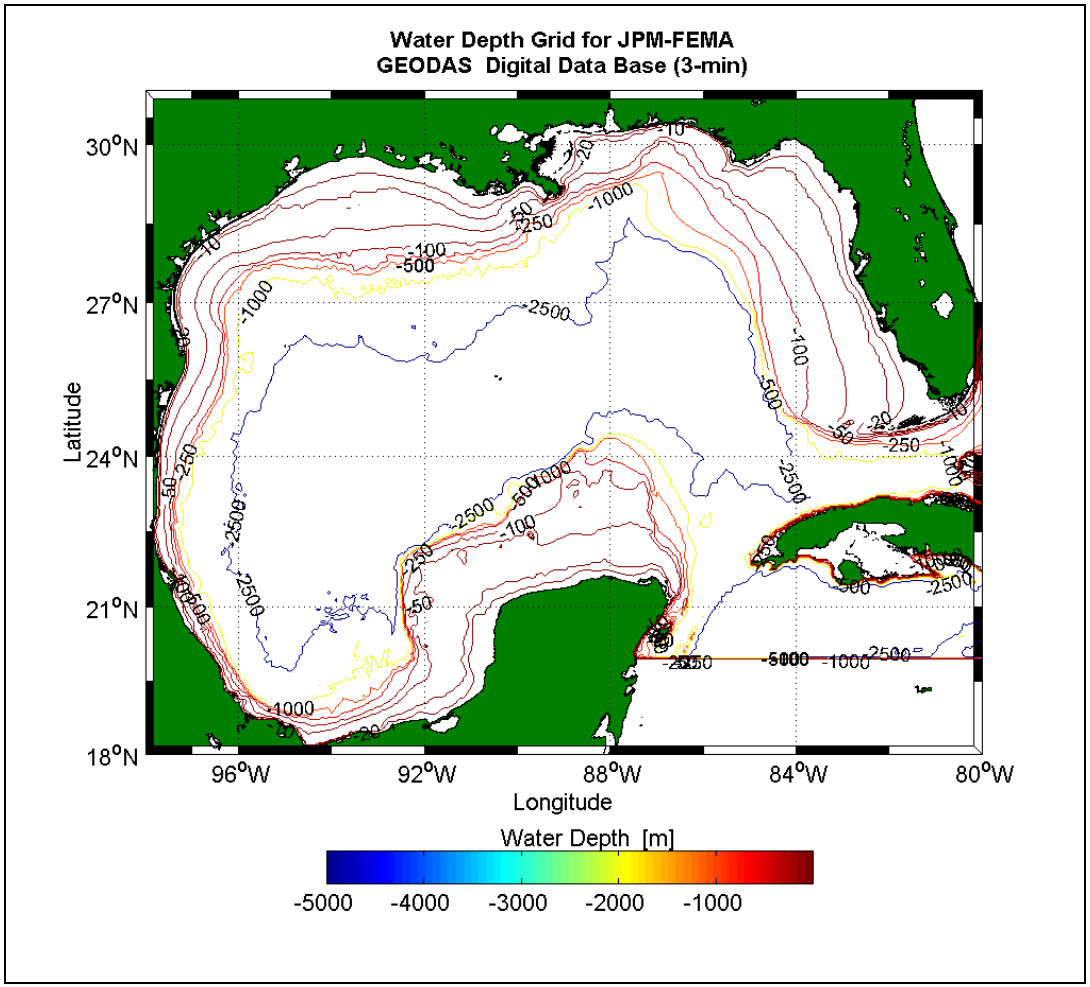

Figure 30: Water depth contours for offshore wave model simulations. Depths are in meters.

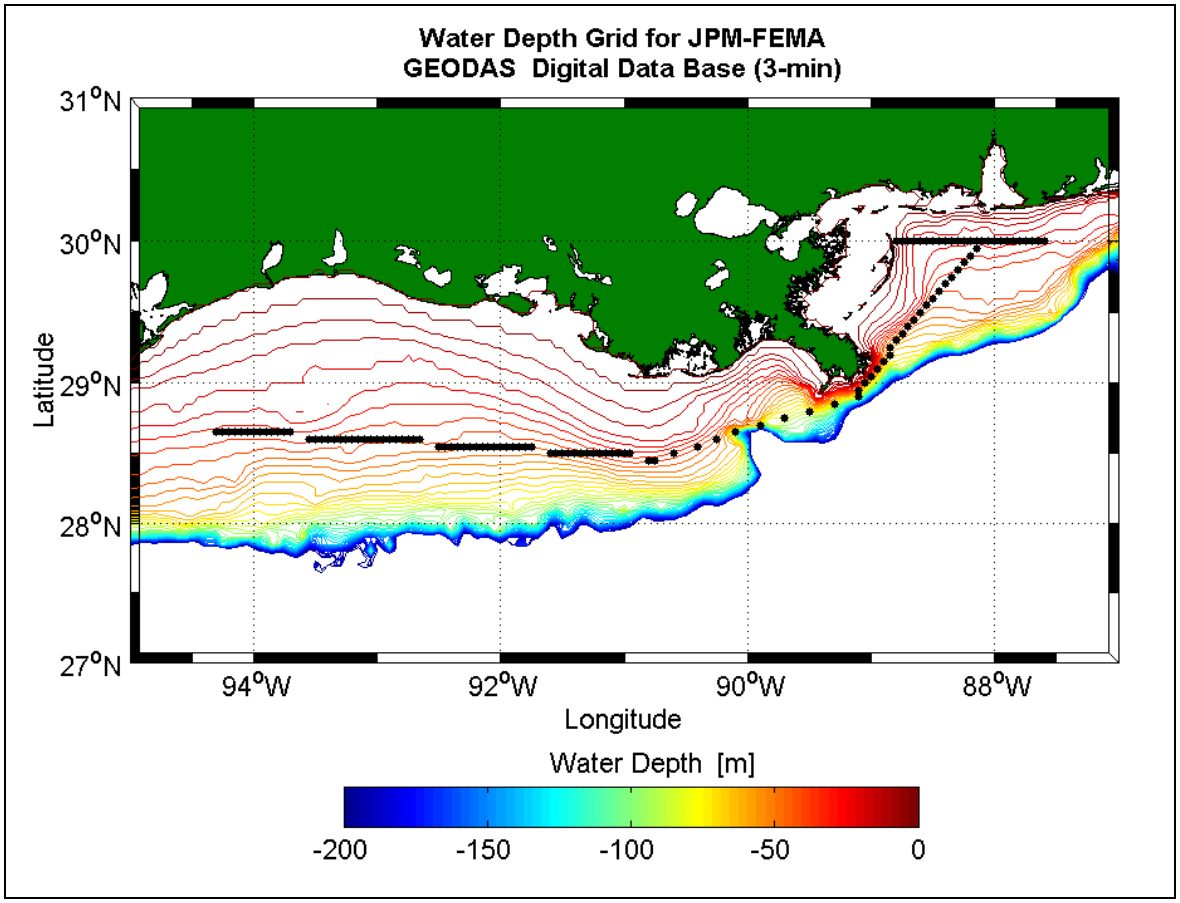

Figure 31: Refined version of the water depth grid used in offshore wave model simulations. Boundary points closed symbols, and depths are in meters.

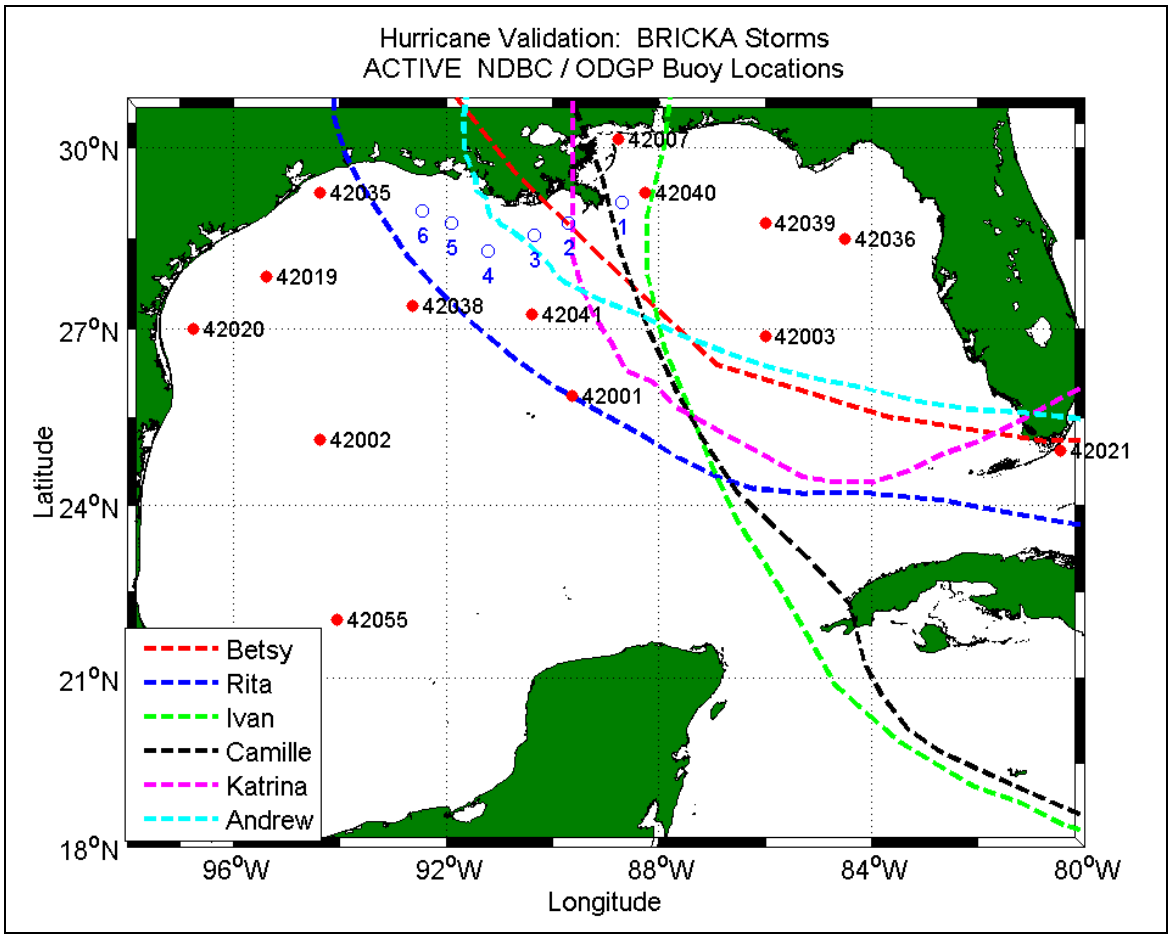

Figure 32: The BRICKA (Betsy, Rita, Ivan, Camille, Katrina, and Andrew) storm tracks and wave measurement sites, where ST 1 through 6 are Ocean Data Gathering Project locations. The remaining sites are NOAA NDBC buoys.

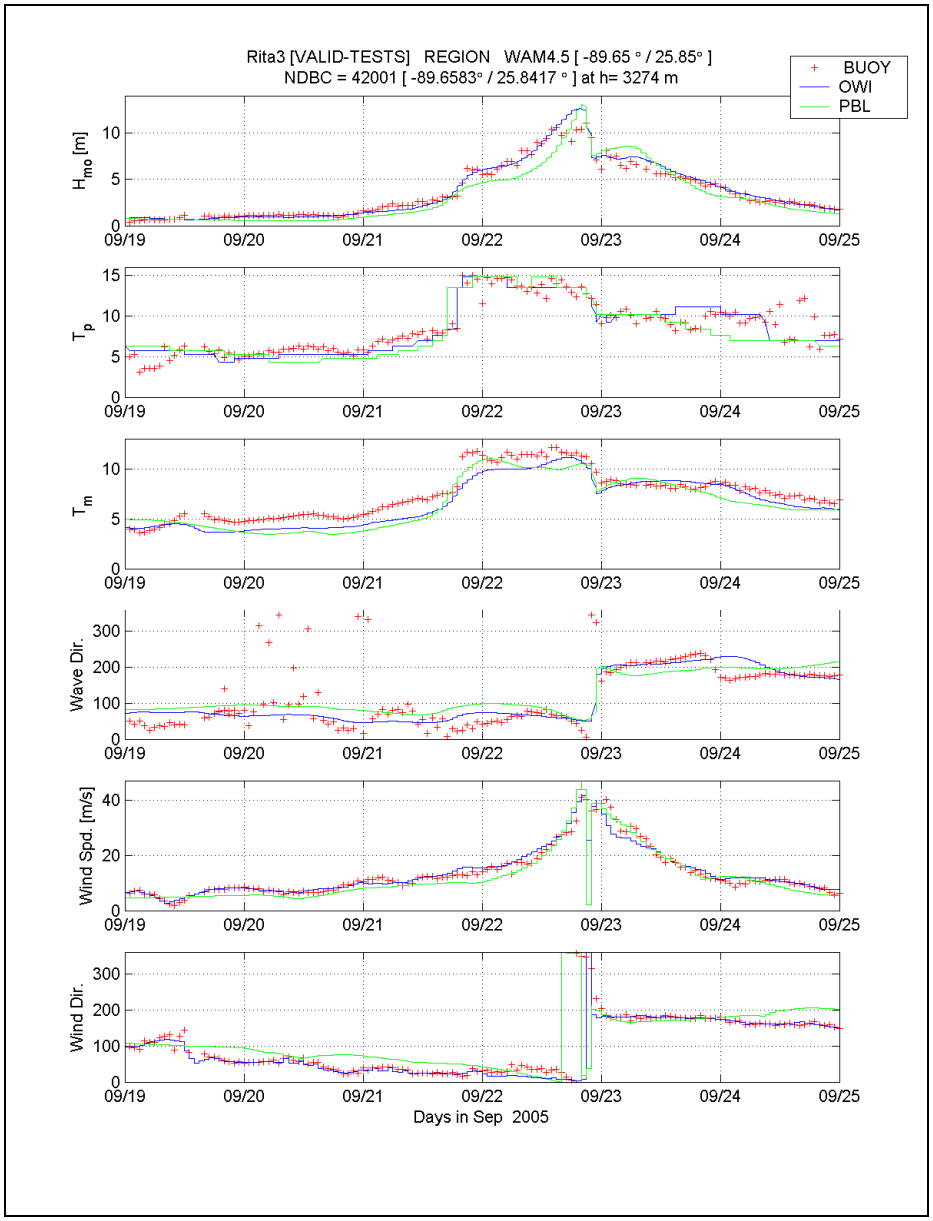

Figure 33: Time plot at NDBC Buoy 42001 for Hurricane Rita, BRICKA storm verification simulations.

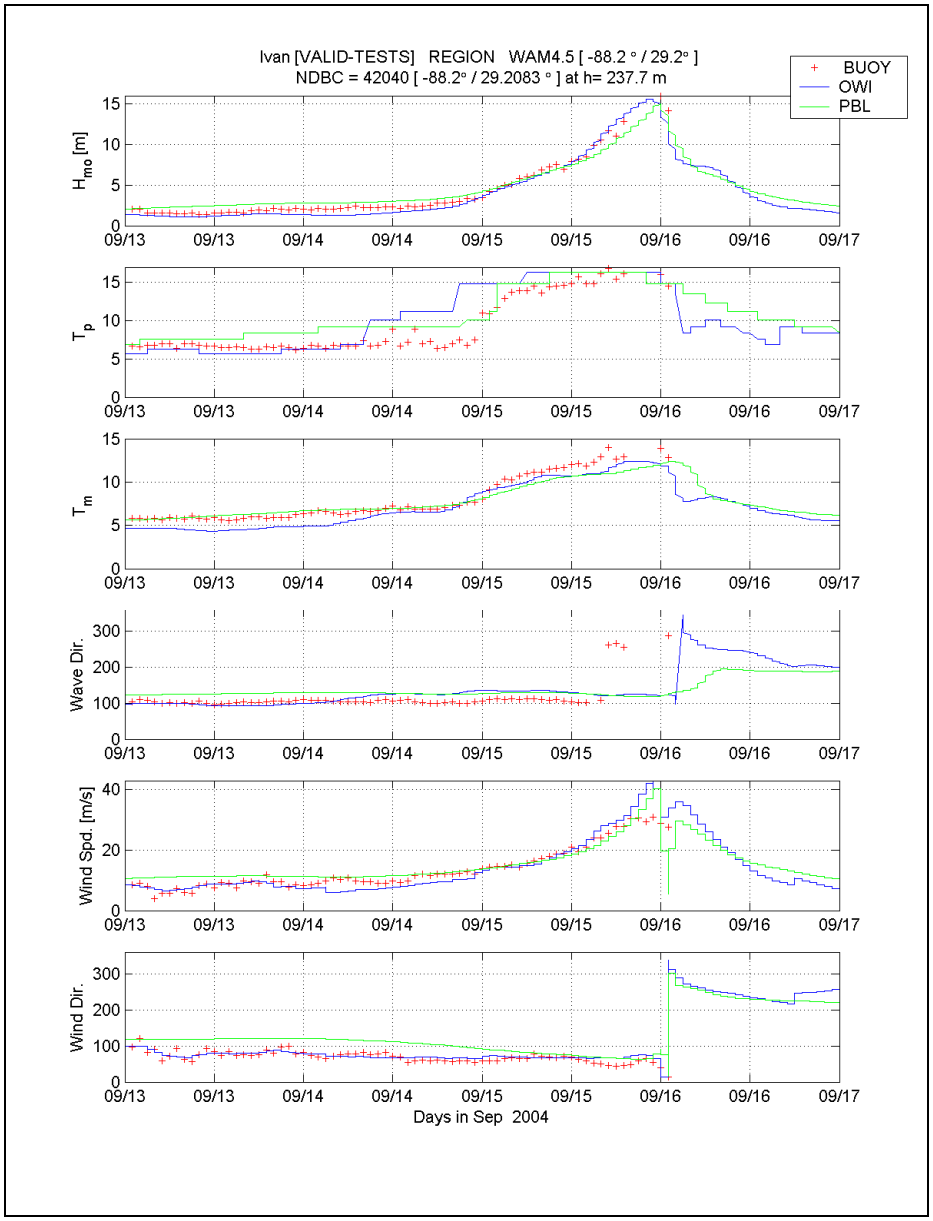

Figure 34: Time plot at NDBC Buoy 42040 for Hurricane Ivan, BRICKA storm verification simulations.

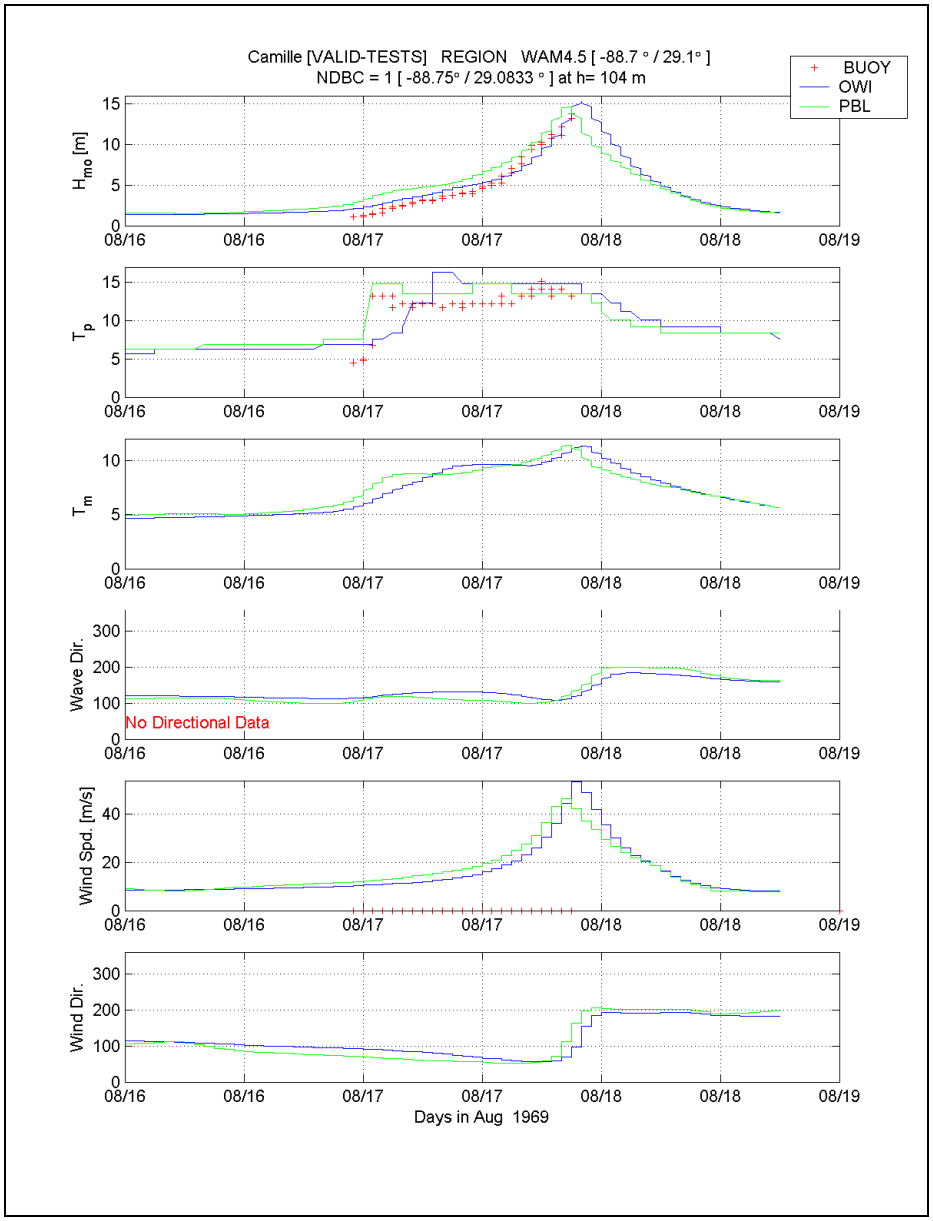

Figure 35: Time plot at ODGP Station 1 for Hurricane Camille, BRICKA storm verification simulations.

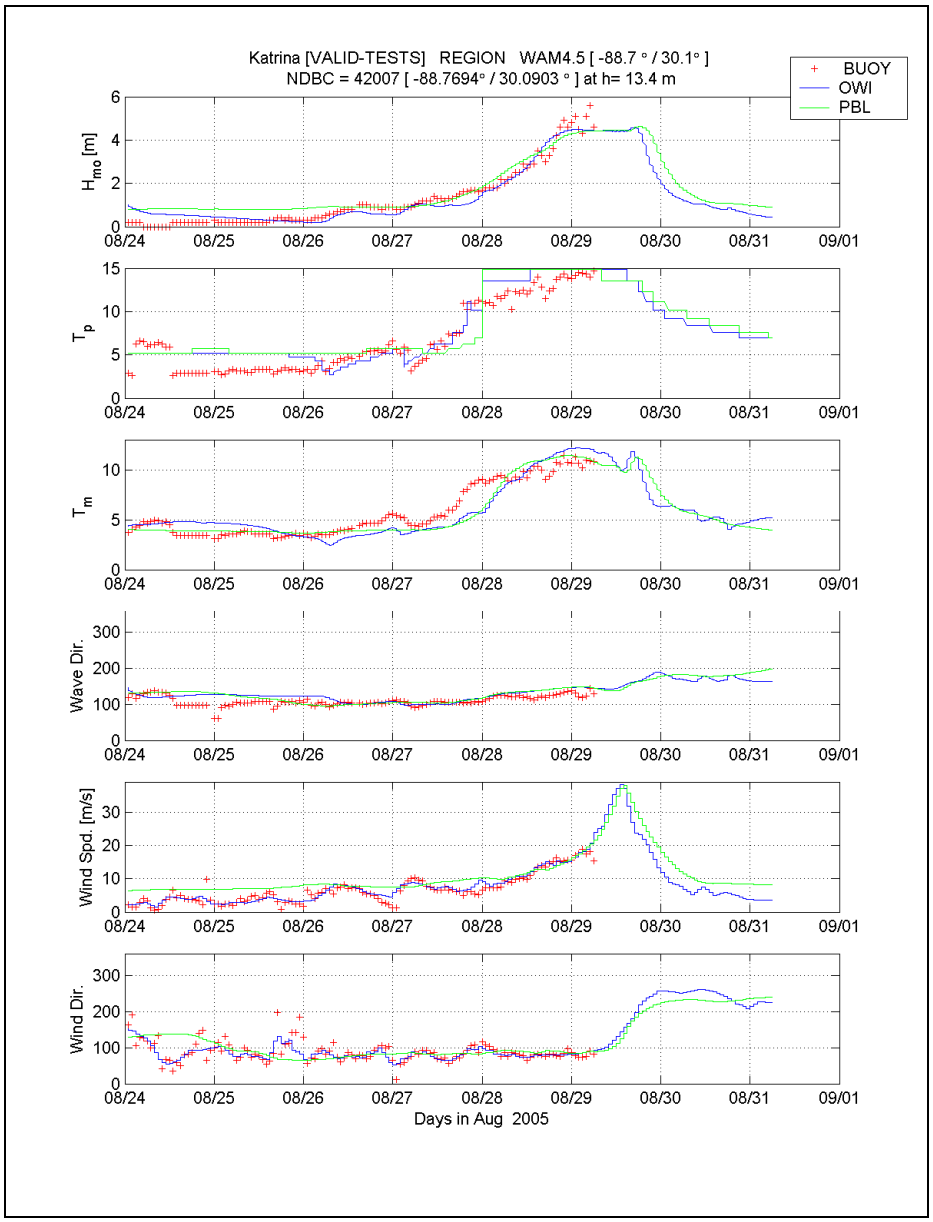

Figure 36: Time plot at NDBC Buoy 42007 for Hurricane Katrina, BRICKA storm verification simulations.

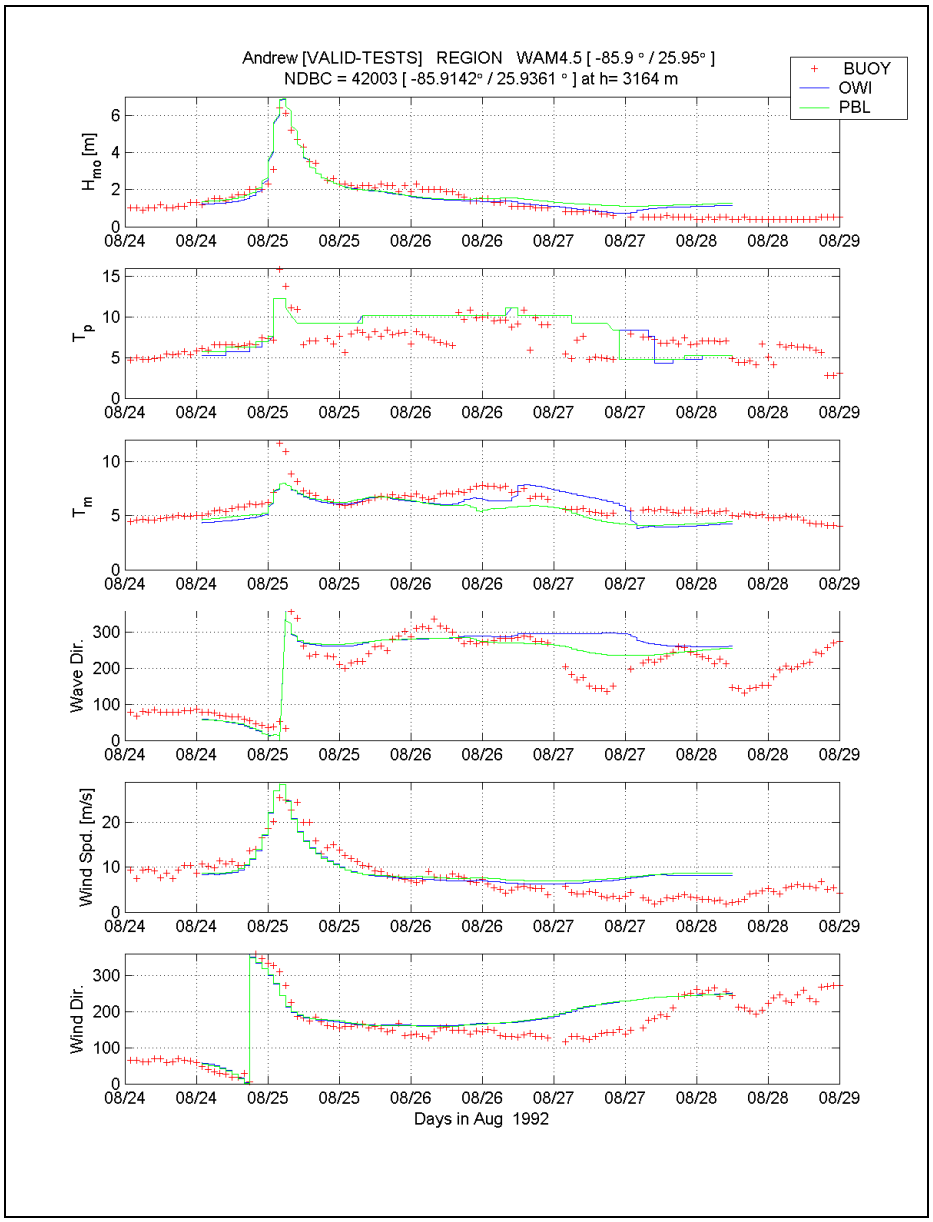

Figure 37: Time plot at NDBC Buoy 42003 for Hurricane Andrew, BRICKA storm verification simulations.

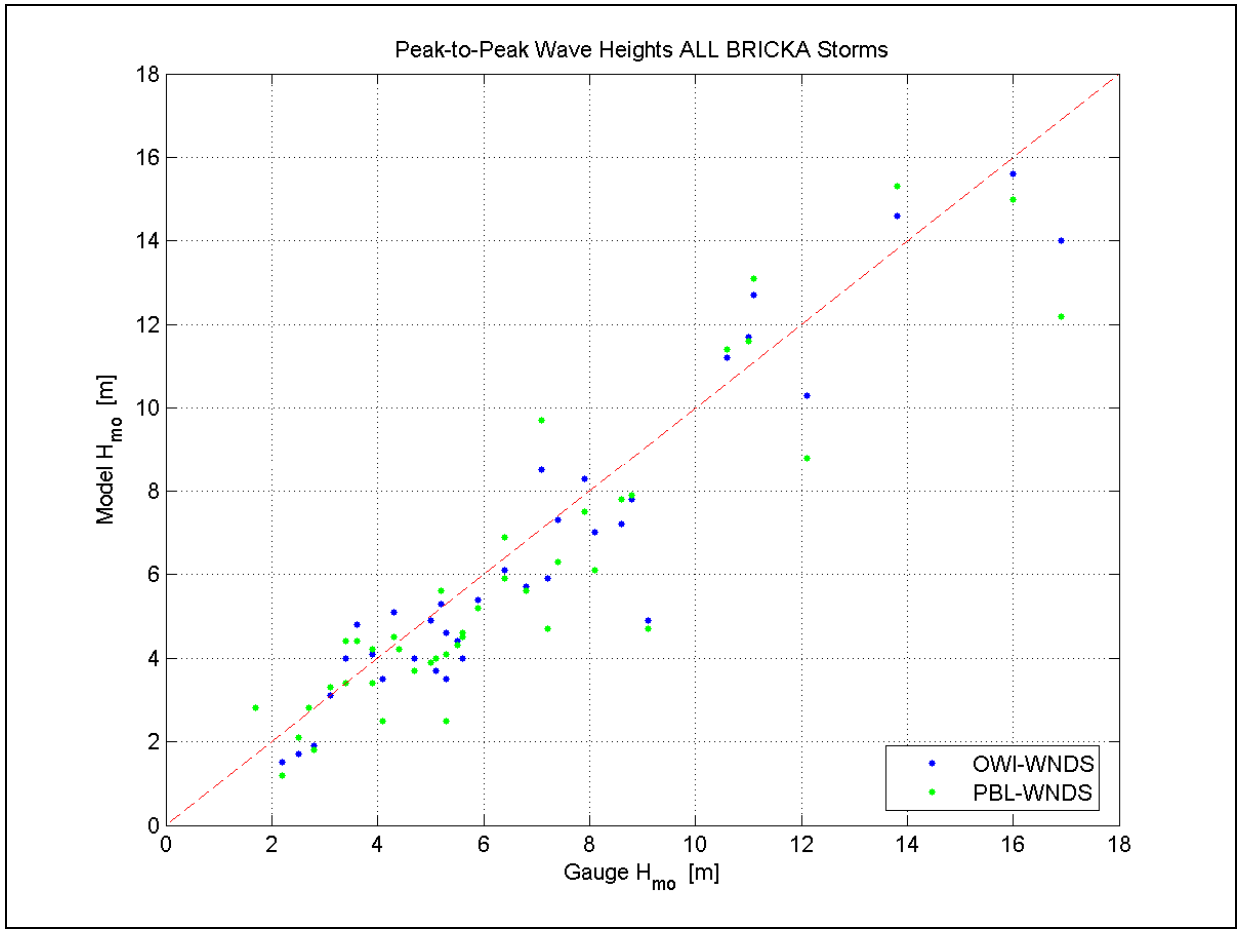

Figure 38: The BRICKA (Betsy, Rita, Ivan, Camille, Katrina, and Andrew) storm WAM verification runs for significant wave height.

Note: There were no data for Hurricane Betsy; Camille wave data were obtained from Ocean Data Gathering Project, and remaining sets are NOAA NDBC buoys.

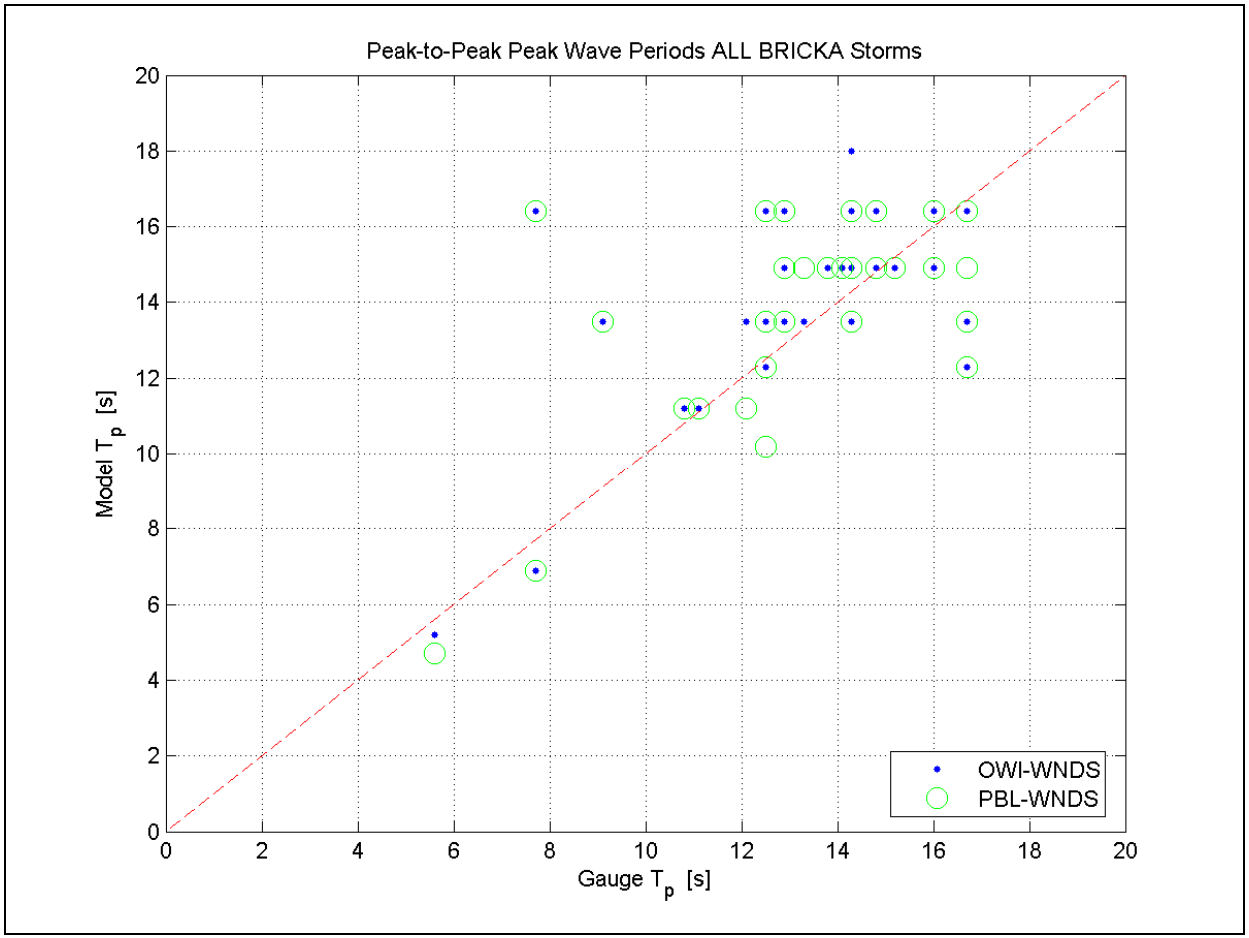

Figure 39: The BRICKA (Betsy, Rita, Ivan, Camille, Katrina, and Andrew) storm WAM verification runs for peak wave period.

Note: There were no data for Hurricane Betsy; Camille wave data were obtained from Ocean Data Gathering Project, and remaining sets are NOAA NDBC buoys.

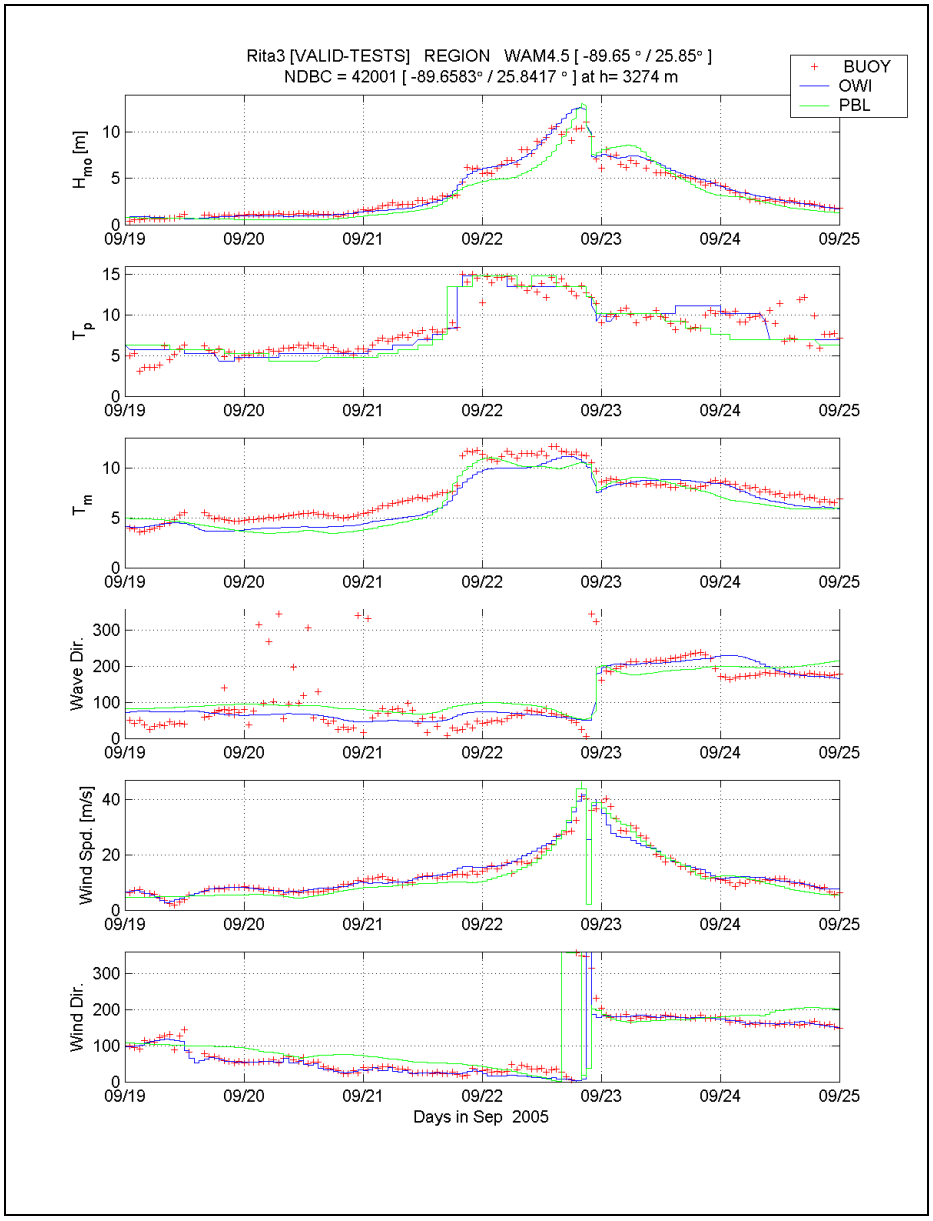

Figure 40: Time plot at NDBC Buoy 42001 for Hurricane Rita, BRICKA storm verification.

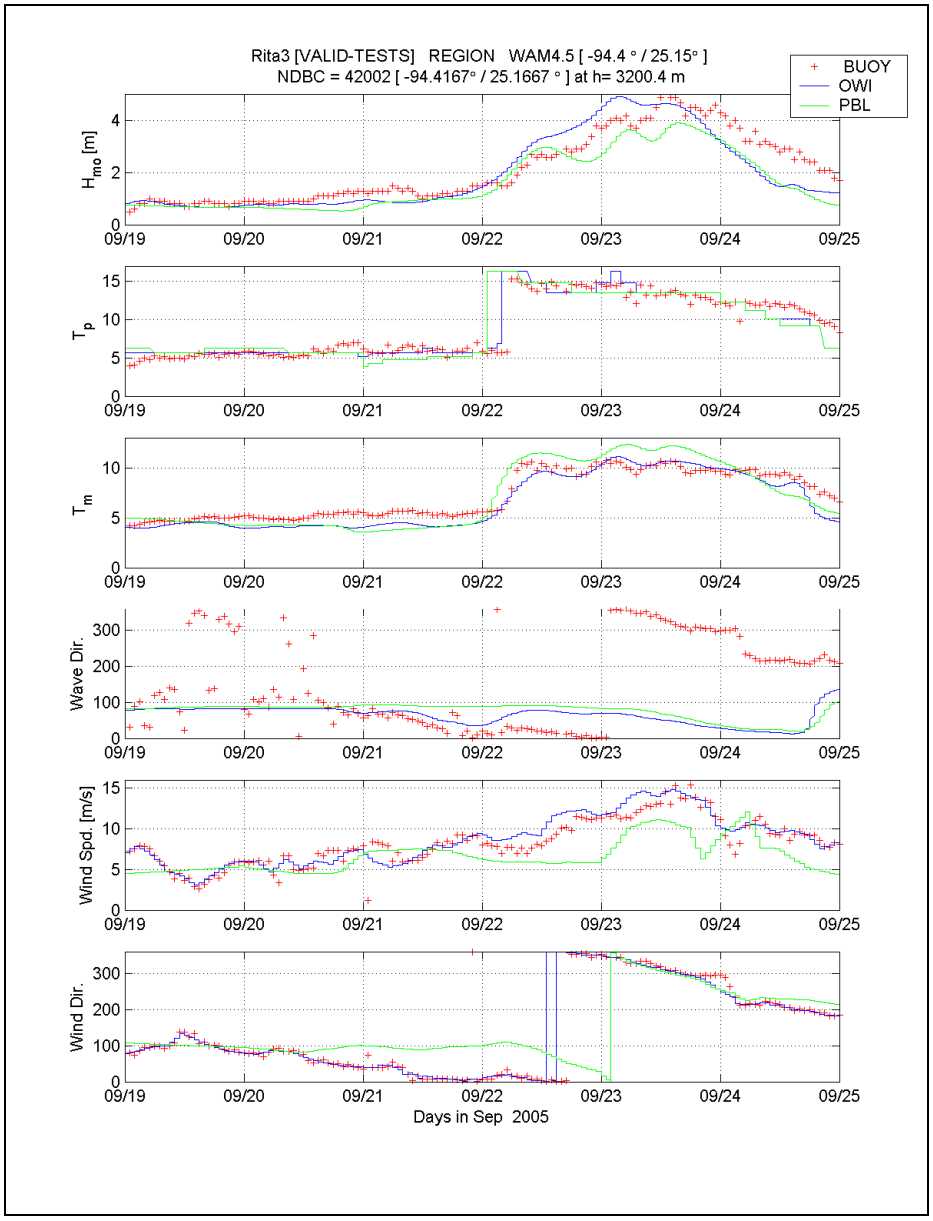

Figure 41: Time plot at NDBC Buoy 42002 for Hurricane Rita, BRICKA storm verification.

