Table 1. Communities Covered Under Scope of Work.

Parish	Communities	
Ascension	Abend	Duplessis
	Darrow	Gonzales
	Donaldsonville	Sorrento
Assumption	Belle Rose	Paincourtville
	Labadieville	Pierre Part
	Napoleonville	Supreme
Jefferson	Avondale	Kenner
	Barataria	Lafitte
	Bridge City	Marrero
	Elmwood	Metairie
	Estelle	River Ridge
	Grand Isle	Shrewsbury
	Gretna	Terrytown
	Harahan	Timberlane
	Harvey	Waggaman
	Jean Lafitte	Westwego
	Jefferson	Woodmere
Lafourche	Chackbay	Lockport
	Cut Off	Mathews
	Galliano	Port Fourchon
	Golden Meadow	Raceland
	Larose	Thibodaux
Livingston	Albany	Livingston
	Denham Springs	Port Vincent
	French Settlement	Springfield
	Killian	Walker
Orleans	New Orleans	

Parish	Communities	
Plaquemines	Belle Chasse	Empire
	Boothville	Pointe a la Hache
	Buras	Venice
St. Bernard	Chalmette	Violet
	Meraux	
St. Charles	Almedia	Luling
	Ama	Mimosa Park
	Bayou Gauche	Montz
	Boutte	New Sarpy
	Des Allemands	Norco
	Destrehan	Paradis
	Frellsen	St. Rose
	Hahnville	Taft
	Killona	
St. James	Gramercy	Lutcher
St. John the Baptist	Edgard	LaPlace
	Garyville	Reserve
St. Tammany	Abita Springs	Madisonville
	Bush	Mandeville
	Covington	Pearl River
	Folsom	Slidell
	Lacombe	Sun
Tangipahoa	Amite	Ponchatoula
	Hammond	Robert
	Kentwood	Roseland
	Natalbany	

Parish	Communities	
Terrebonne	Bayou Cane	Gray
	Chauvin	Houma
	Dulac	Montegut
	Gibson	Schriever

Table 2. Parish Population Statistics and Communities.

Parish	Population, 2005 Estimate	Population, Percent Change, April 1, 2000 to July 1, 2005	FIPS Code	Communities
Ascension	90,501	18.1%	005	Abend, Darrow, Donaldsonville (Parish Seat), Duplessis, Gonzales, Sorrento
Assumption	23,196	-0.8%	007	Belle Rose, Labadieville, Napoleonville (Parish Seat), Paincourtville, Pierre Part, Supreme
Jefferson	452,824	-0.6%	051	Avondale, Barataria, Bridge City, Elmwood, Estelle, Grand Isle, Gretna (Parish Seat), Harahan, Harvey, Jean Lafitte, Jefferson, Kenner, Lafitte, Marrero, Metairie, River Ridge, Shrewsbury, Terrytown, Timberlane, Waggaman, Westwego, Woodmere
Lafourche	92,179	2.5%	057	Chackbay, Cut Off, Galliano, Golden Meadow, Larose, Lockport, Mathews, Port Fourchon, Raceland, Thibodaux (Parish Seat)
Livingston	109,206	19.0%	063	Albany, Denham Springs, French Settlement, Killian, Livingston (Parish Seat), Port Vincent, Springfield, Walker
Orleans	454,863	-6.2%	071	New Orleans
Plaquemines	28,995	8.4%	075	Belle Chasse, Boothville, Buras, Empire, Pointe a la Hache (Parish Seat), Venice
St. Bernard	64,364	-2.8%	087	Chalmette (Parish Seat), Meraux, Violet
St. Charles	50,633	5.3%	089	Almedia, Ama, Bayou Gauche, Boutte, Des Allemands, Destrehan, Frellsen, Hahnville (Parish Seat), Killona, Luling, Mimosa Park, Montz, New Sarpy, Norco, Paradis, St. Rose, Taft
St. James	21,721	2.5%	093	Gramercy, Lutcher
St. John the Baptist	46,393	7.8%	095	Edgard (Parish Seat), Garyville, LaPlace, Reserve
St. Tammany	220,295	15.2%	103	Abita Springs, Bush, Covington (Parish Seat), Folsom, Lacombe, Madisonville, Mandeville, Pearl River, Slidell, Sun
Tangipahoa	106,502	5.9%	105	Amite (Parish Seat), Hammond, Kentwood, Natalbany, Ponchatoula, Robert, Roseland
Terrebonne	107,491	2.9%	109	Bayou Cane, Chauvin, Dulac, Gibson, Gray, Houma (Parish Seat), Montegut, Schriever

Source: U.S. Census Bureau: State and County QuickFacts. Data derived from Population Estimates, 2000 Census of Population and Housing, 1990 Census of Population and Housing, Small Area Income and Poverty Estimates, County Business Patterns, 1997 Economic Census, Minority- and Women-Owned Business, Building Permits, Consolidated Federal Funds Report, 1997 Census of Governments.

Table 3. Historical Flooding Events, 1978 to Present.

Flood Event	Year	Number of Paid Losses	Amount Paid	Average Paid Per Loss
Louisiana Flood	May 1978	7,284	$43,288,709	$5,943
Louisiana Flood	April 1980	12,316	$84,159,449	$6,833
Louisiana Flood	April 1982	3,179	$20,774,613	$6,535
Louisiana Flood	Dec 1982	1,636	$12,917,415	$7,896
Louisiana Flood	April 1983	11,507	$237,789,166	$11,350
TS Juan	Oct 1985	5,942	$89,331,260	$15,034
Louisiana Flood	April 1988	2,904	$16,757,671	$5,771
Louisiana Flood	Nov 1989	4,431	$48,769,264	$11,006
Louisiana Flood	June 1991	1,895	$15,616,286	$8,241
Hurricane Andrew	August 1992	5,426	$168,052,116	$30,972
Louisiana Flood	May 1995	31,263	$584,113,807	$18,684
Hurricane Opal	Oct 1995	9,907	$399,254,375	$40,300
TS Josephine	Oct 1996	6,384	$101,475,794	$15,895
Louisiana Flood	Sept 1998	5,081	$50,059,850	$9,852
Hurricane Georges	Sept 1998	8,817	$149,003,464	$16,900
TS Allison	June 2001	30,175	$1,083,758,131	$35,916
TS Isidore	Sept 2002	8,187	$107,113,201	$13,083
Hurricane Lili	Oct 2002	2,480	$32,153,477	$12,965
Hurricane Ivan	Sept 2004	28,395	$1,505,631,362	$53,025
Hurricane Katrina	Aug 2005	163,648	$15,531,092,668	$94,905
Hurricane Rita	Sept 2005	8,986	$415,743,474	$46,266

Source: Federal Emergency Management Agency.

"Floodplain Management". Washington DC: Federal Emergency Management Agency. Database on-line. Available from http://www.fema.gov/business/nfip/statistics/sign1000.shtm.

"Floodplain Management". Washington DC: Federal Emergency Management Agency. Database on-line. Available from http://www.fema.gov/business/nfip/statistics/sign1000.shtm.

Table 4. New Local Mean Sea Level (2001-2005 NTDE) – NAVD88 (2004.65).
Relationships based on 2001-2005 updated tidal datums (Garster et al., 2007a,b).

PID	Lat	Long	Geographic Location	Sta_ID	Sta_Na	NGS NAVD 88 2004.65 (m)	83-01 LMSL above NAVD 88 2004.65 (ft)	2001-2005 LMSL above NAVD 88 2004.65 (ft)
BJ1342	30.026812	-90.112836	USCG New Canal	8761927	USCG New Canal Station	1.873	0.25	**0.51**
BH1160	30.166524	-89.737612	The Rigolets	8761402	U S Hwy 90 The Rigolets	2.802	0.19	**0.46**
	29.496271	-90.025713	MV Petrol, Bay Dosgris	8761799	MV Petrol Dock	0.773	0.20	**0.39**
AT1392	29.559398	-89.884732	Lake Laurier	8761602	Lake Judge Perez	0.163	0.17	**0.18**
AT0685	29.263300	-89.956667	Grand Isle	8761724	Grand Isle, East Point	0.950	0.20	**0.29**
DH3787	30.050000	-90.368333	East Bank, Bayou Labranche	8762372	East Bank, Bayou Labranche	0.540	0.41	**0.58**
BH1133	30.068536	-89.803647	Chef Menteur Pass	8761487	Chef Menteur	4.818	0.15	**0.34**
BH0937	30.323897	-89.327425	Bay Waveland YC	8747437	Bay Waveland YC	1.597	0.37	**0.53**
	29.868333	-89.673333	Lake Borgne	85800	Shell Beach	1.439		**0.99**
	29.981389	-90.020833	IHNC	76120	Florida Ave	1.003		**0.57**
	30.006667	-89.934722	IHNC	76040	Paris Rd	2.423		**0.35**
	30.029167	-90.032778	IHNC	76060	Seabrook	7.520		**0.67**

ft Feet.
Lat Latitude
LMSL Local Mean Sea Level.
Long Longitude
NAVD 88 North American Vertical Datum of 1988
NGS National Geodetic Survey.
PID Point identification.
Sta ID Station identification
Sta NA Station name.

Table 5. Bathymetric Data Source for Inland Water Bodies.

ID #	Name of Water Body	Positioning Source	Source of Data	Additional Notes
1	Gulf Intracoastal Waterway	Centerline Survey	U.S. Army Corps of Engineers (USACE), New Orleans District	Centerline survey data taken in 2002 and 2003. Cross-sections bathymetry approximated with dredging specifications of 125-foot-wide by 12-foot-deep channel with 2 to 1 side slopes.
2	Calcasieu Ship Channel	ADCIRC Mesh, Survey Data	National Oceanic and Atmospheric Administration (NOAA), USACE	Survey data from USACE used where available. ADCIRC mesh supplied by Emily Spargo was used elsewhere. ADCIRC grid is created from data from USACE, NOAA NOS soundings, and NGDC Coastal Relief Model Gridded Elevation Data, 2002 (Spargo et al., 2004).
3	Calcasieu Lake	ADCIRC Mesh	NOAA	ADCIRC mesh supplied by Emily Spargo (Spargo et al., 2004).
4	Mermentau River	Survey Data	USACE	Data surveyed in 7/2003 and 3/2003.
5	Lower Mud Lake	Satellite Photo	Estimated	Shoreline positioned using a satellite photos. Depths approximated based on Mermentau River survey depths.
6	Grand Lake	Satellite Photo	Recommended by Dr. Paul Kemp of Louisiana State University (LSU)	Shoreline positioned using a satellite photo. Approximated average depth of 5 feet and maximum depth of 8 feet.
7	Old Intracoastal Waterway	Satellite Photo	Recommended by Dr. Paul Kemp of LSU	Shoreline positioned using a satellite photo. Approximated centerline depth of 18 feet.
8	White Lake	Satellite Photo	Recommended by Dr. Paul Kemp of LSU	Shoreline positioned using a satellite photo. Approximated average depth of 5 feet and maximum depth of 8 feet.
9	Schooner Bayou Canal West	Satellite Photo	Estimated	Shoreline positioned using a satellite photo. Approximated depth based on Schooner east survey.