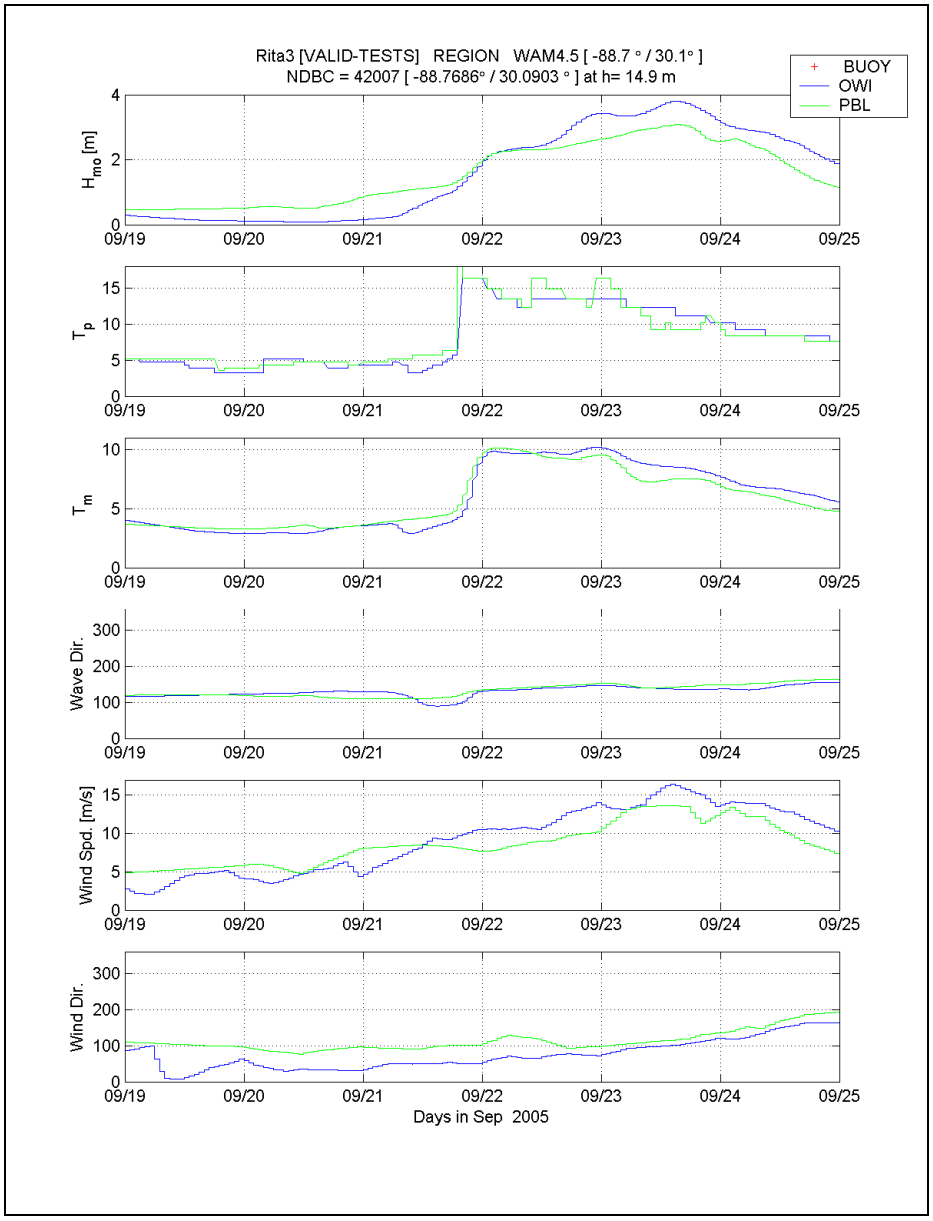

Figure 42: Time plot at NDBC Buoy 42007 for Hurricane Rita, BRICKA storm verification.

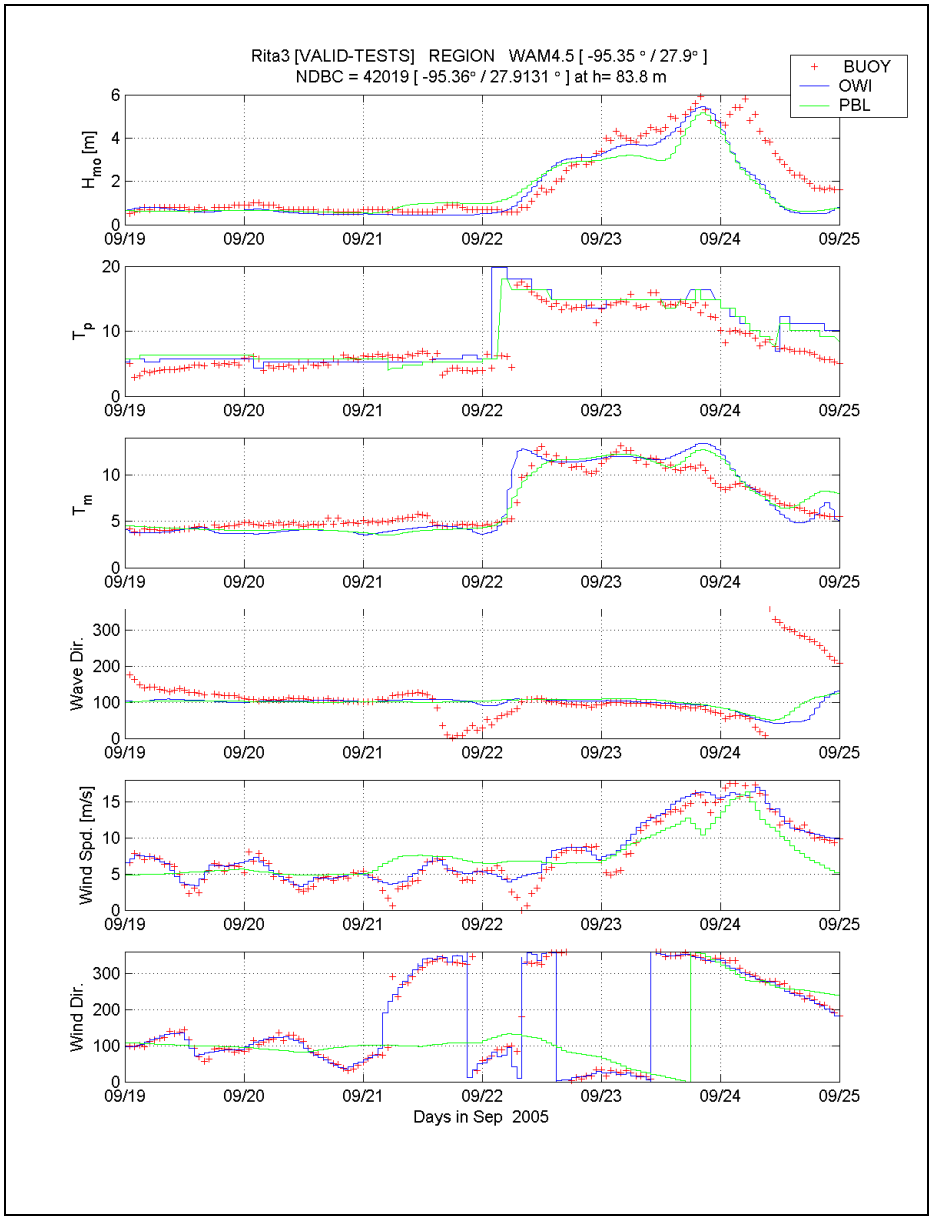

Figure 43: Time plot at NDBC Buoy 42019 for Hurricane Rita, BRICKA storm verification.

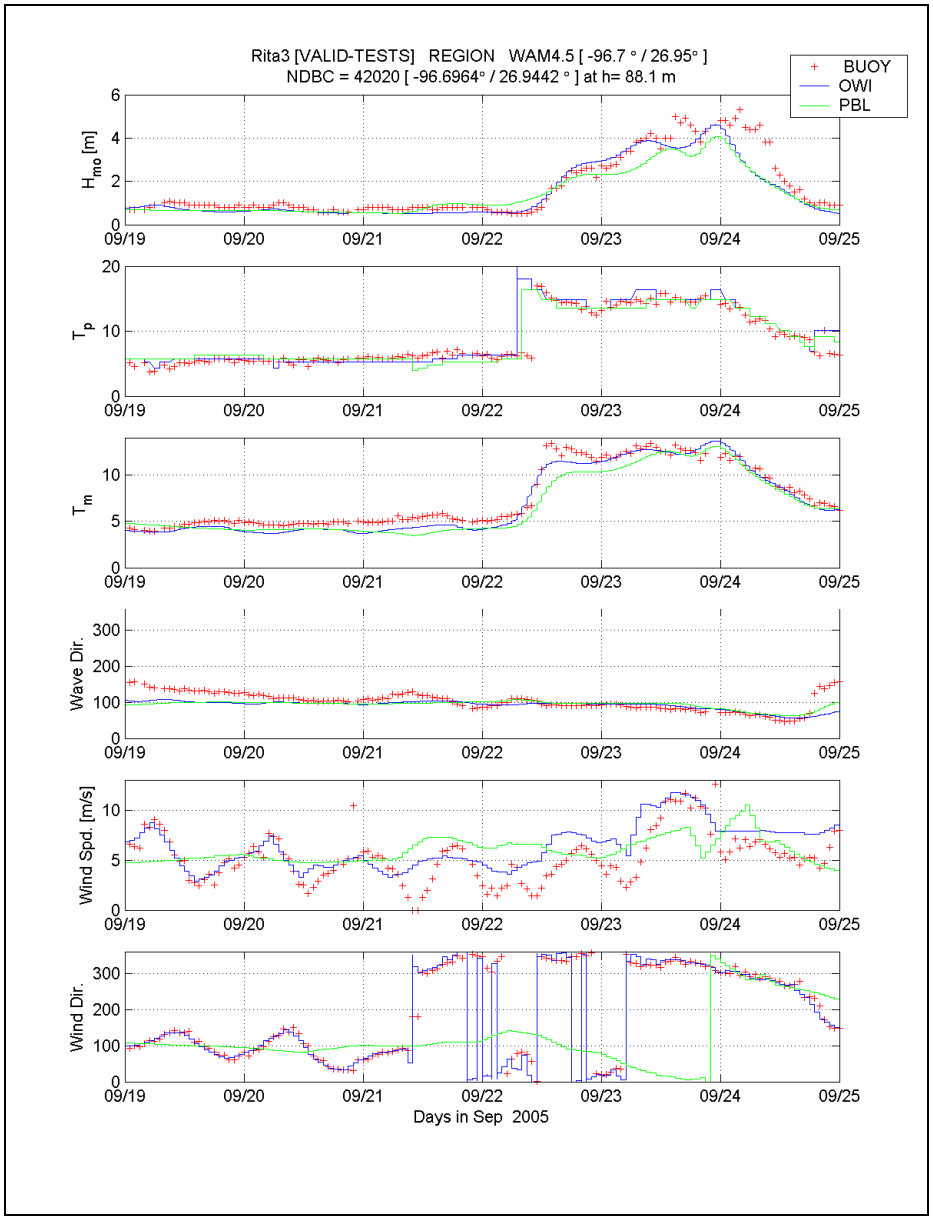

Figure 44: Time plot at NDBC Buoy 42020 for Hurricane Rita, BRICKA storm verification.

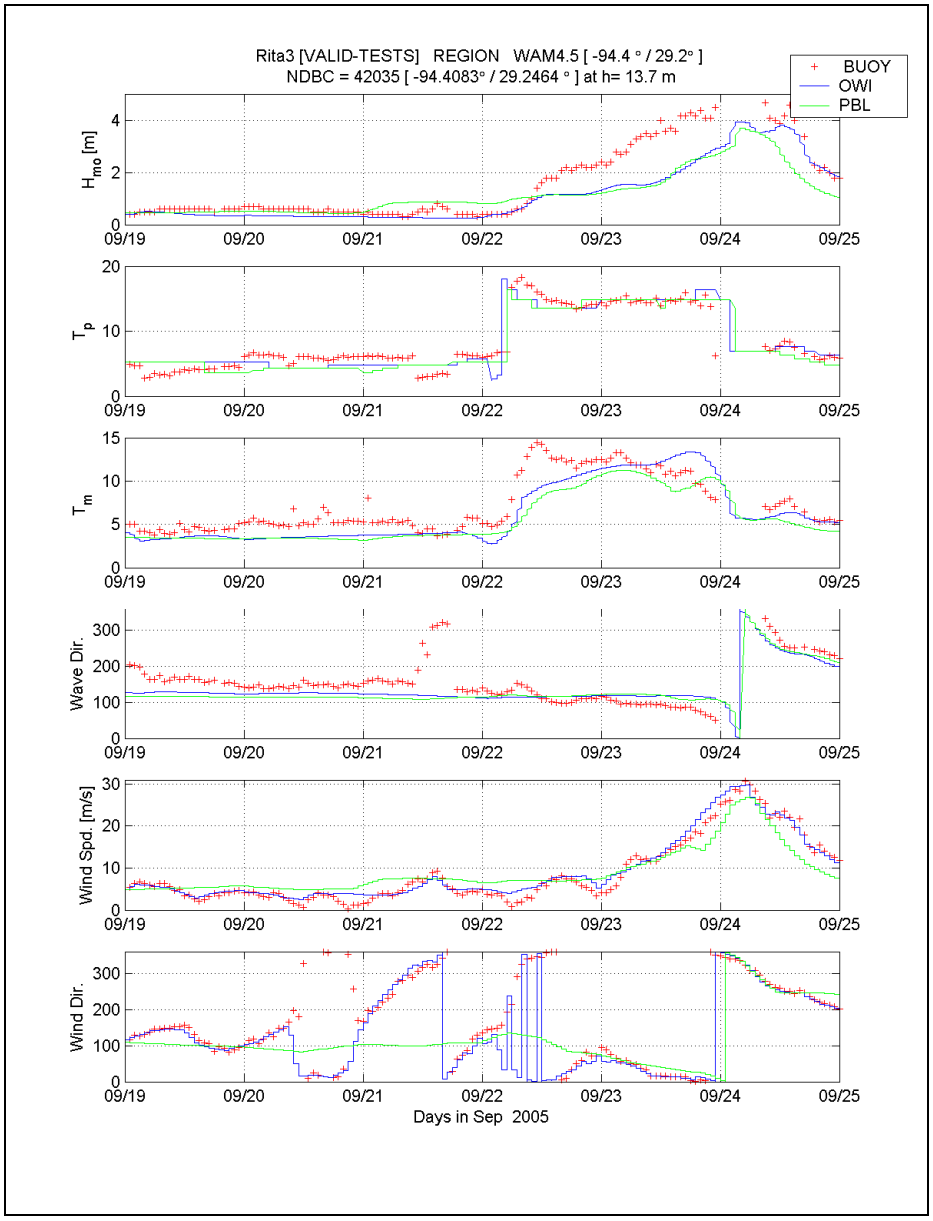

Figure 45: Time plot at NDBC Buoy 42035 for Hurricane Rita, BRICKA storm verification.

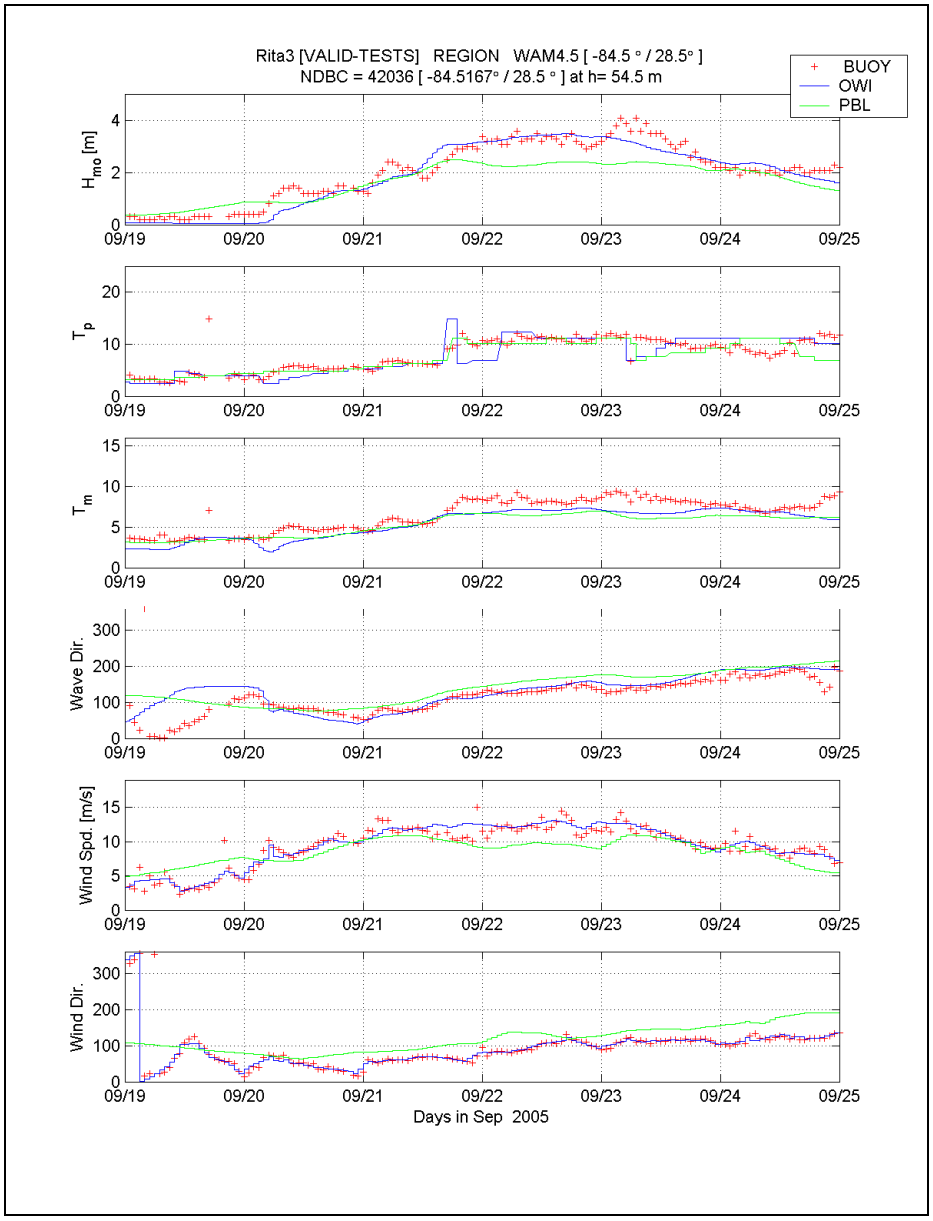

Figure 46: Time plot at NDBC Buoy 42036 for Hurricane Rita, BRICKA storm verification.

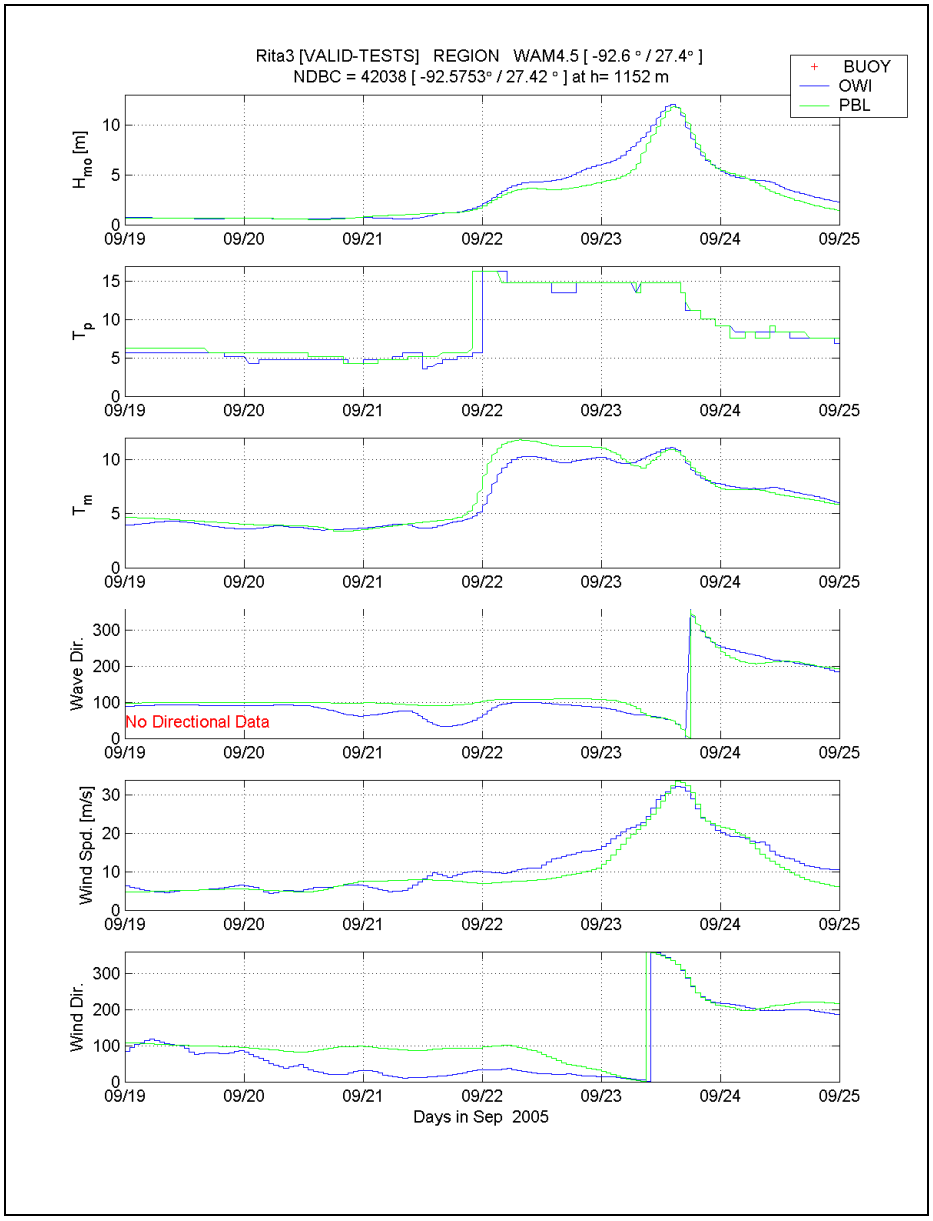

Figure 47: Time plot at NDBC Buoy 42038 for Hurricane Rita, BRICKA storm verification.

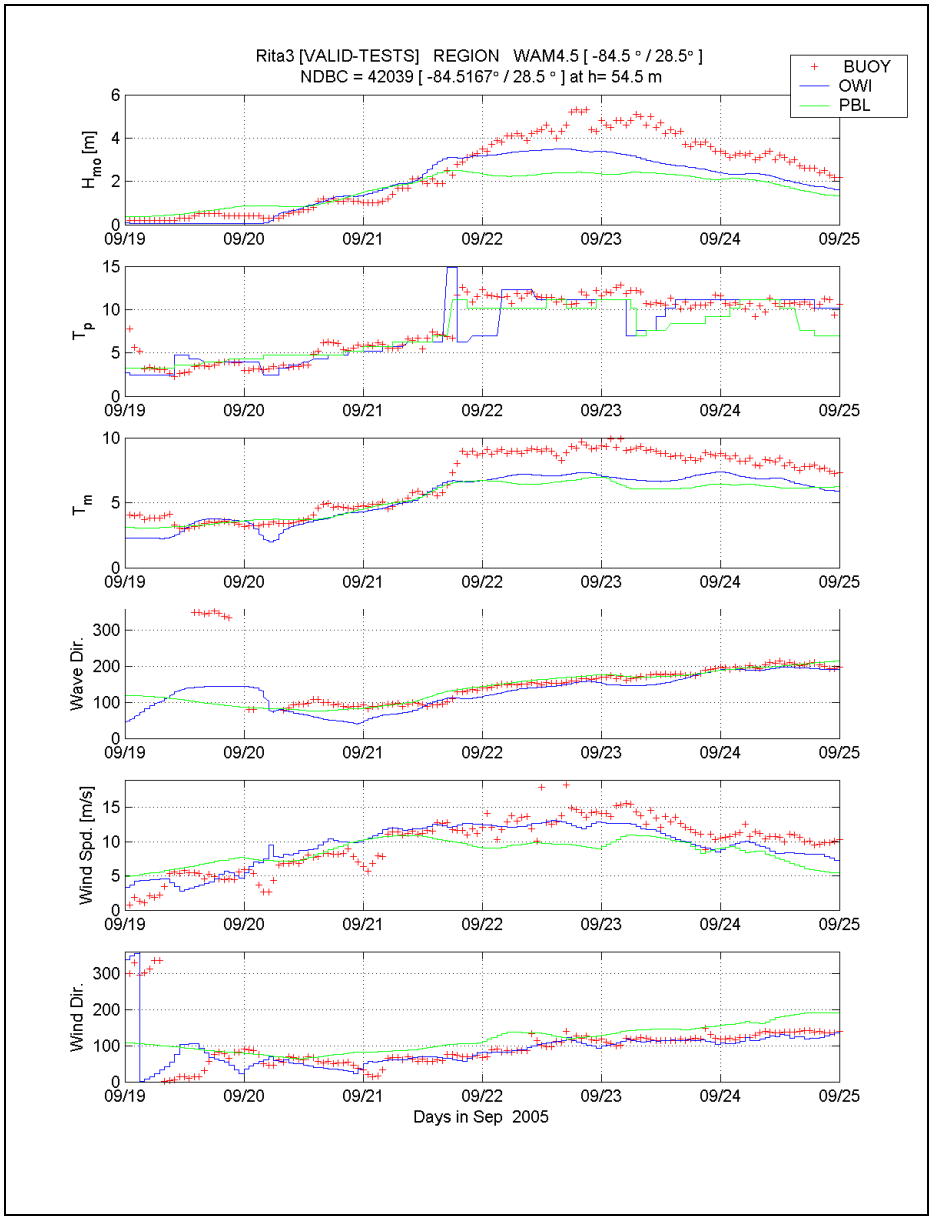

Figure 48: Time plot at NDBC Buoy 42039 for Hurricane Rita, BRICKA storm verification.

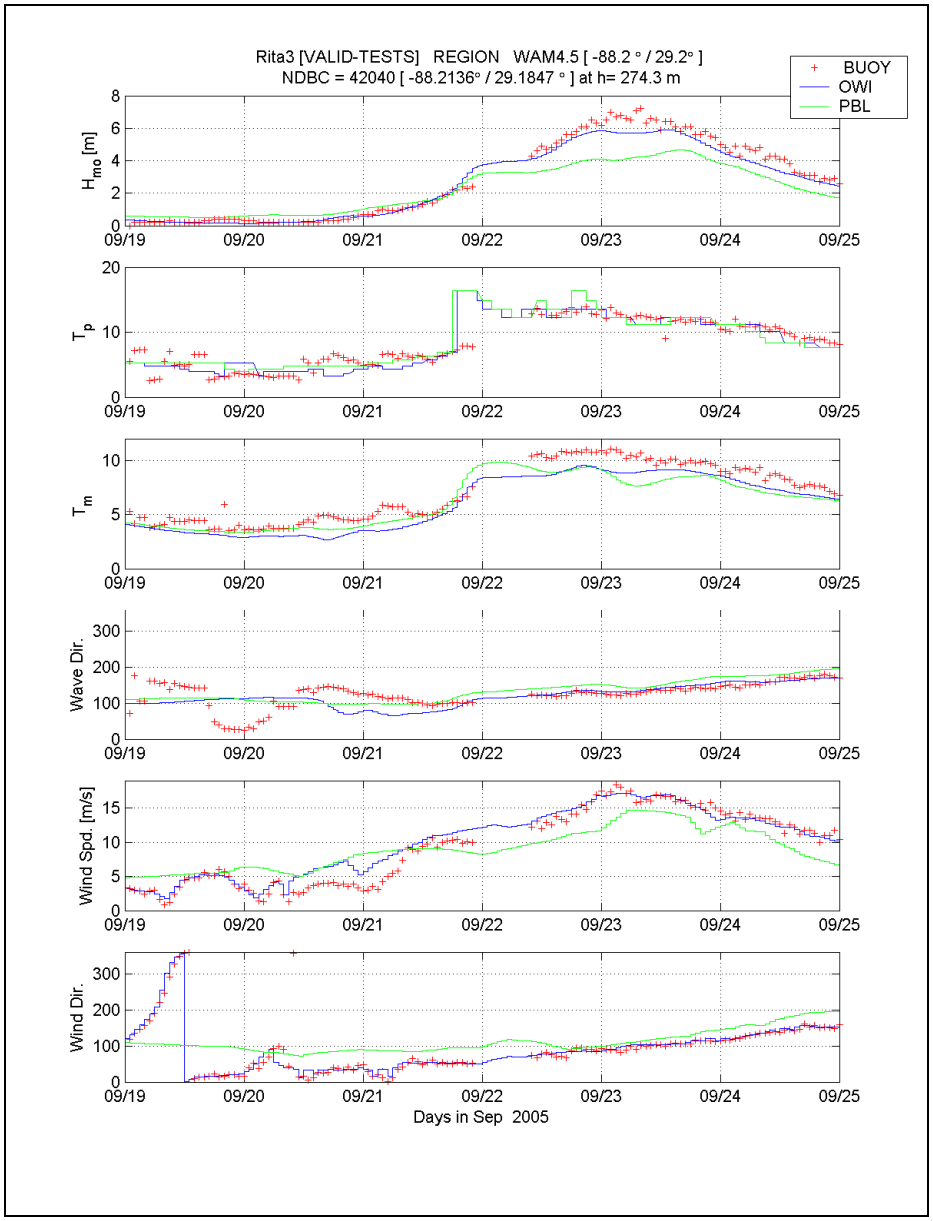

Figure 49: Time plot at NDBC Buoy 42040 for Hurricane Rita, BRICKA storm verification.

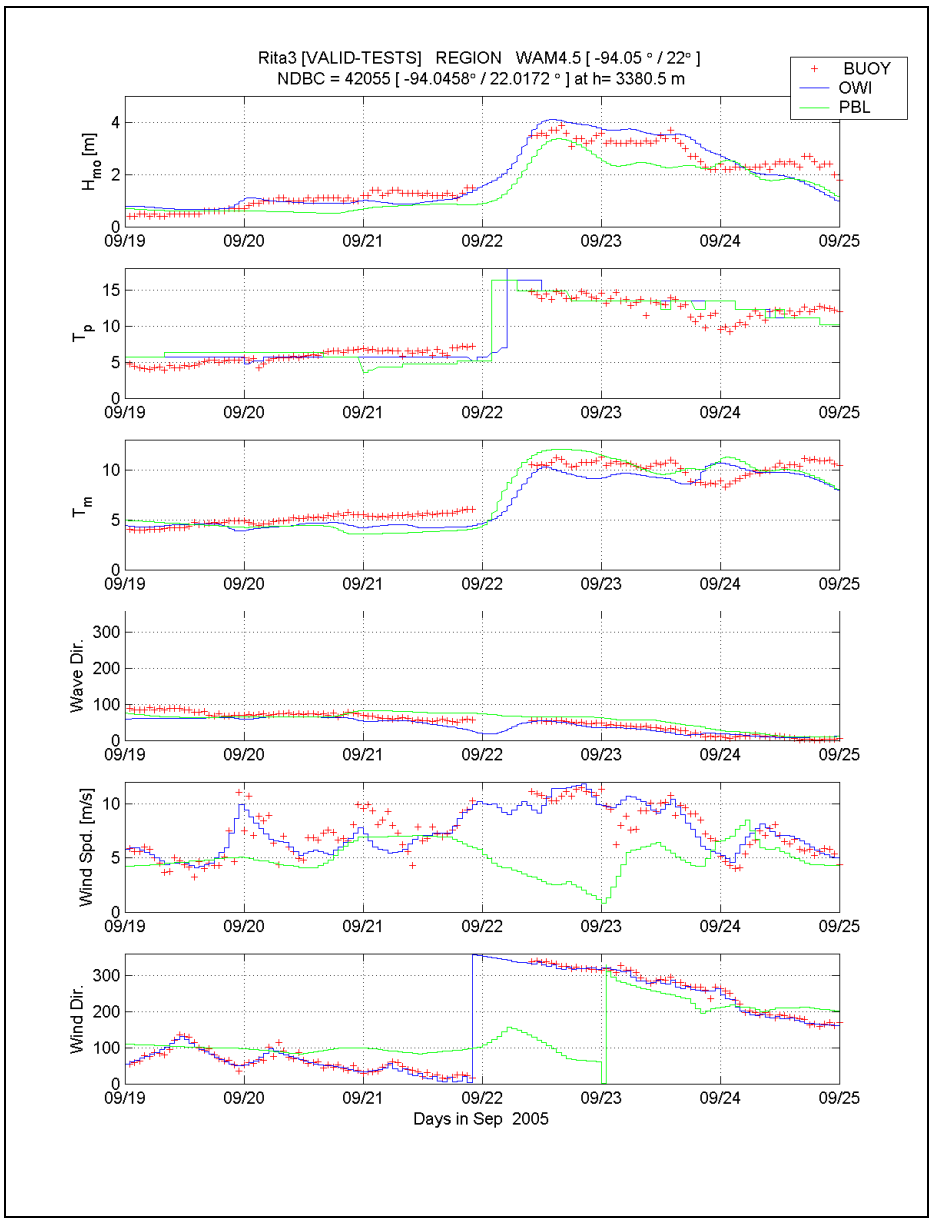

Figure 50: Time plot at NDBC Buoy 42055 for Hurricane Rita, BRICKA storm verification.

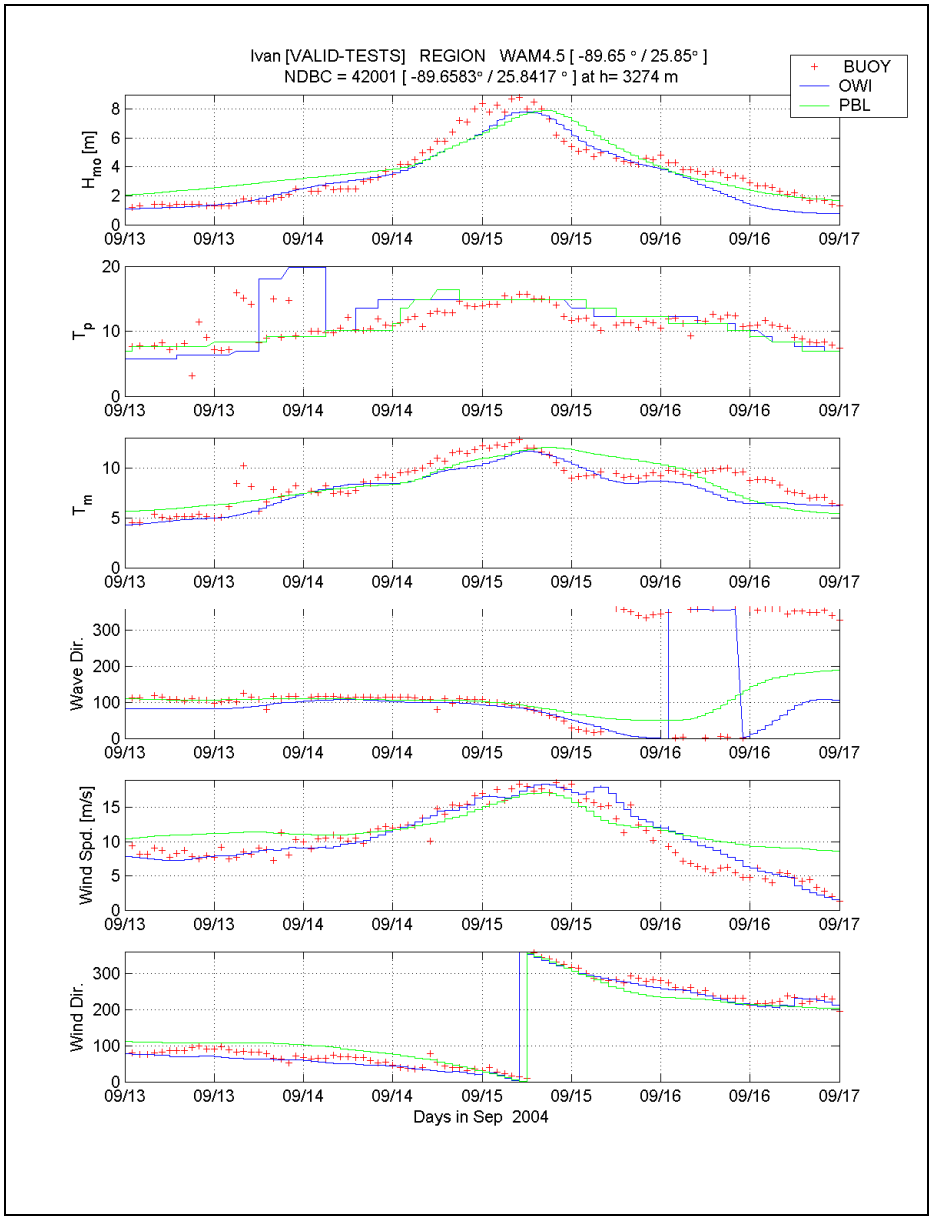

Figure 51: Time plot at NDBC Buoy 42001 for Hurricane Ivan, BRICKA storm verification.

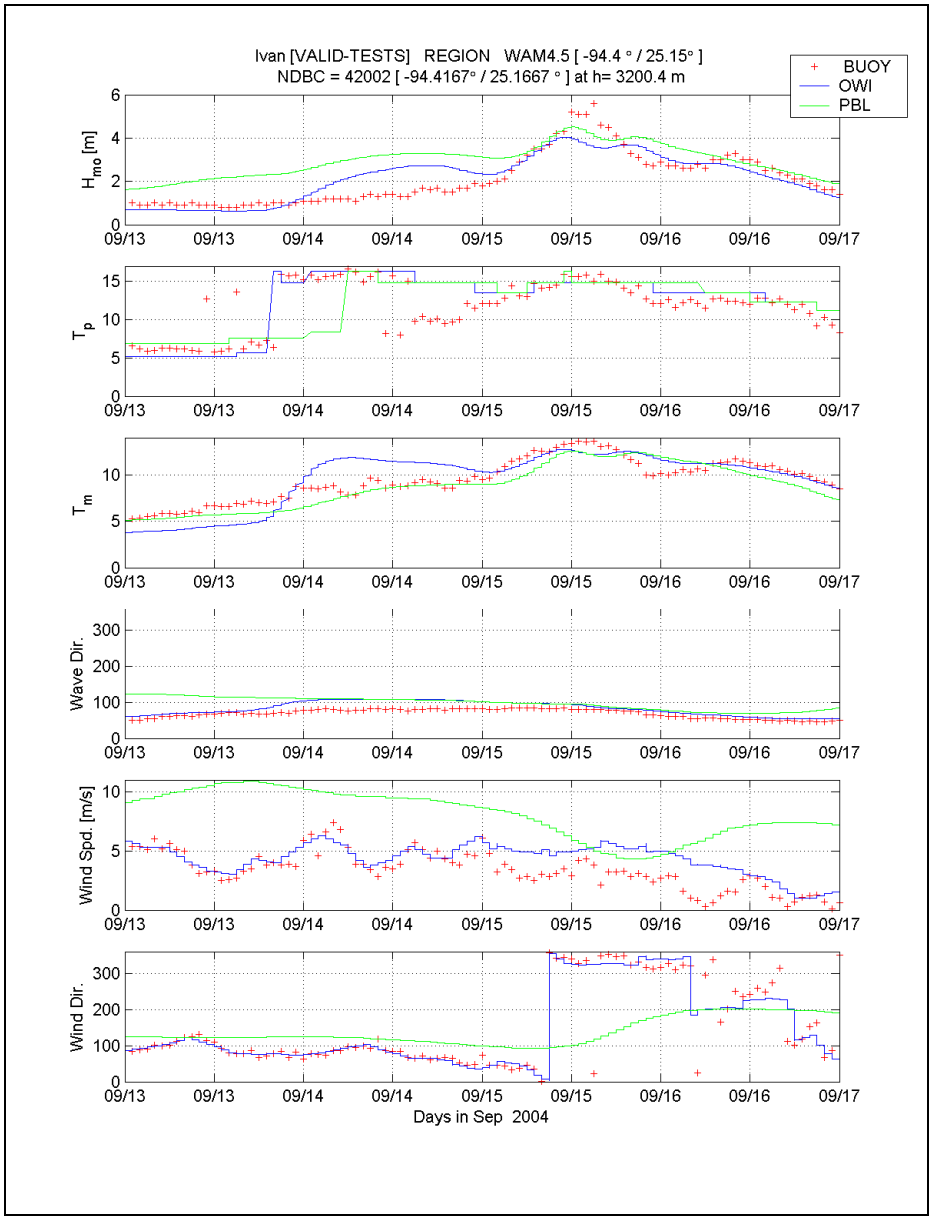

Figure 52: Time plot at NDBC Buoy 42002 for Hurricane Ivan, BRICKA storm verification.

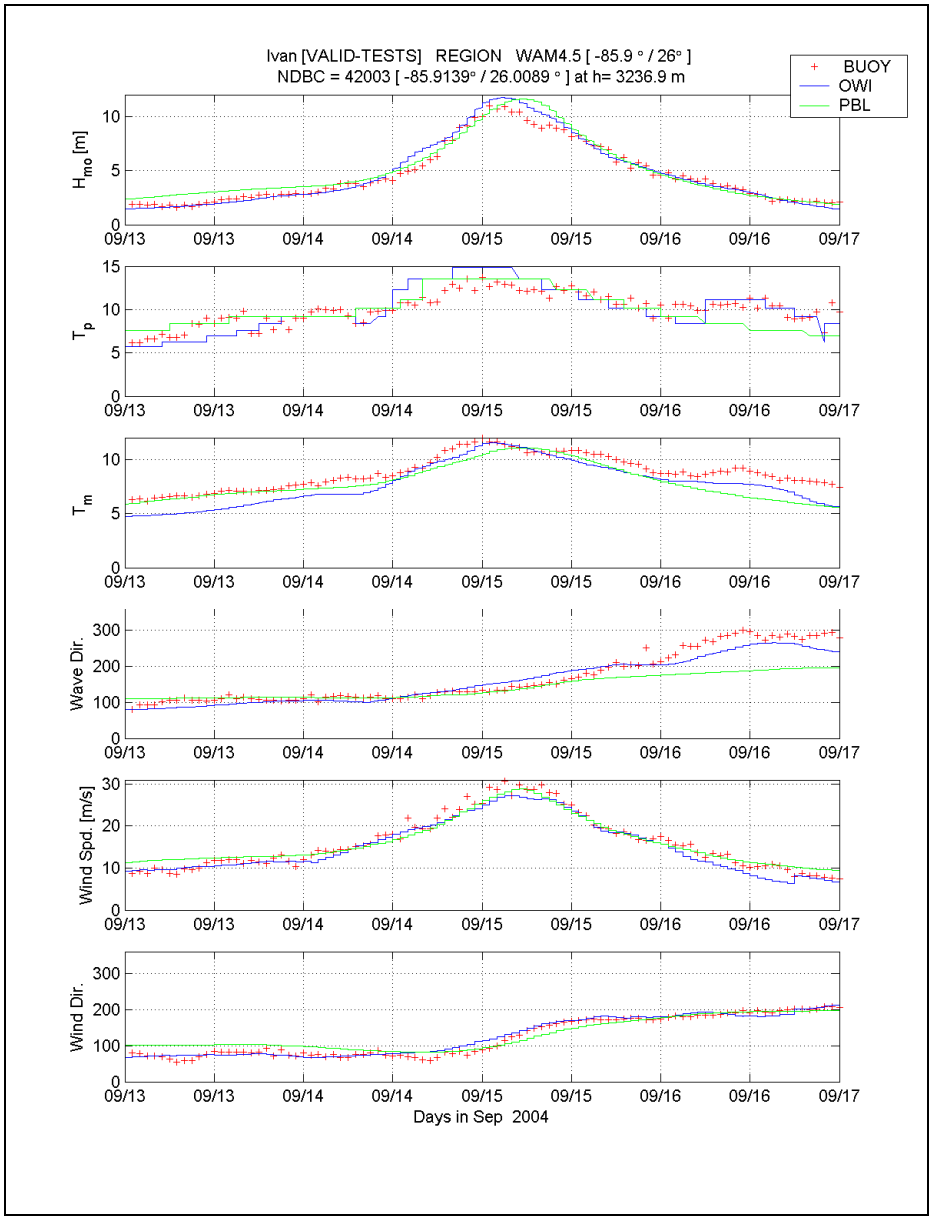

Figure 53: Time plot at NDBC Buoy 42003 for Hurricane Ivan, BRICKA storm verification.

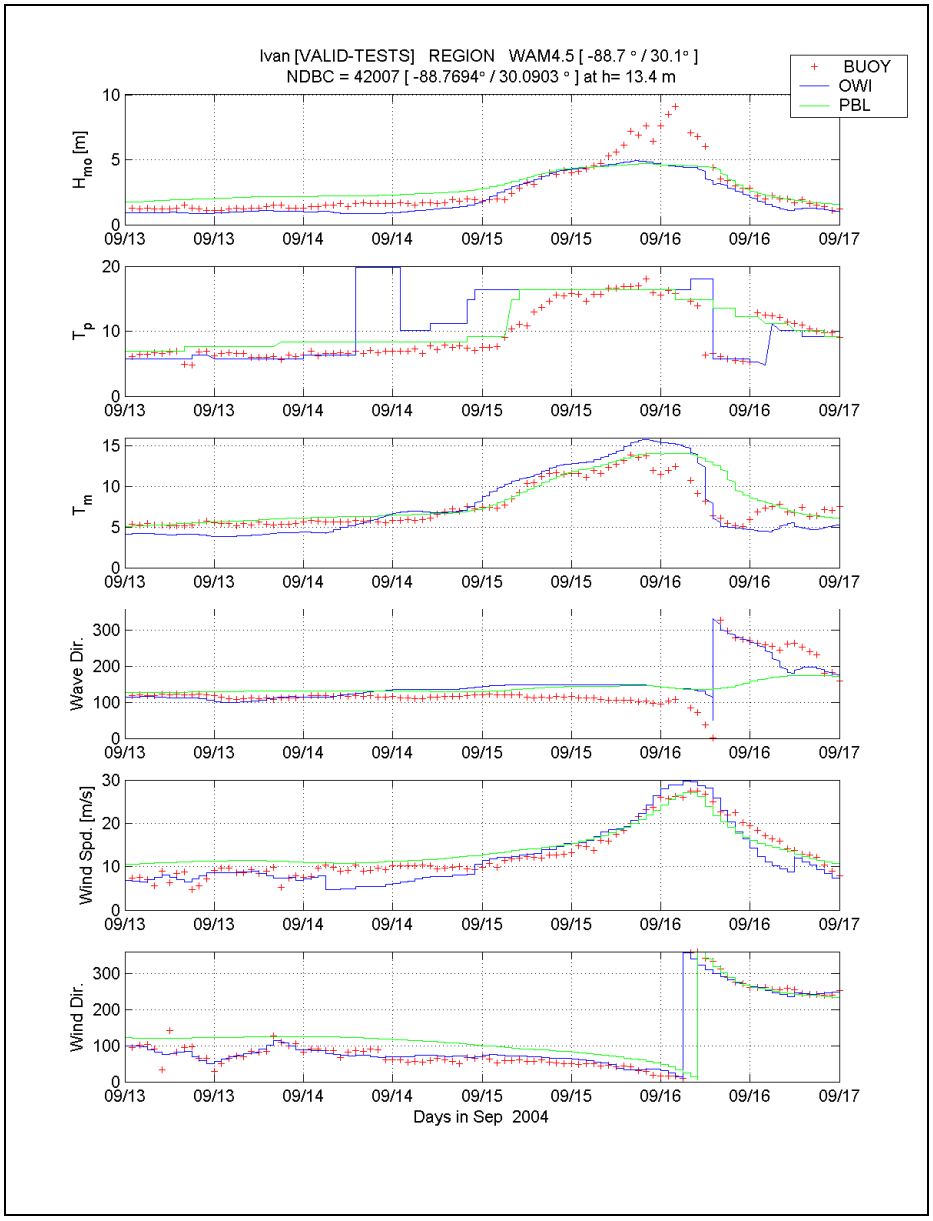

Figure 54: Time plot at NDBC Buoy 42007 for Hurricane Ivan, BRICKA storm verification.

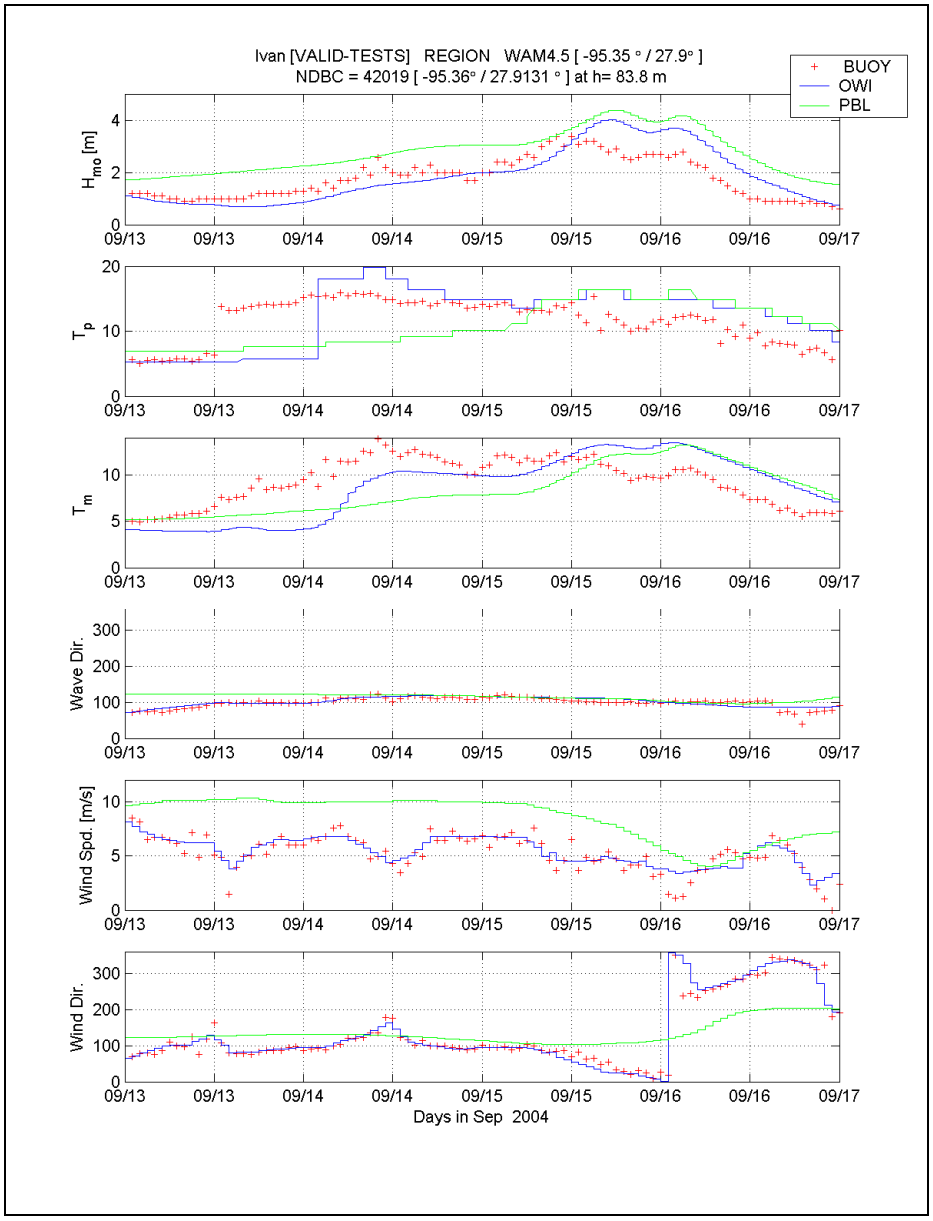

Figure 55: Time plot at NDBC Buoy 42019 for Hurricane Ivan, BRICKA storm verification.

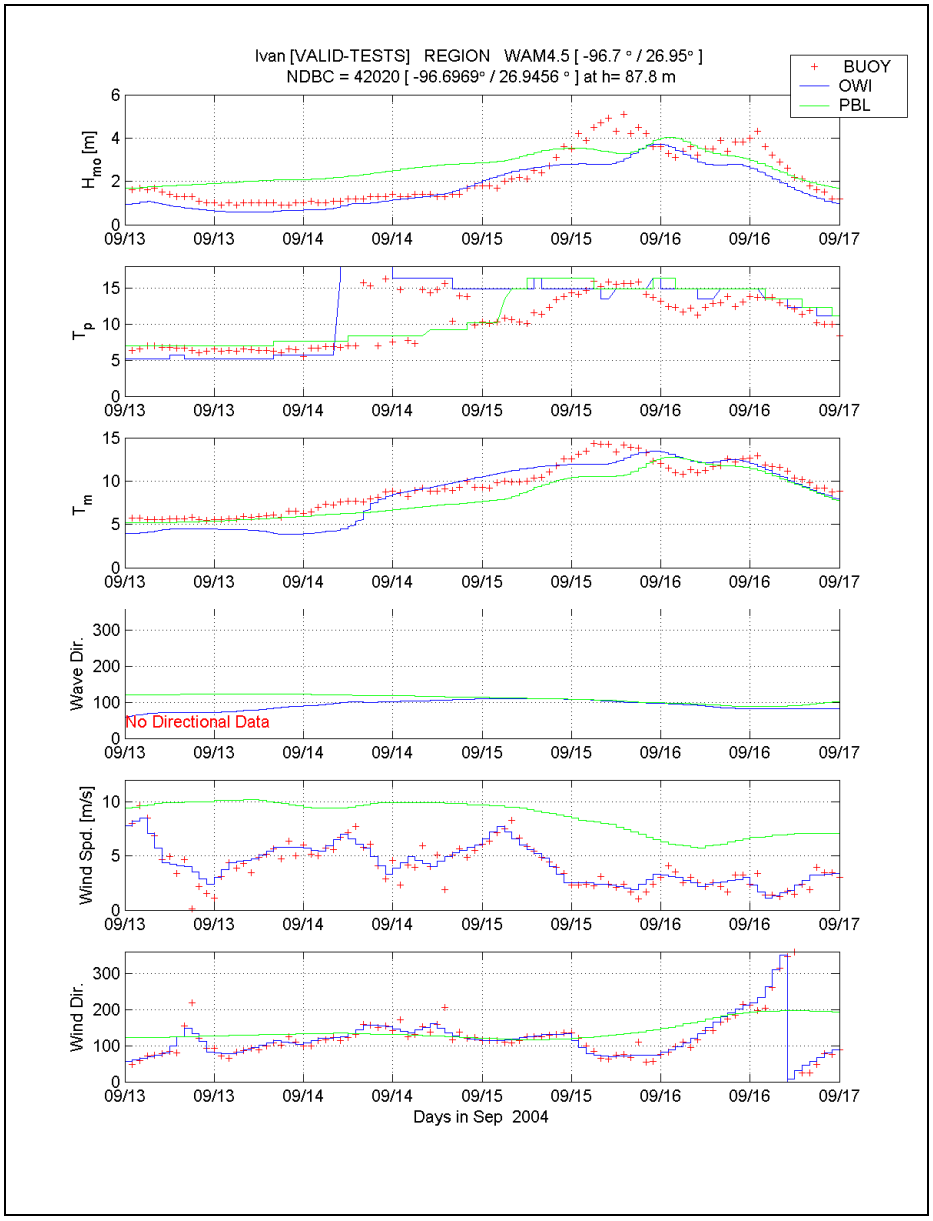

Figure 56: Time plot at NDBC Buoy 42020 for Hurricane Ivan, BRICKA storm verification.

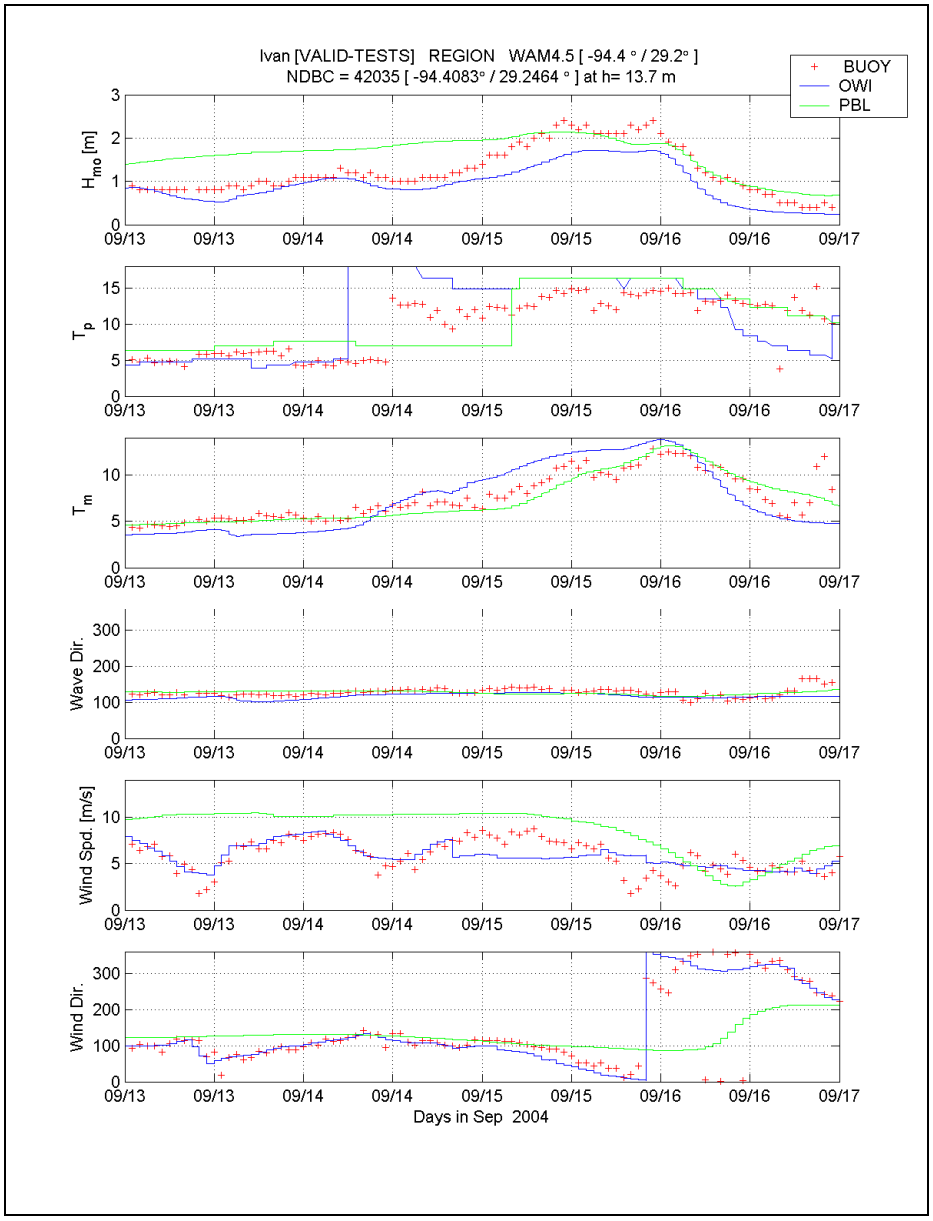

Figure 57: Time plot at NDBC Buoy 42035 for Hurricane Ivan, BRICKA storm verification.

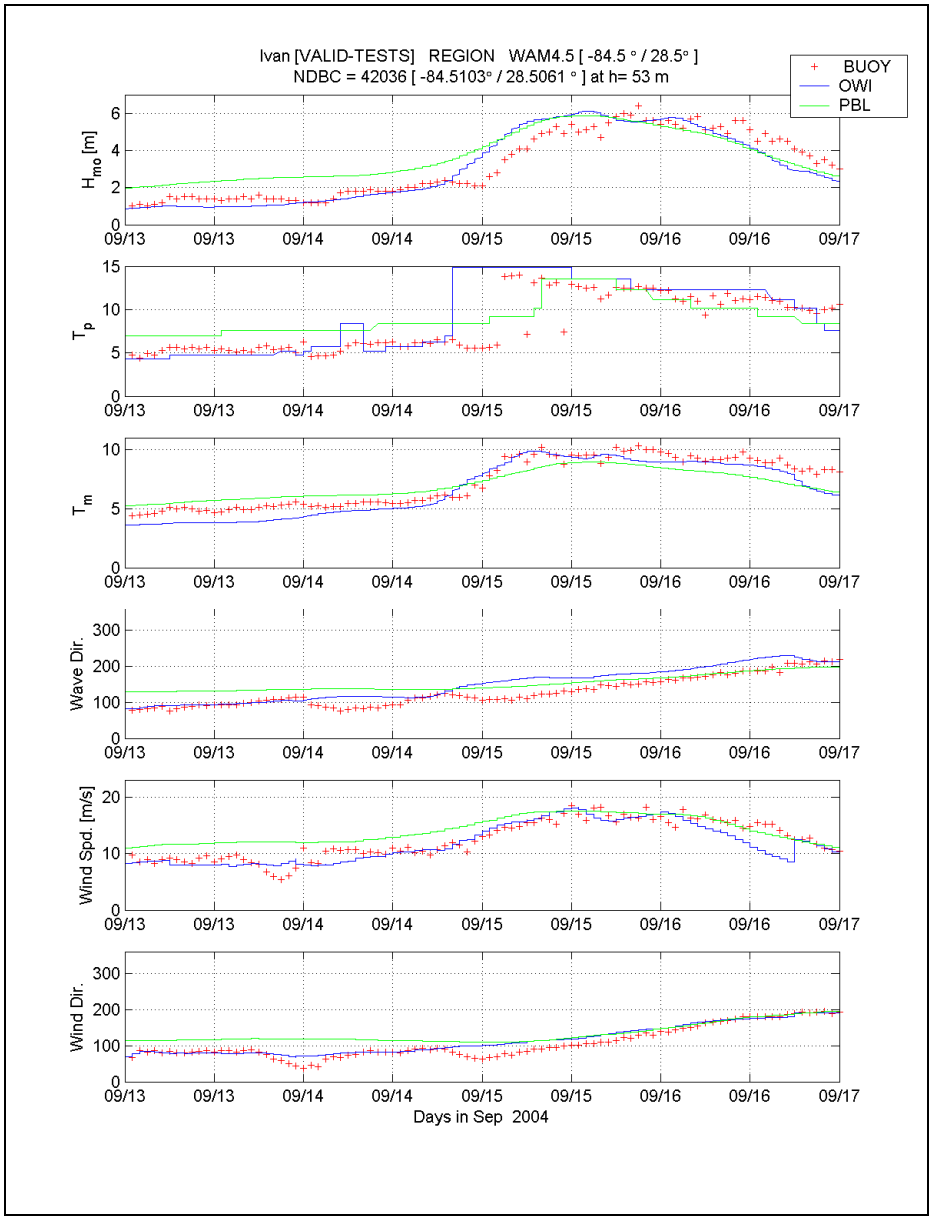

Figure 58: Time plot at NDBC Buoy 42036 for Hurricane Ivan, BRICKA storm verification.

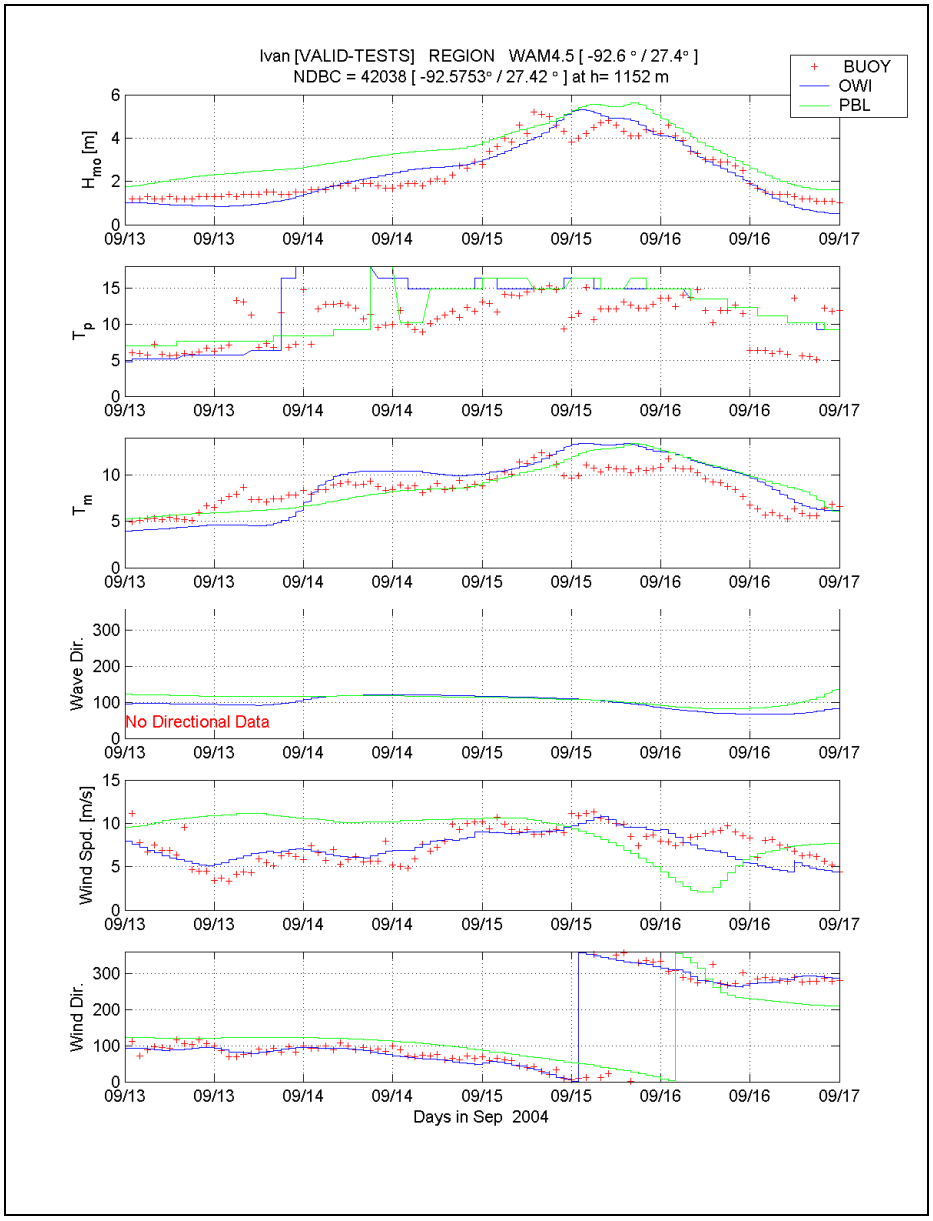

Figure 59: Time plot at NDBC Buoy 42038 for Hurricane Ivan, BRICKA storm verification.

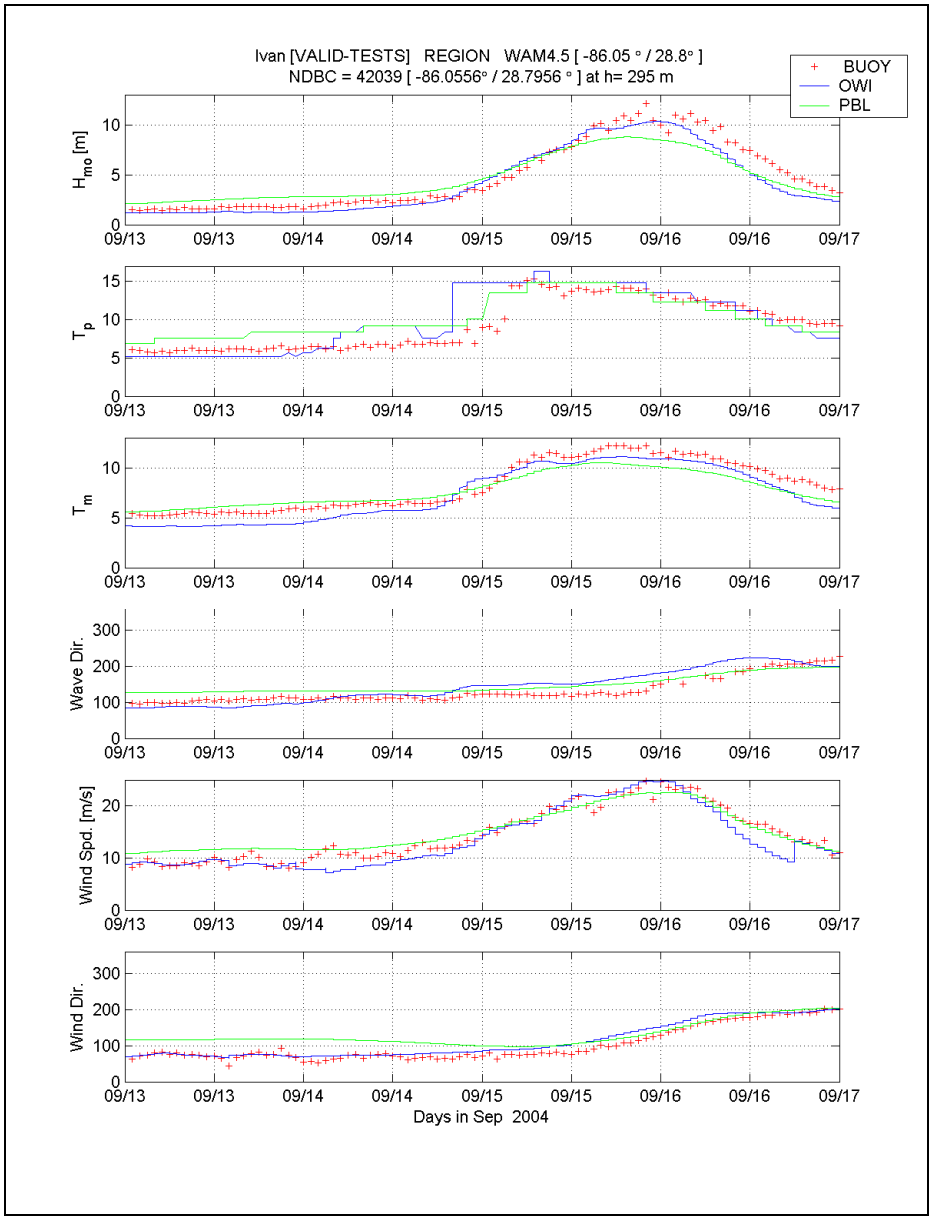

Figure 60: Time plot at NDBC Buoy 42039 for Hurricane Ivan, BRICKA storm verification.

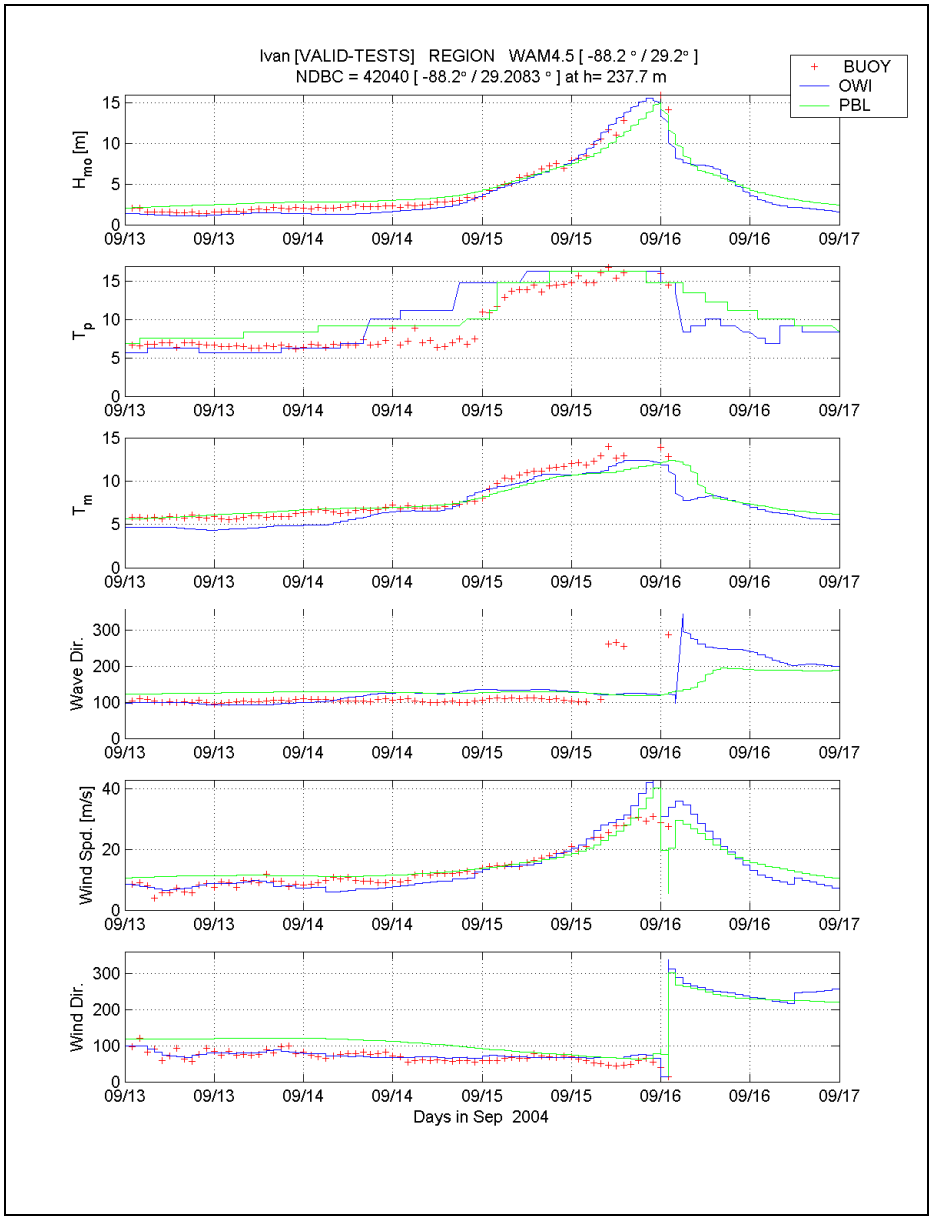

Figure 61: Time plot at NDBC Buoy 42040 for Hurricane Ivan, BRICKA storm verification.

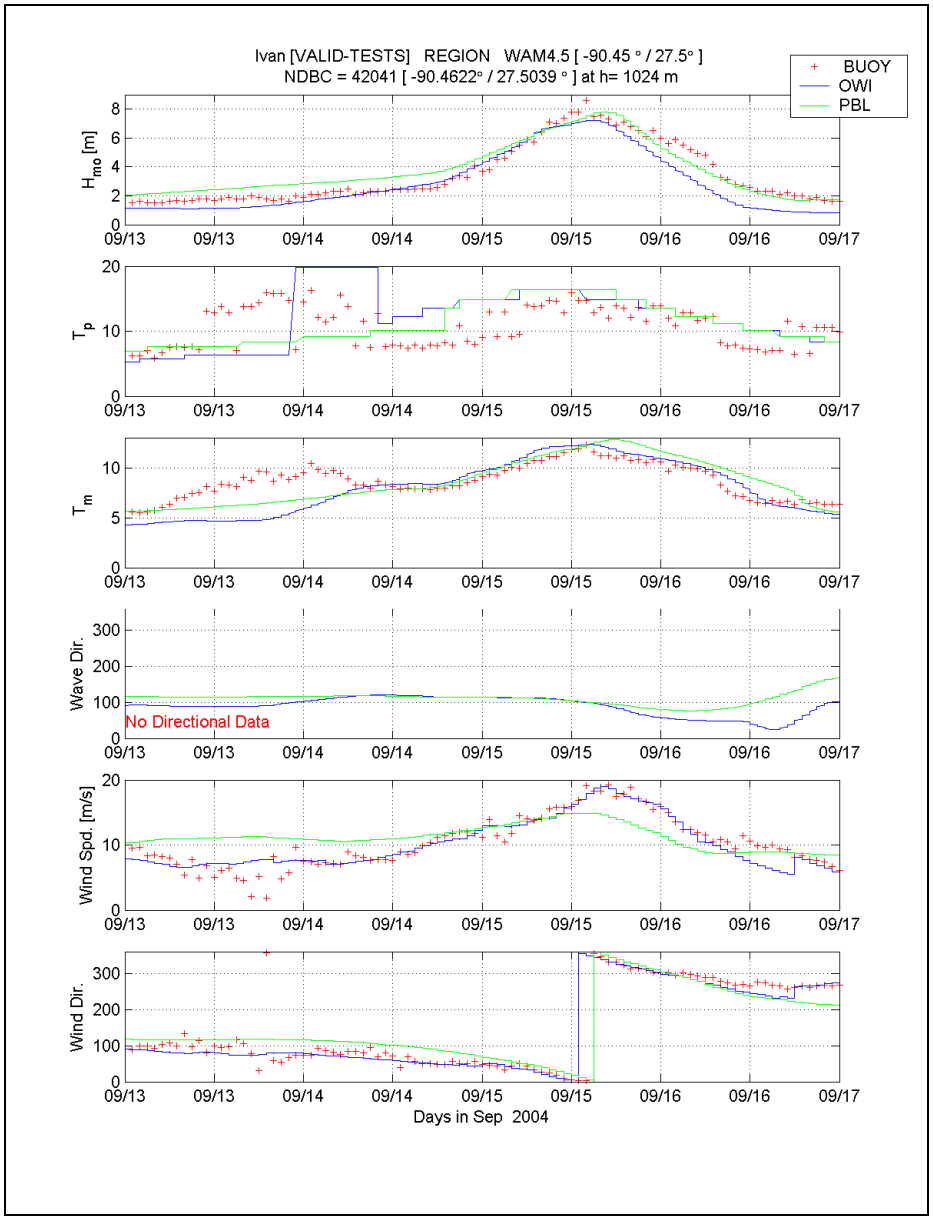

Figure 62: Time plot at NDBC Buoy 42041 for Hurricane Ivan, BRICKA storm verification.

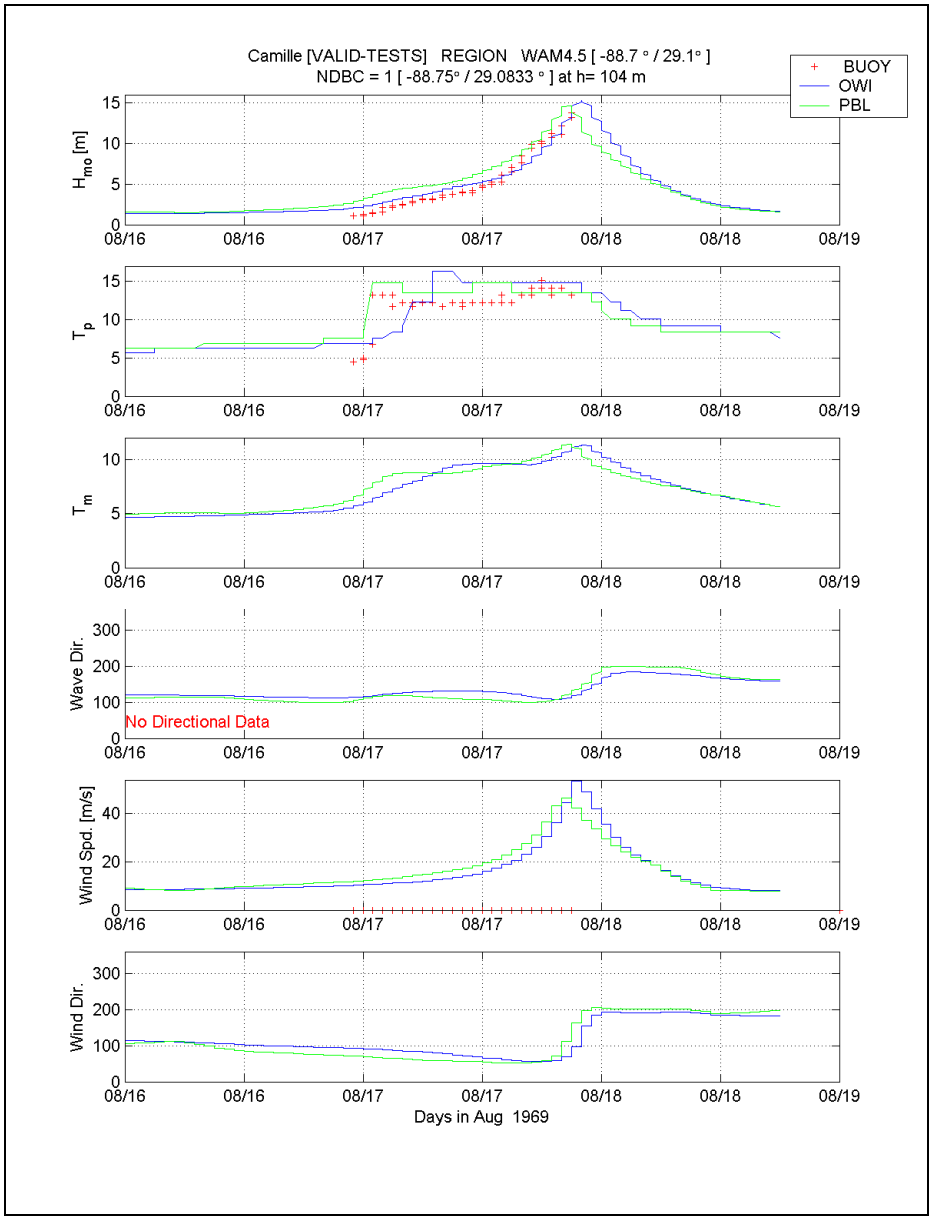

Figure 63: Time plot at ODGP Station 1 for Hurricane Camille, BRICKA storm verification.

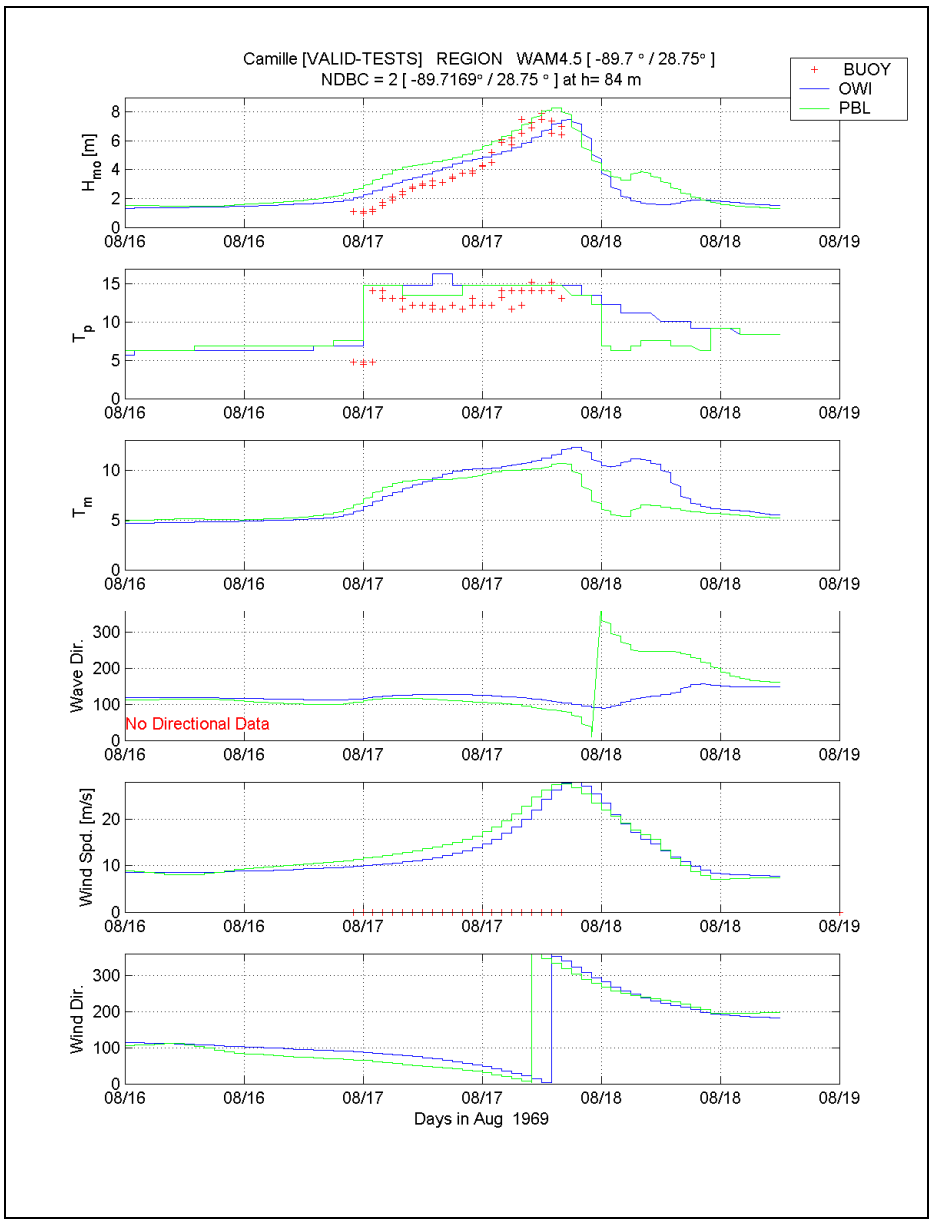

Figure 64: Time plot at ODGP Station 2 for Hurricane Camille, BRICKA storm verification.

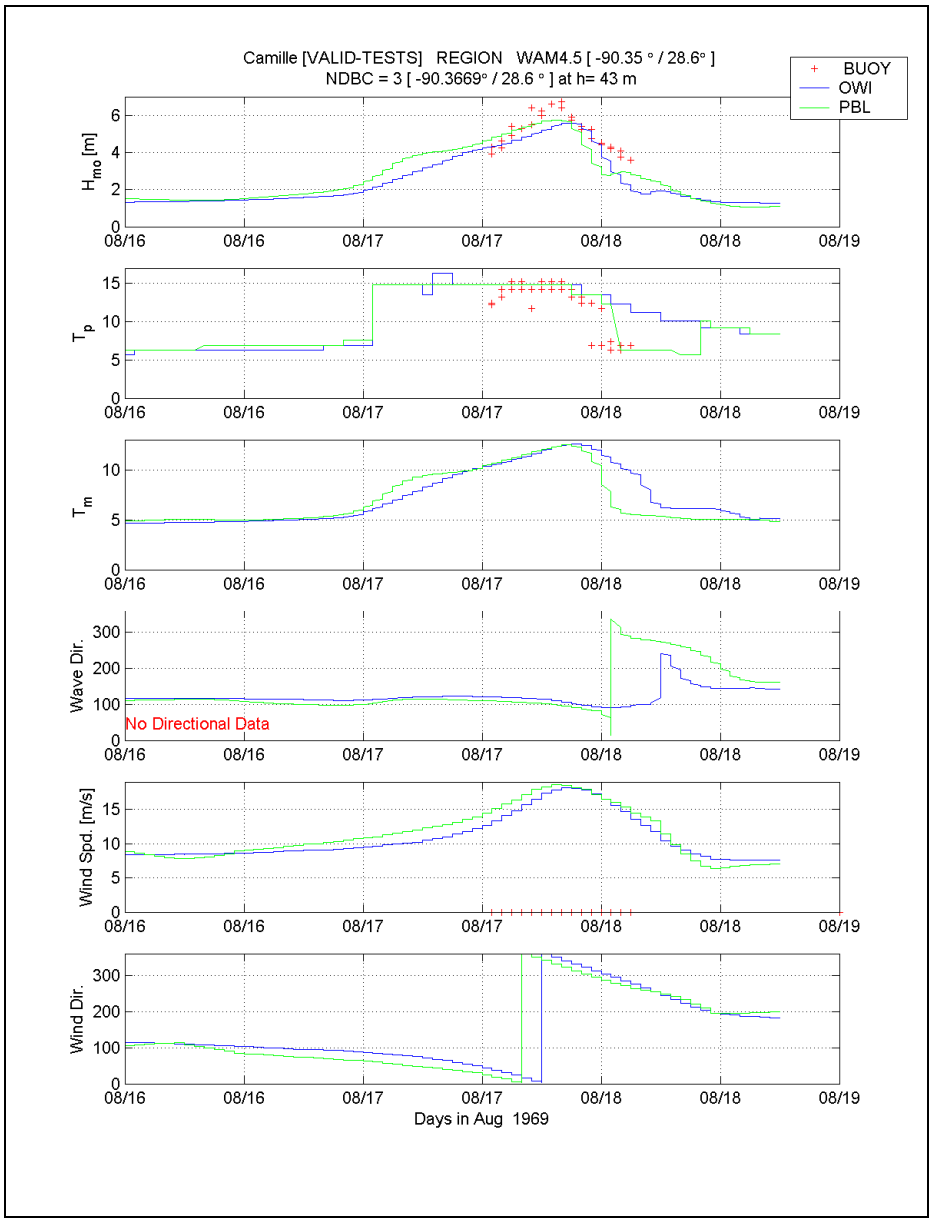

Figure 65: Time plot at ODGP Station 3 for Hurricane Camille, BRICKA storm verification.

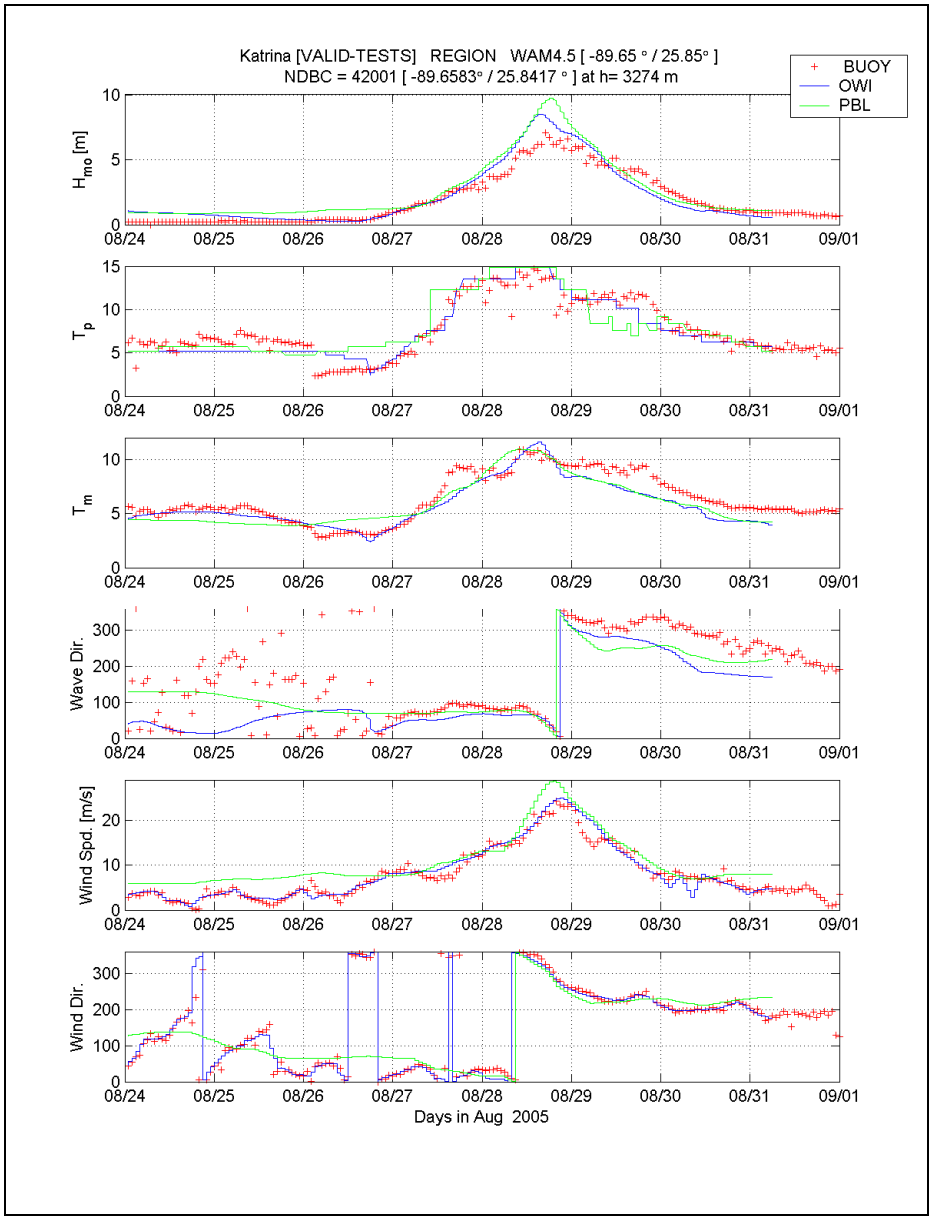

Figure 66: Time plot at NDBC Buoy 42001 for Hurricane Katrina, BRICKA storm verification

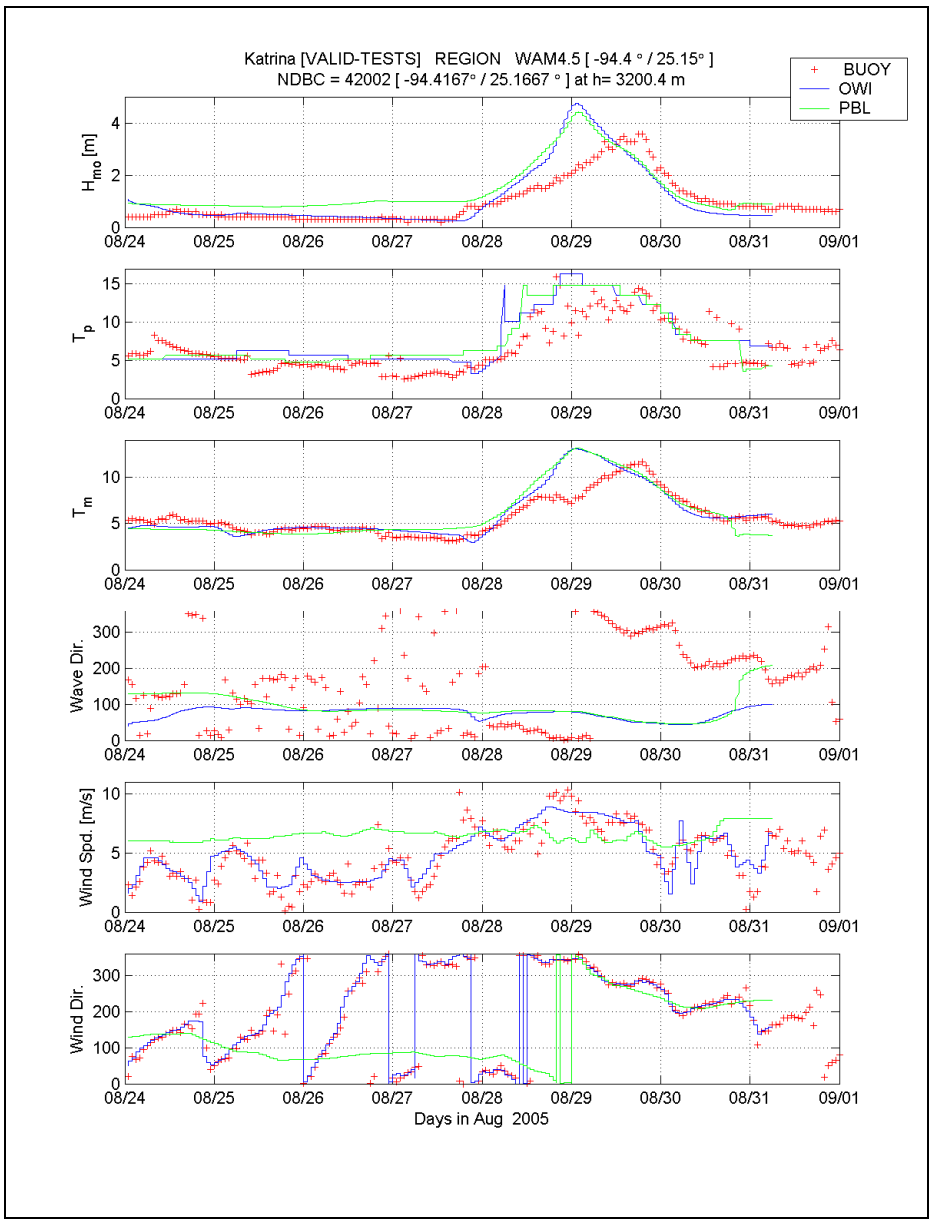

Figure 67: Time plot at NDBC Buoy 42002 for Hurricane Katrina, BRICKA storm verification.