ID #	Name of Water Body	Positioning Source	Source of Data	Additional Notes
10	Schooner Bayou Canal East	Survey Data	USACE	Data surveyed 3/26/2003.
11	Freshwater Bayou	Survey Data	USACE	Data surveyed 3/24/2003 - 3/26/2003.
12	Lake Fausse Pointe	Satellite Photo	Recommended by Dr. Paul Kemp of LSU	Shoreline positioned using a satellite photo. Approximated average depth of 5 feet.
13	Atchafalaya River	DGN files	USACE	1999 Atchafalaya River Chart Book, New Orleans District, USACE. DGN files were exported into xyz format using MicroStation.
14	Wax Lake Outlet	DGN files	USACE	1999 Atchafalaya River Chart Book, New Orleans District, USACE. DGN files were exported into xyz format using MicroStation.
15	East Grand Lake	DGN files	USACE	1999 Atchafalaya River Chart Book, New Orleans District, USACE. DGN files were exported into xyz format using MicroStation.
16	Six Mile Lake	DGN files	USACE	1999 Atchafalaya River Chart Book, New Orleans District, USACE. DGN files were exported into xyz format using MicroStation.
17	Lake Verret	Satellite Photo	Recommended by Dr. Paul Kemp of LSU	Shoreline positioned using a satellite photo. Approximated average depth of 5 feet.
18	Grassy Lake	Satellite Photo	Recommended by Dr. Paul Kemp of LSU	Shoreline positioned using a satellite photo. Approximated average depth of 5 feet.
19	Flat Lake	Satellite Photo	Recommended by Dr. Paul Kemp of LSU	Shoreline positioned using a satellite photo. Approximated average depth of 5 feet.
20	Lake Palourde	Satellite Photo	Recommended by Dr. Paul Kemp of LSU	Shoreline positioned using a satellite photo. Approximated average depth of 5 feet.
21	Bayou Boeuf	Satellite Photo	S08 grid	S08 grid bathymetry used. Data originally approximated from nautical charts.
22	Bay Wallace	Satellite Photo	S08 grid	S08 grid bathymetry used. Data originally approximated from nautical charts.

ID #	Name of Water Body	Positioning Source	Source of Data	Additional Notes
23	Avoca Island Cutoff	Satellite Photo	S08 grid	S08 grid bathymetry used. Data originally approximated from nautical charts.
24	Bayou Chene	Satellite Photo	S08 grid	S08 grid bathymetry used. Data originally approximated from nautical charts.
25	Sweetbay Lake	DGN files	USACE	1999 Atchafalaya River Chart Book, New Orleans District, USACE. DGN files were exported into xyz format using MicroStation.
26	Bayou Schaffer	DGN Files	USACE	1999 Atchafalaya River Chart Book, New Orleans District, USACE. DGN files were exported into xyz format using MicroStation.
27	Lake Gascha	Satellite Photo	S08 grid	S08 grid bathymetry used. Data originally approximated from nautical charts.
28	Houma Navigational Canal	Survey Data	USACE	Data surveyed 2/2003 and 4/2003.
29	Bayou Lafourche	Survey Data Hec-Ras Model	USACE	Date unknown.
30	Barataria Bay Waterway	Survey Data	USACE	Data surveyed 2/2003 through 9/2003.
31	Barataria Bay	Survey Data	USACE	Date unknown.
32	Little Lake	Survey Data	USACE	Date unknown.
33	Bayou Perot	Survey Data	USACE	Date unknown.
34	Bayou Rigolettes	Survey Data	USACE	Date unknown.
35	Lac des Allemands	Survey Data	Recommended by Dr. Paul Kemp of LSU	Shoreline positioned using a satellite photo. Approximated average depth of 5 feet.
36	Bayou Des Allemands	Satellite Photo/ Survey Data	USACE	Date unknown.
37	Lake Salvador	Survey Data	USACE	Date unknown.
38	Lake Cataouatche	Survey Data	USACE	Date unknown.
39	Bayou Coba	Survey Data	USACE	Date unknown.
40	Bayou Bardeaux	Survey Data	USACE	Date unknown.
41	Hero Cutoff	Survey Data	USACE	Data surveyed 5/2002.
42	Algiers Canal (GIWW)	Survey Data	USACE	Data surveyed 5/2002 through 6/2002.

ID #	Name of Water Body	Positioning Source	Source of Data	Additional Notes
43	Inner Harbor Navigation Canal	Survey Data	USACE	Data surveyed 9/23/2003.
44	Mississippi River	DGN Files	USACE	Mississippi River Hydrographic Survey 1991-1992, New Orleans District, USACE. DGN files were exported into xyz format using MicroStation.
45	Mississippi River Gulf Outlet	Survey Data	USACE	Data surveyed 6/2003 through 3/2004.
46	Bayou Bienvenue	Satellite Photo	S08 grid	S08 grid bathymetry used. Data originally approximated from nautical charts.
47	Chef Menteur Pass	Centerline Survey	USACE	Cross-sections bathymetry approximated using cross section trends seen at cross sections surveyed at the intersection with the GIWW.
48	Unknown Pass	Centerline Survey	USACE	Data surveyed in 2001. Original survey done for use in the S08 grid (Pourtaheri, 2001). Cross-sections bathymetry approximated using cross section trends seen at cross sections surveyed at the intersection with the GIWW.
49	Lake St. Catherine	Survey Data	NOAA data supplied by Dr. Ioannis Georgiou of University of New Orleans	Created in 1996 from NOS surveys taken between 1800s and 1920s, with the addition of USACE data from the 1990s near river mouths.
50	St. Catherine Pass	Survey Data	USACE	Data surveyed in 2001. Original survey done for use in the S08 grid (Pourtaheri, 2001). Cross-sections bathymetry approximated using cross section trends seen at cross sections surveyed at the intersection with the GIWW.
51	The Rigolets	Survey Data	USACE	Data surveyed in 2001. Original survey done for use in the S08 grid (Pourtaheri, 2001).

ID #	Name of Water Body	Positioning Source	Source of Data	Additional Notes
52	Lake Pontchartrain	Survey Data	NOAA data supplied by Dr. Ioannis Georgiou of University of New Orleans	Created in 1996 from NOS surveys taken between 1800s and 1920s, with the addition of USACE data from the 1990's near river mouths.
53	Bayou St. John	Satellite Photo	S08 grid	S08 grid bathymetry used. Data originally approximated from nautical charts.
54	North Pass	Satellite Photo	Estimated	Approximated data
55	Pass Manchac	Survey Data	USACE	Date unknown.
56	Lake Maurepas	Survey Data	NOAA data supplied by Dr. Ioannis Georgiou of Univ. of New Orleans	Created in 1996 from NOS surveys taken between 1800s and 1920s, with the addition of USACE data from the 1990s near river mouths.
57	Reserve Relief Canal	Survey Data	USACE	Date unknown.
58	Ticklaw River	Survey Data	USACE	Date unknown.
59	Amite River	Survey Data	USACE	Date unknown.
60	Blind River	Survey Data	USACE	Date unknown.
61	Bayou Chene Blanc	Survey Data	USACE	Date unknown.
62	Dutch Bayou	Survey Data	USACE	Date unknown.
63	Hope Canal	Survey Data	USACE	Date unknown.
64	Bourgeois Canal	Survey Data	USACE	Date unknown.
65	New River Canal	Survey Data	USACE	Date unknown.
66	Bayou Fusil	Survey Data	USACE	Date unknown.
67	Bayou Antoine	Survey Data	USACE	Date unknown.
68	Ruddock Canal	Survey Data	USACE	Date unknown.
69	Pass A Loutre	DGN Files	USACE	Mississippi River Hydrographic Survey 1991-1992, New Orleans District, USACE. DGN files were exported into xyz format using MicroStation.
70	South Pass	DGN Files	USACE	Mississippi River Hydrographic Survey 1991-1992, New Orleans District, USACE. DGN files were exported into xyz format using MicroStation.

ID #	Name of Water Body	Positioning Source	Source of Data	Additional Notes
71	Southwest Pass	DGN Files	USACE	Mississippi River Hydrographic Survey 1991-1992, New Orleans District, USACE. DGN files were exported into xyz format using MicroStation.
72	North Pass	DGN Files	USACE	Mississippi River Hydrographic Survey 1991-1992, New Orleans District, USACE. DGN files were exported into xyz format using MicroStation.
73	Dufrene Ponds	Satellite Photo/ Survey Data	USACE	Date unknown.
74	Petit Lac Des Allemands	Satellite Photo/ Survey Data	USACE	Date unknown.
75	Lake Charles	ADCIRC Mesh	NOAA	ADCIRC mesh supplied by Emily Spargo (Spargo et al., 2004)
76	Prien Lake	ADCIRC Mesh	NOAA	ADCIRC mesh supplied by Emily Spargo (Spargo et al., 2004)
77	Moss Lake	ADCIRC Mesh	NOAA	ADCIRC mesh supplied by Emily Spargo (Spargo et al., 2004)
78	West Cove	ADCIRC Mesh	NOAA	ADCIRC mesh supplied by Emily Spargo (Spargo et al., 2004)
79	Mud Lake	ADCIRC mesh	NOAA	ADCIRC mesh supplied by Emily Spargo (Spargo et al., 2004)
80	Upper Mud Lake	Satellite Photo	Estimated	Shoreline positioned using a satellite photos. Depths approximated based on Mermentau River survey depths.
81	The Pen	Survey Data	USACE	Date unknown.

Table 6. Manning-n Values for Louisiana Gap (LA-GAP) Classification.

NLCD Class	Description	Manning-n
1	Fresh Marsh	0.055
2	Intermediate Marsh	0.050
3	Brackish Marsh	0.045
4	Saline Marsh	0.035
5	Wetland Forest - Deciduous	0.140
6	Wetland Forest – Evergreen	0.160
7	Wetland Forest – Mixed	0.150
8	Upland Forest – Deciduous	0.160
9	Upland Forest – Evergreen	0.180
10	Upland Forest – Mixed	0.170
11	Dense Pine Thicket	0.180
12	Wetland Scrub/Shrub – Deciduous	0.060
13	Wetland Scrub/Shrub – Evergreen	0.080
14	Wetland Scrub/Shrub – Mixed	0.070
15	Upland Scrub/Shrub – Deciduous	0.070
16	Upland Scrub/Shrub – Evergreen	0.090
17	Upland Scrub/Shrub – Mixed	0.080
18	Agriculture – Crops – Grass	0.040
19	Vegetated Urban	0.120
20	Non-Vegetated Urban	0.120
21	Wetland Barren	0.030
22	Upland Barren	0.030
23	Water	base n

Table 7. Manning-n Values for Mississippi Gap (MS-GAP) Classification.

NLCD Class	Description	Manning-n
1	Agriculture	0.060
2	Fresh Water	0.025
3	Aquaculture	0.045
4	Estuarine Water	0.025
6	Farmed Wetlands	0.035
7	Estuarine Emergent	0.050
8	Estuarine Woody	0.060
9	Palustrine Emergent	0.055
10	Bottomland Hardwood	0.140
11	Riverine Swamp	0.060
12	Pine Savannah	0.160
13	Fresh Water Scrub/Shrub	0.070
14	Palustrine Non-vegetated	0.030
15	Transportation	0.032
16	High Density Urban	0.150
24	Urban Fresh Water	0.025
25	Wet Soil/ Water/Shadow	0.040
26	Urban Pine	0.180
27	Urban Hardwood	0.160
28	Urban Low Herbaceous	0.070
29	Urban Grassy/Pasture	0.035
30	Bare Urban I	0.120
31	Bare Urban II	0.120
32	Clear Cuts	0.036
50	Low Density Pine	0.160
51	Medium Density Pine	0.180
52	High Density Pine	0.200
53	Medium Density Hardwood	0.170
54	High Density Hardwood	0.170
55	Mixed Forest	0.160
56	Recent Harvest	0.052
57	Cypress/Tupelo	0.180
60	Agriculture (see Class #1)	0.060
61	Grassy/Pasture/Range	0.042
62	Low Herbaceous Vegetation	0.047
63	Evergreen Shrub	0.080
71	Wetland	0.045
80	Bare	0.030
81	Sand Bar/Beach	0.030
83	Clouds	0.050

Table 8. Manning-n Values for 1992 NLCD Classification.