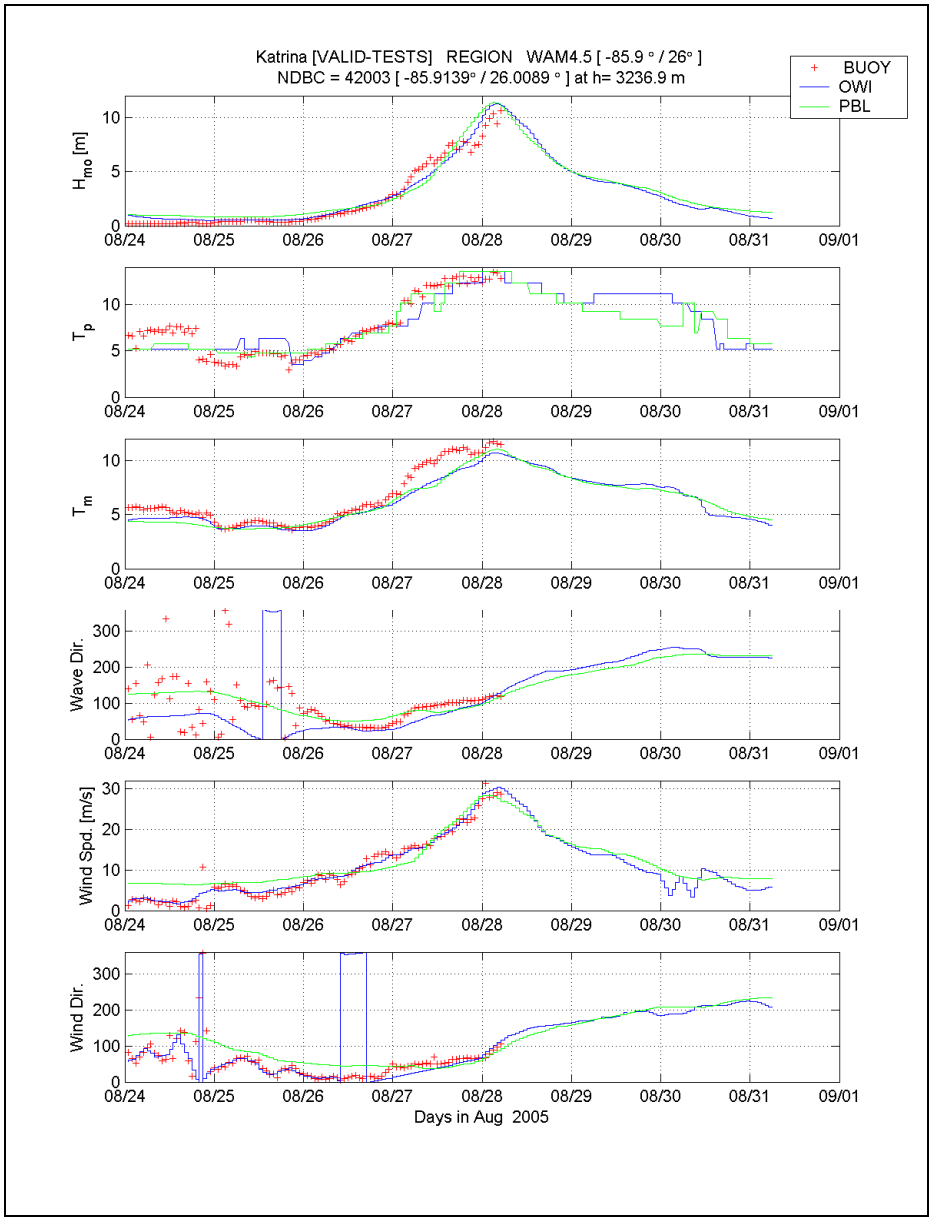

Figure 68: Time plot at NDBC Buoy 42003 for Hurricane Katrina, BRICKA storm verification.

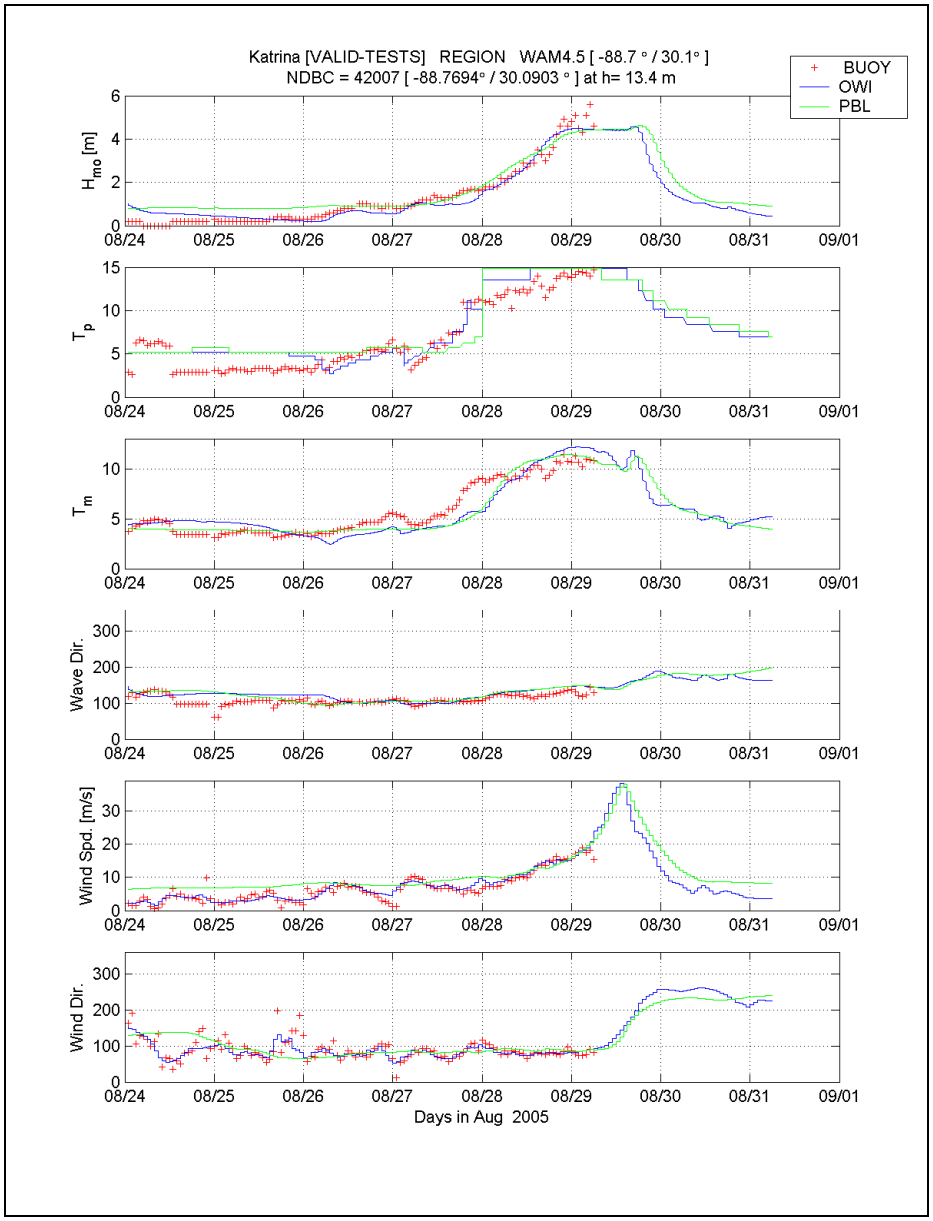

Figure 69: Time plot at NDBC Buoy 42007 for Hurricane Katrina, BRICKA storm verification.

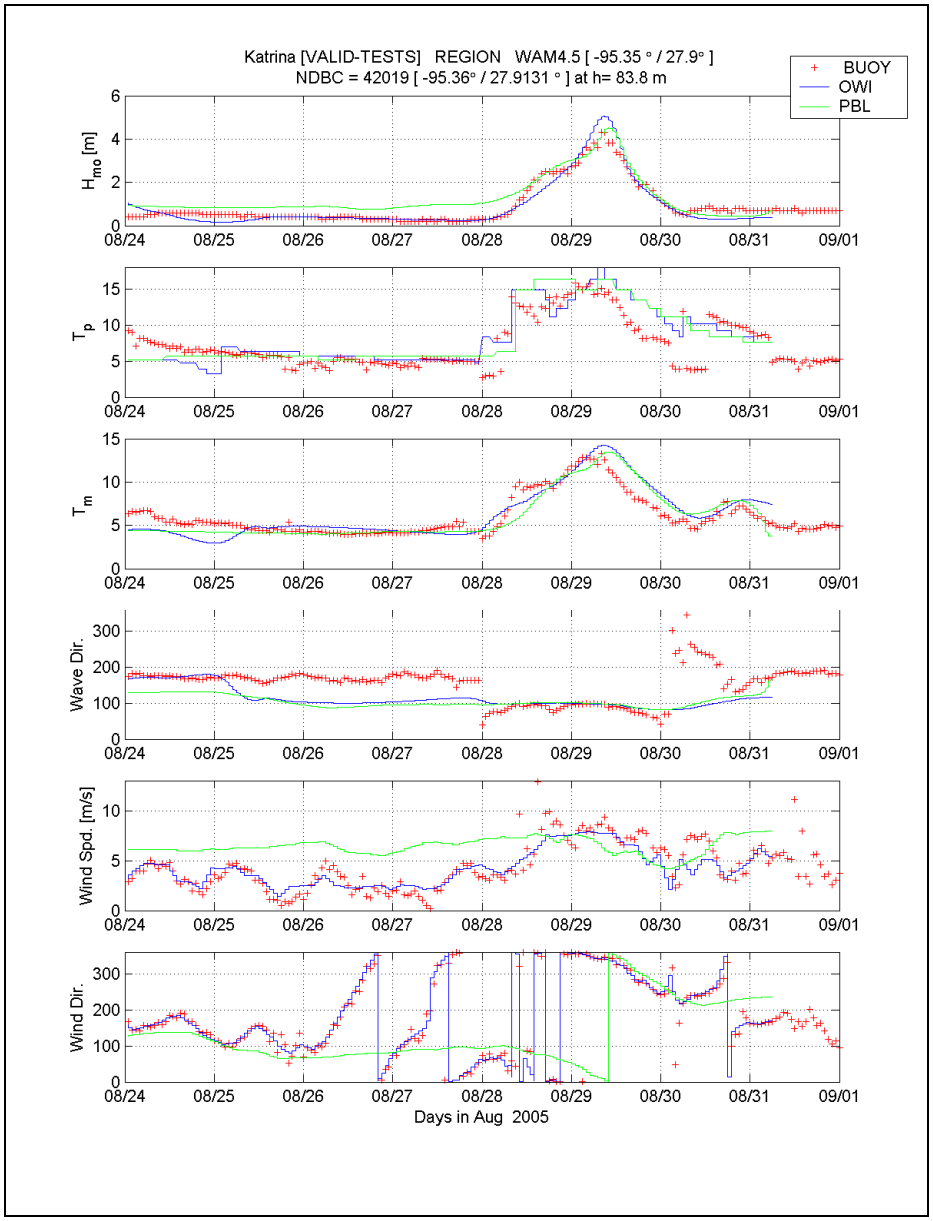

Figure 70: Time plot at NDBC Buoy 42019 for Hurricane Katrina, BRICKA storm verification.

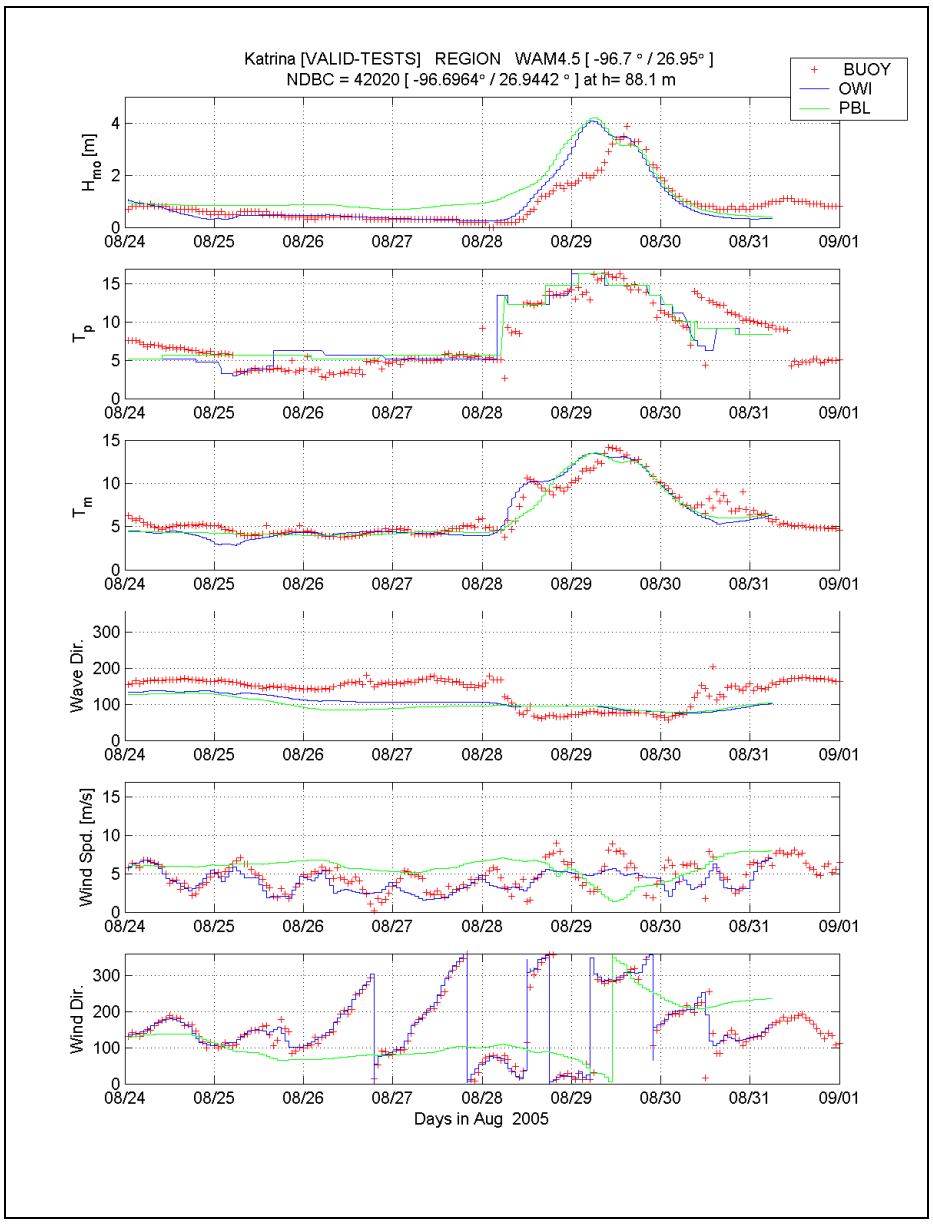

Figure 71: Time plot at NDBC Buoy 42020 for Hurricane Katrina, BRICKA storm verification.

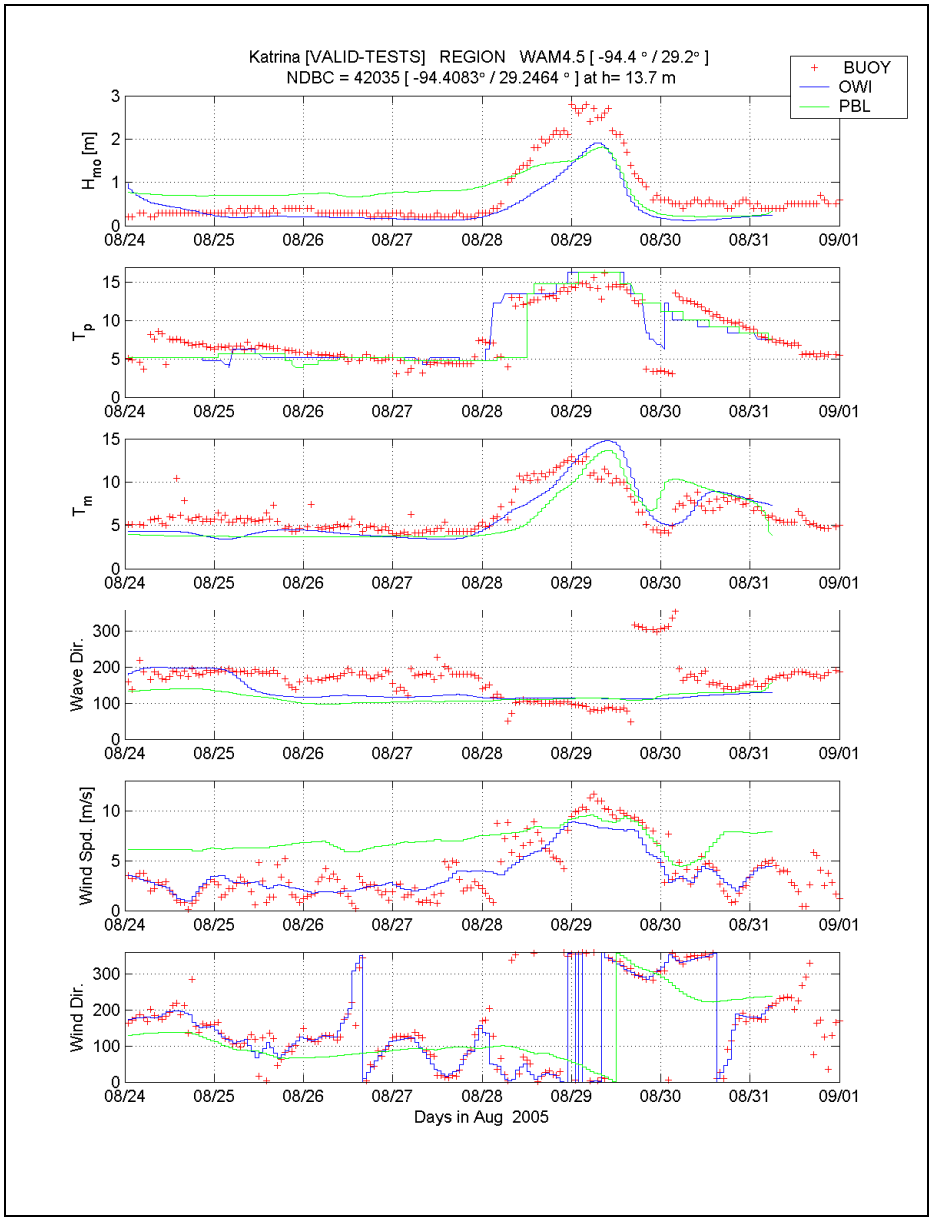

Figure 72: Time plot at NDBC Buoy 42035 for Hurricane Katrina, BRICKA storm verification.

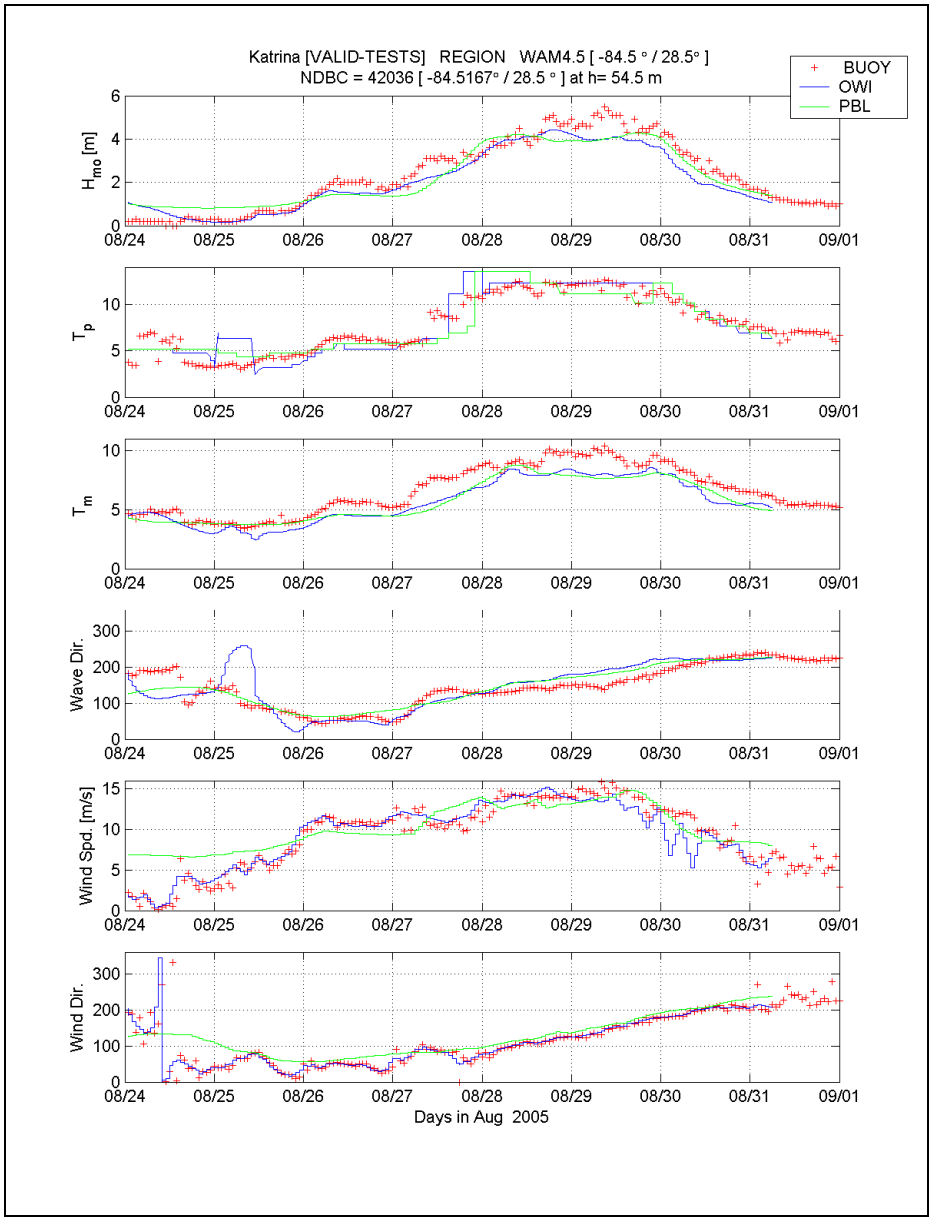

Figure 73: Time plot at NDBC Buoy 42036 for Hurricane Katrina, BRICKA storm verification.

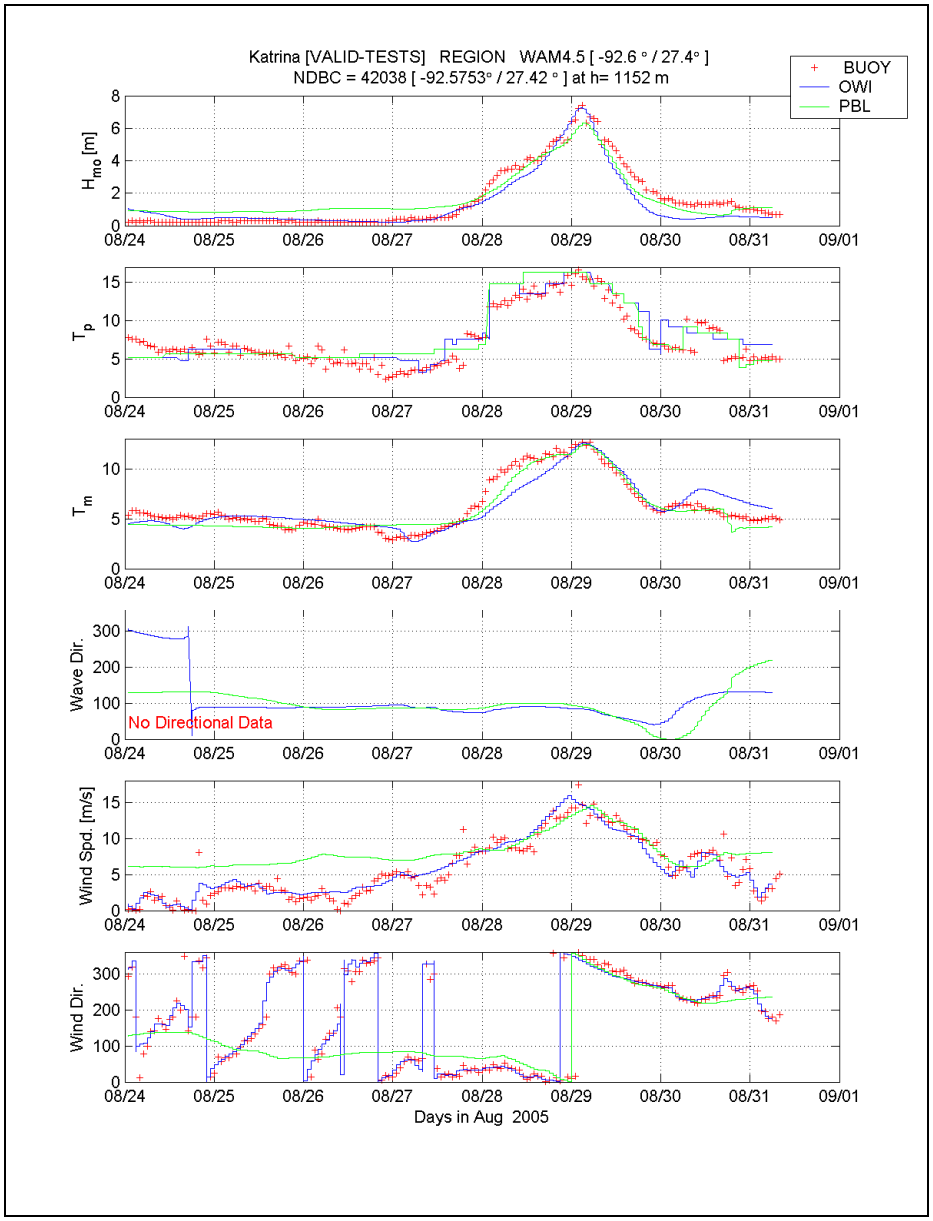

Figure 74: Time plot at NDBC Buoy 42038 for Hurricane Katrina, BRICKA storm verification.

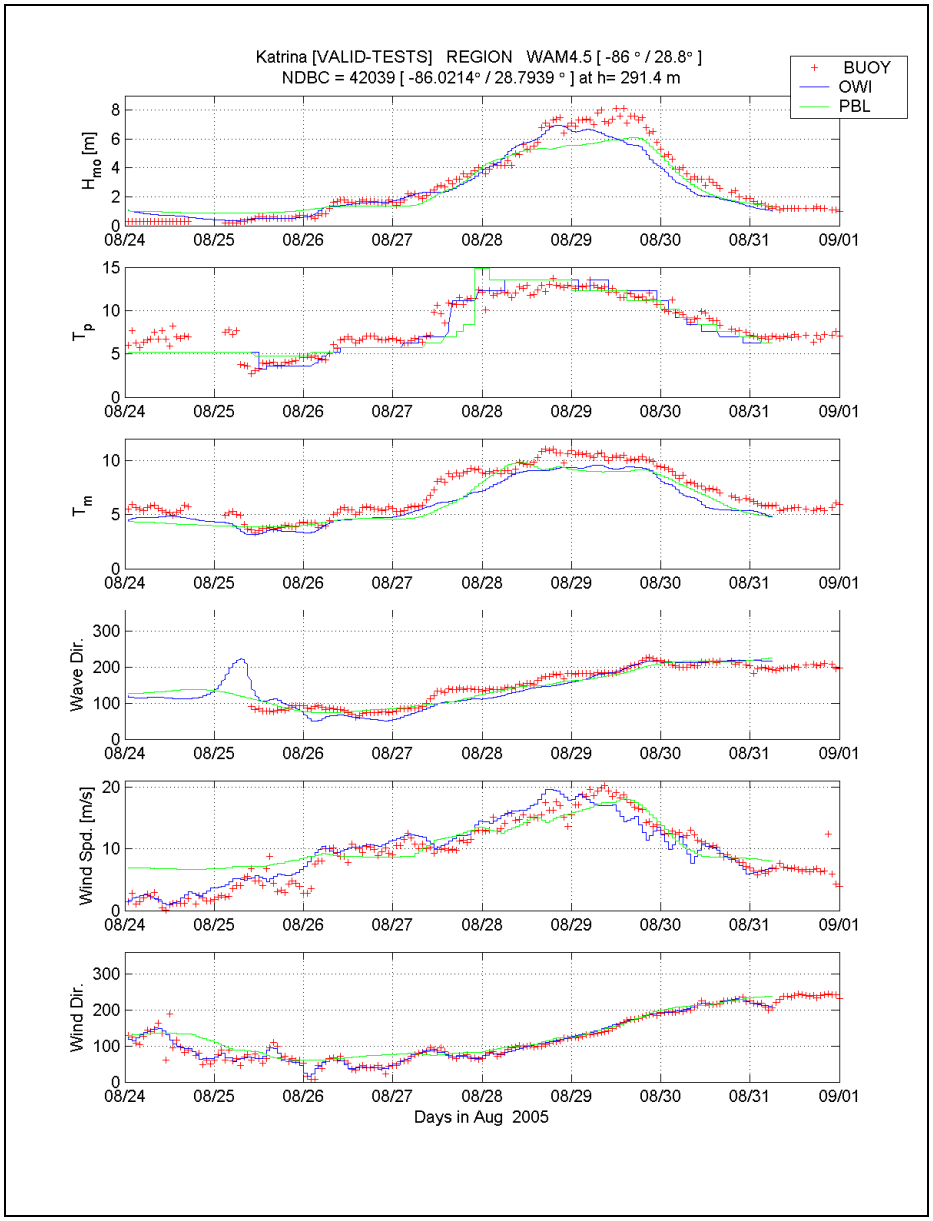

Figure 75: Time plot at NDBC Buoy 42039 for Hurricane Katrina, BRICKA storm verification.

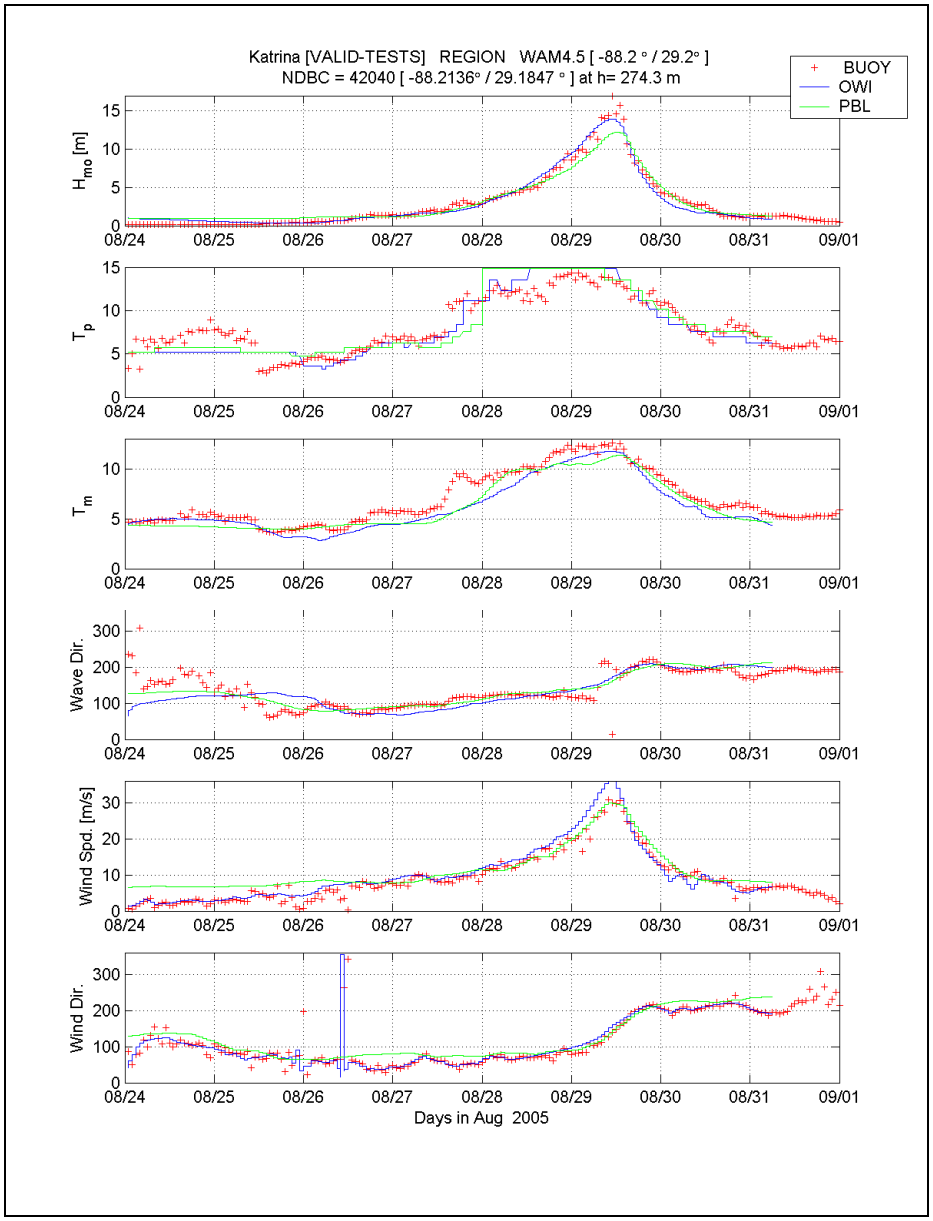

Figure 76: Time plot at NDBC Buoy 42040 for Hurricane Katrina, BRICKA storm verification.

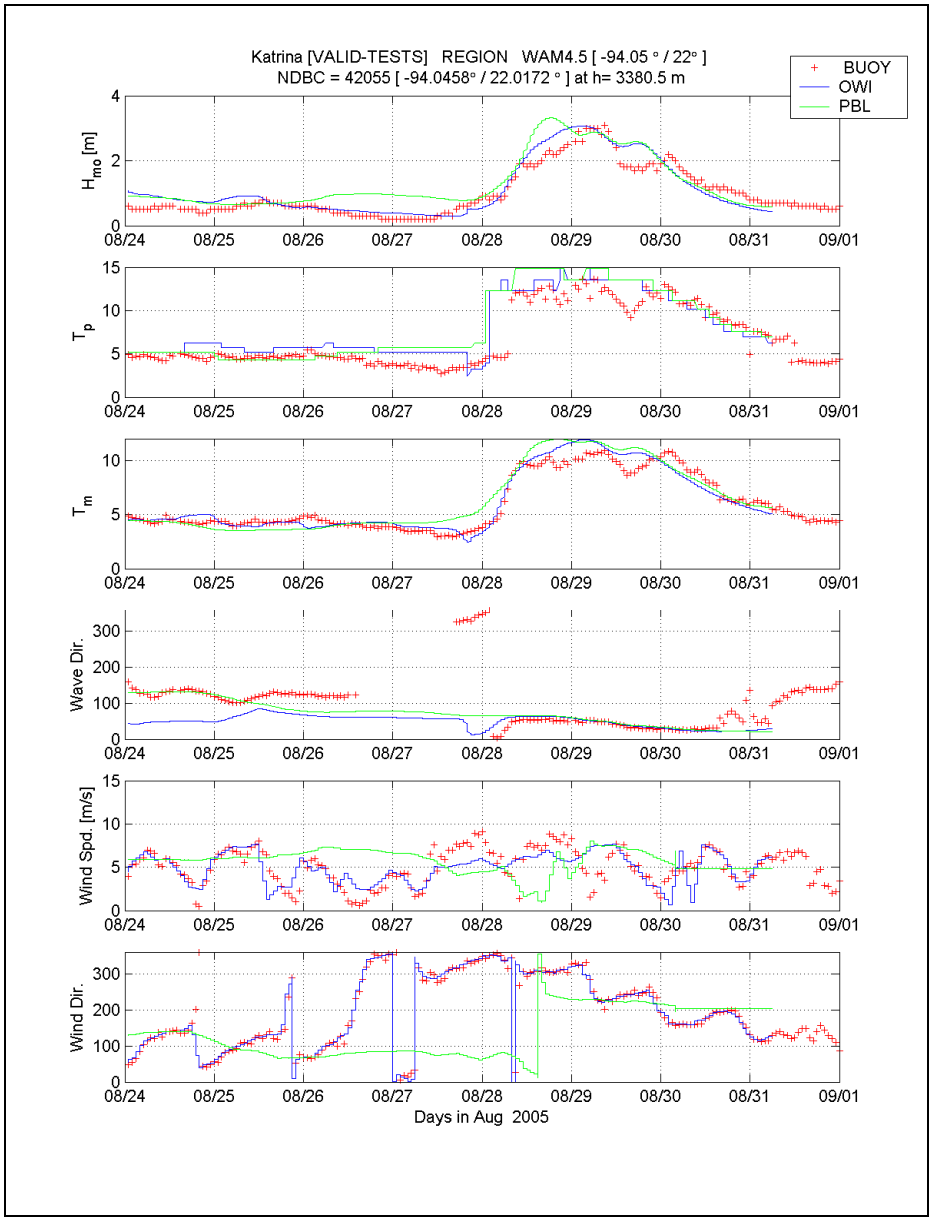

Figure 77: Time plot at NDBC Buoy 42055 for Hurricane Katrina, BRICKA storm verification.

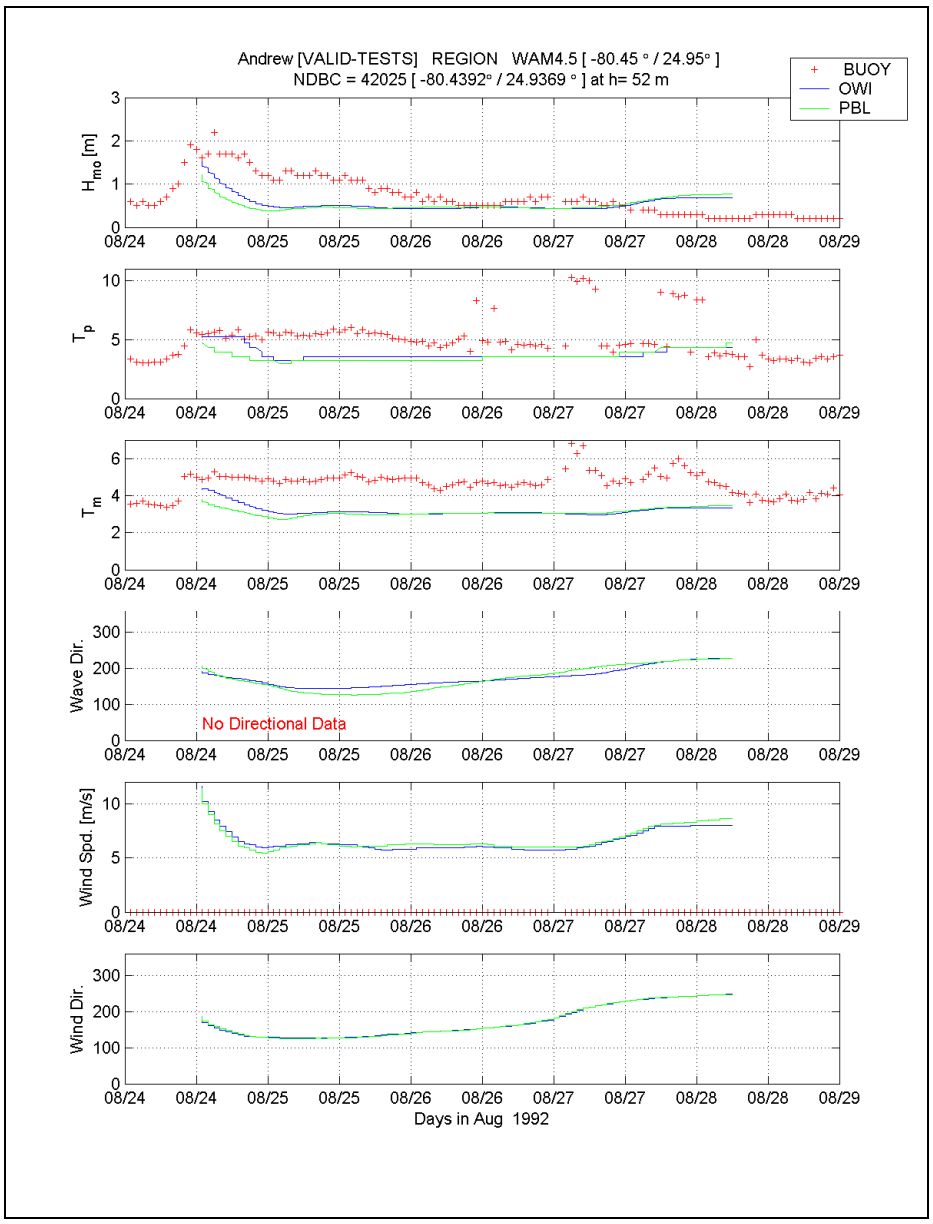

Figure 78: Time plot at NDBC Buoy 42025 for Hurricane Andrew, BRICKA storm verification.

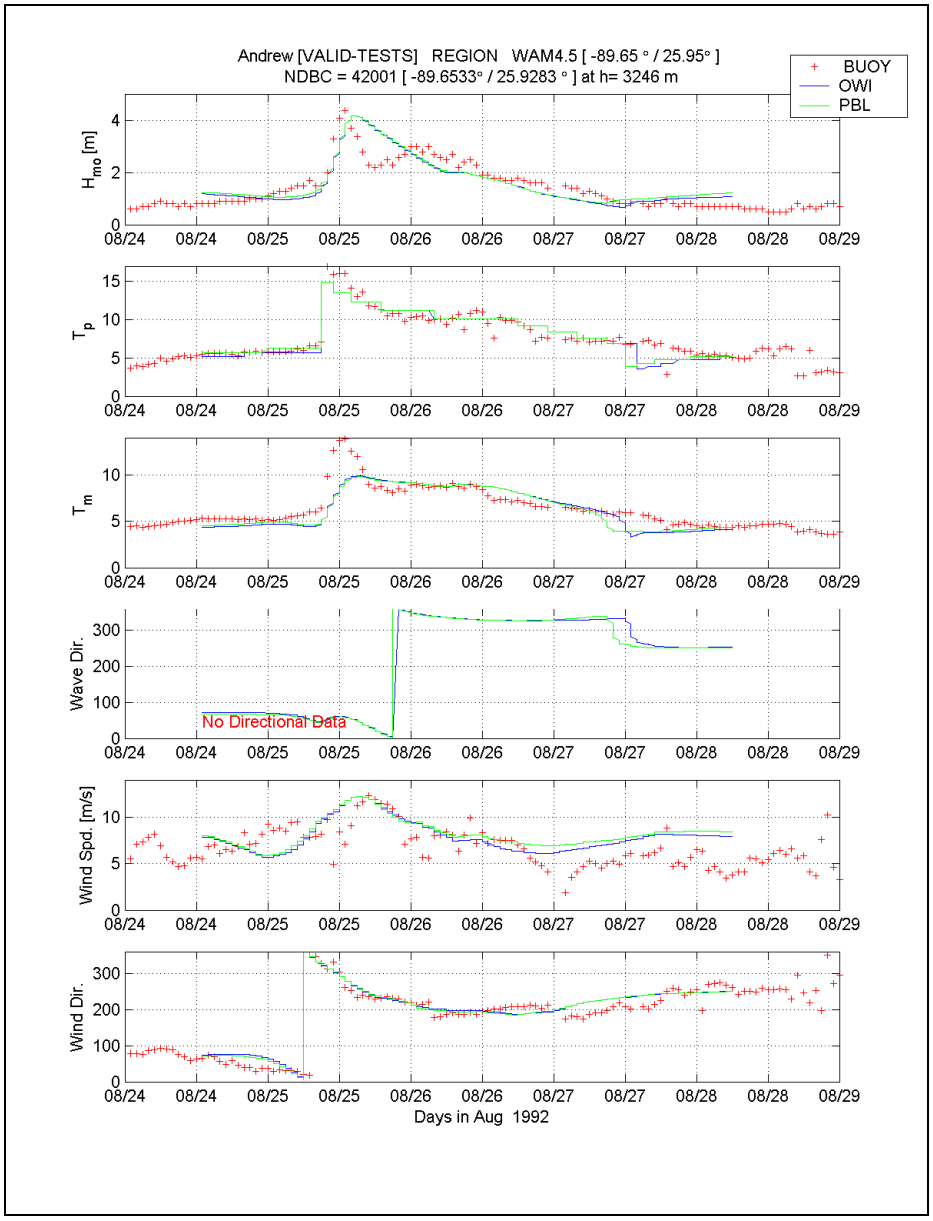

Figure 79: Time plot at NDBC Buoy 42001 for Hurricane Andrew, BRICKA storm verification.

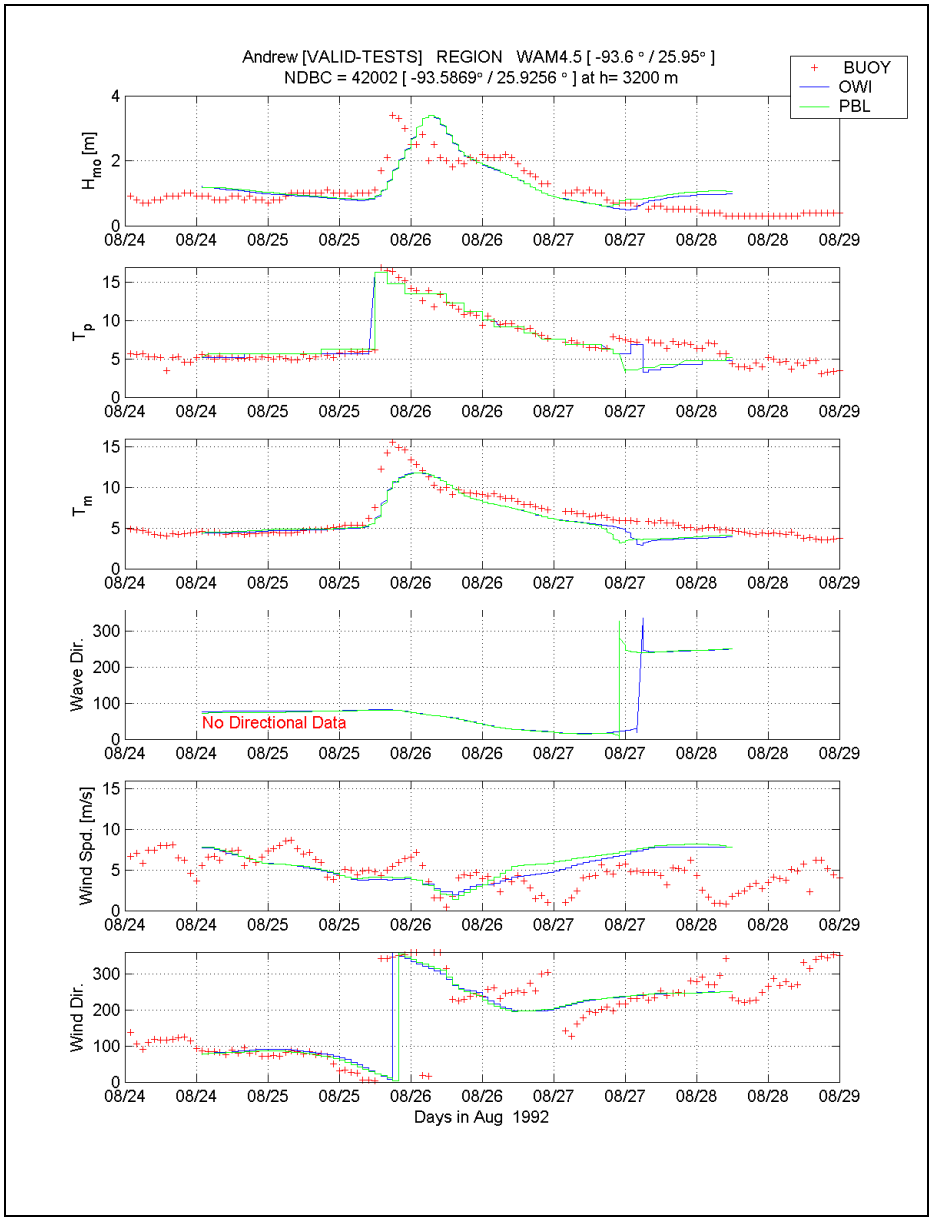

Figure 80: Time plot at NDBC Buoy 42002 for Hurricane Andrew, BRICKA storm verification.

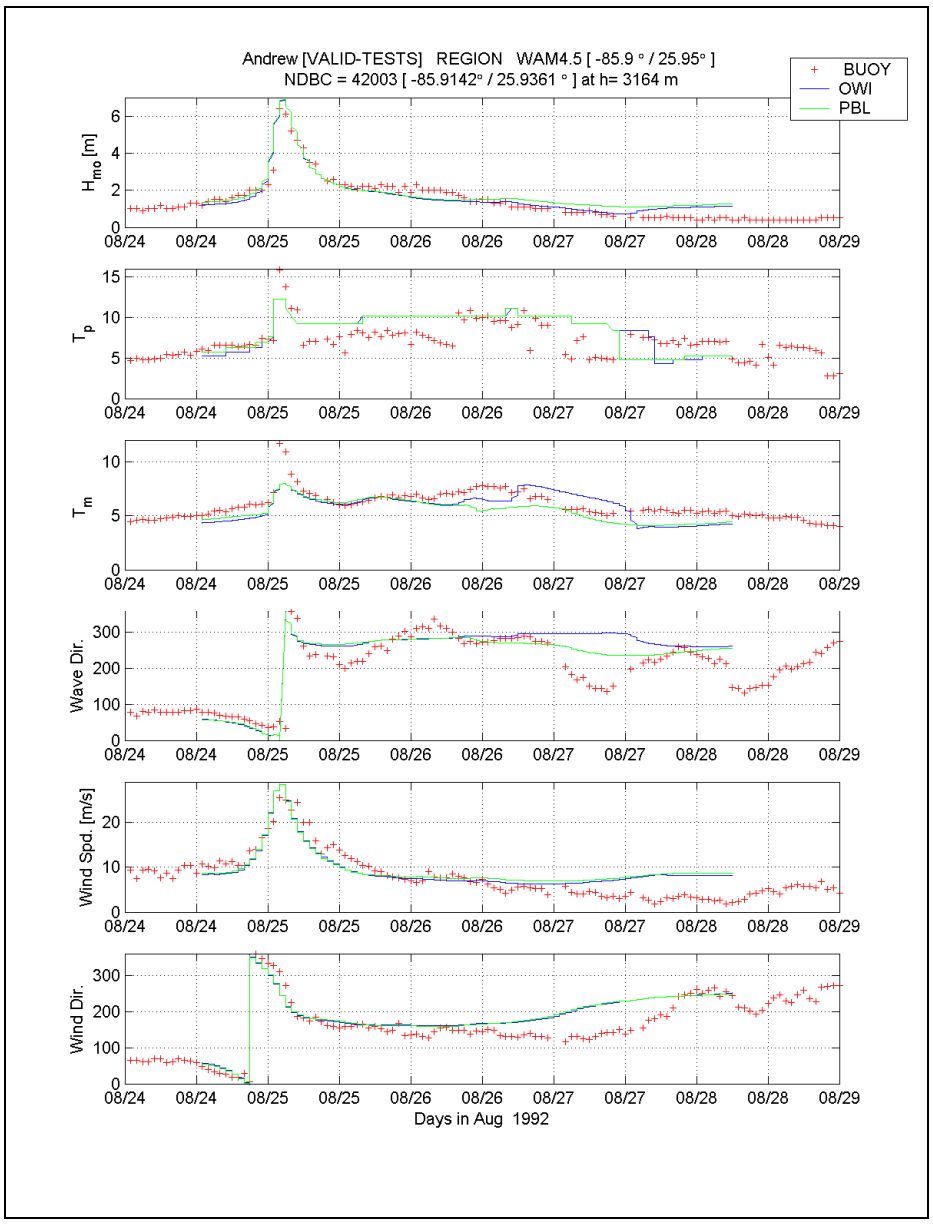

Figure 81: Time plot at NDBC Buoy 42003 for Hurricane Andrew, BRICKA storm verification.

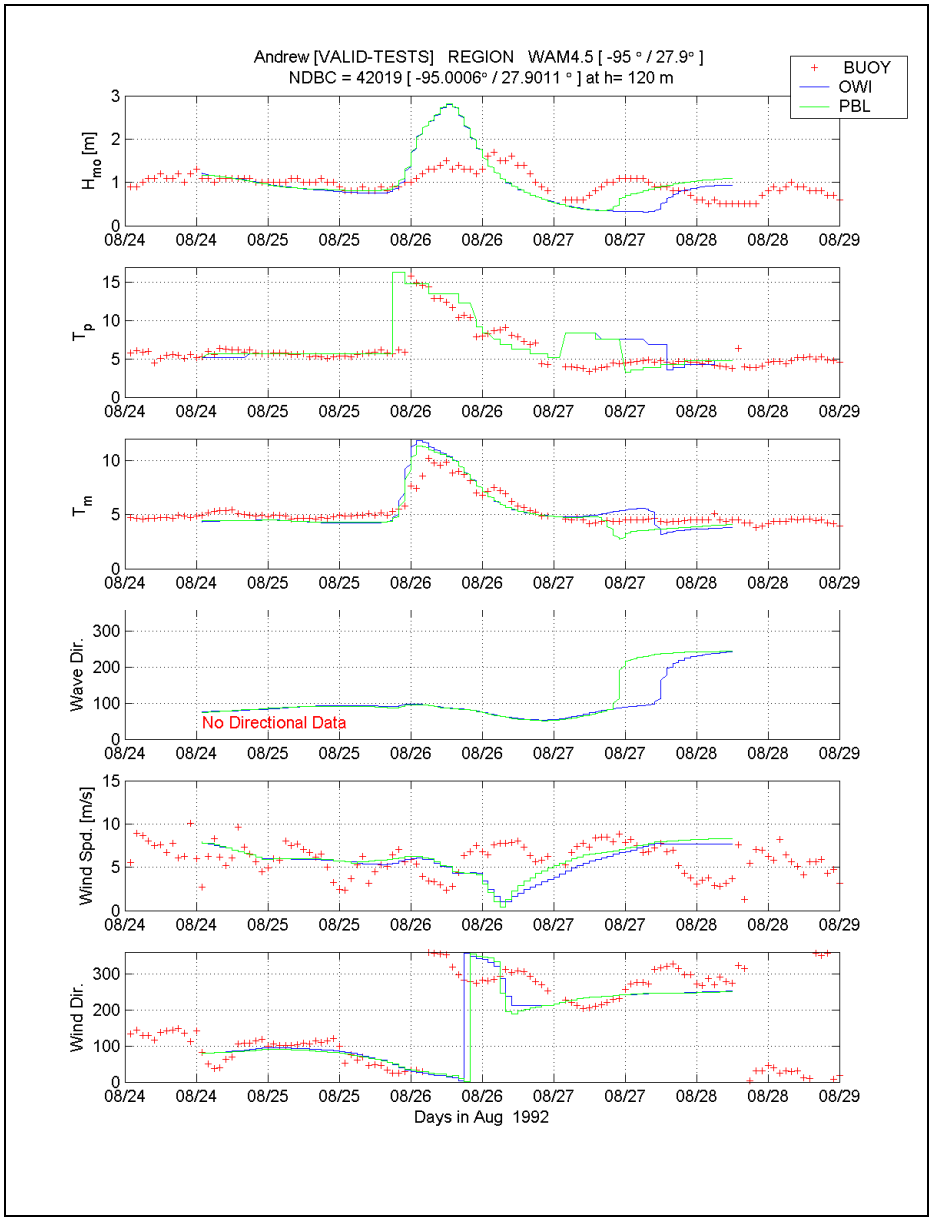

Figure 82: Time plot at NDBC Buoy 42019 for Hurricane Andrew, BRICKA storm verification.

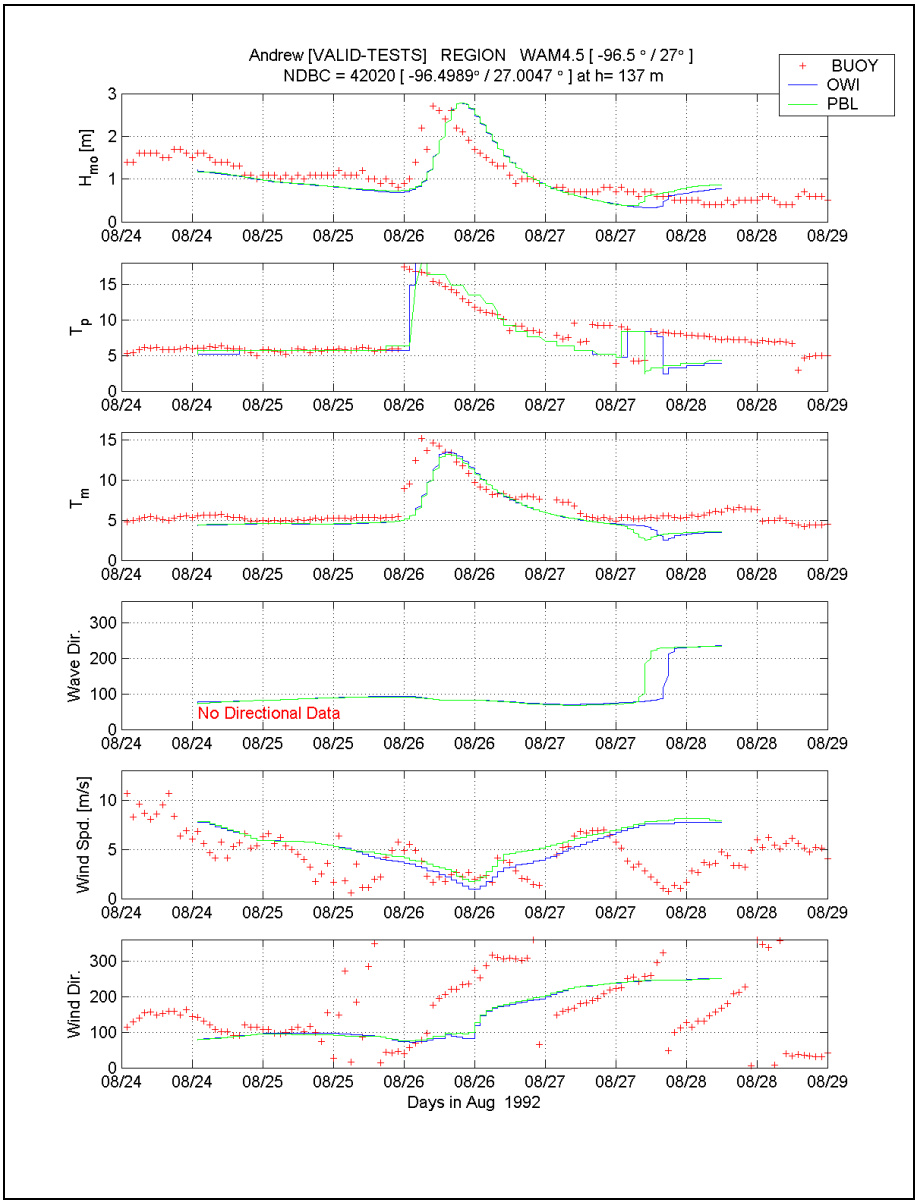

Figure 83: Time plot at NDBC Buoy 42020 for Hurricane Andrew, BRICKA storm verification

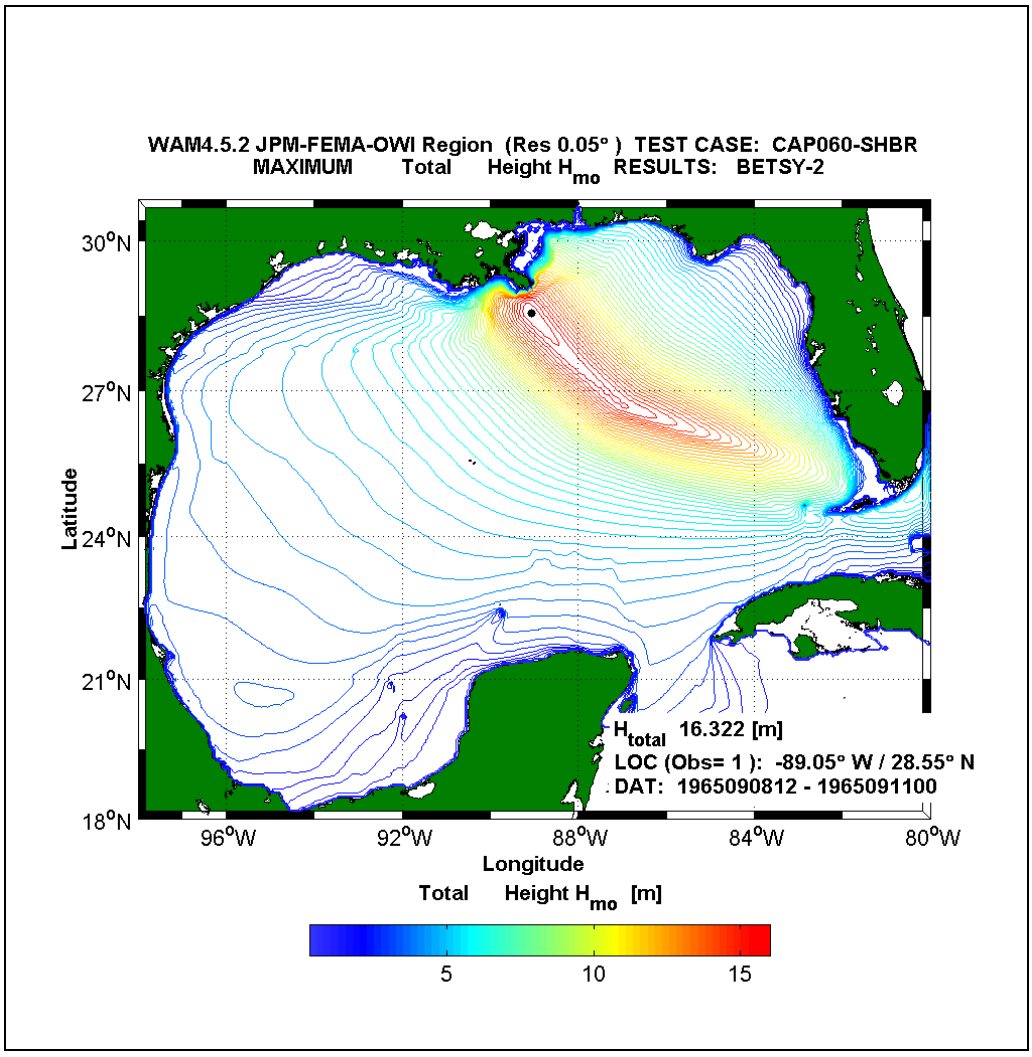

Figure 84: Maximum H_{mo} for Hurricane Betsy OWI-wind forcing. Wave heights are in meters.

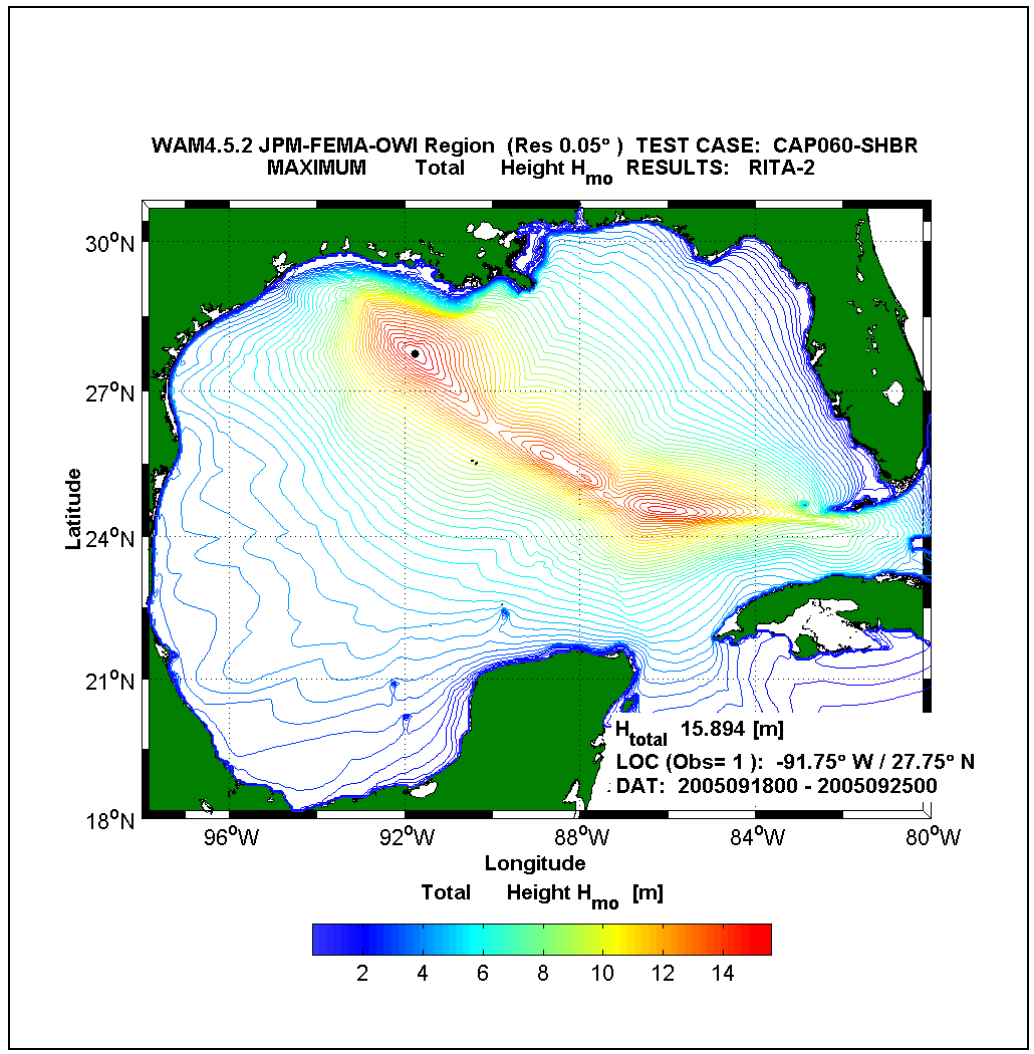

Figure 85: Maximum H_{mo} for Hurricane Rita OWI-wind forcing. Wave heights are in meters.

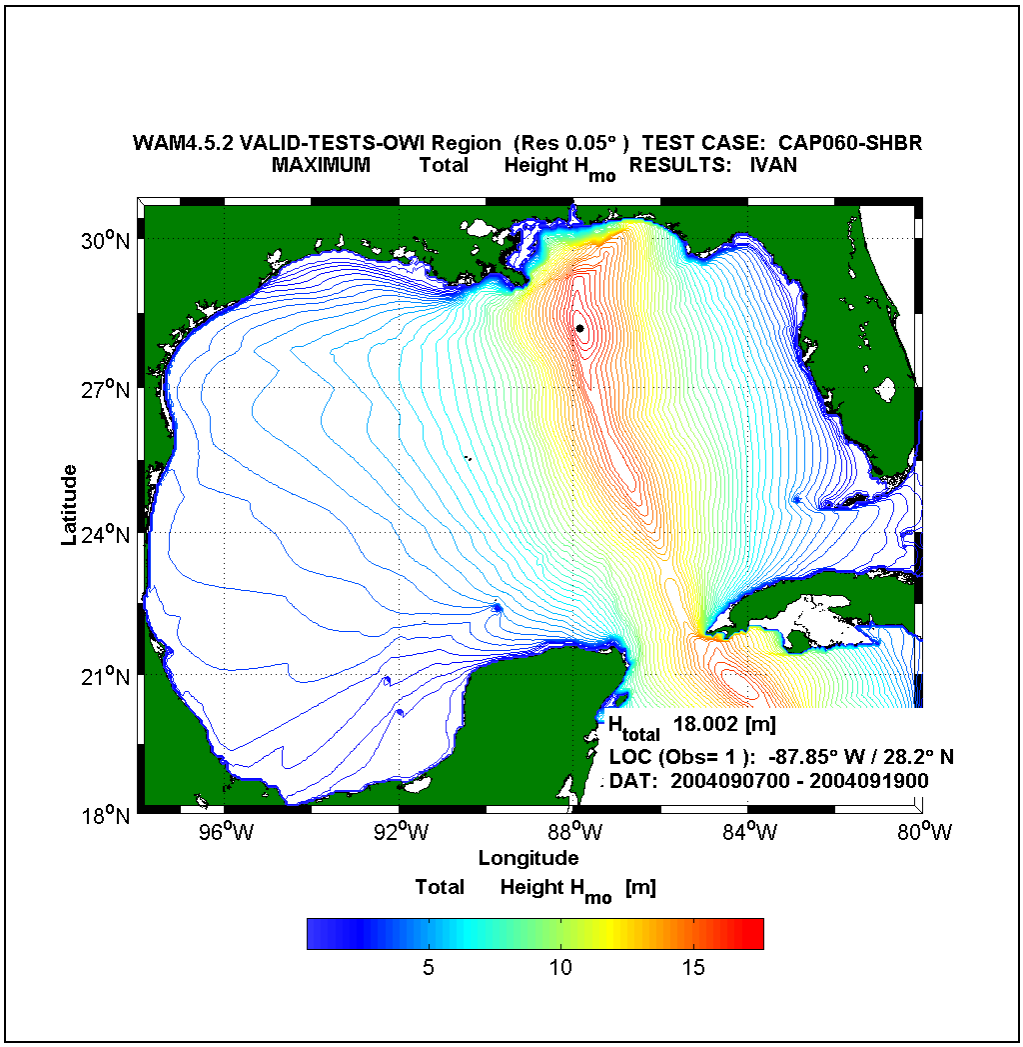

Figure 86: Maximum H_{mo} for Hurricane Ivan OWI-wind forcing. Wave heights are in meters.

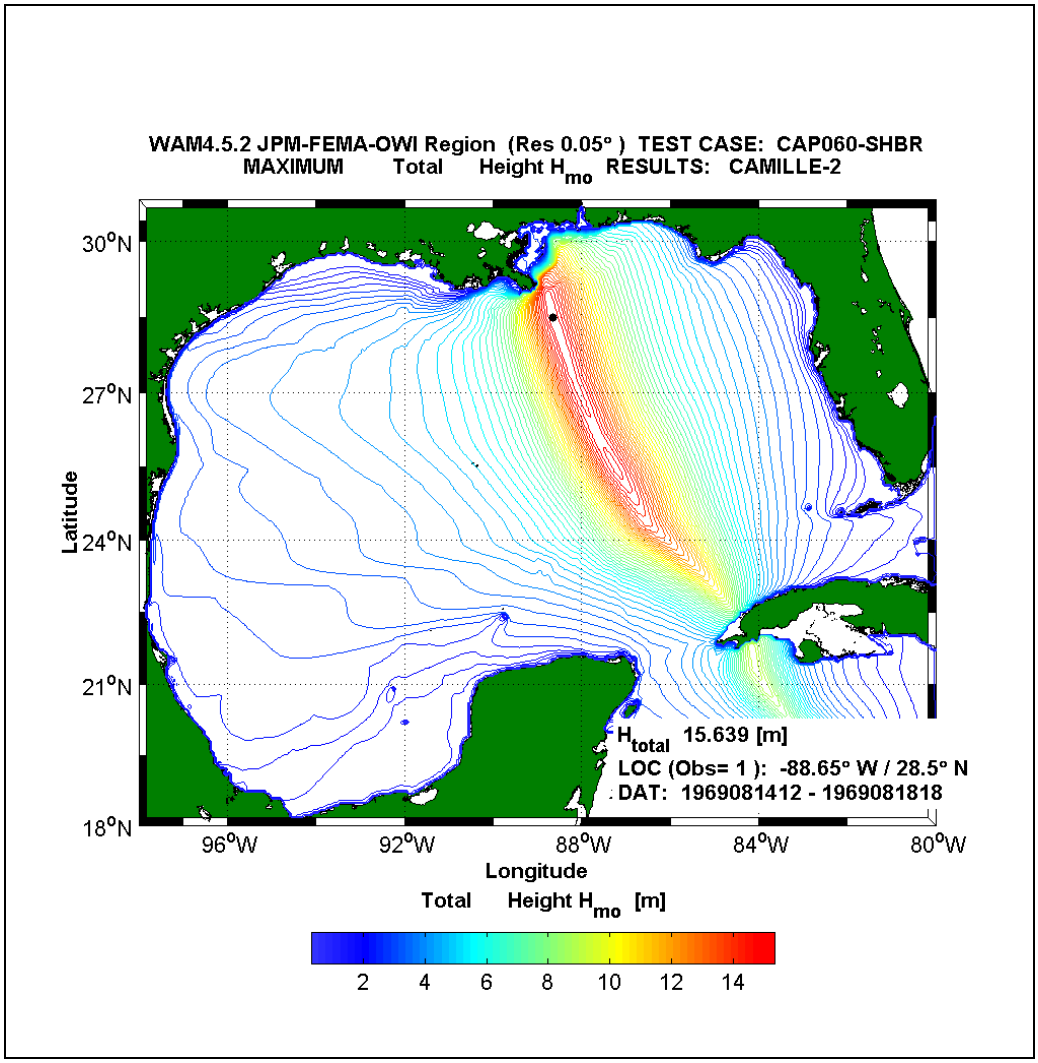

Figure 87: Maximum H_{mo} for Hurricane Camille OWI-wind forcing. Wave heights are in meters.

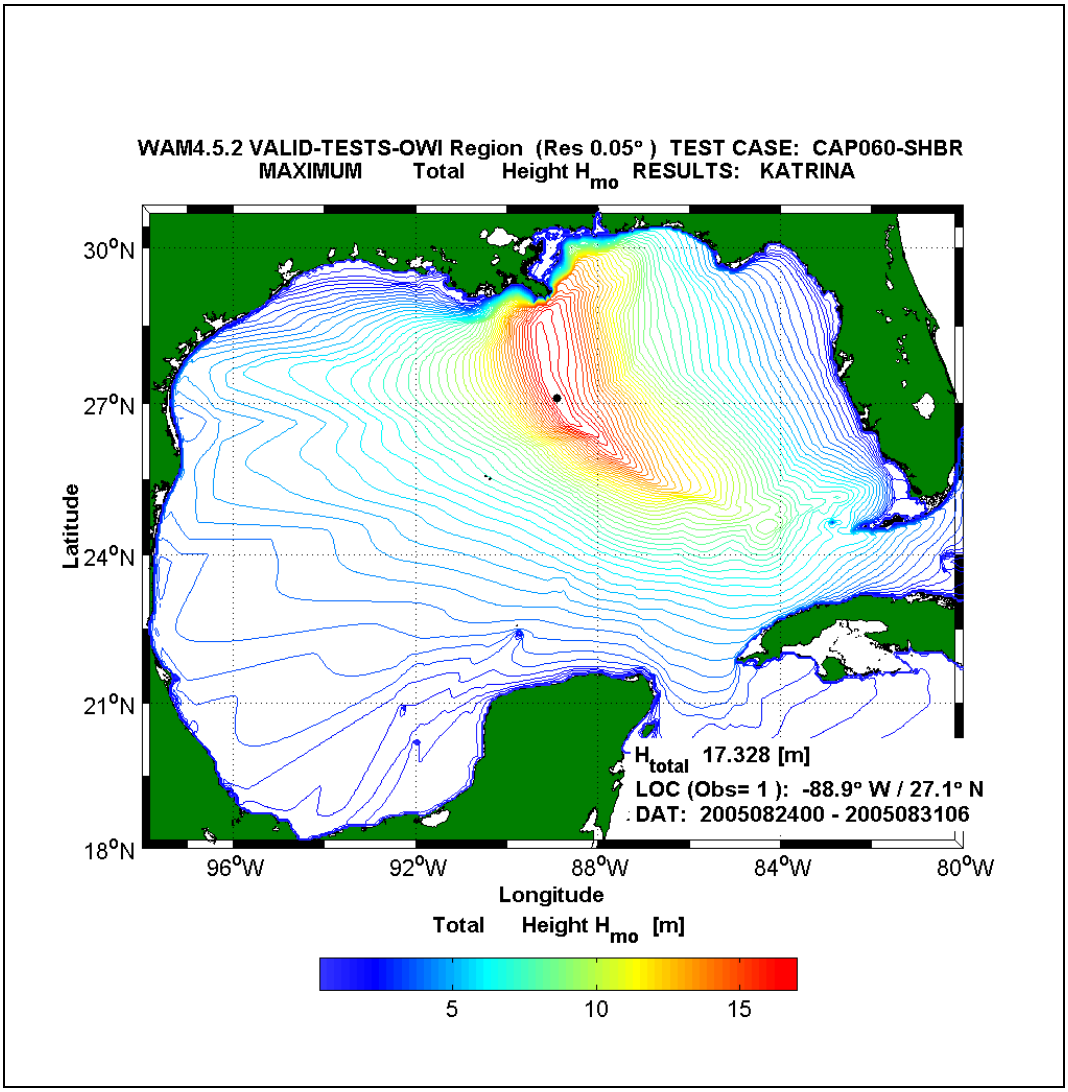

Figure 88: Maximum H_{mo} for Hurricane Katrina OWI-wind forcing. Wave heights are in meters.

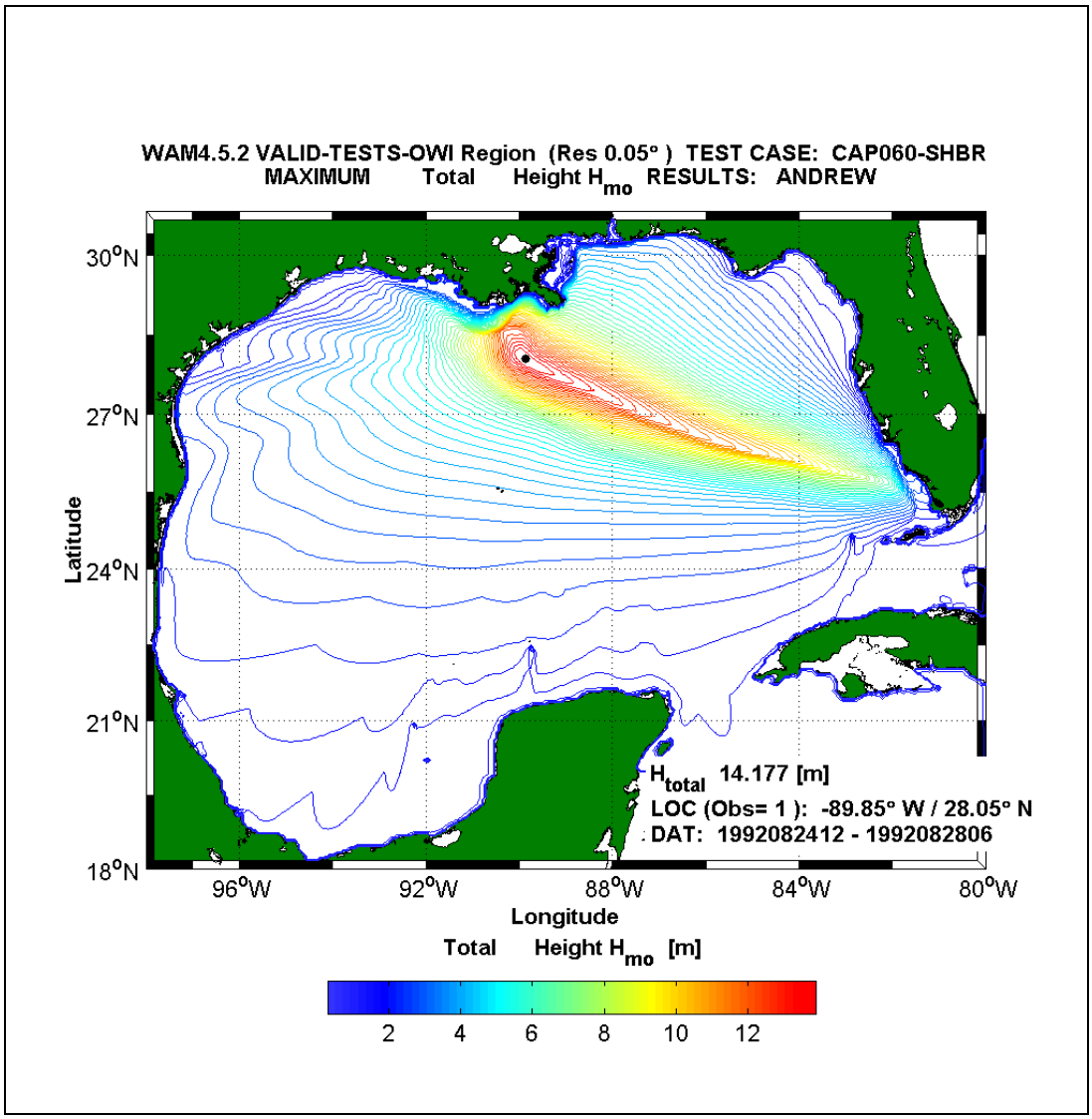

Figure 89: Maximum H_{mo} for Hurricane Andrew OWI-wind forcing. Wave heights are in meters.

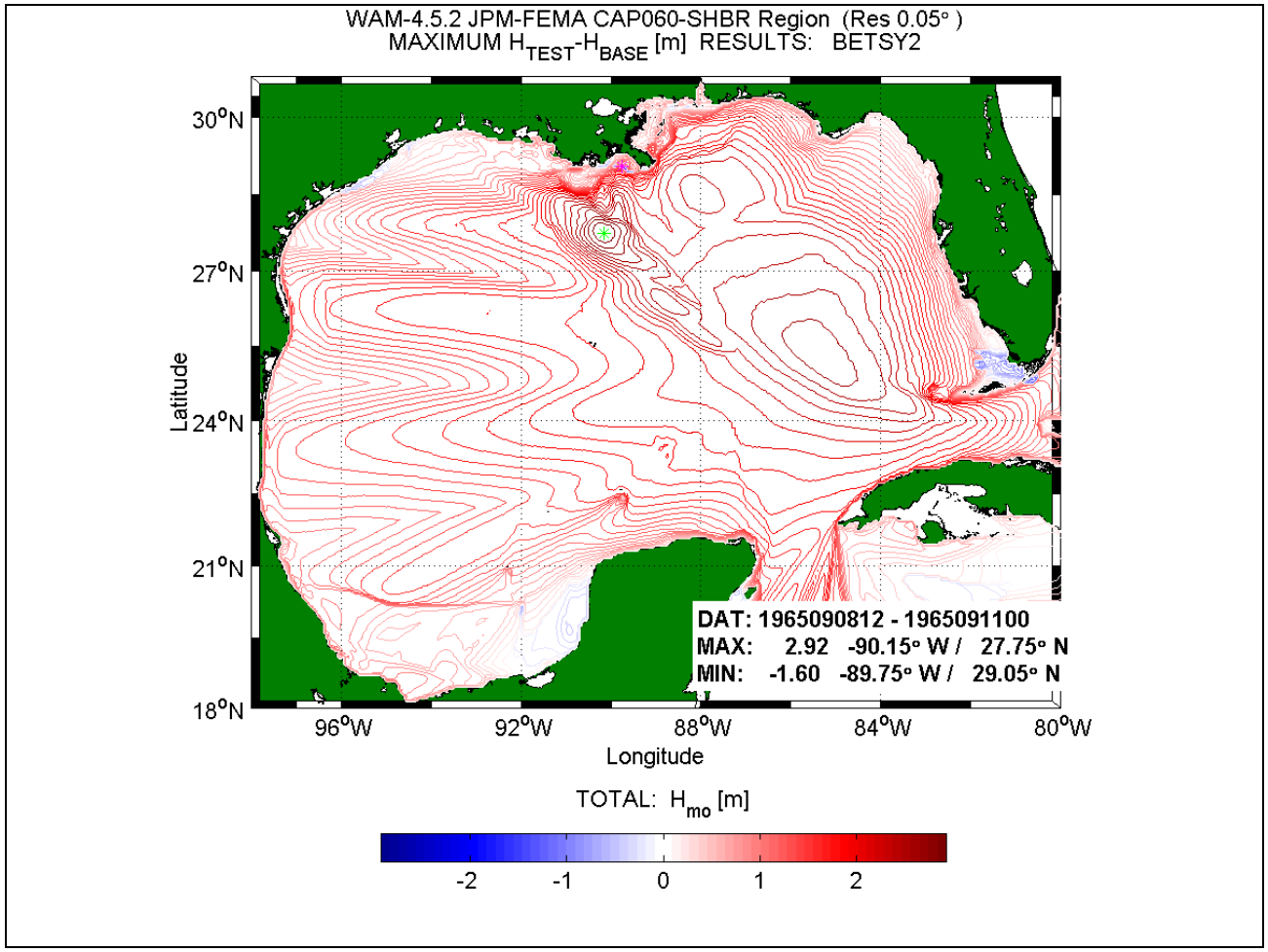

Figure 90: Maximum H_{mo} difference between PBL-forced and OWI-forced conditions for Hurricane Betsy. Wave height differences are in meters.

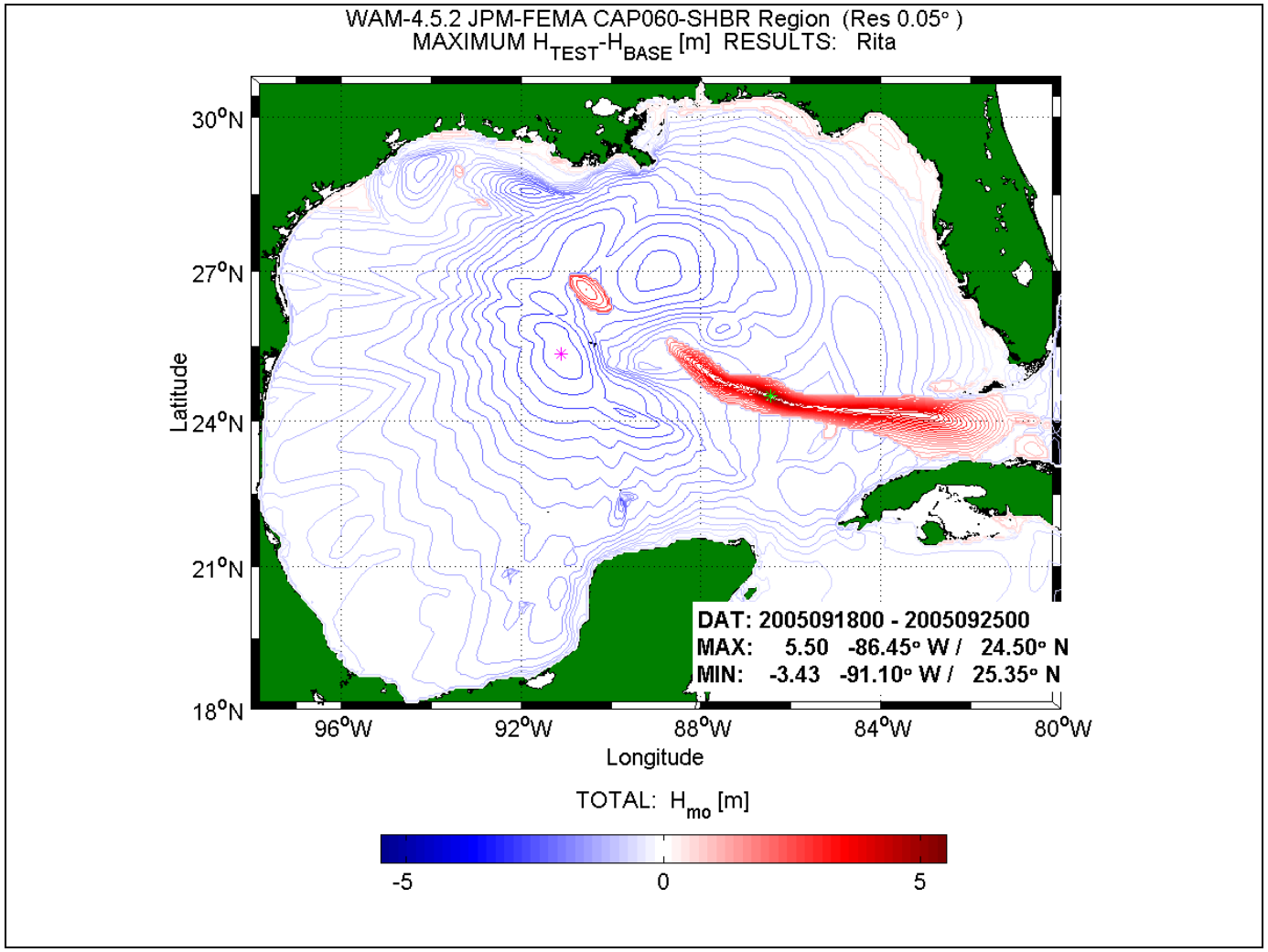

Figure 91: Maximum H_{mo} difference between PBL-forced and OWI-forced conditions for Hurricane Rita. Wave height differences are in meters.