NLCD Class	Description	Manning-n
11	Open Water	0.020
12	Ice/Snow	0.022
21	Low Residential	0.120
22	High Residential	0.121
23	Commercial	0.050
31	Bare Rock/Sand	0.040
32	Gravel Pit	0.060
33	Transitional	0.100
41	Deciduous Forest	0.160
42	Evergreen Forest	0.180
43	Mixed Forest	0.170
51	Shrub Land	0.070
61	Orchard/Vineyard	0.100
71	Grassland	0.035
81	Pasture	0.033
82	Row Crops	0.040
83	Small Grains	0.035
84	Fallow	0.032
85	Recreational Grass	0.030
91	Woody Wetland	0.140
92	Herbaceous Wetland	0.035
95*	Cypress Forest	0.145

** Class 95 is constructed from the GAP data for Louisiana. The NLCD did not have coverage for a certain kind of wetland forest called “Cypress,” so Gap data sets were merged into the NLCD and the Cypress Forest land type was imposed upon the NLCD data for the Cypress class and given a new name.

Table 9. 1992 NLCD Nominal Land Roughness Values.

NLCD Class	Description	Z0-land
11	Open Water	0.001
12	Ice/Snow	0.012
21	Low Residential	0.330
22	High Residential	0.500
23	Commercial	0.390
31	Bare Rock/Sand	0.090
32	Gravel Pit	0.180
33	Transitional	0.180
41	Deciduous Forest	0.650
42	Evergreen Forest	0.720
43	Mixed Forest	0.710
51	Shrub Land	0.120
61	Orchard/Vineyard	0.270
71	Grassland	0.040
81	Pasture	0.060
82	Row Crops	0.060
83	Small Grains	0.050
84	Fallow	0.040
85	Recreational Grass	0.050
91	Woody Wetland	0.550
92	Herbaceous Wetland	0.110
95*	Cypress Forest	0.550

* Class 95 is constructed from the GAP data for Louisiana. The NLCD did not have coverage for a certain kind of wetland forest called “Cypress,” so Gap data sets were merged into the NLCD and the Cypress Forest land type was imposed upon the NLCD data for the Cypress class and given a new name.

Table 10. Basic Configurations of the High-Performance Computer Systems Used for Storm-Surge Simulations.

System	ERDC Cray XT3 Sapphire	University of Texas Dell LoneStar
Operating System	**SUSE Linux and UNICOS/lc**	**CentOS Linux**
Compute-Nodes	**AMD Opteron 2.6GHz single-core, single-processor (dual core, single-processor)**	**Intel Xeon 5100 series 2.66GHz dual-core, dual-processor**
Number of Nodes/ Processors	**4176/4176 (4096/8192)**	**1300/5200**
Parallel Filesystem (/work)	**Lustre**	**Lustre**
Compute-Job Controller	**LSF (PBS)***	**LSF**
Website	**www.erdc.hpc.mil**	**www.tacc.utexas.edu**

* On 9 April 2007, the ERDC Cray XT3 Sapphire returned to service after a major hardware upgrade and several related software changes. Its current configuration is indicated in parentheses in the table.

Table 11. Storm Parameters for 152 Probable Storms.

Storm Parameters							
Run No.	**Wind (kt)**	**Pressure (mbar)**	**Landfall Winds (kt)**	**Landfall Pressure (mbar)**	**R_p (nm)**	**Track Number**	**Forward Velocity (kt)**
Run001	45.0	960	43.1	960	11.0	1	11
Run002	43.9	960	31.5	977	21.0	1	11
Run003	42.2	960	28.9	981	35.6	1	11
Run004	52.8	930	51.2	930	8.0	1	11
Run005	52.5	930	41.2	943	17.7	1	11
Run006	51.8	930	38.8	951	25.8	1	11
Run007	57.2	900	55.3	900	6.0	1	11
Run008	58.4	900	48.4	910	14.9	1	11
Run009	57.9	900	46.6	918	21.8	1	11
Run010	45.1	960	44.2	960	11.0	2	11
Run011	43.9	960	31.7	977	21.0	2	11
Run012	42.1	960	29.0	981	35.6	2	11
Run013	52.8	930	51.3	930	8.0	2	11
Run014	52.4	930	41.3	943	17.7	2	11
Run015	51.7	930	38.9	951	25.8	2	11
Run016	57.2	900	55.4	900	6.0	2	11
Run017	58.3	900	48.5	910	14.9	2	11
Run018	57.8	900	46.7	918	21.8	2	11
Run019	45.0	960	44.2	960	11.0	3	11
Run020	43.7	960	31.7	977	21.0	3	11
Run021	42.2	960	29.1	981	35.6	3	11
Run022	52.8	930	51.2	930	8.0	3	11
Run023	52.3	930	41.5	943	17.7	3	11
Run024	51.7	930	38.9	951	25.8	3	11
Run025	57.2	900	55.9	900	6.0	3	11
Run026	58.1	900	48.7	910	14.9	3	11
Run027	57.7	900	46.8	918	21.8	3	11
Run028	44.9	960	43.5	960	11.0	4	11
Run029	43.8	960	31.2	977	21.0	4	11
Run030	42.1	960	28.8	981	35.6	4	11
Run031	52.6	930	51.2	930	8.0	4	11
Run032	52.6	930	41.1	943	17.7	4	11
Run033	51.7	930	38.6	951	25.8	4	11

Storm Parameters							
Run No.	**Wind (kt)**	**Pressure (mbar)**	**Landfall Winds (kt)**	**Landfall Pressure (mbar)**	**R_p (nm)**	**Track Number**	**Forward Velocity (kt)**
Run034	57.3	900	55.1	900	6.0	4	11
Run035	58.1	900	48.3	910	14.9	4	11
Run036	57.8	900	46.5	918	21.8	4	11
Run037	44.9	960	43.4	960	11.0	5	11
Run038	43.7	960	31.0	977	21.0	5	11
Run039	42.2	960	28.7	981	35.6	5	11
Run040	52.7	930	50.7	930	8.0	5	11
Run041	52.3	930	40.9	943	17.7	5	11
Run042	51.8	930	38.3	951	25.8	5	11
Run043	57.2	900	55.5	900	6.0	5	11
Run044	58.0	900	48.2	910	14.9	5	11
Run045	57.6	900	46.1	918	21.8	5	11
Run046	44.3	960	33.0	974	18.2	1	11
Run047	43.5	960	30.5	980	24.6	1	11
Run048	58.3	900	55.6	909	12.5	1	11
Run049	58.1	900	46.3	920	18.4	1	11
Run050	44.2	960	33.2	974	18.2	2	11
Run051	43.3	960	30.5	980	24.6	2	11
Run052	58.2	900	55.4	909	12.5	2	11
Run053	58.0	900	46.2	920	18.4	2	11
Run054	43.8	960	33.0	974	18.2	3	11
Run055	43.1	960	30.5	980	24.6	3	11
Run056	58.0	900	55.5	909	12.5	3	11
Run057	57.5	900	46.2	920	18.4	3	11
Run058	43.6	960	32.9	974	18.2	4	11
Run059	42.9	960	30.4	980	24.6	4	11
Run060	57.8	900	55.3	909	12.5	4	11
Run061	57.6	900	46.3	920	18.4	4	11
Run066	44.4	960	32.7	974	18.2	1	11
Run067	42.9	960	30.1	980	24.6	1	11
Run068	58.8	900	55.7	909	12.5	1	11
Run069	58.3	900	46.1	920	18.4	1	11
Run070	44.2	960	32.7	974	18.2	2	11

Storm Parameters							
Run No.	**Wind (kt)**	**Pressure (mbar)**	**Landfall Winds (kt)**	**Landfall Pressure (mbar)**	**R_p (nm)**	**Track Number**	**Forward Velocity (kt)**
Run071	43.6	960	30.1	980	24.6	2	11
Run072	58.6	900	55.4	909	12.5	2	11
Run073	58.2	900	45.8	920	18.4	2	11
Run074	44.1	960	32.5	974	18.2	3	11
Run075	43.6	960	29.9	980	24.6	3	11
Run076	58.6	900	55.1	909	12.5	3	11
Run077	58.2	900	45.6	920	18.4	3	11
Run078	44.1	960	32.6	974	18.2	4	11
Run079	43.6	960	30.0	980	24.6	4	11
Run080	58.6	900	54.9	909	12.5	4	11
Run081	58.2	900	45.7	920	18.4	4	11
Run082	40.4	960	30.5	973	17.7	1	6
Run083	55.6	900	45.5	913	17.7	1	6
Run084	40.5	960	30.5	973	17.7	2	6
Run085	55.7	900	45.5	913	17.7	2	6
Run086	40.3	960	30.3	973	17.7	3	6
Run087	55.5	900	45.2	913	17.7	3	6
Run088	40.5	960	30.2	973	17.7	4	6
Run089	55.8	900	45.3	913	17.7	4	6
Run090	40.4	960	30.0	973	17.7	5	6
Run091	55.5	900	45.1	913	17.7	5	6
Run092	48.8	930	37.6	946	17.7	1	6
Run093	48.9	930	37.6	946	17.7	2	6
Run094	48.8	930	37.5	946	17.7	3	6
Run095	48.7	930	37.6	946	17.7	4	6
Run097	49.3	930	37.3	946	17.7	1	6
Run098	49.2	930	37.3	946	17.7	2	6
Run099	49.3	930	37.3	946	17.7	3	6
Run100	49.3	930	37.2	946	17.7	4	6
Run101	55.9	930	45.0	944	17.7	1	17
Run102	55.8	930	44.8	944	17.7	2	17
Run103	56.0	930	44.9	944	17.7	3	17
Run104	56.0	930	44.5	944	17.7	4	17

Storm Parameters							
Run No.	**Wind (kt)**	**Pressure (mbar)**	**Landfall Winds (kt)**	**Landfall Pressure (mbar)**	**R_p (nm)**	**Track Number**	**Forward Velocity (kt)**
Run105	56.0	930	44.2	944	17.7	5	17
Run106	55.9	930	44.1	946	17.7	1	17
Run107	55.7	930	44.3	946	17.7	2	17
Run108	55.8	930	44.2	946	17.7	3	17
Run109	55.4	930	44.0	946	17.7	4	17
Run111	56.2	930	43.7	946	17.7	1	17
Run112	56.0	930	43.4	946	17.7	2	17
Run113	56.1	930	43.3	946	17.7	3	17
Run114	56.0	930	43.6	946	17.7	4	17
Run115	44.2	960	33.0	973	17.7	1	11
Run116	58.2	900	47.6	913	17.7	1	11
Run117	44.2	960	33.1	973	17.7	2	11
Run118	58.0	900	47.8	913	17.7	2	11
Run119	44.2	960	33.3	973	17.7	3	11
Run120	58.0	900	48.0	913	17.7	3	11
Run121	44.1	960	33.1	973	17.7	4	11
Run122	58.0	900	47.7	913	17.7	4	11
Run123	44.1	960	33.3	974	17.7	1	11
Run124	43.8	960	33.1	974	17.7	2	11
Run125	43.7	960	32.7	974	17.7	3	11
Run126	58.0	900	46.4	919	17.7	1	11
Run127	57.9	900	46.5	919	17.7	2	11
Run128	57.8	900	45.8	919	17.7	3	11
Run131	44.2	960	32.9	974	17.7	1	11
Run132	58.3	900	46.0	919	17.7	1	11
Run133	44.2	960	32.8	974	17.7	2	11
Run134	58.3	900	45.8	919	17.7	2	11
Run135	44.2	960	32.9	974	17.7	3	11
Run136	58.3	900	45.8	919	17.7	3	11
Run137	40.5	960	30.1	973	17.7	1	6
Run138	55.6	900	45.1	913	17.7	1	6
Run139	40.4	960	30.0	973	17.7	2	6
Run140	55.7	900	45.1	913	17.7	2	6

Storm Parameters							
Run No.	**Wind (kt)**	**Pressure (mbar)**	**Landfall Winds (kt)**	**Landfall Pressure (mbar)**	**R_p (nm)**	**Track Number**	**Forward Velocity (kt)**
Run141	40.3	960	30.2	973	17.7	3	6
Run142	55.6	900	45.3	913	17.7	3	6
Run143	40.6	960	29.9	973	17.7	4	6
Run144	55.8	900	45.0	913	17.7	4	6
Run145	48.8	930	37.5	946	17.7	1	6
Run146	48.9	930	37.6	946	17.7	2	6
Run147	48.8	930	37.2	946	17.7	3	6
Run149	49.3	930	37.3	946	17.7	2	6
Run150	49.4	930	37.0	946	17.7	3	6
Run151	49.4	930	37.5	946	17.7	3	6
Run152	55.8	930	44.7	944	17.7	1	17
Run153	55.8	930	44.5	944	17.7	2	17
Run154	55.9	930	44.8	944	17.7	3	17
Run155	56.0	930	44.6	944	17.7	4	17
Run156	55.9	930	44.3	946	17.7	1	17
Run157	55.6	930	44.1	946	17.7	2	17
Run158	55.3	930	42.9	950	17.7	3	17
Run160	56.0	930	43.6	946	17.7	1	17
Run161	56.2	930	43.6	946	17.7	2	17
Run162	55.9	930	43.9	946	17.7	3	17

NOTE: Track Numbers are from Track graphics, and are applied to the "sets" of Tracks

kt Knot.
mbar Millibars.
nm Nautical miles.
R_p Refer to report.