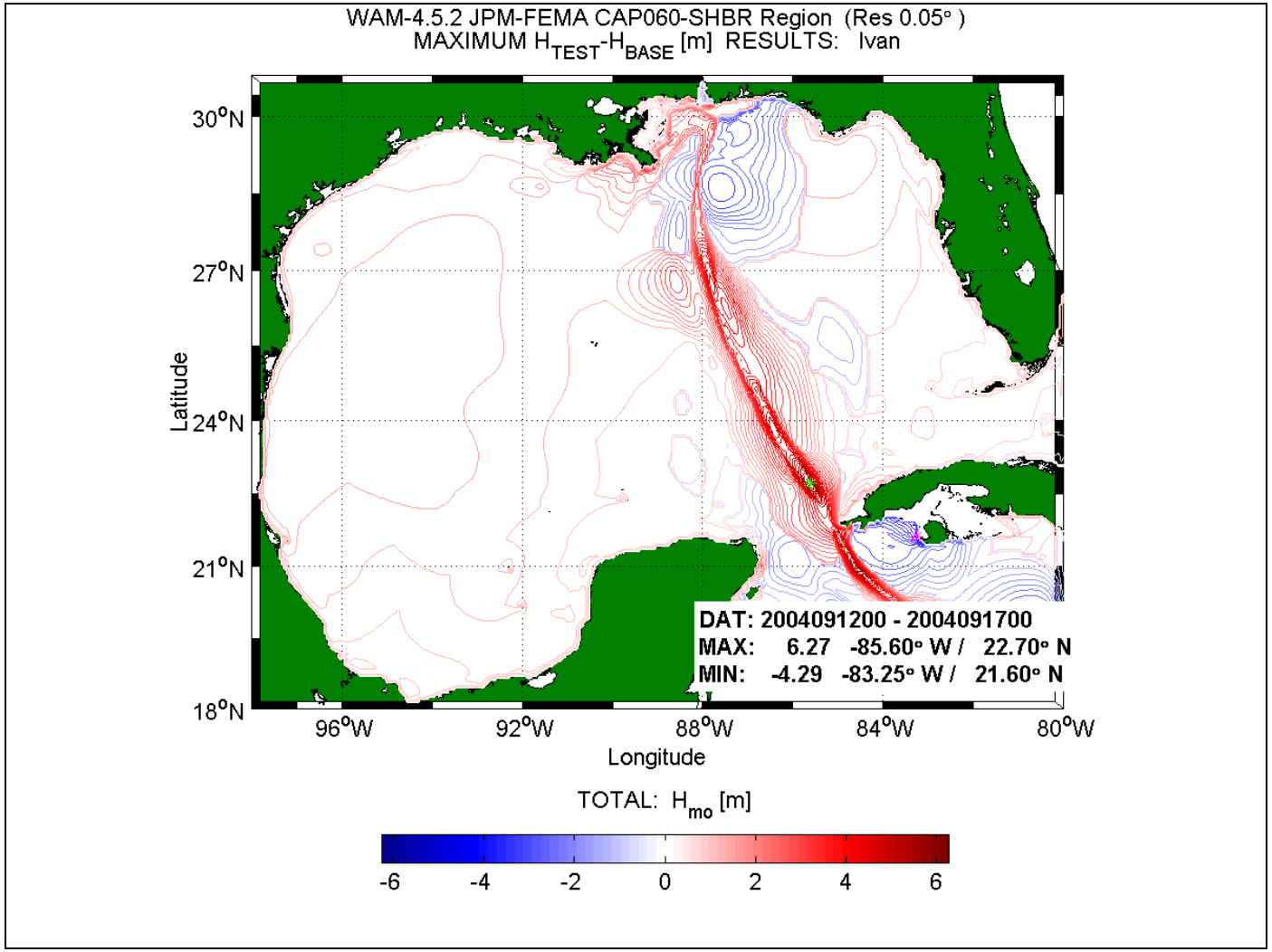

Figure 92: Maximum H_{mo} difference between PBL-forced and OWI-forced conditions for Hurricane Ivan. Wave height differences are in meters.

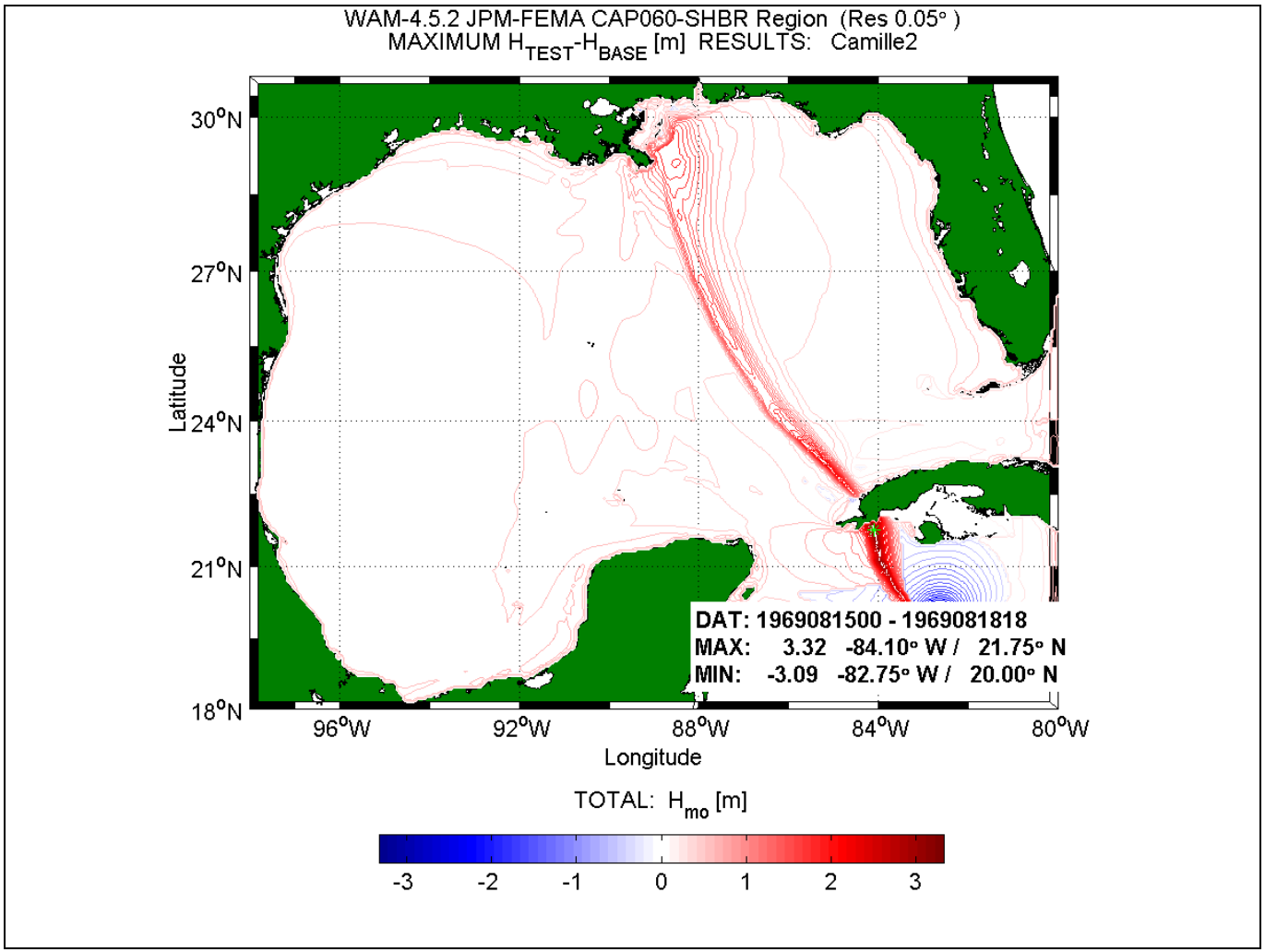

Figure 93: Maximum H_{mo} difference between PBL-forced and OWI-forced conditions for Hurricane Camille. Wave height differences are in meters.

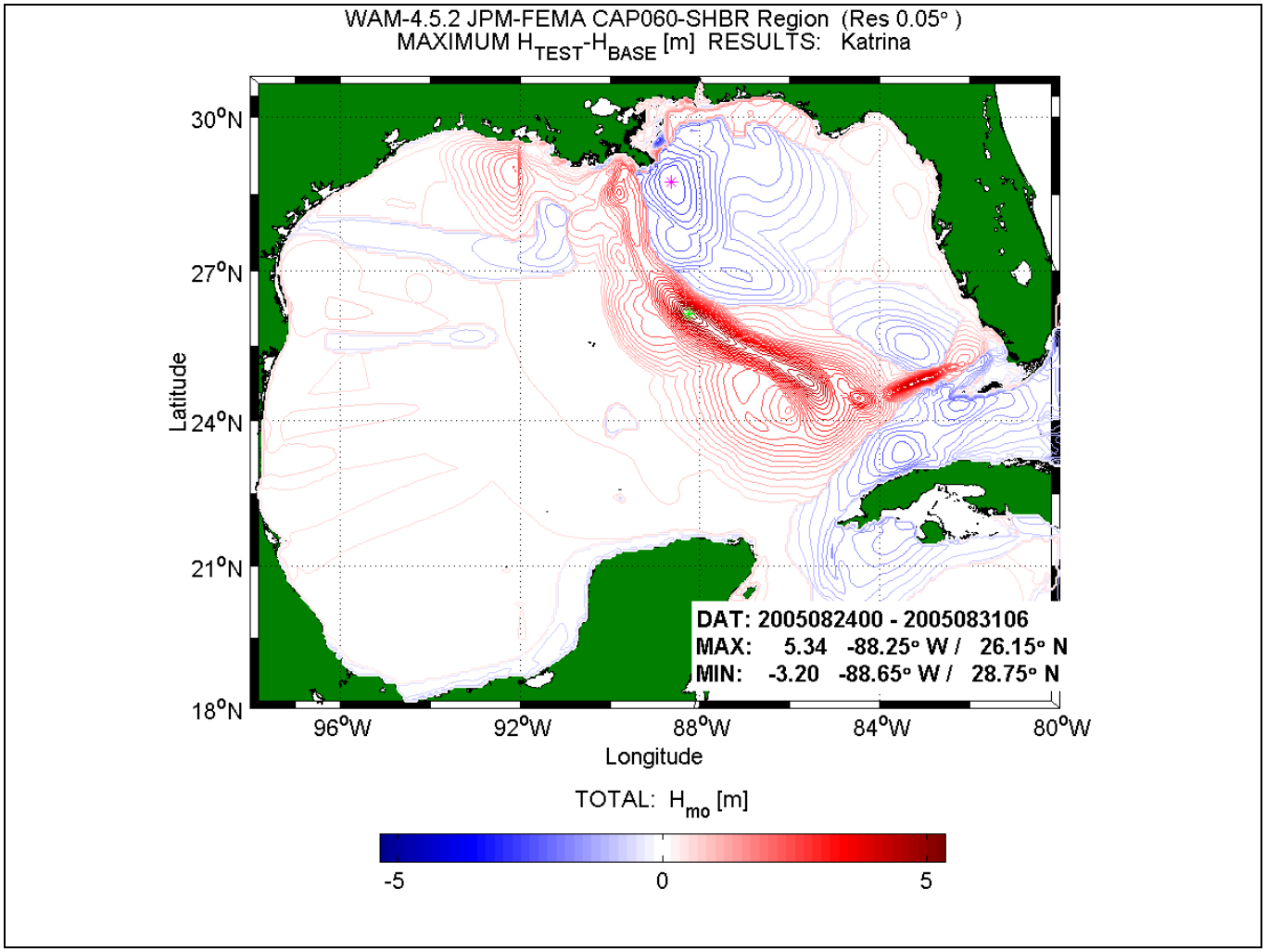

Figure 94: Maximum H_{mo} difference between PBL-forced and OWI-forced conditions for Hurricane Katrina. Wave height differences are in meters.

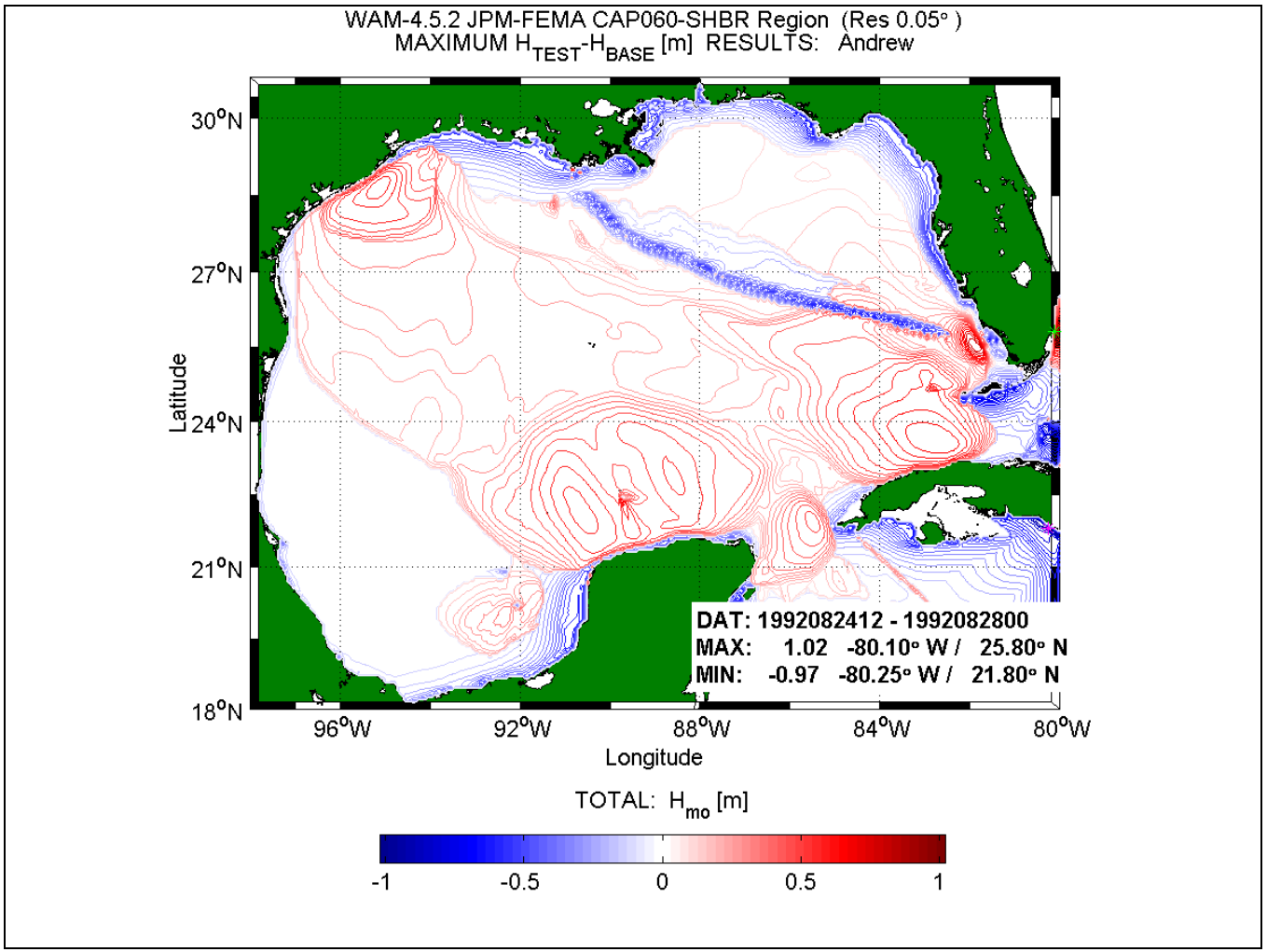

Figure 95: Maximum H_{mo} difference between PBL-forced and OWI-forced conditions for Hurricane Andrew. Wave height differences are in meters.

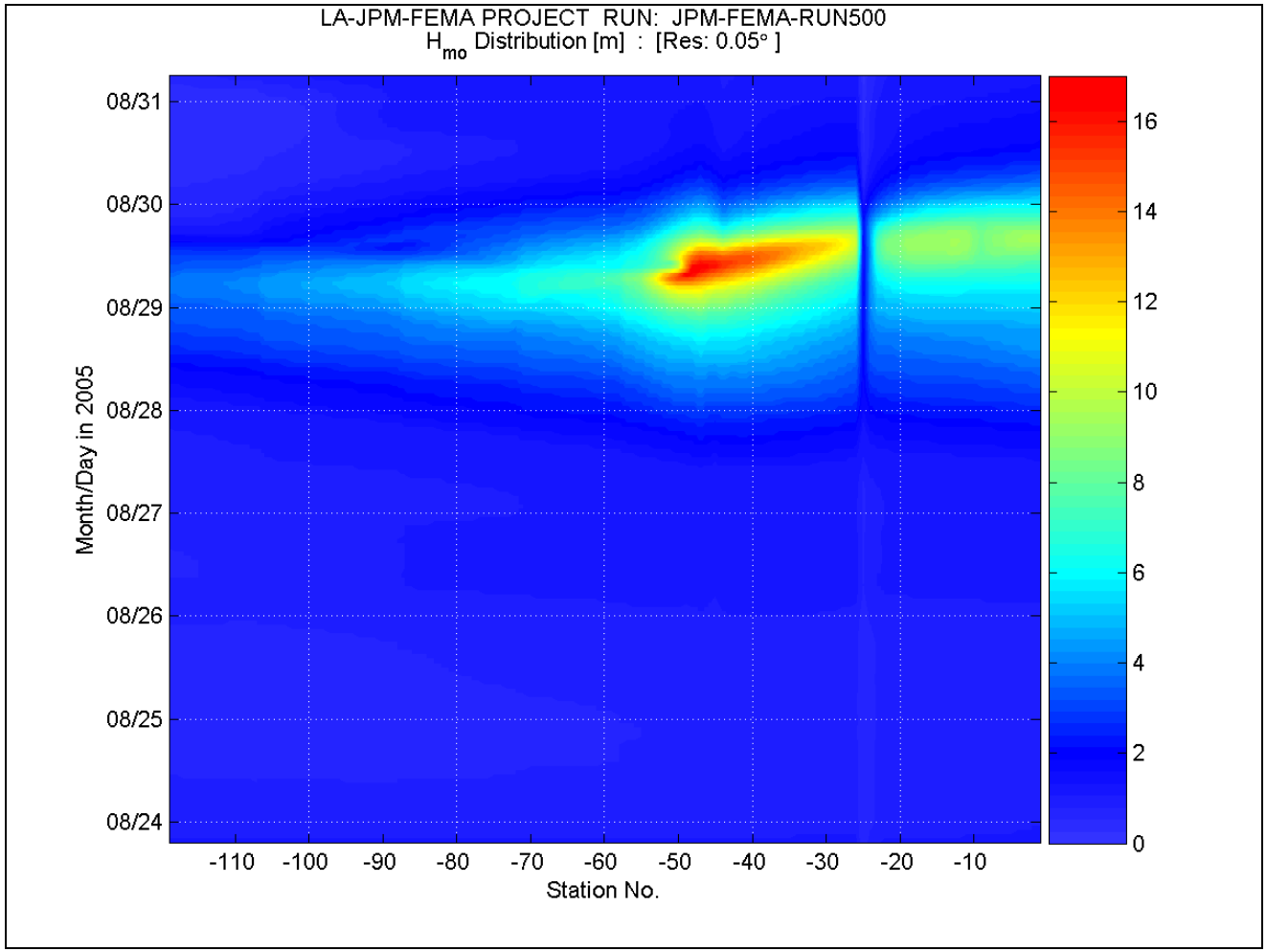

Figure 96: Spatial and temporal variation in the H_{mo} for the 119 boundary output locations for the PBL-wind forcing of Hurricane Katrina. Wave heights are color contoured and in meters.

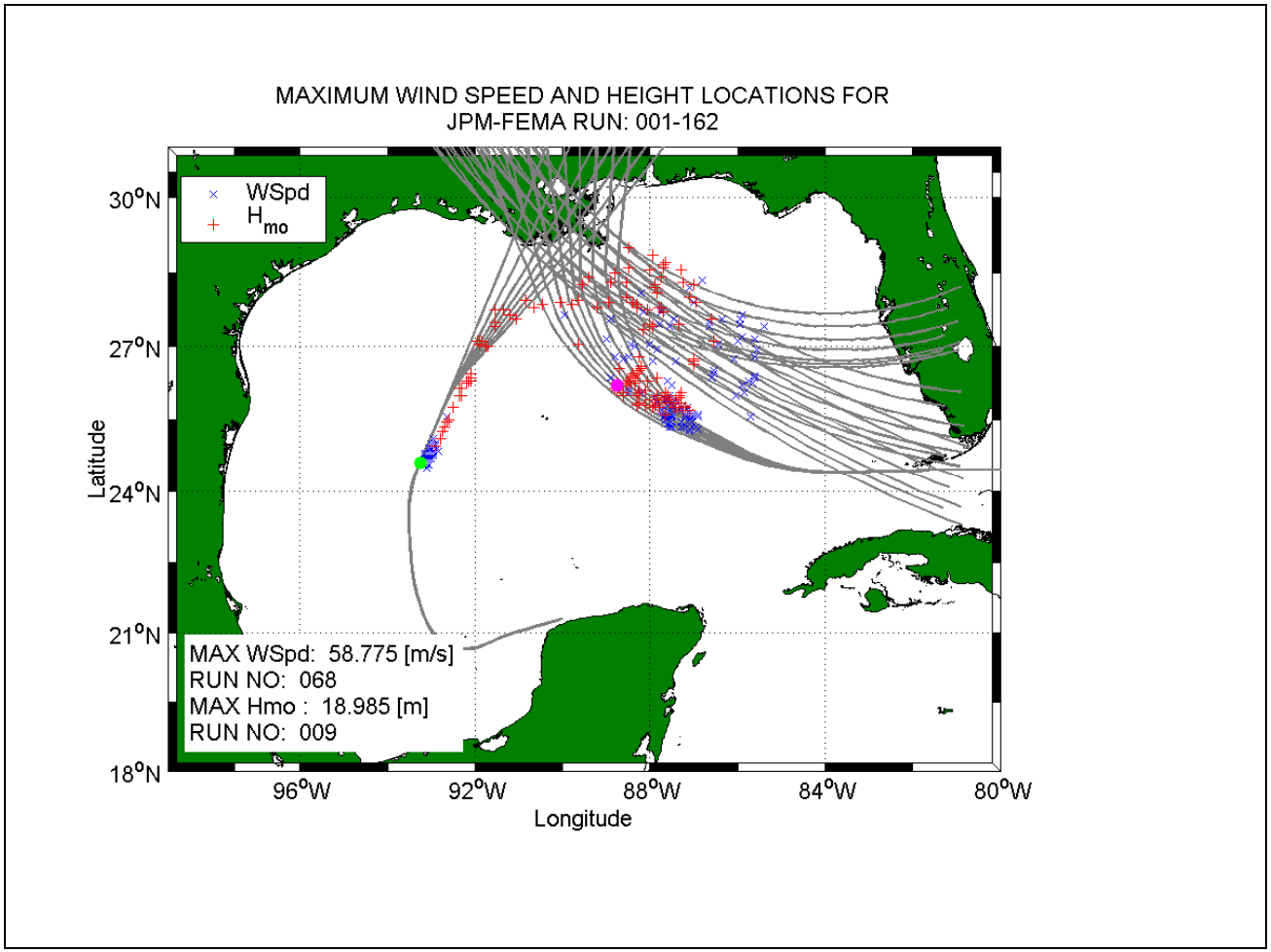

Figure 97: Summary of all 152 JPM storm simulations, track's maximum wind speed (blue symbol), and significant wave height (red symbol) results.

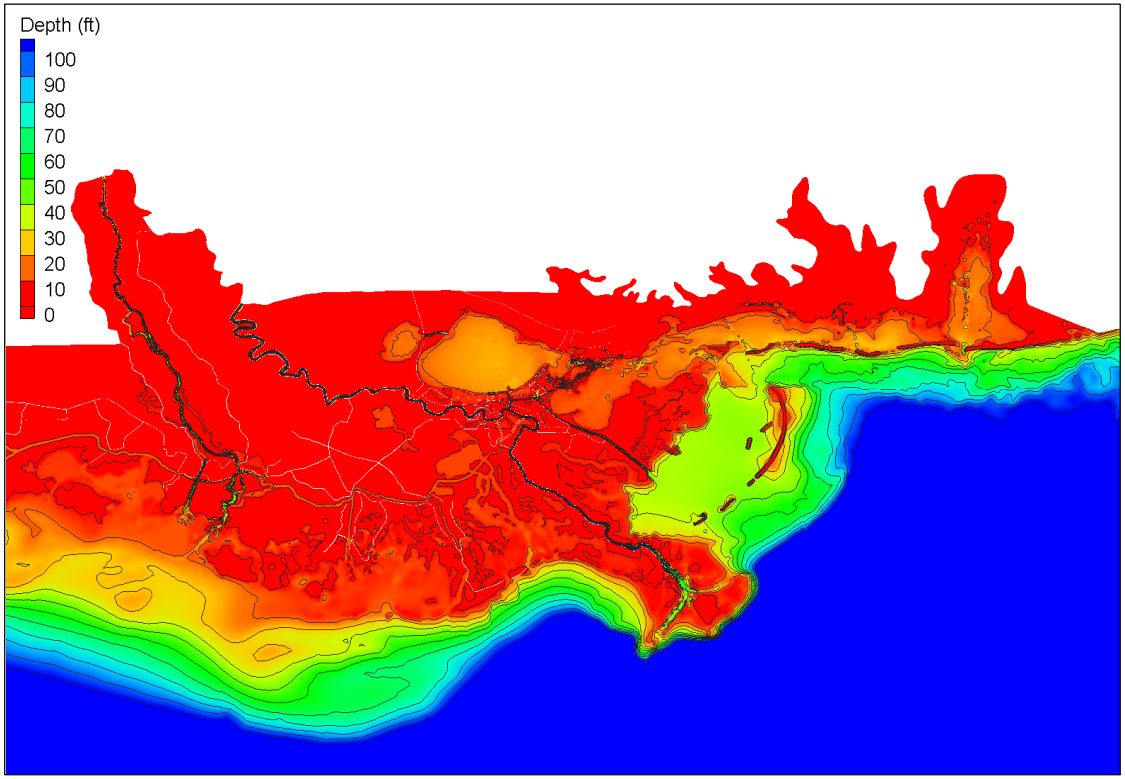

Figure 98: STWAVE modeling domains.

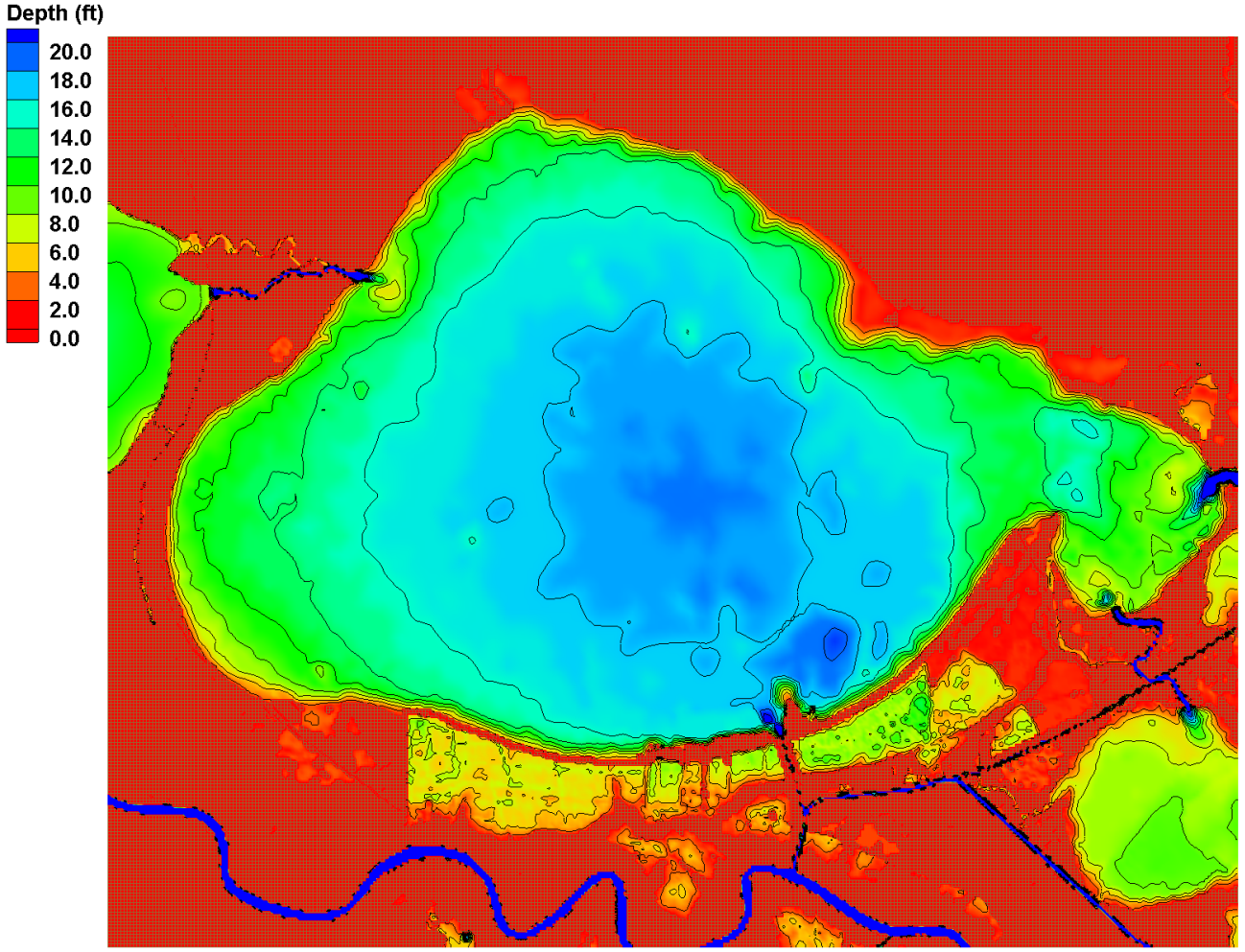

Figure 99: Lake Pontchartrain Bathymetry Grid (depths in feet, NAVD88 2004.65).

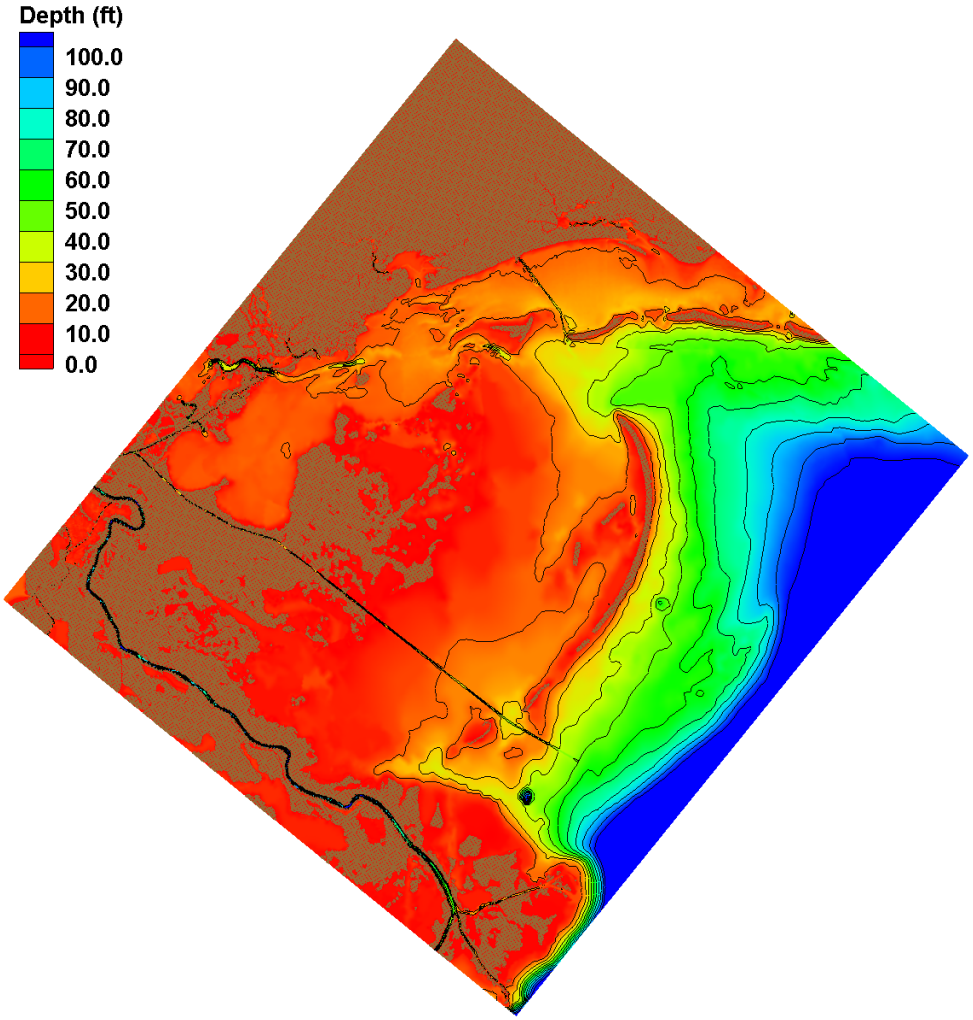

Figure 100: Louisiana Southeast Bathymetry Grid (depths in feet, NAVD88 2004.65).

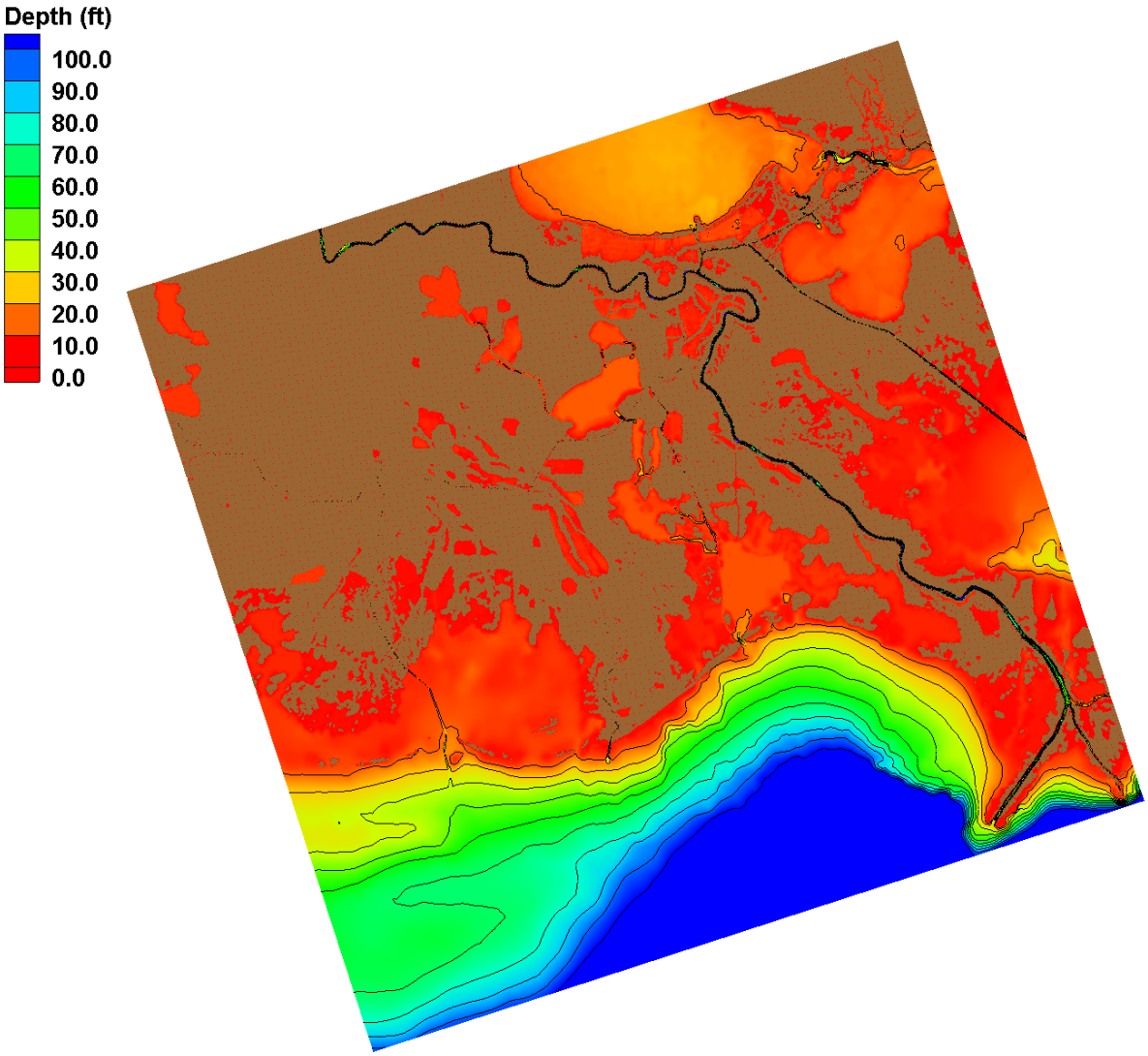

Figure 101: Louisiana South Bathymetry Grid (depths in feet, NAVD88 2004.65).

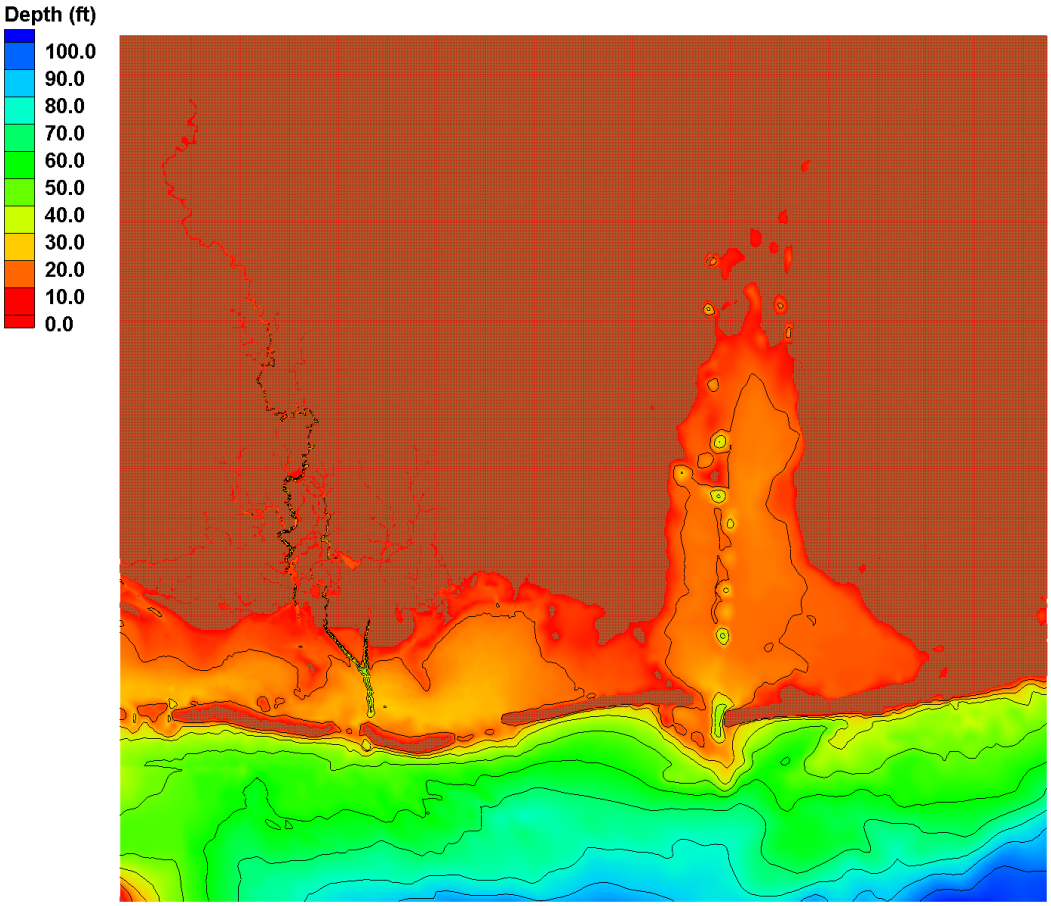

Figure 102: Mississippi/Alabama Bathymetry Grid (depths in feet, NAVD88 2004.65).

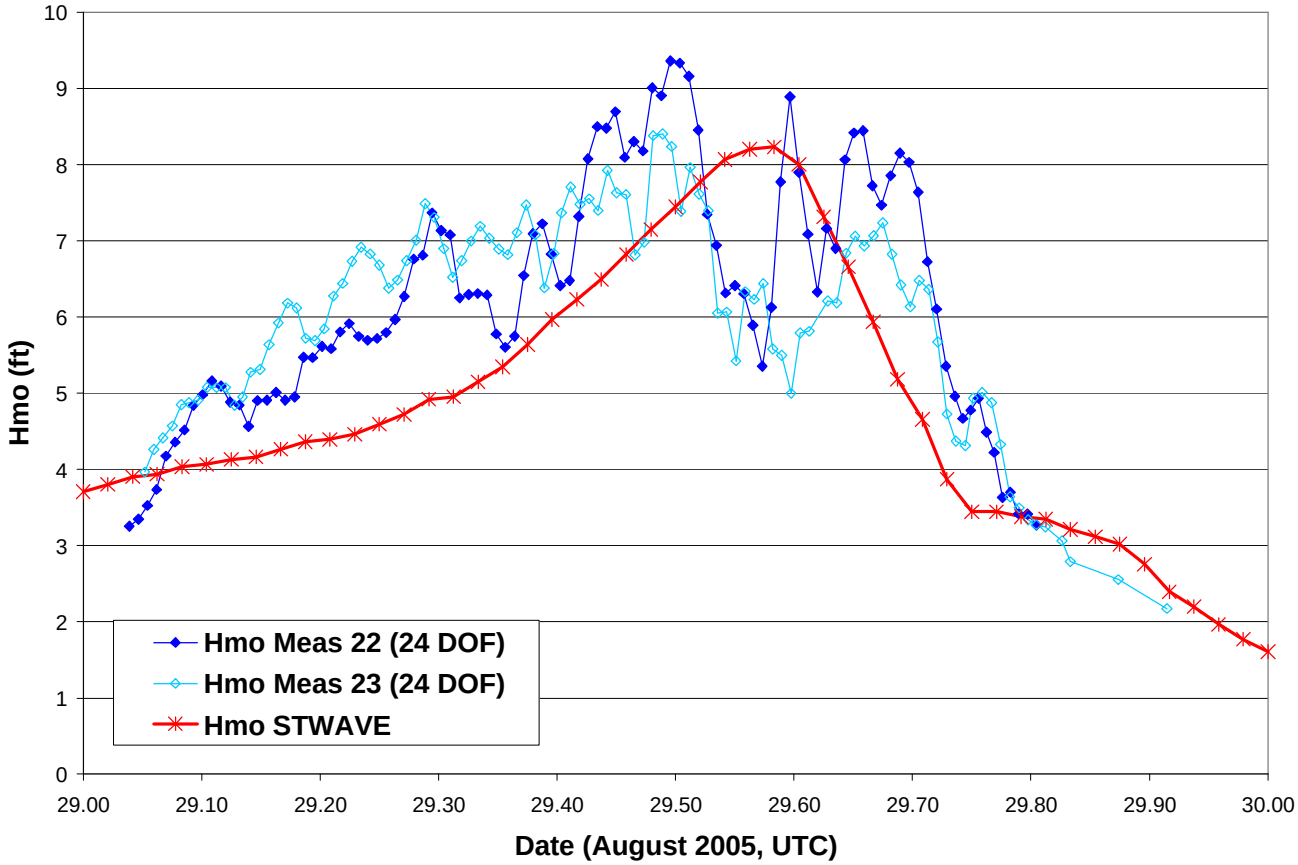

Figure 103: Lake Pontchartrain measured and modeled significant wave height.

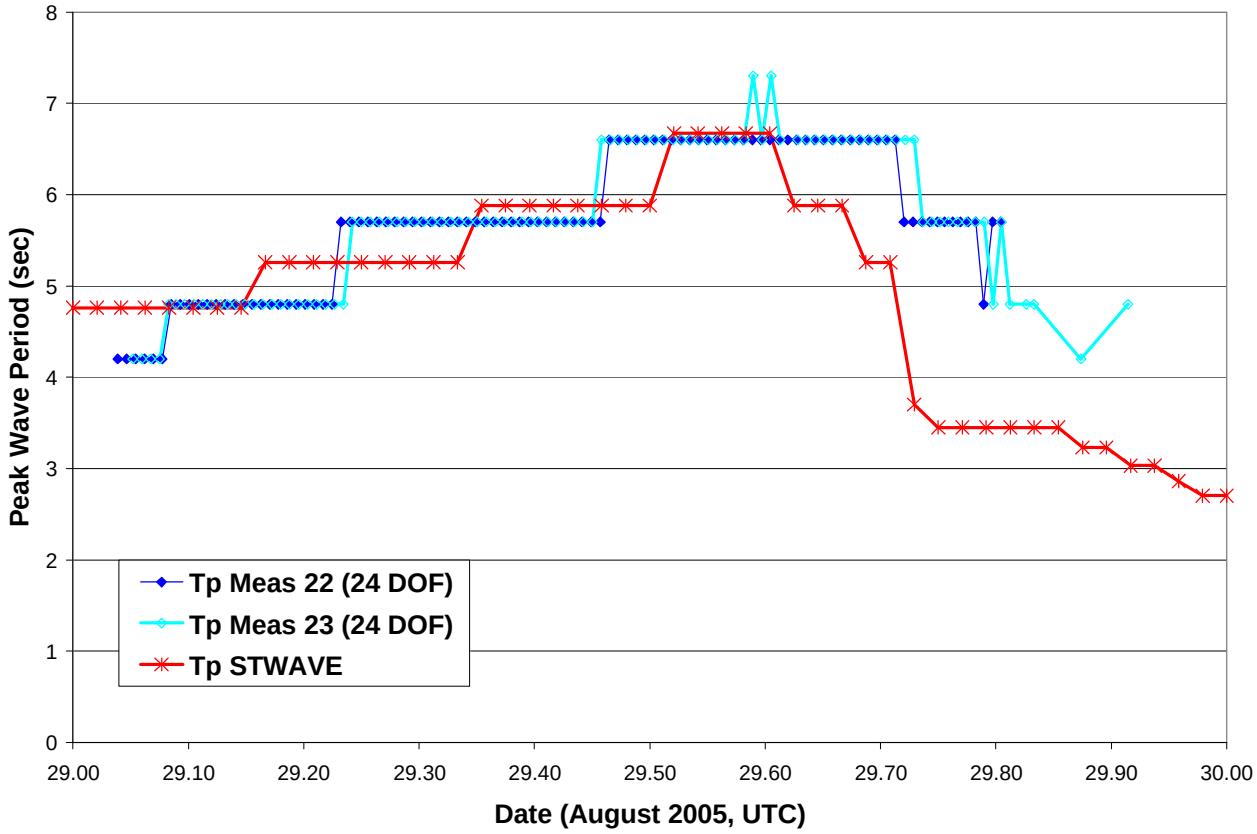

Figure 104: Lake Pontchartrain measured and modeled peak wave period.

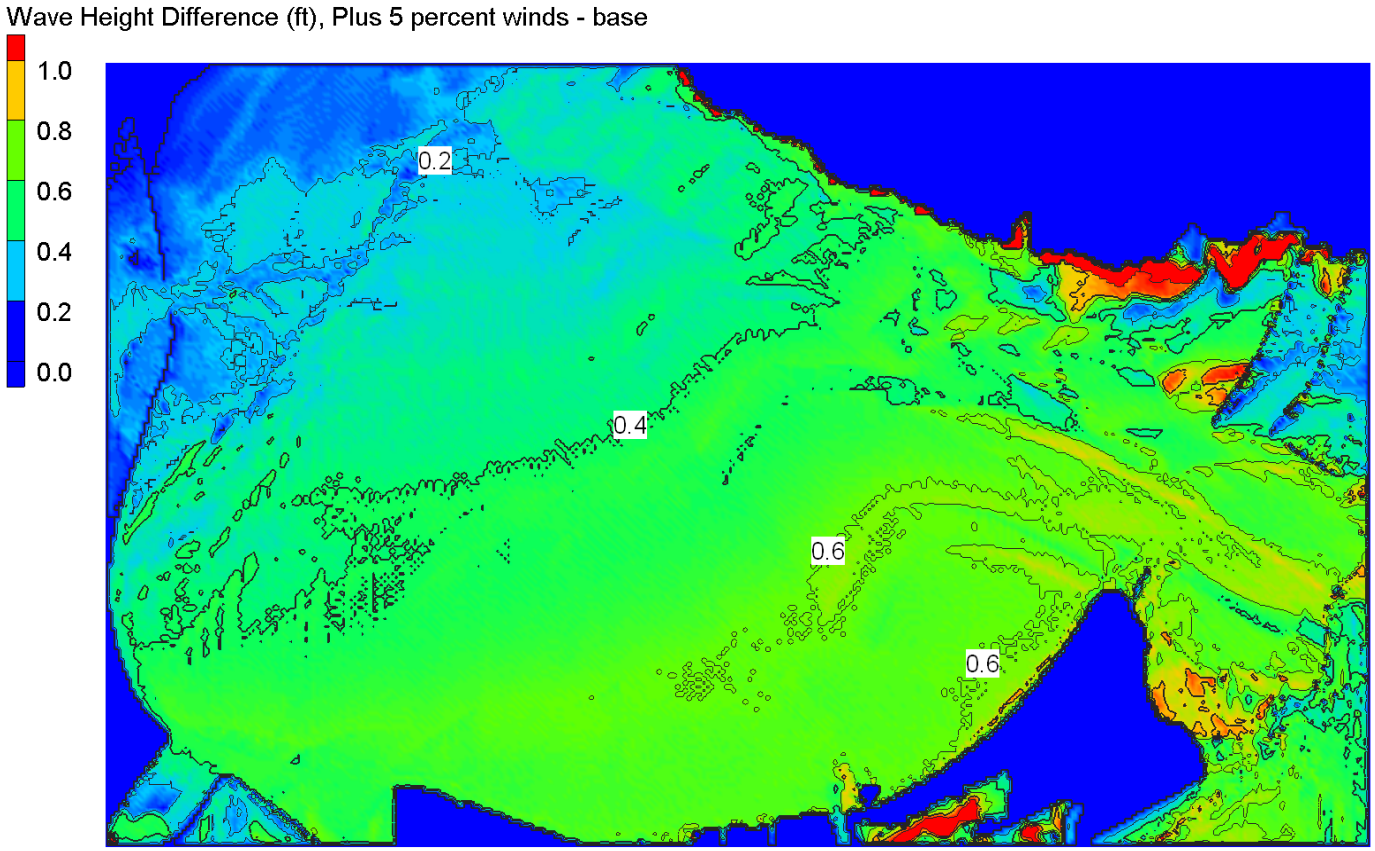

Figure 105: Differences in maximum wave height for sensitivity run with 5 percent increase in wind speed for Lake Pontchartrain (plus 5 percent – base).

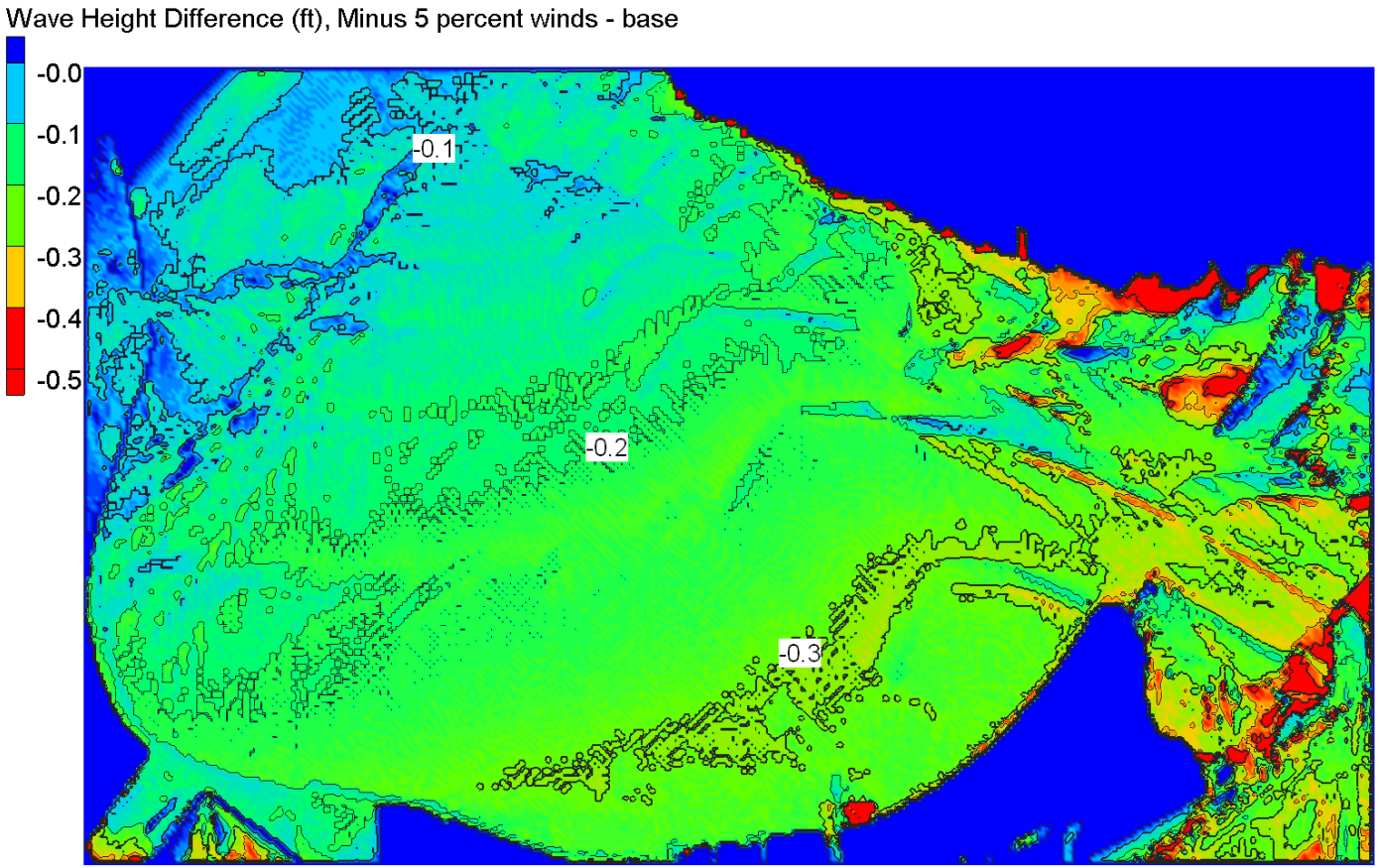

Figure 106: Differences in maximum wave height for sensitivity run with 5 percent decrease in wind speed for Lake Pontchartrain (minus 5 percent – base).

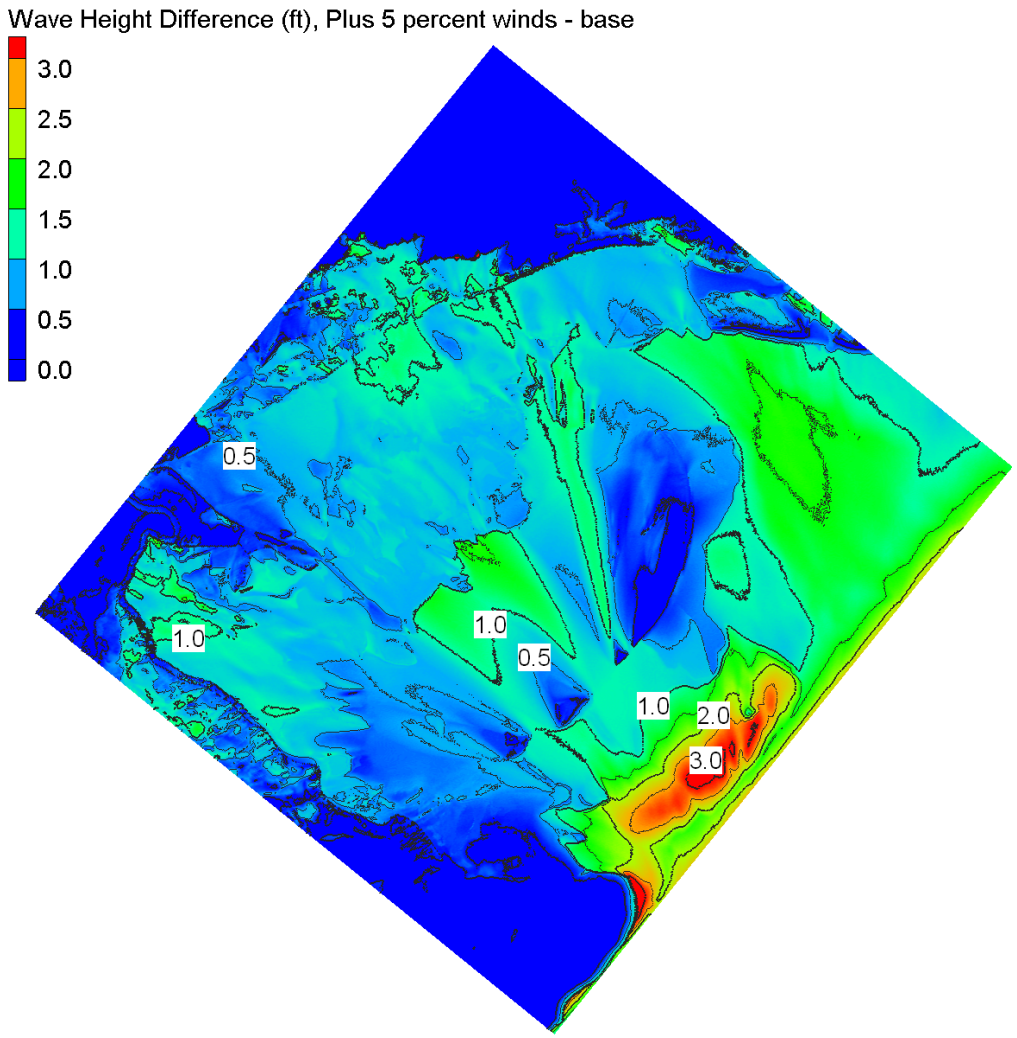

Figure 107: Differences in maximum wave height for sensitivity run with 5 percent increase in wind speed for Southeast Louisiana (plus 5 percent – base).

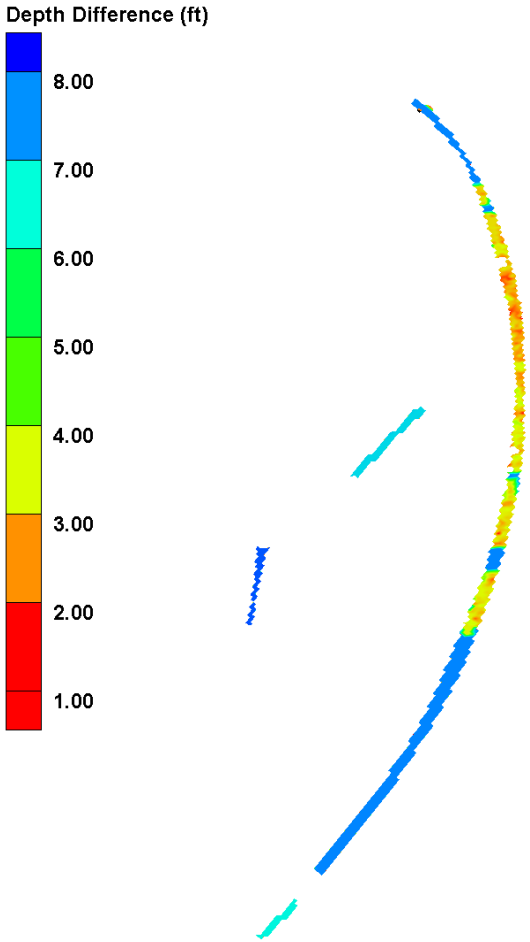

Figure 108: Chandeleur Islands depth differences used in bathymetry sensitivity runs (degraded bathymetry – base).

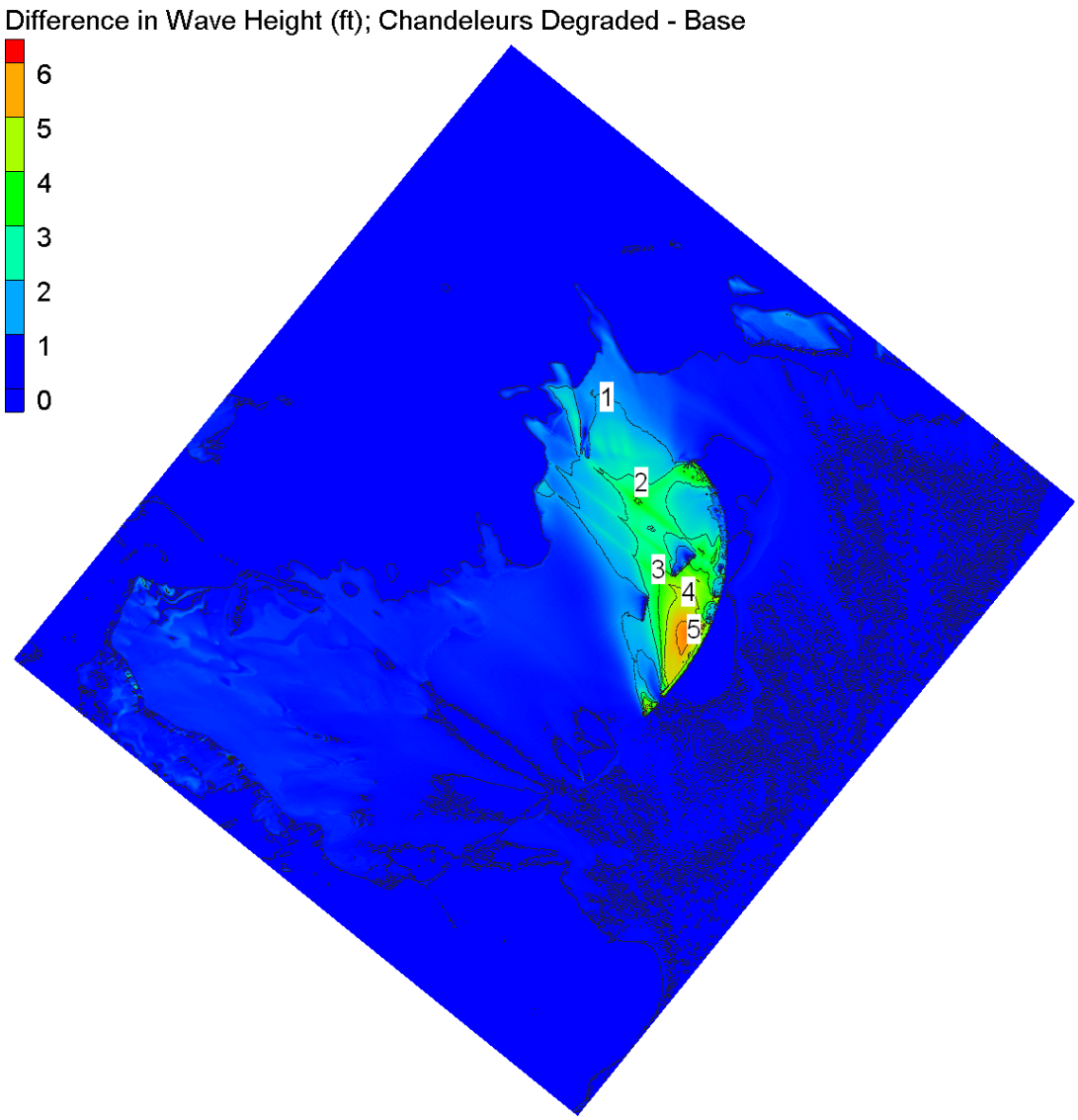

Figure 109: Differences in maximum wave height for sensitivity run with Chandeleur Islands degraded for Southeast Louisiana (degraded bathymetry – base).

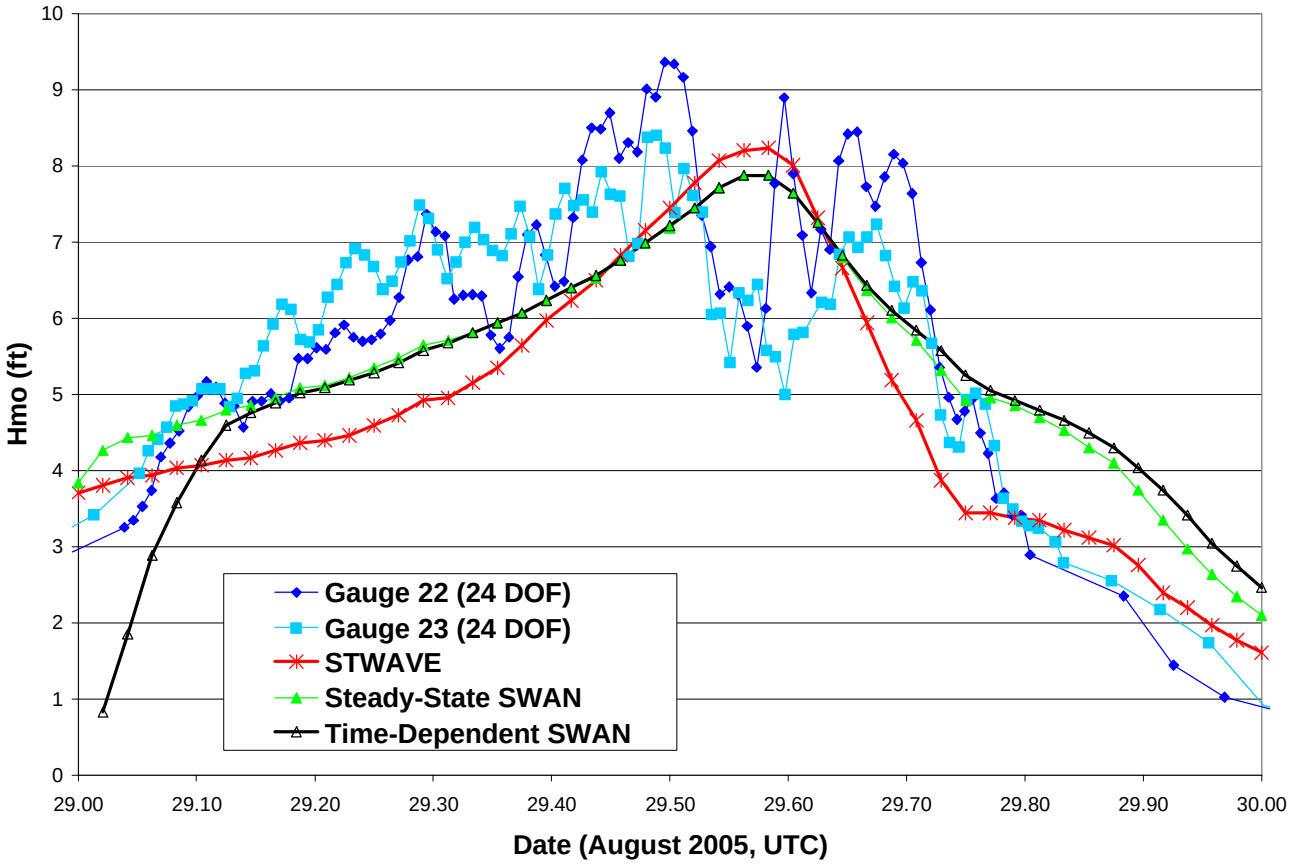

Figure 110: Time-dependent and steady-state SWAN and STWAVE modeled significant wave heights for Lake Pontchartrain measured and measured wave height.

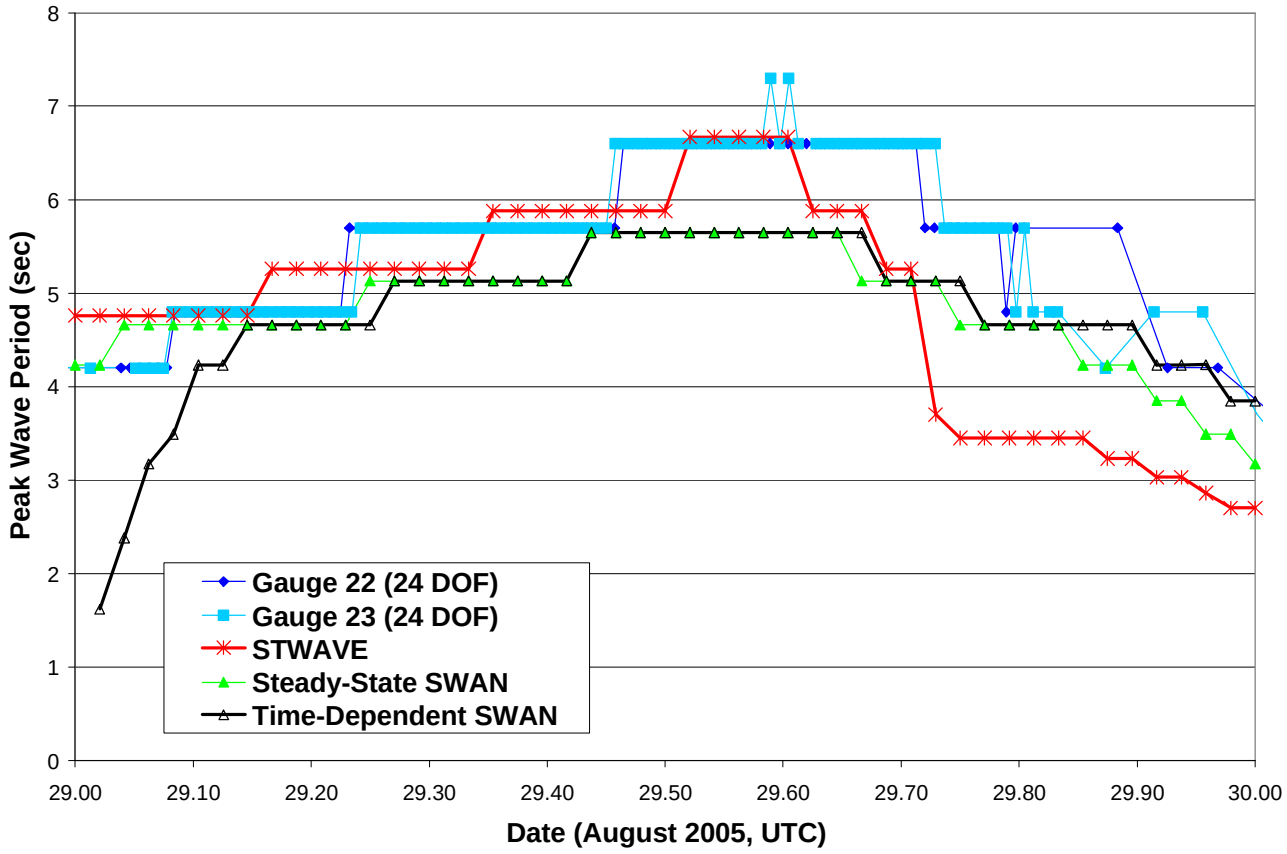

Figure 111: Time-dependent and steady-state SWAN and STWAVE modeled peak wave periods for Lake Pontchartrain measured and measured periods.

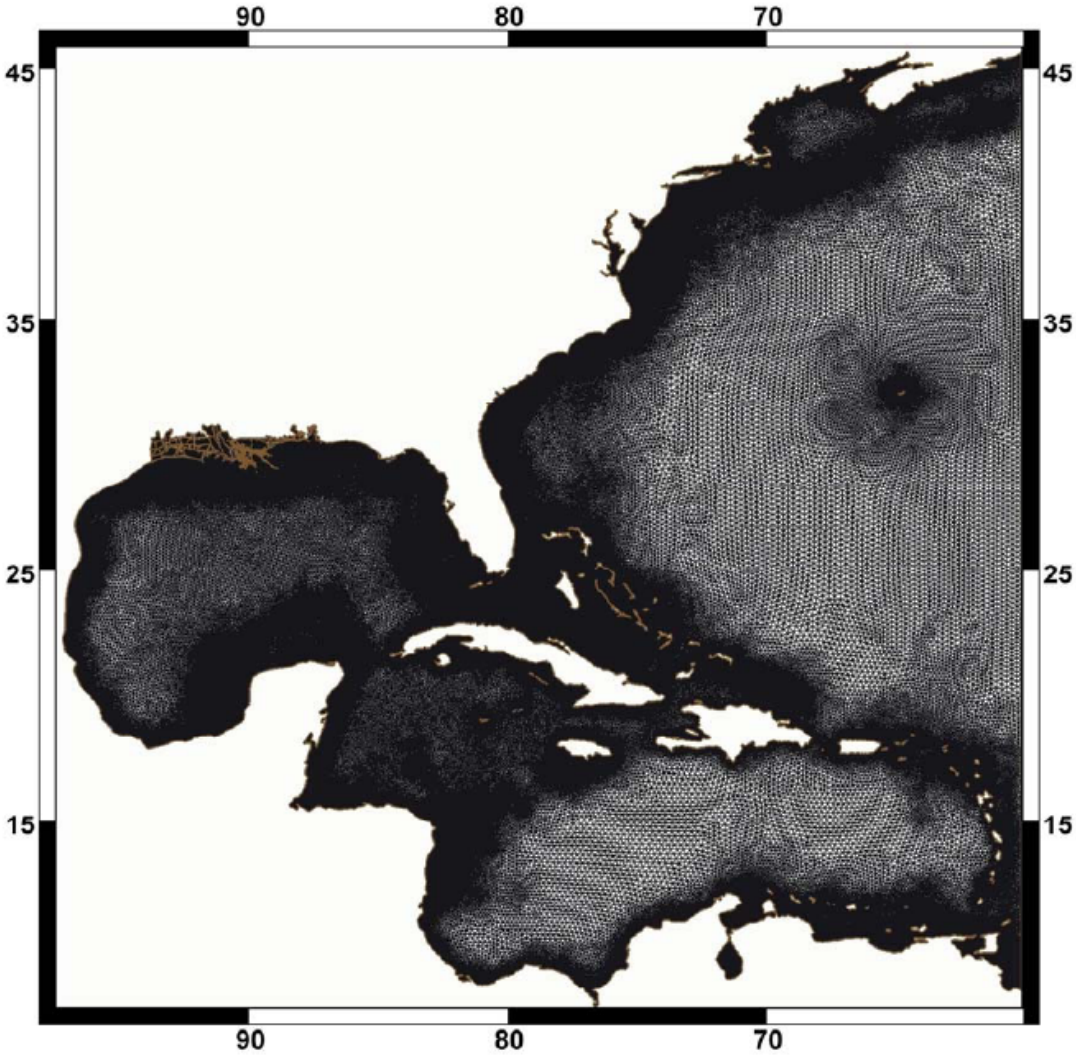

Figure 112: The unstructured ADCIRC SL15 grid of the total domain.

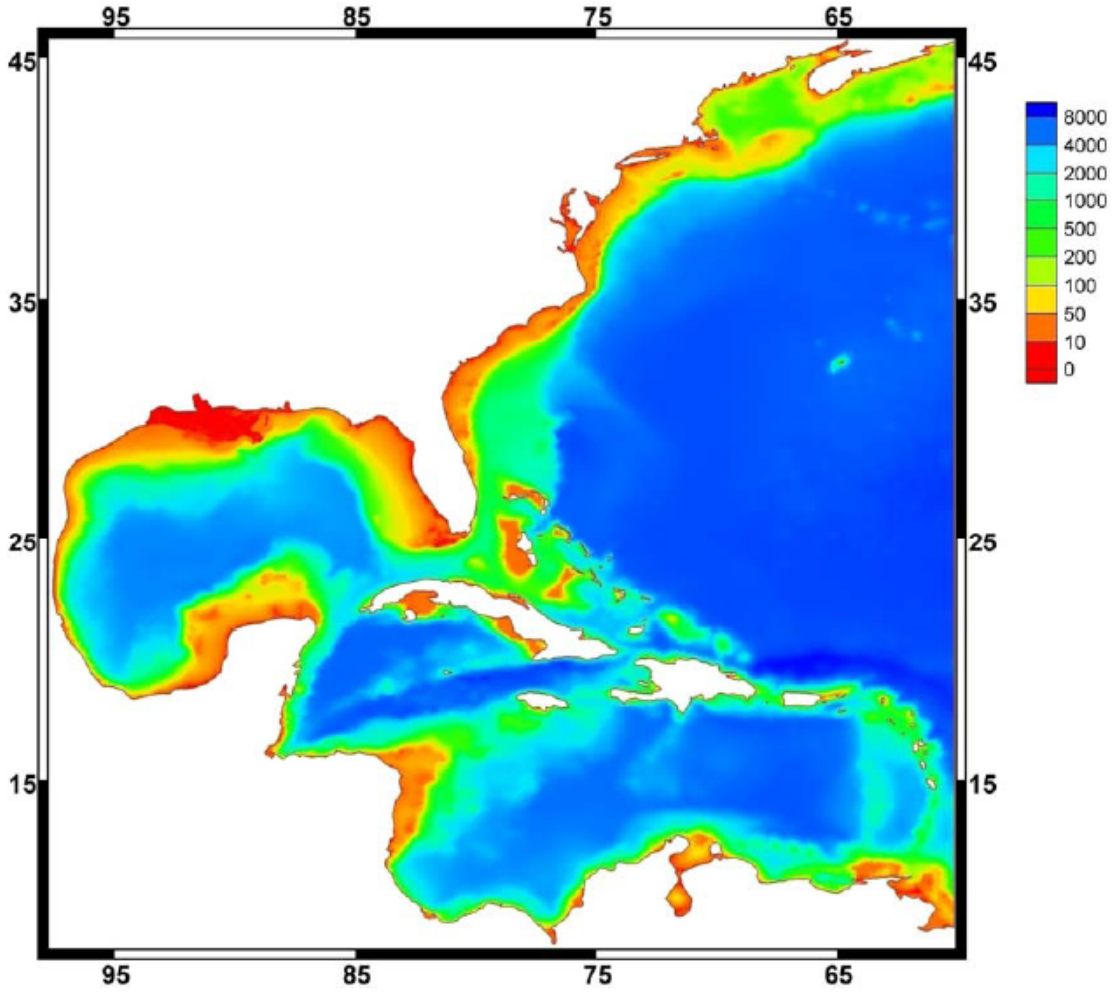

Figure 113: ADCIRC SL15 with bathymetry (in meters) for the total domain.

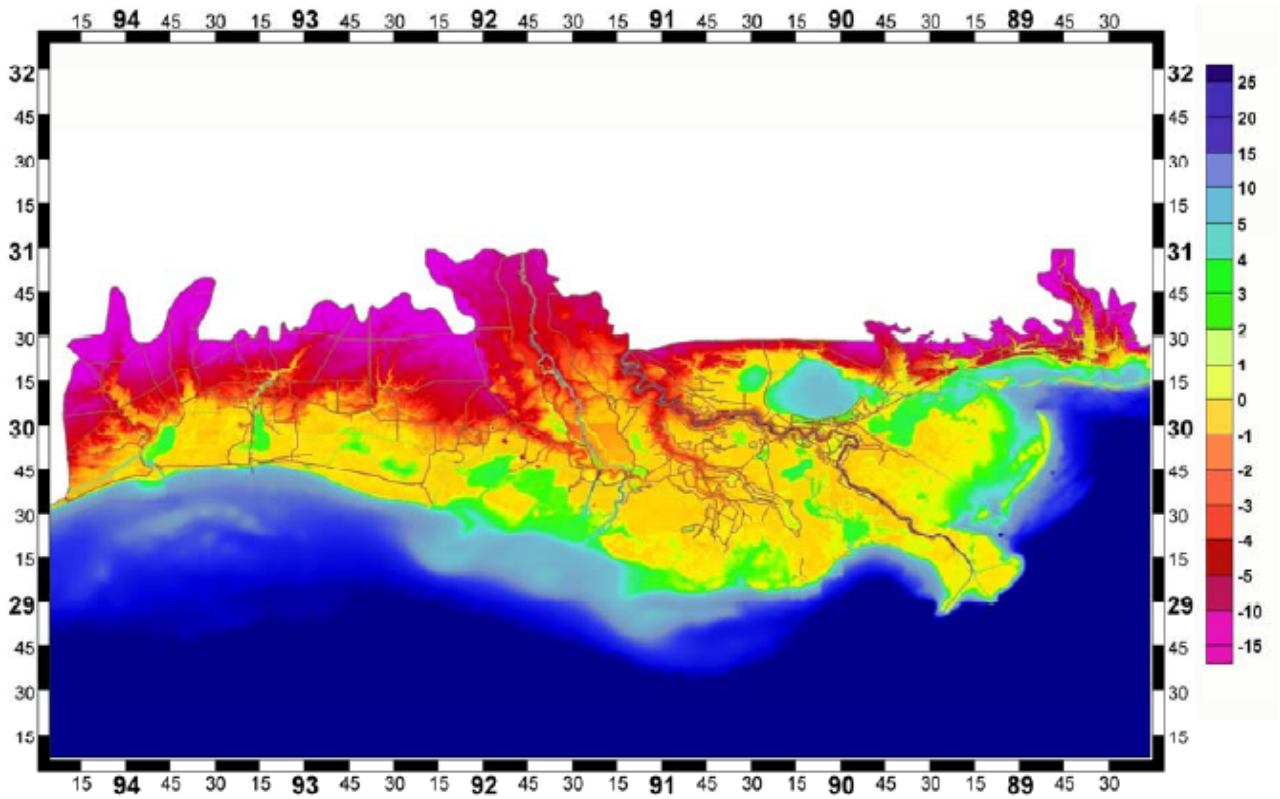

Figure 114: Detail of the SL15 domain with bathymetry and topography (in meters) across Southern Louisiana with raised features, such as levees, railroads, and highways, shown in brown.

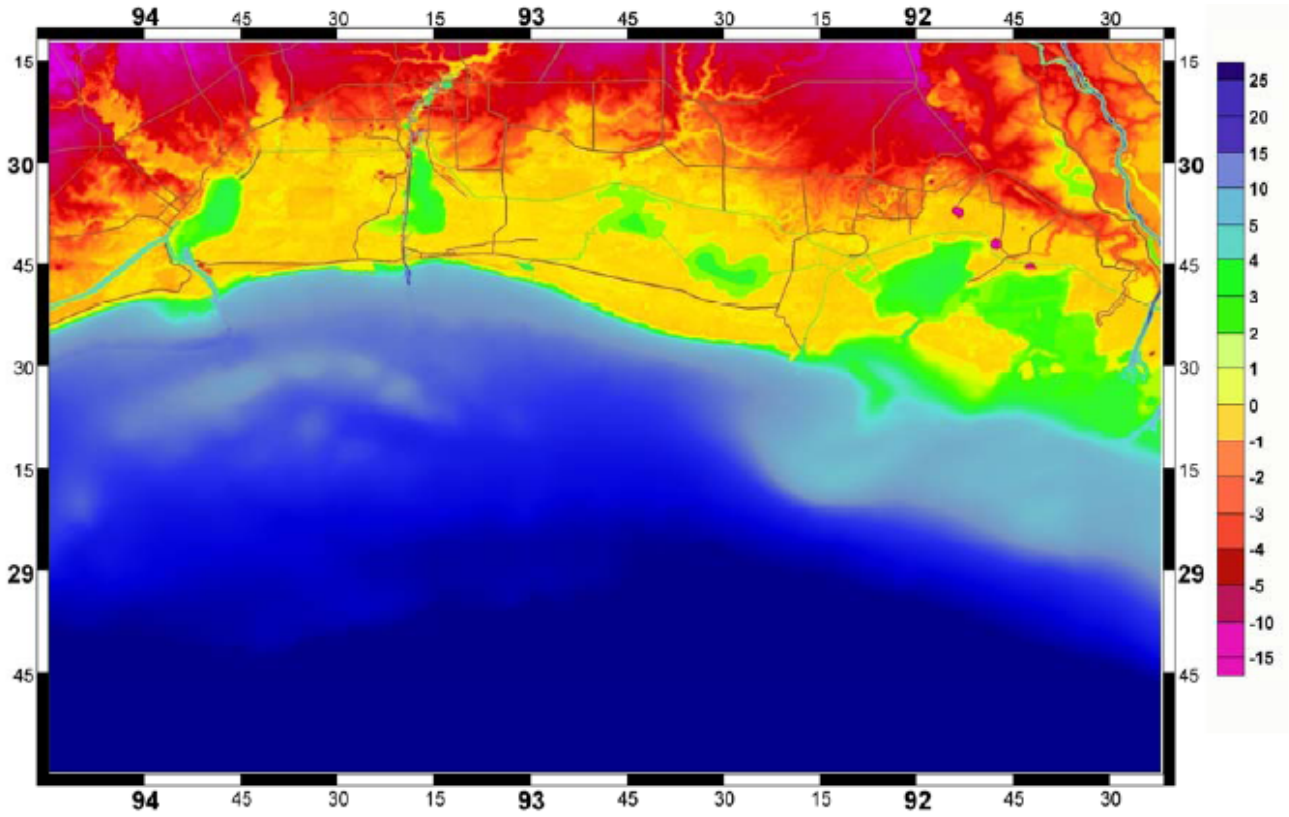

Figure 115: Detail of the SL15 domain with bathymetry and topography (in meters) across Southwestern Louisiana with raised features, such as levees, railroads, and highways, shown in brown.

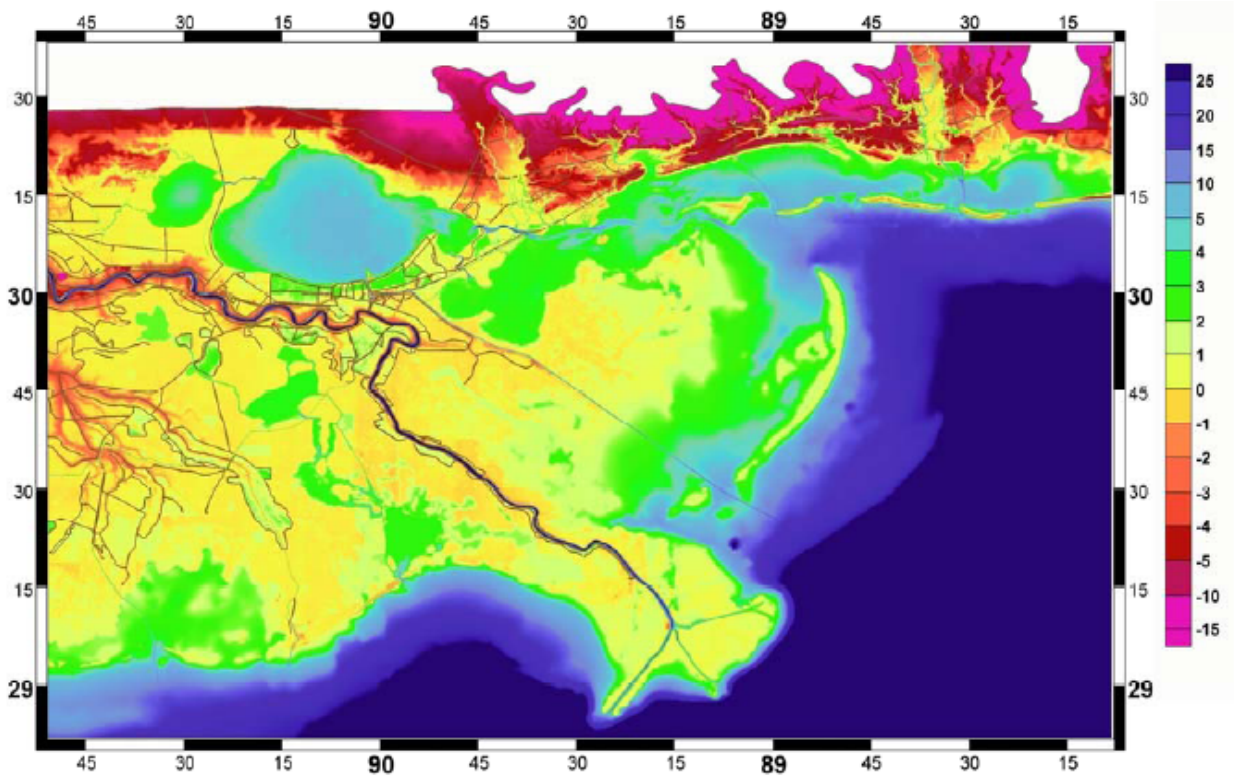

Figure 116: Detail of the SL15 domain with bathymetry and topography (in meters) across Southeastern Louisiana with raised features, such as levees, railroads, and highways, shown in brown.

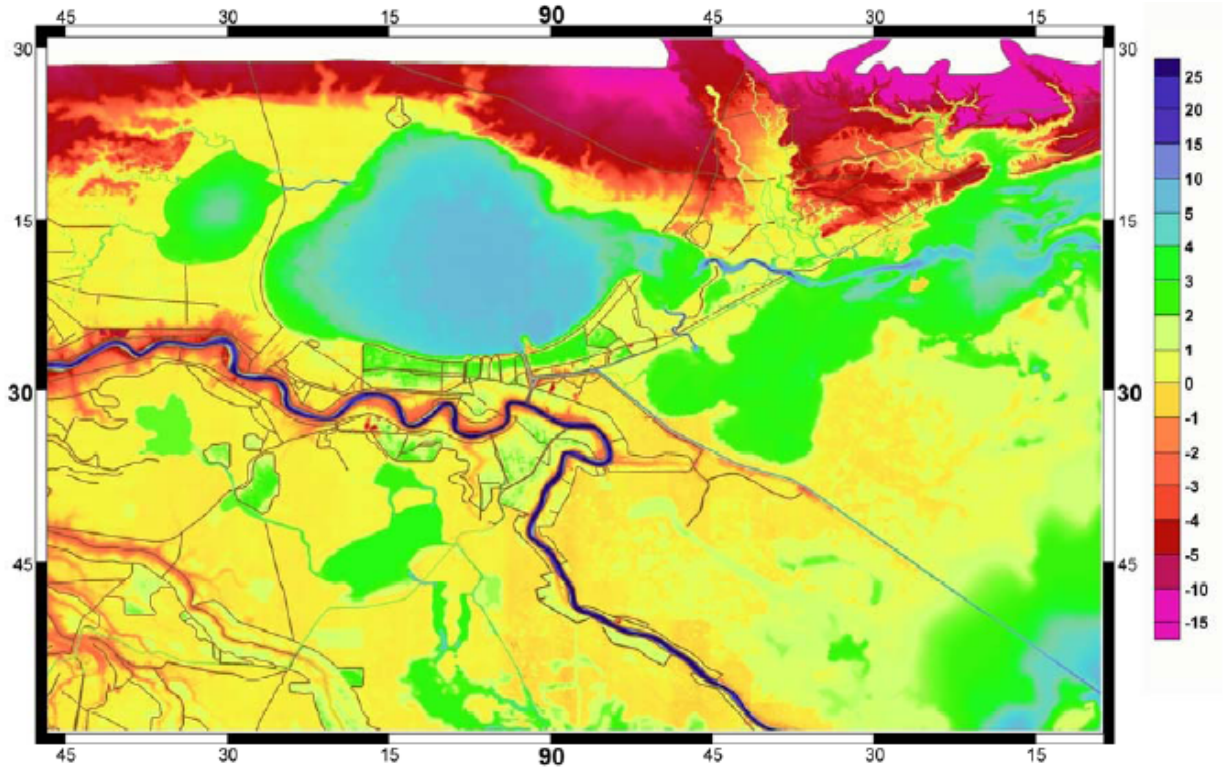

Figure 117: Detail of the SL15 domain with bathymetry and topography (in meters) across the area around New Orleans and Lake Pontchartrain with raised features shown in brown.