Table 12. Storm Parameters for PBL Model Validation Storms.

Storm Parameters								
Run No.	**Name**	**Wind (kt)**	**Pressure (mbar)**	**Landfall Winds (kt)**	**Landfall Pressure (mbar)**	**R_p (nm)**	**Track Number**	**Forward Velocity (kt)**
Run500	Katrina	54.8	902	47.3	922	Var	X	Var
Run600	Rita	60.2	898	39	943	Var	X	Var
Run501	Ivan	58.4	909	39.3	950	Var	X	Var
Run502	Andrew	53.2	932	38.5	961	Var	X	Var
Run503	Camille	48.8	908	48.7	908	Var	X	Var
Run504	Betsy	42.4	941	41.3	945	Var	X	Var

kt Knot.
mbar Millibars.
nm Nautical miles.
R_p Refer to report.

Table 13. Wave Field Domain Characterization.

Domain	Longitude (Degrees)		Latitude (Degrees)		Res. (Degrees)	Δt (Prop)/ Δt (Source) (Seconds)
	West	East	South	North		
Region	-98.00	-80.00	18.00	31.0	0.05	100/300

Table 14. BRICKA Hurricane Simulation Information.

Hurricane Name	Simulation (year,mt,dy,hr)		Verification Sites
	Start	End	
Betsy	1965090812	1965091100	None
Rita	2005091800	2005092500	42001 42002 42019 42020 42035 42036 42038 42039 42040 42055
Ivan	2004090700	2004091900	42001 42002 42003 42007 42019 42020 42035 42036 42038 42039 42040 42041
Camille	1969081412	1969081818	ODGP 1, 2, 3, 4, 5, 6
Katrina	2005082400	2005083106	42001 42002 42003 42007 42019 42020 42035 42036 42038 42039 42040 42055
Andrew	1992082412	1992082806	42001 42002 42003 42007 42019 42020 42025

Table 15. BRICKA Wave Gauge Information.

Buoy Site	Location		Water Depth (Meters)	Buoy Characteristics	
	Longitude	Latitude		Hull	Spectral
42001	-89º 39' 30"	25º 50' 30"	3,246	12m	2-D (RIK*)
42002	-94º 25' 0"	25º 10' 0"	3,200	10m	2-D (RIK)
42003	-85º 54' 0"	26º 0' 32"	3,233	10m	2-D (RIKA)
42007	-88º 46' 10"	35º 25' 35"	14	3m	2-D (RIK)
42019	-95º 21' 36"	27º 54' 47"	82	3m	2-D (RIK)
42020	-96º 41' 47"	26º 56' 39"	27	3m	2-D (RK)
42025	-80º 26' 21"	24º 56' 13"	52	18m	1-D (A)
42035	-94º 24' 30"	29º 14' 47"	13.7	3m	2-D (RIK)
42036	-84º 31' 0"	28º 30' 0"	54	3m	2-D (RIK)
42038	-92º 34' 31"	27º 25' 12"	1,152	3m	1-D (RIK)
42039	-86º 1' 17"	28º 47' 38"	291	3m	2-D (RIK)
42040	-88º 12' 49"	29º 11' 5"	444	3m	2-D (RIK)
42041	-90º 27' 44"	27º 30' 14"	1,024	3m	1-D (I)
42055	-94º 2' 45"	22º 1' 2"	3,380	12m	1-D (C)
ODGP 1	-88º 42' 0"	29º 6' 0 "	104	Wire Resist	1-D (C)
ODGP 2	-89º 42' 0"	28º 45' 0"	84	Wire Resist	1-D (C)
ODGP 3	-90º 21' 0"	28º 33' 0"	43	Wire Resist	1-D (C)
ODGP 4	-91º 12' 0"	28º 18' 0"	65	Wire Resist	1-D (C)
ODGP 5	-91º 54' 0"	28º 45' 0"	32	Wire Resist	1-D (C)
ODGP 6	-92º 27' 0"	28º 57' 0"	26	Wire Resist	1-D (C)

*NOTE: R: Rita/I: Ivan/C: Camille/K: Katrina/A: Andrew.

Table 16. BRICKA Peak Wave Comparisons.

Storm	Buoy	Buoy Data			OWI-Forcing		PBL-Forcing	
		Depth	H_{mo}	T_p	H_{mo}	T_p	H_{mo}	T_p
Betsy	N/A							
Rita	**42001**	3,246	11.1	12.9	12.7	13.5	13.1	13.5
	42002	3,200	5.0	12.9	4.9	16.4	3.9	16.4
	42019	82	5.9	12.5	5.4	16.4	5.2	16.4
	42020	27	5.3	14.3	4.6	16.4	4.1	16.4
	42035	13.7	4.7	7.7	4.0	6.9	3.7	6.9
	42036	54	4.1	11.1	3.5	11.2	2.5	11.2
	42039	291	5.3	10.8	3.5	11.2	2.5	11.2
	42040	444	7.2	12.5	5.9	12.3	4.7	12.3
	42055	3,380	3.9	14.8	4.1	14.9	3.4	14.9
Ivan	42001	3,246	8.8	16.0	7.8	14.9	7.9	14.9
	42002	3,200	5.6	14.8	4.0	14.9	4.5	14.9
	42003	3,233	11.0	12.9	11.7	14.9	11.6	13.5
	42007	14	9.1	16.7	4.9	16.4	4.7	16.4
	42019	82	3.4	14.3	4.0	16.4	4.4	16.4
	42020	27	5.1	16.7	3.7	16.4	4.0	16.4
	42035	13.7	2.5	7.7	1.7	16.4	2.1	16.4
	42036	54	6.4	12.5	6.1	13.5	5.9	13.5
	42038	1,152	5.2	14.8	5.3	16.4	5.6	16.4
	42039	291	12.1	14.3	10.3	13.5	8.8	13.5
	42040	444	16.0	16.7	15.6	16,4	15.0	14.9
	42041	1,024	8.6	14.8	7.2	14.9	7.8	16.4
Camille	**ODGP1**	104	13.8	13.3	14.6	13.5	15.3	14.9
	ODGP2	84	7.9	14.1	8.3	14.9	7.5	14.9
	ODGP3	43	6.8	15.2	5.7	14.9	5.6	14.9

Storm	Buoy	Buoy Data			OWI-Forcing		PBL-Forcing	
		Depth	H_{mo}	T_p	H_{mo}	T_p	H_{mo}	T_p
Katrina	42001	3,246	7.1	13.8	8.5	14.9	9.7	14.9
	42002	3,200	3.6	14.8	4.8	16.4	4.4	14.9
	42003	3,233	10.6	12.9	11.2	13.5	11.4	13.5
	42007	14	5.6	14.3	4.6	13.5	4.6	13.5
	42019	82	4.3	14.3	5.1	18.0	4.5	16.4
	42020	27	3.9	14.3	4.1	16.4	4.2	16.4
	42035	13.7	2.8	14.3	1.9	16.4	1.8	16.4
	42036	54	5.5	12.5	4.4	12.3	4.3	10.2
	42038	1152	7.4	16.0	7.3	16.4	6.3	16.4
	42039	291	8.1	12.1	7.0	13.5	6.1	11.2
	42040	444	16.9	14.3	14.0	14.9	12.2	13.5
	42055	3380	3.1	12.9	3.1	13.5	3.3	14.9
Andrew	42001	3246	4.4	16.7	4.2	12.3	4.2	12.3
	42002	3200	3.4	16.7	3.4	13.5	3.4	13.5
	42003	3233	6.4	16.7	6.9	12.3	6.9	12.3
	42019	82	1.7	9.1	2.8	13.5	2.8	13.5
	42020	27	2.7	14.3	2.8	14.9	2.8	14.9
	42025	52	2.2	5.6	1.5	5.2	1.2	4.7

Table 17. Maximum Wave Heights for BRICKA Storms OWI-Forcing.

Hurricane	Location		Maximum H_{mo}
	Longitude	Latitude	
Betsy	-89.05	28.55	16.3
Rita	-91.75	27.75	15.9
Ivan	-87.85	28.20	18.0
Camille	-88.65	28.50	15.6
Katrina	-89.90	27.10	17.3
Andrew	-89.95	28.05	14.2

Table 18. Maximum Wind Speed and Heights for JPM-FEMA Storms.

Run No.	Wind Speed Maximum			Wave Height Maximum		
	Longitude	Latitude	Wind Speed (m/s)	Longitude	Latitude	Height (m)
1	-87.1	25.25	44.9	-88.6	26	11.6
2	-87.6	25.5	43.9	-88.1	25.8	13.9
3	-89.95	27.65	42.2	-88.55	26.2	15.6
4	-87.1	25.3	53.8	-88.75	26.1	12.5
5	-87.55	25.4	52.5	-88.75	16.2	15.9
6	-87.1	25.4	51.8	-88.75	26.25	17.6
7	-87.5	25.35	58.2	-88.3	25.8	15.1
8	-87.55	25.35	58.4	-88.8	26.15	17.0
9	-87.6	25.5	57.9	-88.75	26.2	19.0
10	-86.9	25.3	45.1	-87.9	25.8	11.6
11	-87.5	25.6	43.9	-87.9	25.9	13.8
12	-88.8	26.8	42.1	-88.35	26.3	15.6
13	-88.5	26.05	52.8	-87.95	25.75	12.5
14	-86.95	25.35	52.4	-88.25	26.05	15.8
15	-87.5	25.65	51.7	-88.25	26.1	17.5
16	-87.3	25.35	57.2	-88	25.8	12.7
17	-87.55	25.5	58.3	-88.55	26.25	17.0
18	-87.5	25.6	57.8	-88.45	26.25	18.9
19	-87.65	25.9	45.0	-88.1	26.1	11.6
20	-89	27.15	43.8	-88.4	26.4	13.8
21	-88.5	26.8	42.2	-88.05	26.3	15.5
22	-88.2	26.05	52.8	-88.35	26.25	12.5
23	-87.9	25.95	52.2	-88.4	26.4	15.9
24	-88.6	26.75	51.8	-88.4	26.45	17.5
25	-87.85	25.85	57.2	-88.7	26.55	12.7
26	-87.05	25.45	58.1	-88.45	26.35	17.0
27	-87.2	25.6	57.8	-88.35	26.35	18.9
28	-87.1	25.55	44.9	-87.5	25.85	11.5
29	-87.05	25.6	43.8	-87.65	26.05	13.8
30	-87.6	26.3	42.1	-88.25	26.8	15.5
31	-87.6	25.8	52.6	-87.65	25.95	12.4
32	-87.1	25.65	52.6	-88.2	26.55	15.8
33	-88.45	27.05	51.7	-88.2	26.6	17.4
34	-87.1	25.5	57.3	-87.45	25.75	12.7
35	-87.1	25.5	58.1	-88.25	26.5	16.9
36	-87.05	25.6	57.8	-88.2	26.55	18.8
37	-87.3	25.75	44.8	-87.2	25.75	11.5