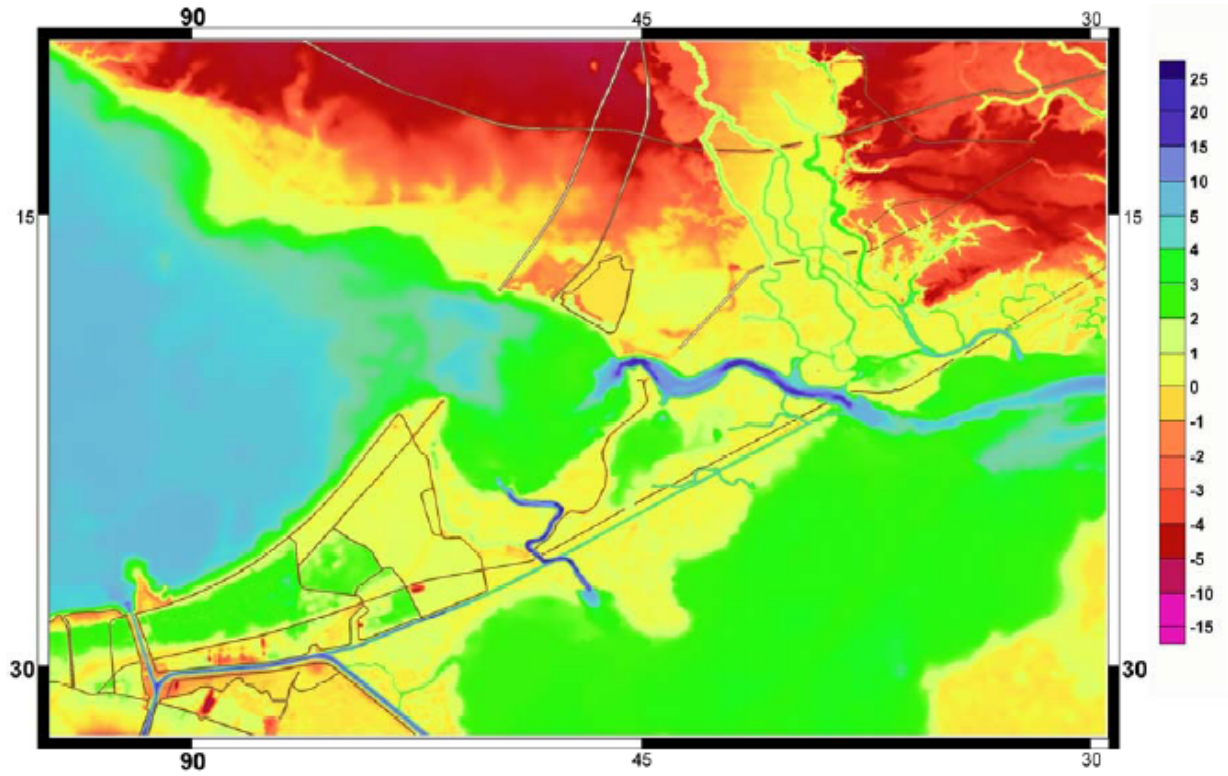

Figure 118: Detail of the SL15 domain with bathymetry and topography (in meters) across the area between Lake Pontchartrain and Lake Borgne with raised features shown in brown.

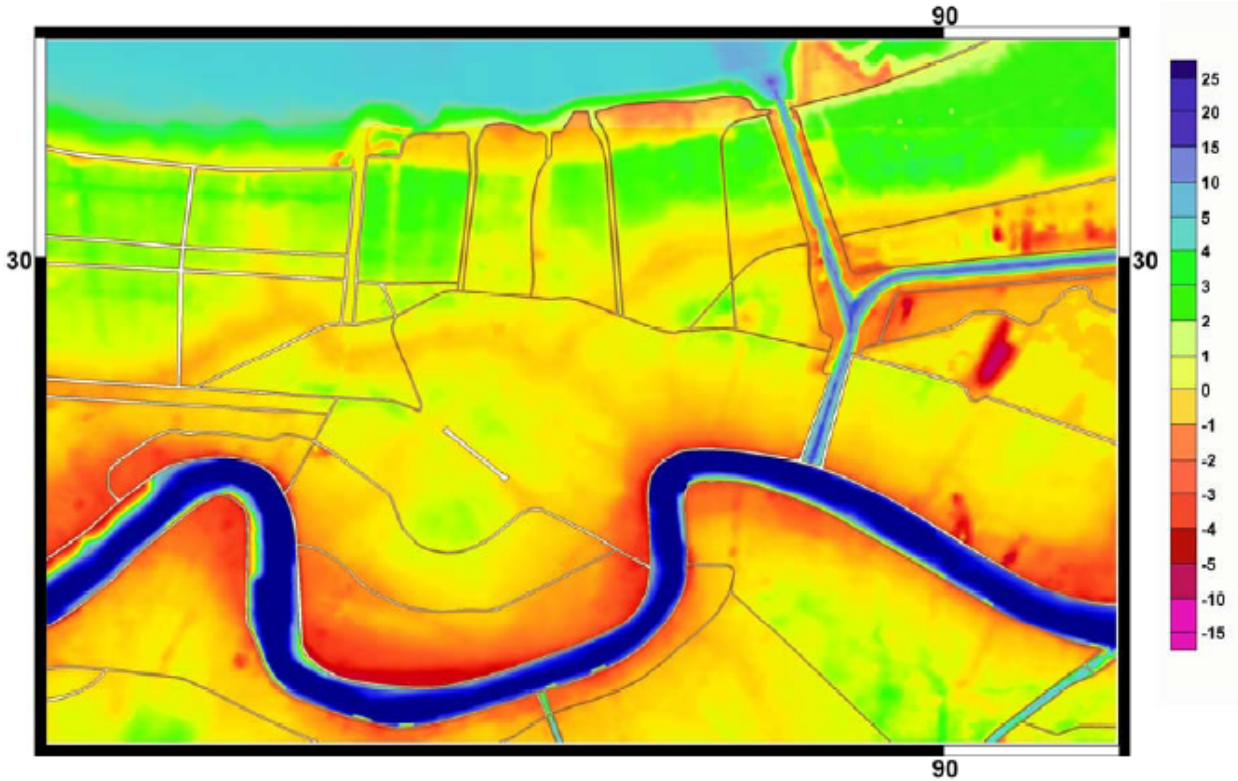

Figure 119: Detail of the SL15 domain with bathymetry and topography (in meters) across New Orleans with raised features shown in brown.

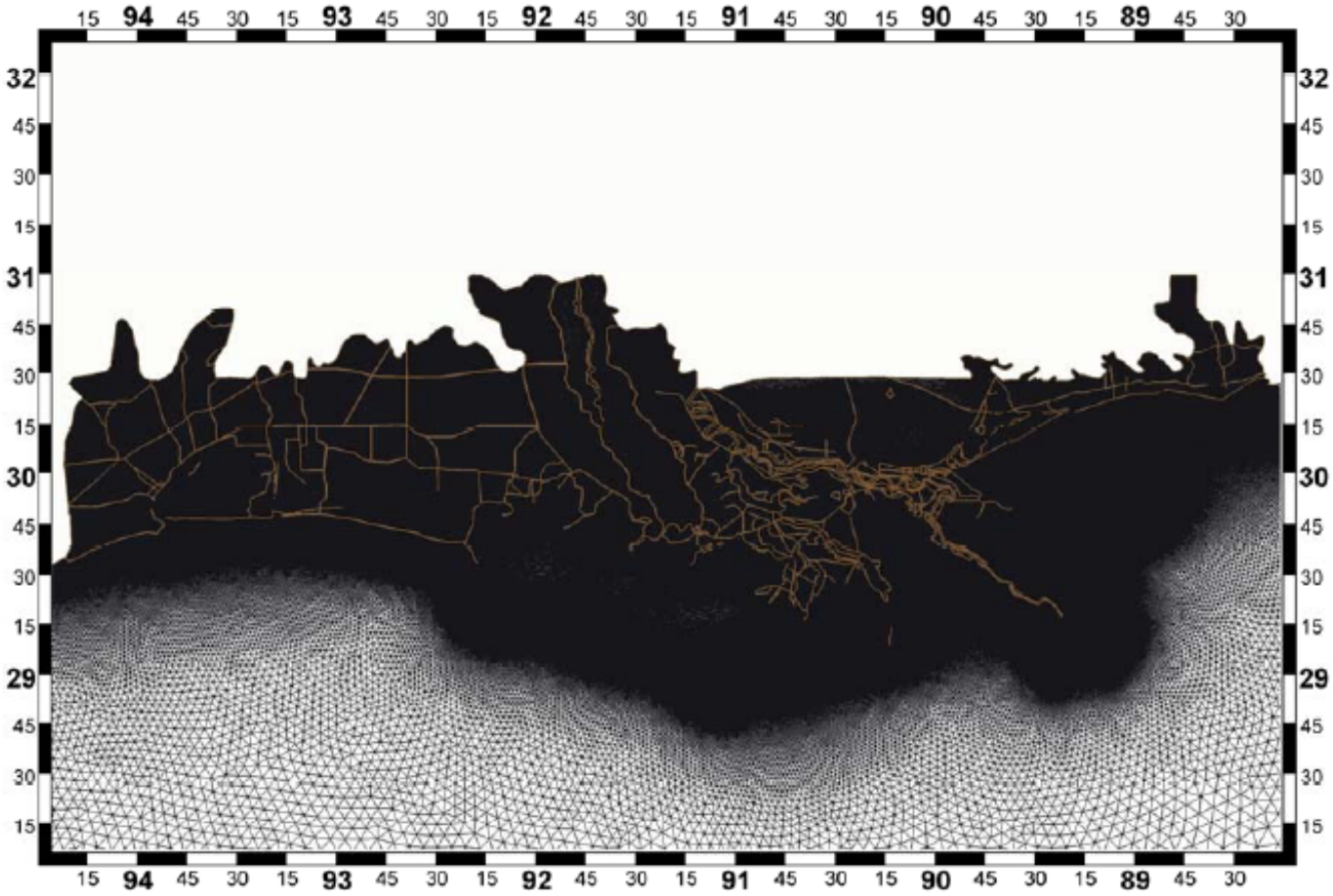

Figure 120: Detail of the unstructured ADCIRC SL15 grid in Southern Louisiana with raised features, such as levees, railroads, and highways, shown in brown.

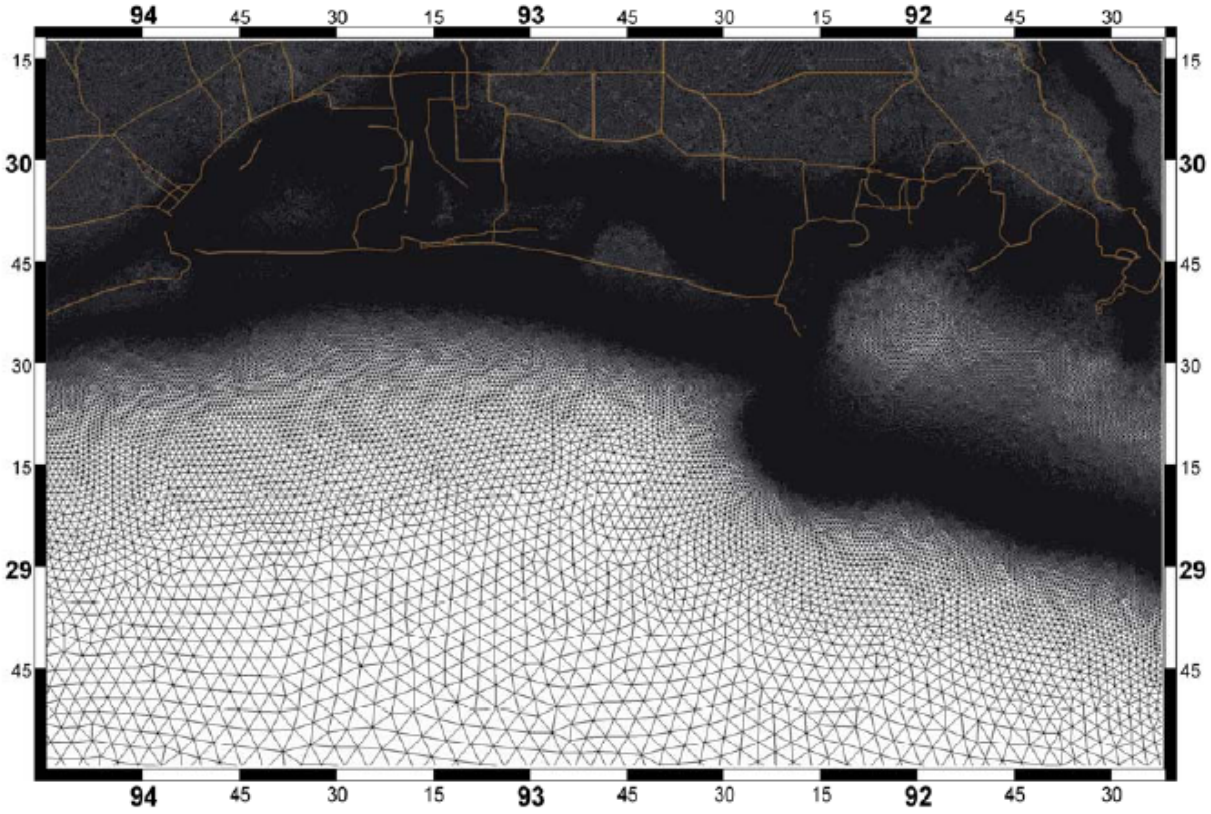

Figure 121: Detail of the unstructured ADCIRC SL15 grid in Southwestern Louisiana with raised features, such as levees, railroads, and highways, shown in brown.

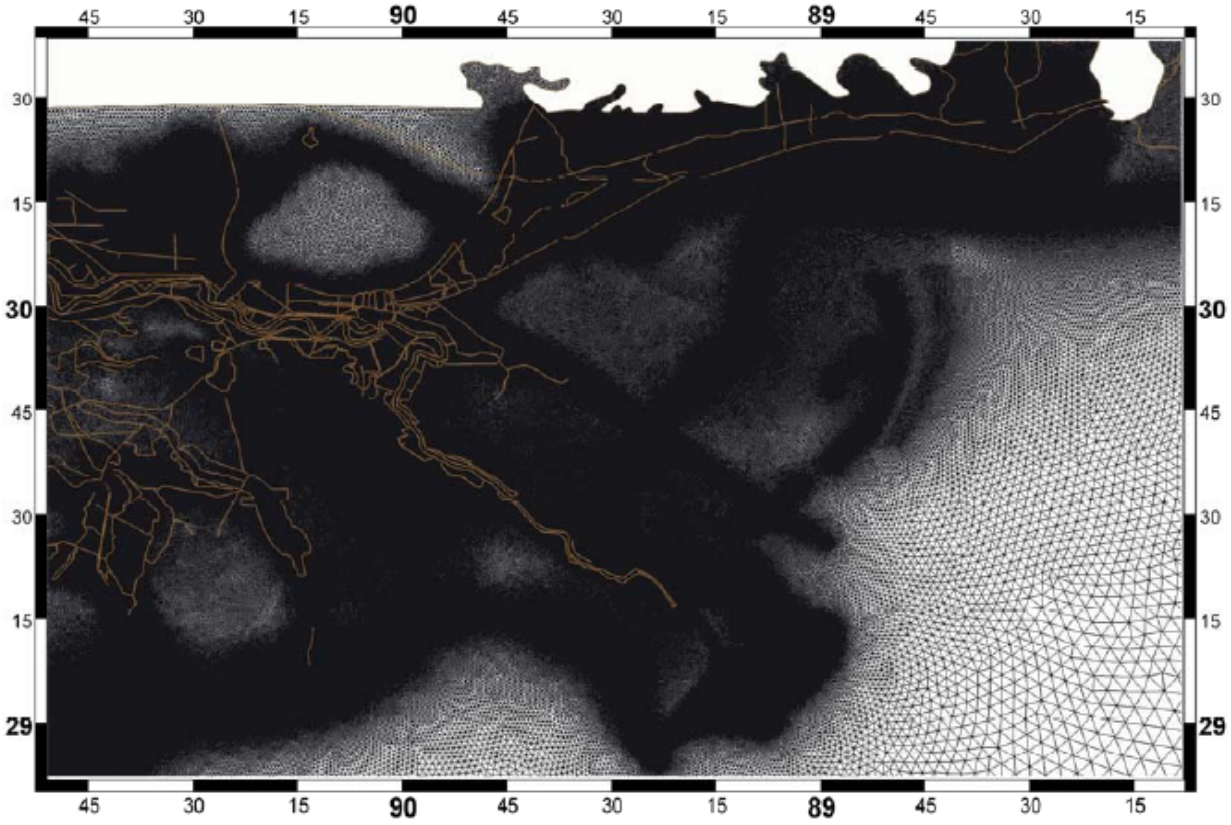

Figure 122: Detail of the unstructured ADCIRC SL15 grid in Southeastern Louisiana with raised features, such as levees, railroads, and highways, shown in brown.

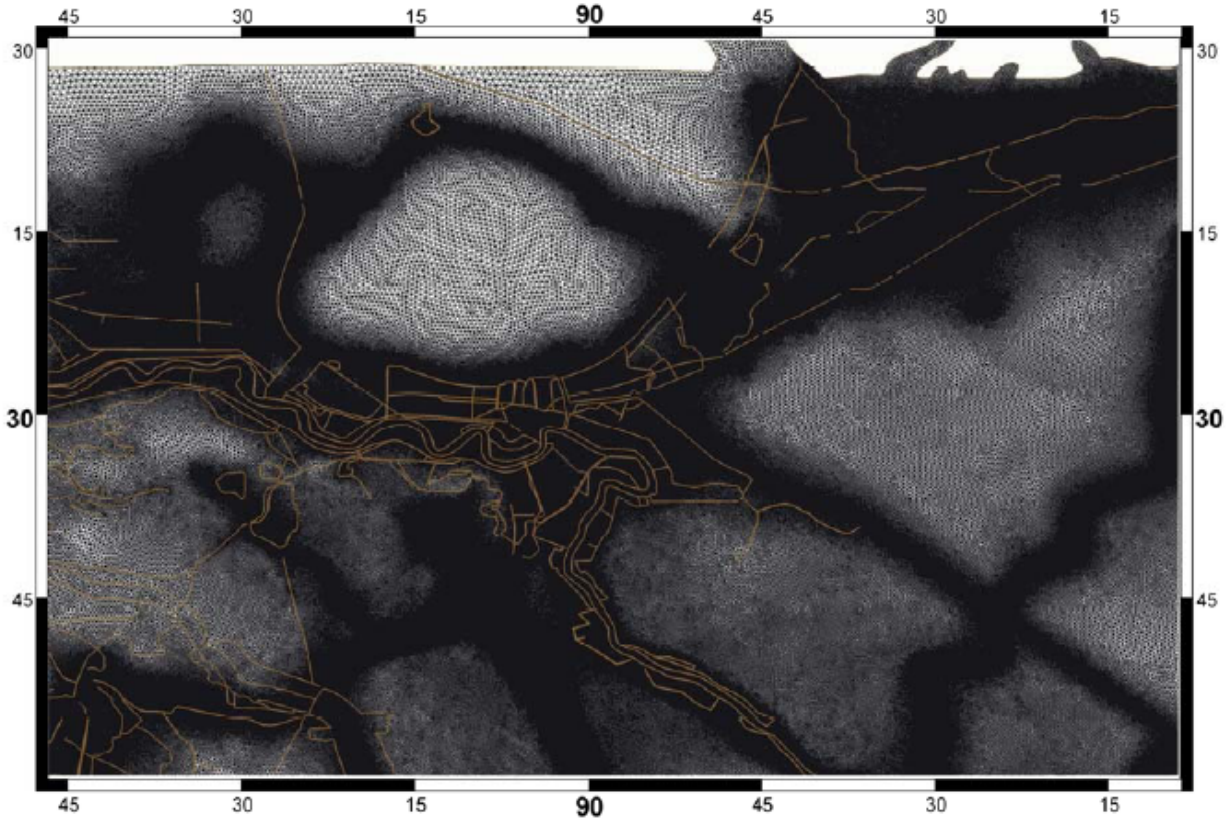

Figure 123: Detail of the unstructured ADCIRC SL15 grid in the area around New Orleans and Lake Pontchartrain with raised features, such as levees, railroads, and highways, shown in brown.

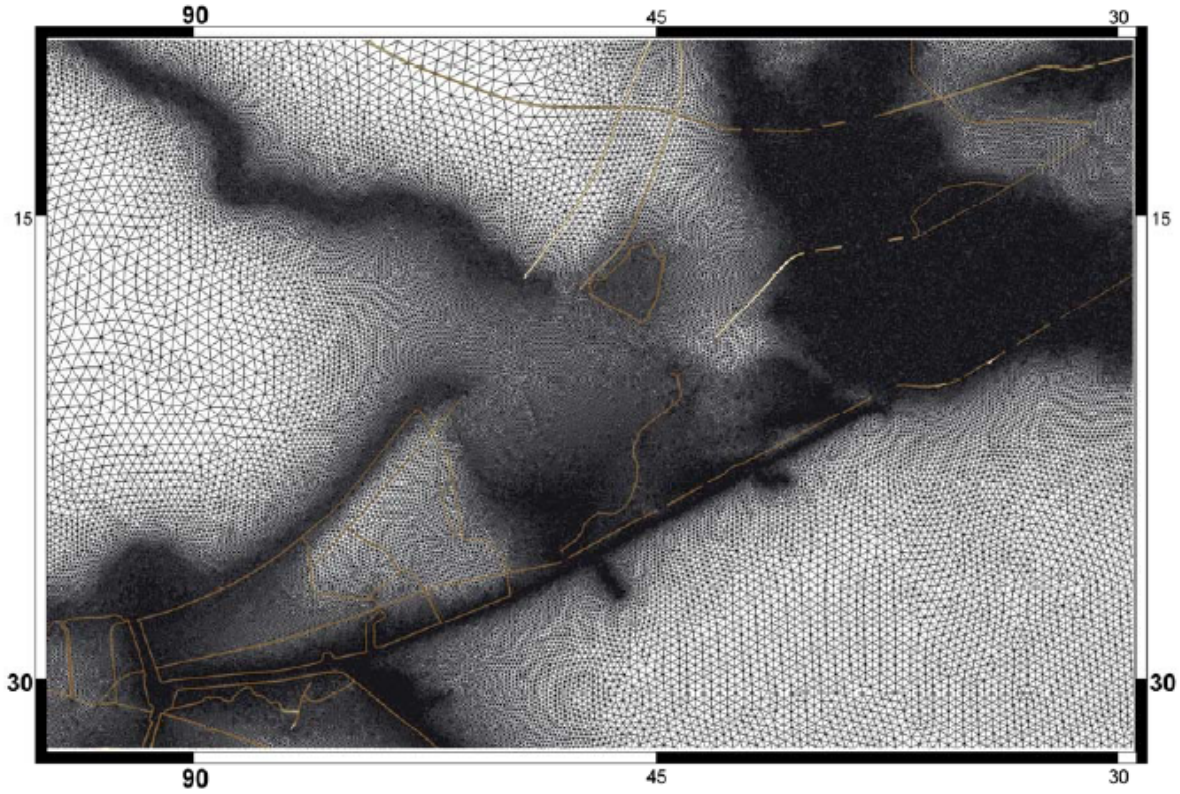

Figure 124: Detail of the unstructured ADCIRC SL15 grid in the area between Lake Pontchartrain and Lake Borgne with raised features, such as levees, railroads, and highways, shown in brown.

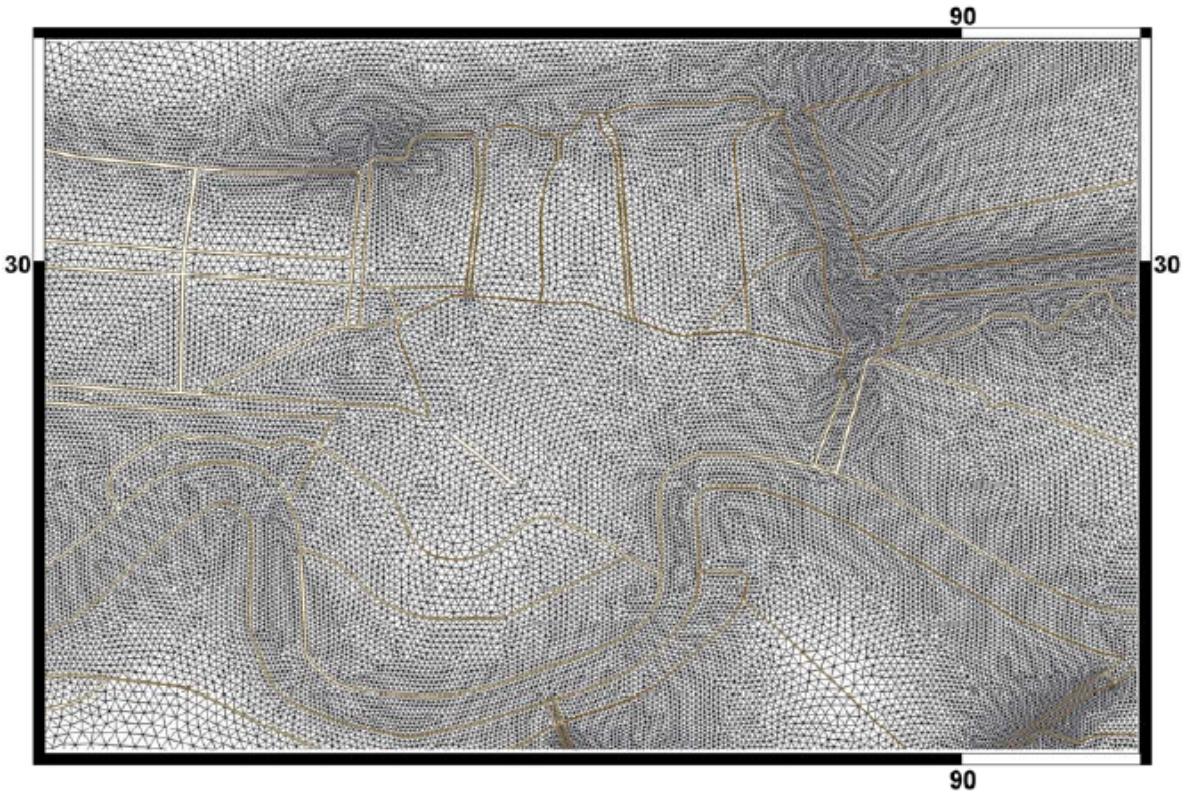

Figure 125: Detail of the unstructured ADCIRC SL15 grid in New Orleans with raised features shown in brown.

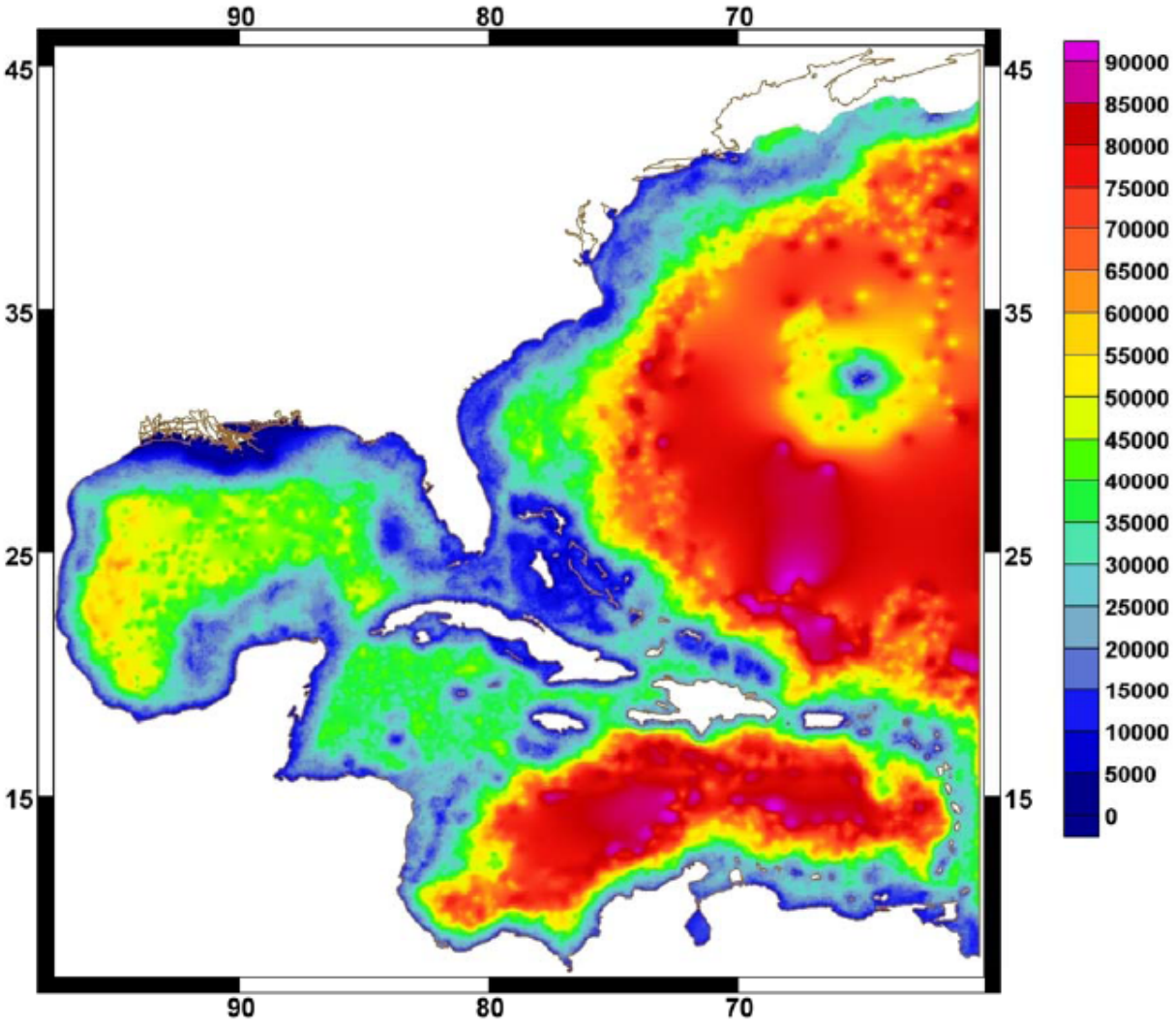

Figure 126: Contour map of the size of the elements (feet) in the ADCIRC SL15 grid for the total domain.

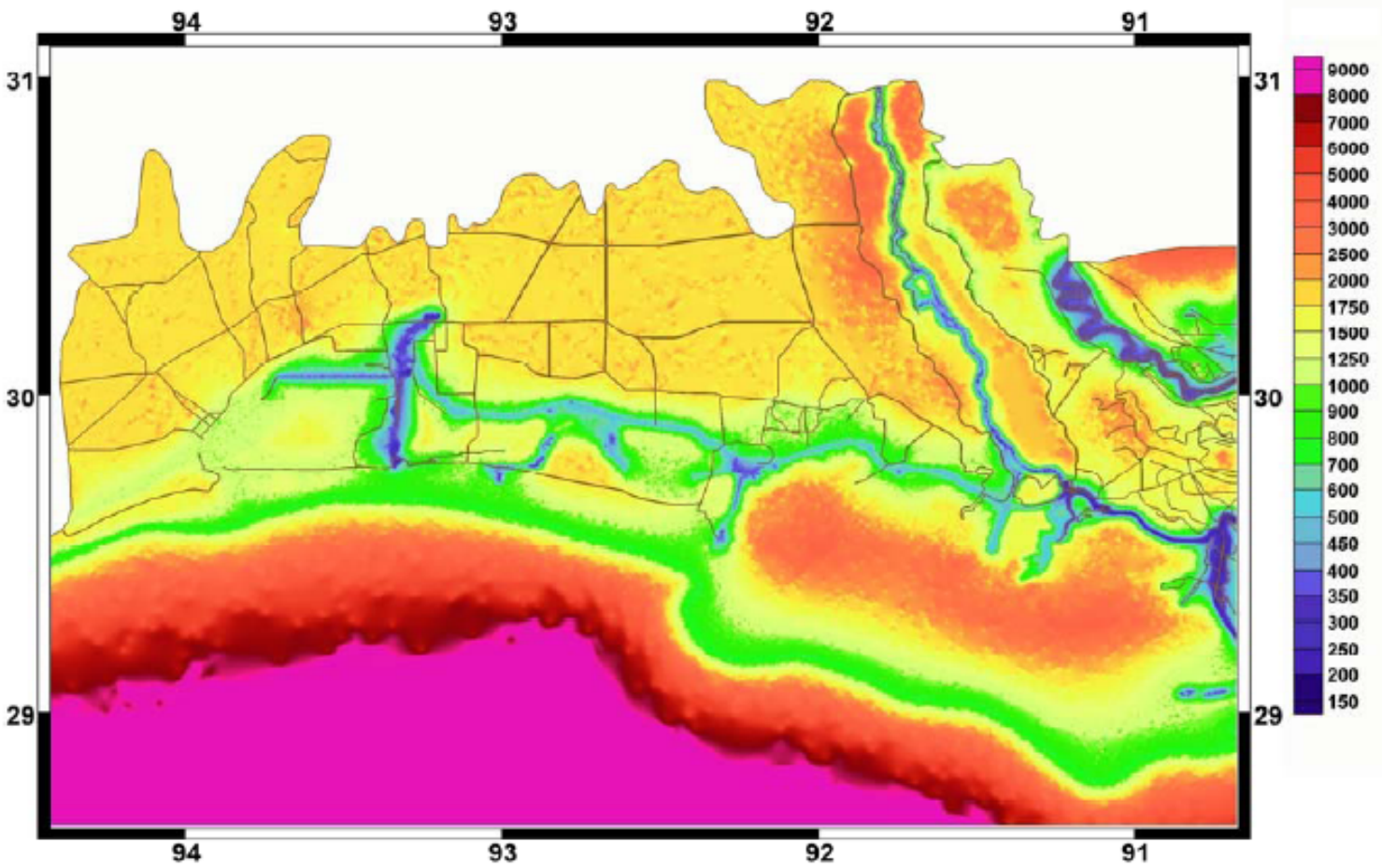

Figure 127: Contour map of the size of the elements (feet) in the ADCIRC SL15 grid for Southwestern Louisiana. Raised features are shown in brown.

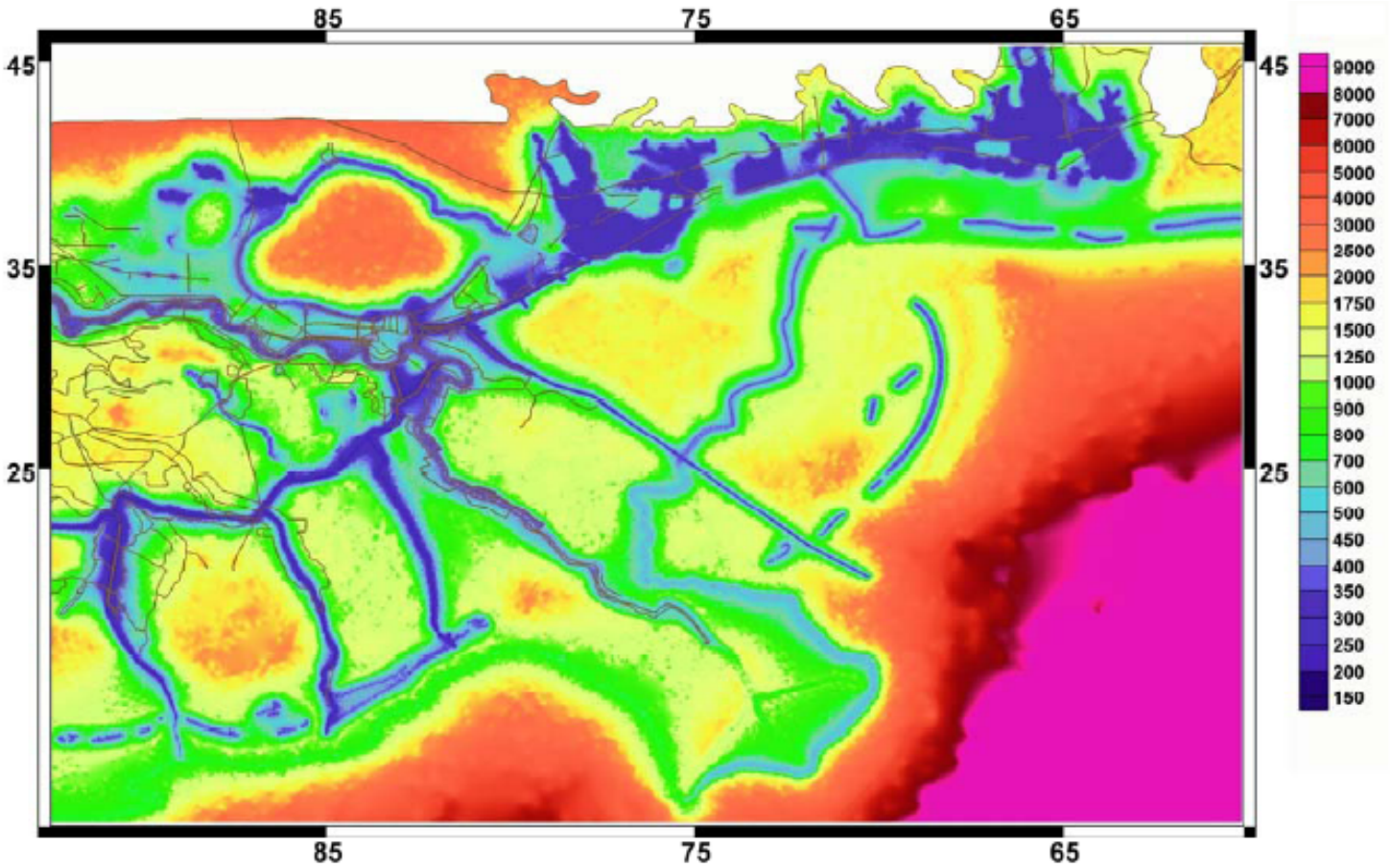

Figure 128: Contour map of the size of the elements (feet) in the ADCIRC SL15 grid for Southeastern Louisiana. Raised features are shown in brown.

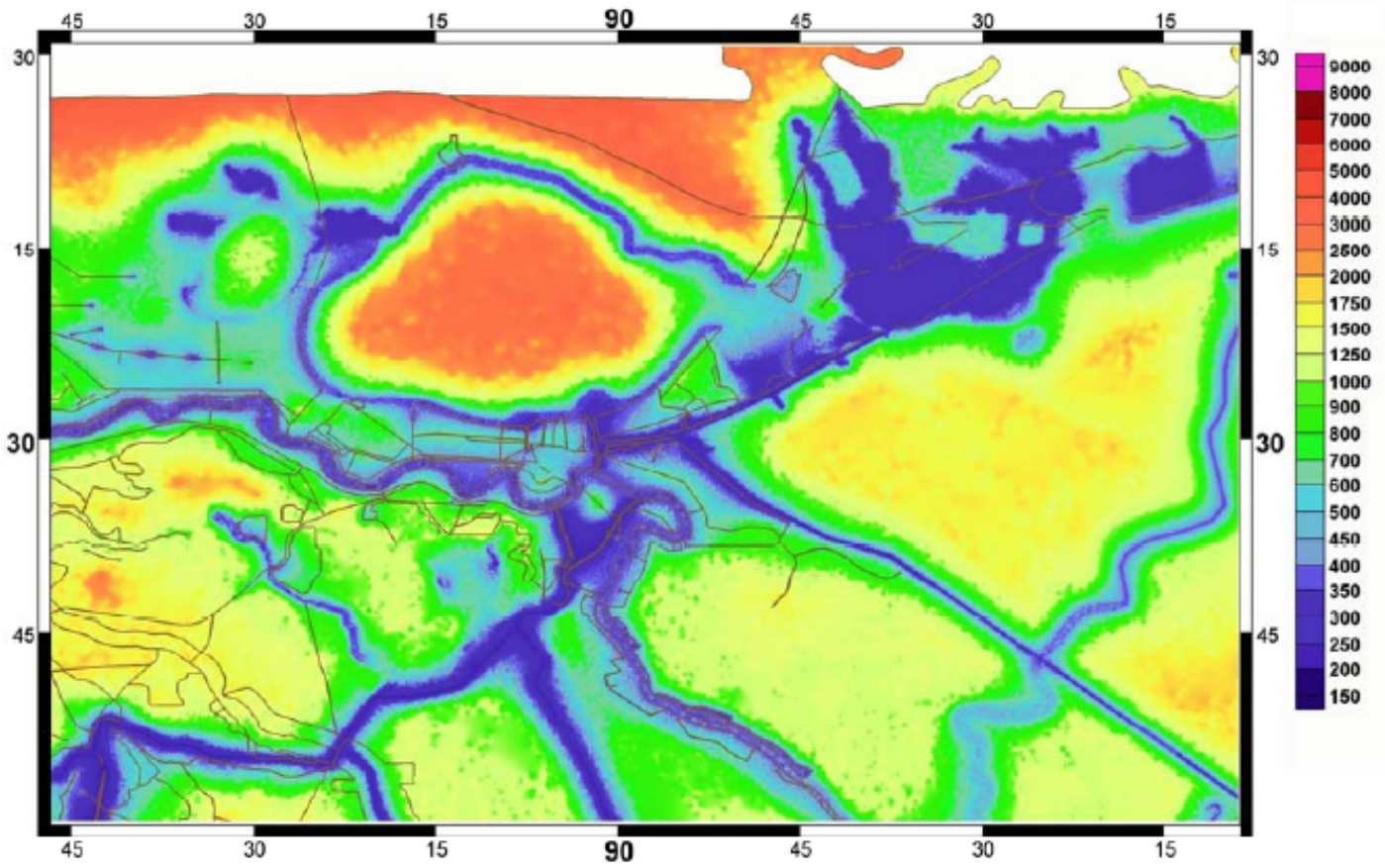

Figure 129: Contour map of the size of the elements (feet) in the ADCIRC SL15 grid for the area around New Orleans and Lake Pontchartrain. Raised features are shown in brown.

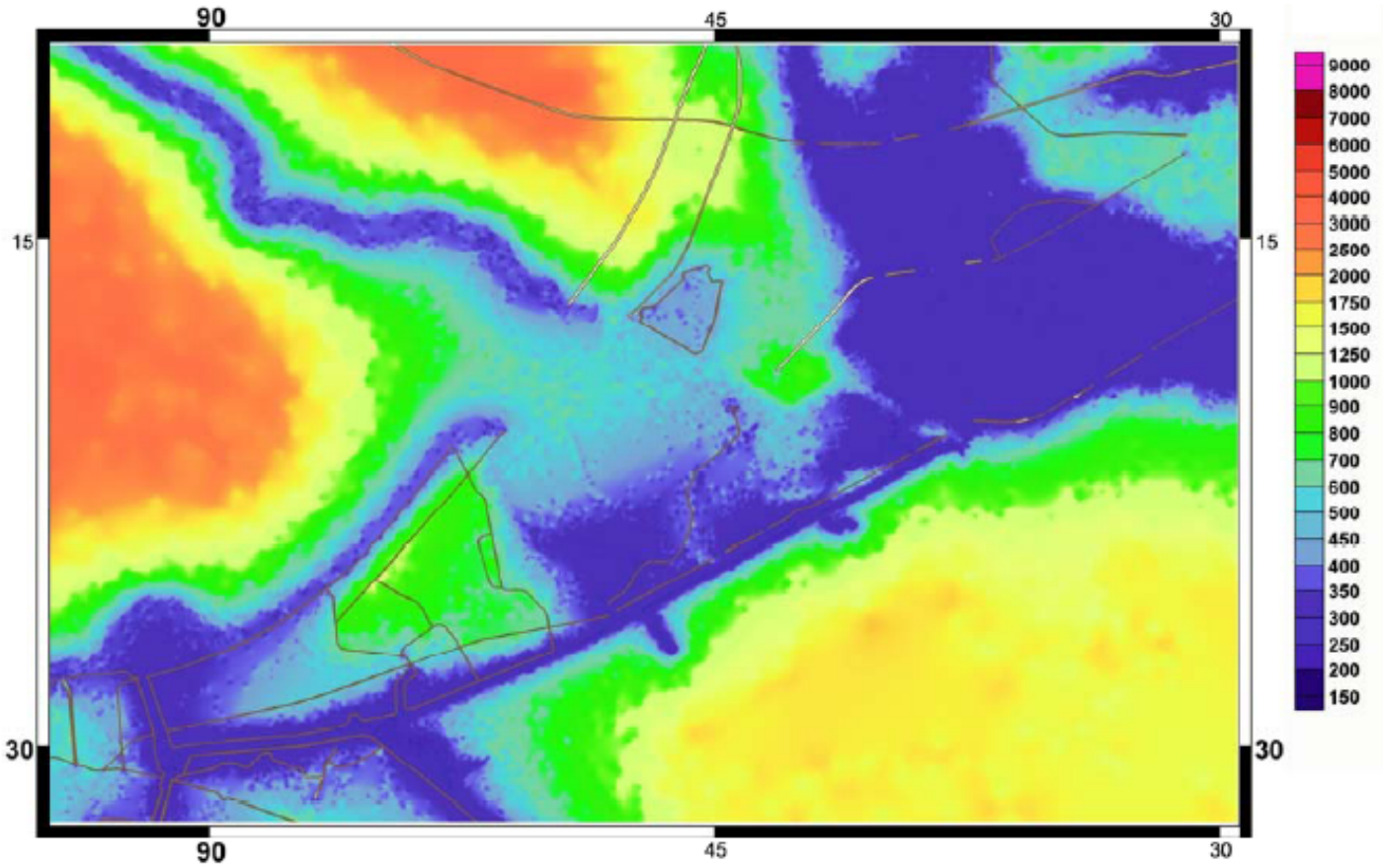

Figure 130: Contour map of the size of the elements (feet) in the ADCIRC SL15 grid for the area between Lake Pontchartrain and Lake Borgne. Raised features are shown in brown.