Run No.	Wind Speed Maximum			Wave Height Maximum		
	Longitude	Latitude	Wind Speed (m/s)	Longitude	Latitude	Height (m)
38	-87.5	26.2	43.7	-87.35	25.95	13.7
39	-87.85	26.95	41.2	-87.3	26.05	15.4
40	-87.55	26	52.8	-87.4	25.85	12.4
41	-87.4	25.9	52.3	-87.35	25.95	15.7
42	-88	27.05	51.8	-87.35	26	17.3
43	-87.3	25.7	57.2	-87.25	25.7	12.6
44	-87.05	25.55	58.0	-87.4	25.9	16.8
45	-87.15	25.75	57.6	-87.35	25.95	18.7
46	-86.55	26.45	44.2	-87	26.7	13.4
47	-86.55	26.5	43.5	-87	26.75	14.4
48	-86.6	26.35	58.3	-87	26.65	16.2
49	-86.55	26.45	58.1	-88.15	27.35	18.1
50	-85.6	26.35	44.2	-88.9	28.3	13.3
51	-85.6	26.4	43.3	-88.05	17.75	14.3
52	-85.65	26.25	58.2	-88.3	17.8	16.2
53	-85.6	26.35	58.0	-88.3	27.85	18.0
54	-86	27.1	43.7	-87.9	28.2	13.3
55	-85.55	26.95	43.1	-87.9	28.25	14.3
56	-85.6	26.8	58.0	-87.85	28.1	16.1
57	-86.65	27.4	57.7	-87.9	28.2	18.0
58	-85.4	27.4	43.6	-87	28.25	13.2
59	-85.9	27.65	42.9	-87.65	28.7	14.2
60	-85.95	27.45	57.7	-87.7	28.6	16.0
61	-85.95	27.55	57.6	-87.7	28.65	17.8
66	-93.1	24.55	44.4	-91.9	27.05	13.4
67	-93.05	24.55	43.9	-91.85	27.1	14.5
68	-93.25	24.6	58.8	-91.95	27.1	16.3
83	-87.6	25.4	55.6	-88.6	26.05	16.0
84	-88.5	26.15	40.5	-87.8	25.75	11.4
85	-88.5	26.15	55.7	-88	25.9	16.0
86	-87.45	25.75	40.3	-87.85	26	11.4
87	-87.4	26.7	55.5	-87.85	26	16.0
88	-87.5	25.65	40.5	-87.15	25.7	11.4
89	-87.5	25.85	55.8	-87.6	26	15.8
90	-86.9	25.6	40.4	-87.3	25.85	11.3
91	-87	25.6	55.5	-87.35	25.85	15.8
92	-87.8	27.45	48.8	-86.55	27.1	13.8
93	-87.75	27.7	48.9	-87.7	27.7	13.8

Run No.	Wind Speed Maximum			Wave Height Maximum		
	Longitude	Latitude	Wind Speed (m/s)	Longitude	Latitude	Height (m)
94	-87	27.9	48.8	-86.95	27.9	13.8
95	-86.8	28.35	48.7	-87.3	28.55	14.0
97	-93.1	24.75	49.3	-92.7	25.35	13.9
98	-92.65	25.55	42.3	-92.9	24.95	13.9
99	-93	24.8	49.3	-92.6	25.5	13.9
100	-93.15	24.8	49.3	-92.65	25.45	13.9
101	-87.65	25.5	55.8	-89.65	27.05	17.6
102	-87.3	25.45	55.8	-89.8	27.85	17.5
103	-87.05	25.45	56.0	-88.4	27.9	17.5
104	-88.9	27.55	56.0	-88.95	27.9	17.4
105	-87.95	26.7	55.9	-88.5	29	17.5
106	-85.7	25.55	55.7	-89.55	28.25	17.6
107	-85.85	26.05	55.7	-88.55	28	17.5
108	-86.45	27.05	55.8	-88.5	28.6	17.3
109	-85.6	27.15	55.4	-87.95	28.85	17.2
111	-93.05	24.7	56.2	-91.55	27.75	17.5
112	-93.1	24.6	56.0	-91.2	27.65	17.5
113	-93.05	24.75	56.1	-91.05	27.55	17.5
114	-92.9	25	56.0	-90.45	27.85	17.4
115	-87.5	25.55	44.0	-88.3	26	13.2
116	-87.25	25.35	58.2	-88.3	26	18.0
117	-87.6	25.7	44.0	-88.5	26.3	13.2
118	-87.75	25.7	58.0	-88.5	26.3	17.8
119	-86.9	25.55	44.2	-87.55	25.9	13.2
120	-87.6	25.9	58.0	-88.3	26.45	17.8
121	-87	25.6	44.2	-87.1	25.7	13.1
122	-87	25.6	58.0	-87.85	26.35	17.7
123	-85.75	26.3	44.0	-87.95	27.4	13.2
124	-87.45	27.55	43.7	-87.75	27.8	13.2
125	-86.35	27.55	43.6	-87.1	28	13.1
126	-85.9	26.2	58.0	-88	27.45	17.9
127	-86.1	26.75	57.9	-87.8	27.8	17.8
128	-85.9	27.2	57.8	-87.75	28.4	17.7
131	-93	25.75	44.2	-91.55	27.4	13.3
132	-93	25	58.2	-91.55	27.5	17.9
133	-92.95	24.85	44.2	-92.5	25.75	13.2
134	-92.95	25.1	58.2	-92.1	26.45	17.9
135	-93	24.7	44.3	-92.5	25.75	13.2

Run No.	Wind Speed Maximum			Wave Height Maximum		
	Longitude	Latitude	Wind Speed (m/s)	Longitude	Latitude	Height (m)
136	-93.1	24.8	58.2	-92.1	26.35	17.9
137	-87.7	25.55	40.5	-87.65	25.6	11.4
138	-88.9	26.35	55.6	-87.65	25.6	16.0
139	-87.2	25.55	40.4	-87.8	25.85	11.4
140	-87.2	25.55	55.7	-87.8	25.85	15.9
141	-87.3	25.7	40.3	-87.4	25.75	11.3
142	-87.3	25.7	55.6	-87.65	25.9	15.8
143	-87	25.6	40.6	-87.4	25.85	11.4
144	-87	25.6	55.8	-87.4	25.85	15.8
145	-88.15	27.7	48.8	-87.35	27.45	13.8
146	-88.2	28.1	48.9	-86.6	27.55	13.8
147	-87.1	28.2	48.8	-87.25	28.3	13.8
149	-93.05	24.9	49.3	-92.7	25.35	14.0
150	-93.1	24.7	49.4	-92.75	25.25	13.9
151	-93.1	24.7	49.4	-92.8	25.1	13.9
152	-87.65	25.55	55.8	-90.05	27.9	17.5
153	-87.6	25.7	55.8	-89.65	27.95	17.5
154	-88.6	26.75	55.9	-89.2	27.8	17.4
155	-88.35	27	56.0	-88.8	28.5	17.5
156	-86.05	26	55.9	-89.4	28.4	17.5
157	-87.55	27.4	55.6	-88.55	28.3	17.4
158	-86.65	27.5	55.3	-88	28.55	17.2
160	-93.1	24.5	56.0	-91.35	27.75	17.5
161	-93.1	24.6	56.2	-90.85	27.95	17.5
162	-93	24.9	56.0	-90.65	27.8	17.5

m/s Meters per second.

m Meters.

Table 19. STWAVE Grid Specifications.

Grid	State Plane	X Origin (feet)	Y Origin (feet)	• x (feet)	• y (feet)	Orient Degree	X Cells	Y Cells
Lake Pontchartrain	LA South	3,553,937.0	702,952.8	656	656	270	284	352
Louisiana Southeast	LA Offshore	4,294,586.6	1,639,491.5	656	656	141	683	744
Louisiana South	LA Offshore	3,997,126.0	1,264,895.0	656	656	108	825	839
Mississippi/ Alabama	LA Offshore	4,463,976.4	1,653,950.1	656	656	90	563	605

Table 20. SSA and SA Tidal Components Recorded at NOAA Stations along the Gulf Coast (http://tidesandcurrents.noaa.gov/).

NOAA Station ID	Location Description	SSA Amplitude (foot)	Phase Degrees from GMT	SA Amplitude (foot)	Phase Degrees from GMT	Amplitude Summation (foot)
8724698	Loggerhead Key FL	0.22	71.4	0.39	167.4	0.61
8724580	Key West FL	0.14	56.5	0.26	187.8	0.40
8723970	Vaca Key FL	0.11	70.5	0.27	196.1	0.38
8723962	Key Colony Beach FL	0.14	51.9	0.32	198.7	0.46
8725110	Naples FL	0.10	66.7	0.25	167.9	0.35
8726724	Clearwater Beach FL	0.12	48.2	0.30	151.9	0.42
8728130	St Marks Lighthouse FL	0.10	53.6	0.33	138.8	0.42
8728229	Shell Point FL	0.13	43.3	0.38	135.7	0.51
8728360	Turkey Point FL	0.12	47.4	0.38	134.0	0.50
8728690	Apalachicola River FL	0.12	28.7	0.25	145.1	0.36
8729108	Panama City FL	0.11	48.9	0.31	150.6	0.42
8729210	Panama City Beach FL	0.15	39.8	0.37	152.0	0.52
8729678	Navarre Beach FL	0.16	70.1	0.31	160.1	0.48
8729840	Pensacola FL	0.16	43.2	0.29	148.3	0.44
8735180	Dauphin Island AL	0.16	51.3	0.26	156.3	0.43
8745557	Gulfport Harbor MS	0.18	41.0	0.31	148.2	0.49
8760551	South Pass LA	0.26	58.0	0.31	159.3	0.57
8760922	Pilots Station East LA	0.18	58.3	0.26	155.2	0.45
8761720	Grand Isle LA	0.25	34.9	0.26	152.4	0.50
8762075	Port Fourchon	0.17	45.2	0.34	174.5	0.52
8771081	Sabine Offshore TX	0.29	35.9	0.24	131.7	0.53
8770971	Rollover Pass TX	0.26	76.0	0.24	124.3	0.51
8771341	Galveston North Jetty TX	0.24	60.0	0.23	155.6	0.47
8771510	Galveston Pleasure Pier TX	0.29	55.2	0.25	157.4	0.55
8772440	Freeport TX	0.24	64.3	0.19	173.5	0.43
8773701	Port O'Connor TX	0.44	64.5	0.30	175.7	0.74
8775270	Port Aransas	0.38	53.9	0.38	173.9	0.76
8775870	Corpus Christi	0.32	58.3	0.21	180.2	0.52
	Average	0.20	53.46	0.29	159.02	0.49
	Standard Deviation	0.09	12.04	0.06	18.79	0.10

Table 21. NOAA Stations Used in the Tide Error Analysis.

The stations IDs marked with asterisks (*) indicate stations whose longitude and latitude were shifted slightly in the ADCIRC SL15 model.

State	Station ID	Station Name	Longitude	Latitude
FL	8723962*	Key Colony Beach	-81.016667	24.710000
	8724580	Key West	-81.808333	24.553333
	8724698	Loggerhead Key	-82.920000	24.631667
	8725110	Naples	-81.806667	26.130000
	8726724	Clearwater Beach	-82.831667	27.978333
	8727520	Cedar Key	-83.031667	29.135000
	8728130	St Marks Lighthouse	-84.178333	30.078333
	8728360	Turkey Point	-84.511667	29.915000
	8729210	Panama City Beach	-85.878333	30.213333
	8729678	Navarre Beach	-86.865000	30.376667
MS-AL	8735180*	Dauphin Island	-88.068000	30.250000
	8735181*	Dauphin Island Hydro	-88.068000	30.250000
	8737048	Mobile	-88.043333	30.708333
	8741196	Pascagoula Point	-88.533333	30.340000
	8741533*	Pascagoula NOAA Lab	-88.565263	30.358333
	8742221*	Horn Island	-88.666667	30.240000
	8743281	Ocean Springs	-88.798333	30.391667
	8744117*	Biloxi	-88.903333	30.412408
	8745557	Gulfport Harbor	-89.081667	30.360000
	8747437	Bay Waveland Yacht Club	-89.325000	30.325000
	8747766	Waveland	-89.366667	30.281667
LA	8760551	South Pass	-89.140000	28.990000
	8760922	Pilots Station East, SW Pass	-89.406667	28.931667
	8760943	SW Pass	-89.418333	28.925000
	8761720*	Grand Isle	-89.962380	29.269130
	8761724*	Grand Isle East Point	-89.962380	29.269130
	8761927*	New Canal Station	-90.110150	30.027630
	8762075*	Port Fourchon	-90.209420	29.114220
	8762372	East Bank	-90.368333	30.050000

State	Station ID	Station Name	Longitude	Latitude
	8762482	West Bank	-90.418333	29.776667
	8764227	Lawma, Amerada Pass	-91.338333	29.448333
	8764311	Eugene Island	-91.385000	29.371667
	8765251	Cypremort Point	-91.880000	29.713333
	8766072	Freshwater Canal Locks	-92.305000	29.713333
	8767816*	Lake Charles	-93.224430	30.223510
	8768094	Calcasieu Pass	-93.343333	29.765000
TX	8770475	Port Arthur	-93.930000	29.866667
	8771510	Galveston Pleasure Pier	-94.788333	29.285000
	8775870	Corpus Christi	-97.216667	27.580000
	8779770	Port Isabel	-97.215000	26.060000

Table 22. Current NOAA Tidal Harmonic Constituent Data at 40 Selected Stations in the Gulf of Mexico.
(posted as of March 2007 on http://tidesandcurrents.noaa.gov)

State	Station ID	Station Name	K_1		O_1		Q_1		M_2		S_2		N_2		K_2	
			Amplitude	Phase	Amplitude	Phase	Amplitude	Phase	Amplitude	Phase	Amplitude	Phase	Amplitude	Phase	Amplitude	Phase
FL	8723962	Key Colony Beach	0.213	337.6	0.236	338.8	0.059	326.4	0.797	41	0.194	66.3	0.171	22.9	0.052	64.7
FL	8724580	Key West	0.295	356.1	0.31	352.2	0.076	342.1	0.609	66.9	0.169	88.2	0.122	48.3	0.05	92.4
FL	8724698	Loggerhead Key	0.354	359.5	0.364	354.3	0.085	345.5	0.449	78.7	0.151	92	0.095	66.2	0.043	86.9
FL	8725110	Naples	0.52	9.9	0.47	2.8	0.1	349.4	0.937	144.2	0.315	156.1	0.188	130.6	0.09	149.4
FL	8726724	Clearwater Beach	0.517	12.4	0.496	3.6	0.104	348	0.807	123.1	0.315	141	0.151	120.3	0.09	134.6
FL	8727520	Cedar Key	0.582	34.6	0.535	27.6	0.107	12.1	1.268	189.5	0.442	218.1	0.205	185.3	0.138	211.4
FL	8728130	St Marks Lighthouse	0.568	30.8	0.502	27.6	0.138	11.8	1.168	197.9	0.486	224.8	0.217	193.5	0.125	212.3
FL	8728360	Turkey Point	0.565	29.8	0.515	24	0.126	1.9	0.84	200.3	0.315	221.8	0.157	190.1	0.104	232.8
FL	8729210	Panama City Beach	0.476	17	0.463	8.5	0.102	353.8	0.112	91.1	0.066	94.5	0.023	102	0.016	75.1
FL	8729678	Navarre Beach	0.466	19.1	0.449	10.7	0.098	357.8	0.105	90.3	0.052	97.3	0.02	105.6	0.013	97.2
MS/AL	8735180	Dauphin Island	0.463	50.6	0.453	41.9	0.098	26.6	0.049	132.5	0.023	117.3	0	0	0.016	222.8
MS/AL	8735181	Dauphin Island Hydro	0.462	50.6	0.452	41.9	0.098	26.6	0.049	132.5	0.023	117.3	0	0	0.016	222.8
MS/AL	8737048	Mobile	0.538	77.5	0.492	63.4	0.102	54.9	0.075	224.4	0.046	258.9	0	0	0.036	232.2
MS/AL	8741196	Pascagoula Point	0.473	33.8	0.508	28.3	0.098	25.6	0.095	142	0.05	163.5	0.03	202.8	0.013	165.3
MS/AL	8741533	Pascagoula NOAA Lab	0.522	40.8	0.489	31.8	0.131	7.9	0.092	147.3	0.046	151.6	0.02	175	0.026	146.9
MS/AL	8742221	Horn Island	0.522	38.3	0.531	26.8	0.103	21.1	0.109	135.5	0.065	185.5	0.004	246.4	0.018	189.6
MS/AL	8743281	Ocean Springs	0.486	49.1	0.548	38	0.106	32.4	0.103	181.9	0.05	185.2	0.028	160.4	0.013	185.5
MS/AL	8744117	Biloxi	0.531	51.5	0.556	39.8	0.108	33.9	0.128	175.7	0.108	216	0.034	237.1	0.029	219.3
MS/AL	8745557	Gulfport Harbor	0.44	40.9	0.529	31.2	0.103	26.4	0.126	163.4	0.056	161.4	0.039	212	0.015	161.2
MS/AL	8747437	Bay Waveland Yacht Club	0.571	63.7	0.548	49.6	0.121	35.2	0.102	213.2	0.085	225	0.023	240.1	0.043	210.5
MS/AL	8747766	Waveland	0.623	59.5	0.577	48.3	0.139	30.4	0.112	210.7	0.093	222.1	0.028	228	0.045	196.1
LA	8760551	South Pass	0.456	18	0.443	10.9	0.098	358.6	0.059	116.3	0.036	108.3	0.016	137.6	0.01	107.6
LA	8760922	Pilots Station East, SW Pass	0.436	20.6	0.433	12	0.108	357.6	0.055	123	0.042	105.6	0.016	141.8	0.01	90.6
LA	8760943	SW Pass	0.436	20.6	0.433	12	0.108	357.6	0.056	123	0.043	105.5	0.016	141.8	0.01	90.6
LA	8761720	Grand Isle	0.381	47	0.374	40.3	0.079	29.7	0.043	169.4	0	0	0	0	0	0
LA	8761724	Grand Isle East Point	0.375	37.4	0.374	30.8	0.081	19.2	0.043	163	0.022	154.6	0.015	176.1	0.006	153.8
LA	8761927	New Canal Station	0.111	181.5	0.122	177.5	0.024	175.5	0.002	288.8	0.013	16.4	0.002	58.2	0.004	23.5
LA	8762075	Port Fourchon	0.433	30.3	0.423	22.7	0.089	1.6	0.059	174.6	0.026	170.5	0.02	178.3	0.003	122.8
LA	8762372	East Bank	0.108	195.5	0.102	181.2	0.02	165.1	0.003	21.7	0.007	51.2	0.003	337.2	0.007	69.3
LA	8762482	West Bank	0.023	232.4	0.026	211	0.007	197.2	0.003	330.7	0.007	295.6	0	0	0	0
LA	8764227	Lawma, Amerada Pass	0.427	44.1	0.404	32.9	0.095	17.8	0.302	284.8	0.118	295.9	0.089	269.9	0.013	299.7
LA	8764311	Eugene Island	0.516	28.5	0.485	20.3	0.094	16.2	0.336	256.8	0.118	254.2	0.116	209.2	0.032	254
LA	8765251	Cypremort Point	0.414	78	0.42	69.3	0.081	65	0.23	351.7	0.096	358.6	0.038	343.6	0.026	359.1
LA	8766072	Freshwater Canal Locks	0.534	16.2	0.493	11	0.096	8.5	0.398	241.6	0.139	237.1	0.125	221.4	0.038	236.8
LA	8767816	Lake Charles	0.314	105.6	0.286	93	0.055	86.7	0.253	45.8	0.079	60.7	0.032	38.7	0.022	61.9
LA	8768094	Calcasieu Pass	0.472	29.8	0.446	22.3	0.085	3.2	0.479	254.7	0.157	249.5	0.125	231	0.039	297.2
TX	8770475	Port Arthur	0.282	76.6	0.279	67.2	0.059	55.1	0.181	319.7	0.06	306.1	0.042	296.9	0.029	15.6
TX	8771510	Galveston Pleasure Pier	0.56	28	0.528	20.3	0.118	7	0.455	276.1	0.112	267.9	0.119	254.6	0.02	275.6
TX	8775870	Corpus Christi	0.525	24.5	0.53	16.8	0.123	0.7	0.272	260.1	0.073	269.3	0.066	240.7	0.019	266.9
TX	8779770	Port Isabel	0.449	39.5	0.449	31.8	0.098	24.1	0.203	277.4	0.062	289.5	0.046	260.8	0.016	289.4

Table 23. Tidal Potential Constants for Principal Tidal Constituents and Associated Periods, Amplitudes and Effective Earth Elasticity Factors.

Species, *j*	**n**	**Constituent**		**T_{jn} (hr)**	**C_{nj} (ft)**	**α_{jn}**
1	1	K_1	Luni-Solar	23.934470	0.4644507	0.736
	2	O_1	Principal Lunar	25.819342	0.3297693	0.695
	3	Q_1	Elliptical Lunar	26.868357	0.0631756	0.695
2	1	M_2	Principal Lunar	12.420601	0.7950567	0.693
	2	S_2	Principal Lunar	12.000000	0.3702121	0.693
	3	N_2	Elliptical Lunar	12.658348	0.1522240	0.693
	4	K_2	Luni-Solar	11.967235	0.1007346	0.693

Table 24. SL15 Model Harmonic Constituents Used to Decompose Model Time Histories Into Harmonic Constituents.

Tidal Constituent	Tidal Description	T_{jn} (hr)
Steady	Overtide	
MN	Compound	661.309205
SM	Compound	354.367052
KO	Compound	327.858999
O_1	Principal Lunar	25.819342
K_1	Luni-Solar	23.934470
Q_1	Elliptical Lunar	26.868357
MNS_2	Compound	13.127267
$2MS_2$	Compound	11.606952
N_2	Elliptical Lunar	12.658348
K_2	Luni-Solar	11.967235
M_2	Principal Lunar	12.420601
$2MN_2$	Compound	12.191620
S_2	Principal Lunar	12.000000
$2SM_2$	Compound	11.355899
MN_4	Compound	6.269174
M_4	Overtide	6.210301
MS_4	Compound	6.103339
$2MN_6$	Compound	4.166284
M_6	Overtide	4.140200
MSN_6	Compound	4.117870
M_8	Overtide	3.105150
M_{10}	Overtide	2.484120

Table 25. Correlation Coefficients R^2 for the Four Groups of NOAA Stations.

		FL	MS-AL	LA	TX
Amplitude	Seven Constituents	0.991	0.953	0.947	0.962
	Six Constituents (Without K_2)	0.990	0.948	0.942	0.957
Phase	Seven Constituents	0.993	0.768	0.839	0.896
	Six Constituents (Without K_2)	0.995	0.937	0.960	0.971

Table 26. SL15 Model to NOAA Measured/Analyzed Error Statistics for the Four Groups of NOAA Stations.

These errors include measurement errors. Average, average absolute, and standard deviation amplitude errors are in feet; normalized root mean square amplitude errors are non-dimensional; and all phase errors are in degrees.

			FL	MS-AL	LA	TX
Amplitude	Seven Constituents	Average	-0.007	0.015	0.006	0.005
		Average Absolute	0.021	0.032	0.029	0.029
		Standard Deviation	0.030	0.046	0.044	0.040
		E_{j-amp}^{c-m}	0.075	0.161	0.188	0.143
	Six Constituents (Without K_2)	Average	-0.009	0.015	0.007	0.005
		Average Absolute	0.023	0.035	0.033	0.033
		Standard Deviation	0.032	0.049	0.047	0.043
		E_{j-amp}^{c-m}	0.074	0.159	0.188	0.142
Phase	Seven Constituents	Average	0.81	19.64	0.97	-15.70
		Average Absolute	8.54	26.19	26.20	24.97
		Standard Deviation	10.33	38.63	46.72	42.04
	Six Constituents (Without K_2)	Average	-0.36	10.54	-7.48	-12.38
		Average Absolute	7.96	17.97	18.11	19.27
		Standard Deviation	9.61	23.62	24.50	24.67

Table 27. Summary of SL15 Computed and NOAA Measurement-Analysis Errors for Each Harmonic Constituent and NOAA Measured/Analyzed Data Error Estimates.

Constituent	SL15 Computed to NOAA Measured/Analyzed Errors	Estimated NOAA Measured/Analyzed Data Errors
Normalized Root Mean Square Constituent Amplitude Errors		
K_1	0.135	0.062
O_1	0.125	0.065
Q_1	0.146	0.104
M_2	0.119	0.041
S_2	0.211	0.050
N_2	0.249	0.101
K_2	0.275	0.134
Average Absolute Constituent Phase Errors		
K_1	7.62	5.81
O_1	11.84	9.38
Q_1	10.32	6.37
M_2	18.64	16.64
S_2	24.19	11.75
N_2	22.46	18.37
K_2	60.16	11.06

Table 28. Previously Published NOAA Tidal Harmonic Constituent Data in the Gulf of Mexico used in Estimating Errors in the NOAA Harmonic Constituents.

			K_1		O_1		Q_1		M_2		S_2		N_2		K_2	
State	Station ID	Station Name	Amplitude	Phase	Amplitude	Phase	Amplitude	Phase	Amplitude	Phase	Amplitude	Phase	Amplitude	Phase	Amplitude	Phase
FL	8723962	Key Colony Beach	0.220	330.59	0.239	328.08	0.063	320.07	0.785	23.38	0.195	52.16	0.167	0.12	0.056	55.97
FL	8724580	Key West	0.288	349.79	0.301	340.51	0.077	335.15	0.575	47.78	0.172	76.28	0.116	25.86	0.05	85.80
FL	8725110	Naples	0.502	2.34	0.448	350.23	0.115	346.95	0.902	125.23	0.308	142.32	0.181	109.50	0.095	148.56
FL	8726724	Clearwater Beach	0.503	3.98	0.487	352.22	0.115	347.92	0.794	103.22	0.299	124.84	0.153	96.60	0.087	115.35
FL	8727520	Cedar Key	0.560	26.61	0.524	17.14	0.126	0.44	1.238	170.18	0.432	202.67	0.232	164.18	0.161	205.81
FL	8728360	Turkey Point	0.528	20.54	0.481	9.21	0.118	352.52	0.785	176.27	0.294	202.80	0.147	163.38	0.097	214.15
FL	8729678	Navarre Beach	0.472	6.27	0.457	352.96	0.1	343.76	0.108	60.54	0.055	72.07	0.024	77.73	0.016	57.59
MS/AL	8735180	Dauphin Island	0.393	56.09	0.388	39.70	0.079	36.41	0.051	120.55	0.026	128.09	0.009	106.32	0.013	223.20
MS/AL	8747437	Bay Waveland Yacht Club	0.543	66.07	0.499	47.07	0.106	37.58	0.087	205.13	0.082	228.18	0.018	241.42	0.035	210.30
LA	8760551	South Pass	0.449	19.18	0.434	4.90	0.101	356.04	0.06	106.47	0.036	110.87	0.014	126.37	0.009	102.36
LA	8761724	Grand Isle East Point	0.386	38.24	0.384	22.93	0.087	18.91	0.044	154.93	0.023	148.92	0.014	172.56	0.003	135.07
LA	8764311	Eugene Island	0.561	32.06	0.455	20.86	0.099	8.80	0.304	244.51	0.115	249.60	0.088	222.72	0.052	271.05
TX	8771510	Galveston Pleasure Pier	0.529	25.10	0.504	10.59	0.111	359.91	0.438	261.37	0.136	264.38	0.103	236.43	0.019	281.12
TX	8775870	Corpus Christi	0.501	18.83	0.493	3.63	0.113	351.93	0.257	240.66	0.073	250.75	0.065	215.43	0.019	258.54

Table 29. Summary of USGS Water-Level Sensor Locations and Their Approximations in ADCIRC. Stations marked with an asterisk were moved in the ADCIRC SL15 model to better represent their real-life locations. Water-level elevations are given in feet above NAVD88.

Water-Level Sensor Site Name	USGS Latitude	USGS Longitude	Maximum USGS Water-Level Elevation	ADCIRC Latitude	ADCIRC Longitude	Maximum ADCIRC Water-Level Elevation
B15b	29.76467	-93.89800	9.35	29.76467	-93.89800	4.69
LA2	30.19022	-92.59028	4.49	30.19022	-92.59028	N/A
LA3	30.23212	-92.81930	10.84	30.23212	-92.81930	N/A
LA7*	30.07288	-92.65840	4.21	30.06785	-92.67005	5.31
LA8*	30.07041	-92.87950	3.86	30.06365	-92.87950	5.69
LA9	29.74476	-92.32792	6.62	29.74476	-92.32792	6.66
LA9b*	29.78311	-92.19250	10.73	29.78241	-92.19303	7.63
LA10*	29.70658	-92.67552	8.70	29.70077	-92.67552	10.28
LA11*	29.77057	-93.01473	14.68	29.77051	-93.01408	13.36
LA12*	29.78610	-93.11494	14.83	29.78585	-93.11496	14.32
LC2a	30.19629	-93.27320	8.93	30.19629	-93.27320	8.72
LC2b*	30.28492	-93.18750	8.03	30.28440	-93.18953	8.64
LC5	30.01124	-93.22814	6.93	30.01124	93.22814	8.42
LC6a*	30.00432	-93.34333	5.04	30.00427	-93.34306	8.26
LC7	29.89003	-93.40320	11.15	29.89003	-93.40320	10.00
LC8a	29.79764	-93.32886	13.34	29.79764	-93.32886	13.05
LC8b*	29.87065	-93.07983	7.38	29.87068	-93.08044	8.06
LC9*	29.81823	-93.47052	13.82	29.81801	-93.47032	12.77
LC11*	29.76198	-93.58258	14.90	29.76102	-93.58260	14.08
LC12	29.80313	-93.75333	7.52	29.80313	-93.75333	8.64
LC13*	29.76407	-93.75285	10.62	29.76318	-93.75289	11.39
LF3	29.98376	-92.13687	9.52	29.98376	-92.13687	N/A
LF5	29.88604	-92.12703	10.07	29.88604	-92.12703	8.28

Table 30. Statistical Data for Comparisons between Observed High-Water Marks (HWMs) and Simulated Values for Hurricane Katrina for Both H*WIND/IOKA and PBL Wind Fields.

HWM Data Set	Wind	Slope	R2	Average Error (feet)	Standard Deviation (feet)	HWM Error Estimate (feet)	Model Standard Deviation (feet)
USACE	H*WIND/IOKA	1.01	0.93	0.08	1.53	0.43	1.41
USACE	PBL	1.04	0.89	0.75	1.82	0.38	1.72
URS	H*WIND/IOKA	1.04	0.95	0.61	1.42	0.30	1.34
URS	PBL	1.07	0.93	1.16	1.75	0.32	1.67

Table 31. Statistical Data for Comparisons between Observed High-Water Marks (HWMs) and Simulated Values for Hurricane Rita for Both H*WIND/IOKA and PBL Wind Fields.

HWM Data Set	Wind	Slope	R2	Average Error (feet)	Standard Deviation (feet)	HWM Error Estimate (feet)	Model Standard Deviation (feet)
FEMA	H*WIND/IOKA	0.93	0.76	-0.44	1.33	0.35	1.19
FEMA w/o Vermilion	H*WIND/IOKA	1.00	0.87	0.04	1.11	0.36	0.91
FEMA	PBL	0.88	0.60	-0.95	1.91	0.35	1.81
FEMA w/o Vermilion	PBL	0.99	0.79	-0.11	1.59	0.36	1.46

Table 32. Longitude and Latitude Limits for Zooms Shown on Figure 401.

Zoom	Description	Longitude Range	Latitude Range
BE1	Southern Louisiana	-95 to -87	27 to 31
BE2	Southeast Louisiana	-92 to -88	28.5 to 30.5
BE3	New Orleans	-91.25 to -89.25	29.5 to 30.5

Table 33. Example of Expected Surge Values as a Function of Return Period With and Without • -Term Included.

Return Period (Years)	Without • -Term (Feet)	With • -Term (Feet)
50	11.98	12.06
75	13.64	13.90
100	14.82	15.21
125	15.74	16.22
150	16.49	17.04
175	17.12	17.74
200	17.67	18.35
225	18.15	18.88
250	18.59	19.36
275	18.98	19.79
300	19.33	20.18
325	19.66	20.55
350	19.97	20.88
375	20.25	21.20
400	20.52	21.49
425	20.76	21.76
450	21.00	22.02
475	21.22	22.27
500	21.43	22.50

Table 34. Estimated Changes in Extreme Waves Heights and Surges for Selected Return Periods, Given a Doubling of Years with High Hurricane Activity.

Return Period (Years)	Change in Wave Height (Percent)	Change in Surge (Percent)
25	+15	+18
50	+13	+16
100	+12	+15
250	+11	+12
500	+10	+ 9

Table 35. Distribution of Filtered Pressure Profiles Based on Filtering Criteria.

Filter Criteria	Number of Profiles Eliminated
(a)	459
(b)	1,180
(c)	121
(d)+(e)+(f)	531
Total Number of Filtered Profiles	**2,291**

Table 36. Percentage of Flight Level Pressure Profiles Retained.

Storm	Year	Total	Retained	Percent Retained	Comments
no-name	1938	5	5	100.00	Data extracted manually from Myers & Jordan (1956).
Anita	1977	20	20	100.00	
David	1979	24	17	70.83	
Frederic	1979	62	38	61.29	
Allen	1980	125	43	34.40	
Gert	1981	78	1	1.28	• p<25mb for all the cases, except one.
Alicia	1983	50	39	78.00	
Arthur	1984	22	0	0.00	• p <25mb for all the cases.
Diana	1984	128	67	52.34	
Danny	1985	26	0	0.00	• p <25mb for all the cases.
Elena	1985	122	99	81.15	
Gloria	1985	42	24	57.14	
Isabel	1985	48	0	0.00	• p <25mb for all the cases.
Juan	1985	36	6	16.67	
Charley	1986	28	0	0.00	• p <25mb for all the cases.
Emily	1987	56	1	1.79	40 out of 56 profiles have flight level pressure <700 mb.
Floyd	1987	22	0	0.00	• p <25mb for all the cases.
Florence	1988	20	11	55.00	
Gilbert	1988	50	39	78.00	
Joan	1988	6	5	83.33	
Dean	1989	12	1	8.33	
Gabrielle	1989	12	10	83.33	
Hugo	1989	40	0	0.00	Flight level pressure <700 mb for all the cases.
Jerry	1989	17	5	29.41	
Gustav	1990	84	82	97.62	
Bob	1991	92	34	36.96	
Claudette	1991	73	71	97.26	
Andrew	1992	141	95	67.38	
Debby	1994	10	0	0.00	• p <25 mb for all the cases.
Gordon	1994	83	8	9.64	57 out of 83 profiles have • p <25 mb.
Allison	1995	39	3	7.69	35 out of 39 profiles have • p <25 mb.
Chantal	1995	72	0	0.00	• p <25 mb for all the cases.
Erin	1995	97	66	68.04	
Felix	1995	130	59	45.38	

Storm	Year	Total	Retained	Percent Retained	Comments
Gabrielle	1995	16	0	0.00	• p <25 mb for all the cases.
Iris	1995	132	41	31.06	
Luis	1995	130	77	59.23	
Marilyn	1995	116	96	82.76	
Opal	1995	76	21	27.63	
Roxanne	1995	141	52	36.88	
Bertha	1996	78	56	71.79	
Cesar	1996	34	0	0.00	• p <25 mb for all the cases.
Edouard	1996	178	135	75.84	
Fran	1996	143	102	71.33	
Hortense	1996	109	59	54.13	
Josephine	1996	23	1	4.35	
Kyle	1996	8	0	0.00	• p <25 mb for all the cases.
Lili	1996	68	28	41.18	
Marco	1996	67	1	1.49	• p <25 mb for all the cases, except two.
Erika	1997	56	36	64.29	
Bonnie	1998	193	113	58.55	
Danielle	1998	133	48	36.09	
Earl	1998	32	3	9.38	
Georges	1998	202	125	61.88	
Mitch	1998	86	57	66.28	
Bret	1999	102	49	48.04	
Dennis	1999	158	83	52.53	
Floyd	1999	163	103	63.19	
Keith	2000	50	40	80.00	
Leslie	2000	29	0	0.00	• p <25mb for all the cases.
Michael	2000	21	11	52.38	
Humberto	2001	46	13	28.26	
Michelle	2001	89	61	68.54	

mb = Millibar.

Table 37. Tendency of Holland B Parameter for Landfalling Storms.

Hurricane and Landfall Location	***B* Tendency at Landfall**
Frederic (Alabama)	~ constant
Elena (Mississippi)	~ constant
Andrew South Florida	~constant to ~negative
Andrew Louisiana	negative
Opal (North West Florida)	constant
Bertha (North Carolina)	negative
Fran (North Carolina)	~constant
Bonnie (North Carolina)	negative
Georges (Mississippi)	negative
Bret (Texas)	~constant
Floyd (North Carolina)	positive

Table 38. Low-Intensity Storm Parameters (Yellow Highlight).

A. 3 Cp and 3 Rmax values

Cp=960 Rmax=(21.0, 35.6, 15.4)
Cp=930 Rmax=(17.7, 25.8, 11.7)
Cp=900 Rmax=(14.9, 21.8, 6.0)

Cp=975 Rmax=(21.0, 35.6, 15.4)

The loop structure for JPM run sequencing is (from inner loop working outward)

- Rmax
- Cp
- Track

Thus, the sequence of runs for any track using Combination A is

	Cp	Rmax
1.	960	15.4
2.	960	21.0
3.	960	35.6
4.	930	11.7
5.	930	17.7
6.	930	25.8
7.	900	6.0
8.	900	14.9
9.	900	21.8
10.	975	15.4
11.	975	21.0
12	975	35.6

B. 2 Cp and 2 Rmax values

Cp=960 Rmax=(18.2,24.6)
Cp=900 Rmax=(12.5,18.4)

Cp=975 Rmax=(18.2,24.6)

The sequence of runs for any track using Combination B will be

	Cp	Rmax
1.	960	18.2
2.	960	24.4
3.	900	12.5
4.	900	18.4
5.	975	18.2
6	975	24.6

C. 2 Cp and 1 Rmax values

Cp=960 Rmax=17.7
Cp=900 Rmax=17.7

Cp=975 Rmax=17.7

Primary Tracks

(Vf=11)	Track 1	2	3	4	4'	5	
Mean angle	9	9	9	9		9	(use Cp-Rmax combination set A) – storms 1-45
Mean angle (501 to 515)	3	3	3	3		3	(use Cp (975mb) – Rmax comb. Set A) – 15 storms
-45	4	4	4		4		(use Cp-Rmax combination set B) – storms 46-61
-45 (516 to 523)	2	2	2		2		(use Cp (975mb) – Rmax comb. Set B) – 8 storms
+45	4	4	4	4			(use Cp-Rmax combination set B) – storms 66-81
+45 (524 to 531)	2	2	2	2			(use Cp (975mb) – Rmax comb. Set B) – 8 storms

(Vf= 6)	Track 1	2	3	4	4'	5	
Mean angle	2	2	2	2		2	(use Cp-Rmax combination set C) – storms 82-91
Mean angle (532 to 536)	1	1	1	1		1	(use Cp (975mb) – Rmax comb. Set C) – 5 storms
-45	1	1	1		1		(use Cp-Rmax combination set D) – storms 92-95
-45 (537 to 540)	1	1	1		1		(use Cp (975mb) – Rmax comb. Set C) – 4 storms
+45	1	1	1	1			(use Cp-Rmax combination set D) – storms 97-100
+45 (541 to 544)	1	1	1	1			(use Cp (975mb) – Rmax comb. Set C) – 4 storms

	Track					
(Vf=17)	1	2	3	4	4’	5
Mean angle	1	1	1	1		1 (use Cp-Rmax combination set D) – storms 101-105
Mean angle	1	1	1	1		1 (use Cp (975mb) – Rmax comb. Set C) – 5 storms (545 to 549)
-45	1	1	1		1	(use Cp-Rmax combination set D) – storms 106-109
-45	1	1	1		1	(use Cp (975mb) – Rmax comb. Set C) – 4 storms (550 to 553)
+45	1	1	1	1		(use Cp-Rmax combination set D) – storms 111-114
+45	1	1	1	1		(use Cp (975mb) – Rmax comb. Set C) – 4 storms (554 to 557)

Secondary Tracks

	Track				
(Vf=11)	1b	2b	3b	4b	
Mean angle	2	2	2	2	(use Cp-Rmax combination set C) – storms 115-122
Mean angle	1	1	1	1	(use Cp (975mb) – Rmax comb. Set C) – 4 storms (558 to 561)
-45	2	2	2		(use Cp-Rmax combination set C) – storms 123-130
+45	2	2	2		(use Cp-Rmax combination set C) – storms 131-136

Table 39. East Low-Intensity Storms.

High-Intensity Storm #	Low-Intensity Storm #	Low-Intensity Min Cp	High-Intensity Min Cp	Rp(nmi)	Holland b	Velf
1	501	975	960	11	1.27	11
2	502	975	960	21	1.27	11
3	503	975	960	35.6	1.27	11
10	504	975	960	11	1.27	11
11	505	975	960	21	1.27	11
12	506	975	960	35.6	1.27	11
19	507	975	960	11	1.27	11
20	508	975	960	21	1.27	11
21	509	975	960	35.6	1.27	11
28	510	975	960	11	1.27	11
29	511	975	960	21	1.27	11
30	512	975	960	35.6	1.27	11
37	513	975	960	11	1.27	11
38	514	975	960	21	1.27	11
39	515	975	960	35.6	1.27	11
46	516	975	960	18.2	1.27	11
47	517	975	960	24.6	1.27	11
50	518	975	960	18.2	1.27	11
51	519	975	960	24.6	1.27	11
54	520	975	960	18.2	1.27	11
55	521	975	960	24.6	1.27	11
58	522	975	960	18.2	1.27	11
59	523	975	960	24.6	1.27	11
66	524	975	960	18.2	1.27	11
67	525	975	960	24.6	1.27	11
70	526	975	960	18.2	1.27	11
71	527	975	960	24.6	1.27	11
74	528	975	960	18.2	1.27	11
75	529	975	960	24.6	1.27	11
78	530	975	960	18.2	1.27	11
79	531	975	960	24.6	1.27	11
82	532	975	960	17.7	1.27	6
84	533	975	960	17.7	1.27	6
86	534	975	960	17.7	1.27	6
88	535	975	960	17.7	1.27	6
90	536	975	960	17.7	1.27	6
92	537	975	930	17.7	1.27	6
93	538	975	930	17.7	1.27	6
94	539	975	930	17.7	1.27	6
95	540	975	930	17.7	1.27	6
97	541	975	930	17.7	1.27	6

High-Intensity Storm #	Low-Intensity Storm #	Low-Intensity Min Cp	High-Intensity Min Cp	Rp(nmi)	Holland b	Velf
98	542	975	930	17.7	1.27	6
99	543	975	930	17.7	1.27	6
100	544	975	930	17.7	1.27	6
101	545	975	930	17.7	1.27	17
102	546	975	930	17.7	1.27	17
103	547	975	930	17.7	1.27	17
104	548	975	930	17.7	1.27	17
105	549	975	930	17.7	1.27	17
106	550	975	930	17.7	1.27	17
107	551	975	930	17.7	1.27	17
108	552	975	930	17.7	1.27	17
109	553	975	930	17.7	1.27	17
111	554	975	930	17.7	1.27	17
112	555	975	930	17.7	1.27	17
113	556	975	930	17.7	1.27	17
114	557	975	930	17.7	1.27	17
115	558	975	960	17.7	1.27	11
117	559	975	960	17.7	1.27	11
119	560	975	960	17.7	1.27	11
121	561	975	960	17.7	1.27	11
137	562	975	960	17.7	1.27	6
139	563	975	960	17.7	1.27	6
141	564	975	960	17.7	1.27	6
143	565	975	960	17.7	1.27	6
145	566	975	930	17.7	1.27	6
146	567	975	930	17.7	1.27	6
147	568	975	930	17.7	1.27	6
149	569	975	930	17.7	1.27	6
150	570	975	930	17.7	1.27	6
151	571	975	930	17.7	1.27	6

Table 40. West Low-Intensity Storms.

High-Intensity Storm #	Low-Intensity Storm #	Low-Intensity Min Cp	High-Intensity Min Cp	Rp(nmi)	Velf
201	401	975	960	11	11
202	402	975	960	21	11
203	403	975	960	35.6	11
210	404	975	960	11	11
211	405	975	960	21	11
212	406	975	960	35.6	11
219	407	975	960	11	11
220	408	975	960	21	11
221	409	975	960	35.6	11
228	410	975	960	11	11
229	411	975	960	21	11
230	412	975	960	35.6	11
237	413	975	960	11	11
238	414	975	960	21	11
239	415	975	960	35.6	11
246	416	975	960	18.2	11
247	417	975	960	24.6	11
250	418	975	960	18.2	11
251	419	975	960	24.6	11
254	420	975	960	18.2	11
255	421	975	960	24.6	11
258	422	975	960	18.2	11
259	423	975	960	24.6	11
266	424	975	960	18.2	11
267	425	975	960	24.6	11
270	426	975	960	18.2	11
271	427	975	960	24.6	11
274	428	975	960	18.2	11
275	429	975	960	24.6	11
278	430	975	960	18.2	11
279	431	975	960	24.6	11
282	432	975	960	17.7	6
284	433	975	960	17.7	6
286	434	975	960	17.7	6
288	435	975	960	17.7	6
290	436	975	960	17.7	6
292	437	975	930	17.7	6
293	438	975	930	17.7	6
294	439	975	930	17.7	6
295	440	975	930	17.7	6
297	441	975	930	17.7	6

High-Intensity Storm #	Low-Intensity Storm #	Low-Intensity Min Cp	High-Intensity Min Cp	Rp(nmi)	Velf
298	442	975	930	17.7	6
299	443	975	930	17.7	6
300	444	975	930	17.7	6
301	445	975	930	17.7	17
302	446	975	930	17.7	17
303	447	975	930	17.7	17
304	448	975	930	17.7	17
305	449	975	930	17.7	17
306	450	975	930	17.7	17
307	451	975	930	17.7	17
308	452	975	930	17.7	17
309	453	975	930	17.7	17
311	454	975	930	17.7	17
312	455	975	930	17.7	17
313	456	975	930	17.7	17
314	457	975	930	17.7	17
315	458	975	960	17.7	11
317	459	975	960	17.7	11
319	460	975	960	17.7	11
321	461	975	960	17.7	11
337	462	975	960	17.7	6
339	463	975	960	17.7	6
341	464	975	960	17.7	6
343	465	975	960	17.7	6
345	466	975	930	17.7	6
346	467	975	930	17.7	6
347	468	975	930	17.7	6
349	469	975	930	17.7	6
350	470	975	930	17.7	6
351	471	975	930	17.7	6