

Tropical Cyclone Report
Hurricane Ida (AL112009)
4-10 November 2009

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Ida was a late season hurricane that had a large impact on the east coast of Nicaragua and the adjacent islands. It was the first November hurricane in the Gulf of Mexico since Kate of 1985.

a. Synoptic History

Ida's genesis was associated with a poorly defined tropical wave that reached the western Caribbean Sea on 1 November. The wave interacted with a large low-level cyclonic gyre over the southwestern Caribbean Sea, Central America and the adjacent eastern North Pacific Ocean. The wave continued westward after spawning a low over the southwestern Caribbean Sea on 2 November. The low moved very little for the next couple of days while developing deep convection as an upper-level anticyclone was forming over the western Caribbean. This pattern provided an environment of light shear. Surface pressures continued to fall and convection became organized near the area of minimum pressure, and is estimated that a tropical depression formed at 0600 UTC 4 November just to the southeast of San Andres Island. Ida's path is shown in Figure 1, and time series of the tropical cyclone's maximum sustained wind and minimum central pressure are displayed in Fig. 2 and Fig. 3, respectively. The best track positions and intensities are listed in Table 1¹.

The satellite presentation of the cyclone continued to improve while distinct convective bands began to wrap around the center. It is estimated that the depression became a tropical storm at 1200 UTC 4 November while heading slowly northwestward toward the coast of Nicaragua. Although the system was close to land, the light shear environment and warm ocean waters were favorable for strengthening. Additional intensification occurred and Ida became a hurricane at 0600 UTC 5 November. Six hours later, Ida made landfall with 70-kt winds in the vicinity of Rio Grande on the east coast of Nicaragua, after passing near or over Corn Islands.

Ida weakened while moving northward over the high terrain of Nicaragua and Honduras. It then moved back over water just north of the eastern tip of Honduras and re-strengthened. Ida developed an eye and regained hurricane status at 0000 UTC 8 November over the northwestern Caribbean Sea. The hurricane continued to move northward, and reached its peak intensity of 90 knots over the Yucatan Channel at 0000 UTC 9 November. Figure 4 is a visible image of Ida moving toward the Yucatan Channel. Thereafter, Ida moved a little faster into the eastern Gulf of Mexico, where strong shear removed the convection from the low-level

¹ A digital record of the complete best track, including wind radii, can be found on line at <ftp://ftp.nhc.noaa.gov/atcf>. Data for the current year's storms are located in the *brk* directory, while previous years' data are located in the *archive* directory.

center and the hurricane weakened to a tropical storm, as indicated by data from a reconnaissance plane and satellite intensity estimates.

Shortly after 1500 UTC 9 November, convection redeveloped near the center and both reconnaissance and oil rig data indicated that Ida once again reached hurricane strength at 1800 UTC 9 November when it was approaching the mouth of the Mississippi River. Thereafter, Ida began to weaken as it moved over cool waters, and a new round of strong shear, associated with a short wave trough, removed the convection from the center. Ida then turned to the northeast and east, and became extratropical a few hours before it moved inland along the Alabama coast at 1200 UTC 10 November. However, because the cyclone had a large wind field, tropical-storm-force winds affected a portion of the northern Gulf of Mexico coast before Ida became extratropical. The cyclone dissipated over the Florida Panhandle at 1200 UTC 11 November. Ida's remnants contributed to the formation of a separate, strong extratropical low that affected the U.S. east coast during the following few days.

b. Meteorological Statistics

Flight-level, stepped frequency microwave radiometer (SFMR), and dropwindsonde observations from routine flights of the 53rd Weather Reconnaissance Squadron of the U. S. Air Force Reserve Command were used in the post-storm analysis. Observations in Ida (Figs. 2 and 3) also include satellite-based Dvorak technique intensity estimates from the Tropical Analysis and Forecast Branch (TAFB) and the Satellite Analysis Branch (SAB). The graphic also includes objective Dvorak intensity estimates from the Cooperative Institute for Meteorological Satellite Studies/University of Wisconsin-Madison. Data and imagery from NOAA polar-orbiting satellites, including the Advanced Microwave Sounding (AMSU) instrument, the NASA Tropical Rainfall Measuring Mission (TRMM), the NASA QuikSCAT, Defense Meteorological Satellite Program (DMSP) satellites, among others, were also useful in constructing the best track of Ida.

The increase in Ida's intensity a few hours before landfall in Nicaragua was mostly based on a post-analysis of the 3-h average objective T-numbers which supported hurricane strength at 0600 UTC 5 November. The assigned maximum intensity of 90 knots over the Yucatan Channel was a blend of surface-adjusted flight-level winds, satellite intensity estimates and SFMR data.

The second peak intensity of 75 knots at 2100 UTC 9 November was based on the 73 kt SFMR observation at 1935 UTC 9 November, and a one-minute mean wind of 98 kt at 2125 UTC from a sensor mounted at an elevation of 97 meters on the Mississippi Canyon-727 oil platform. Using the standard eyewall wind profile, the latter observation corresponds a surface estimate of around 80 kt. The data from the oil platform were provided to the NHC by ImpactWeather, Inc for consideration in the post-storm analysis. The wind field associated with Ida was large and, although the center was far from the coast, the cyclone produced tropical storm force winds, mostly in gusts, to portions of the Gulf coast from eastern Louisiana to the Florida Panhandle.

The lowest pressure of 975 mb at 1800 UTC 8 November was estimated from a dropsonde launched in the center of the hurricane by a reconnaissance plane. The sonde reported

a little higher pressure but it splashed in area of 20 to 25 kt winds, suggesting that it did not hit the location of the minimum pressure associated with the center of the cyclone. Ship reports with winds of tropical storm force associated with Ida are given in Table 2, and selected surface observations from land stations and data buoys are given in Table 3.

c. Casualty and Damage Statistics

According to reports from the Meteorological Service of Nicaragua, about 6,000 residents of the Caribbean coast of Nicaraguan were affected by Ida. More than 80% of the houses and schools were demolished but, there are no reports of deaths in that region. Corn Island, located just offshore Nicaragua, was hit hard as the eye of Ida moved nearby. Press reports indicate that there were at least 124 deaths attributed to Ida in El Salvador. However, these deaths were related to heavy rains associated with another disturbance and not with Ida. The Times-Picayune reported a missing 70 year old man who was motoring his boat into the Mississippi River to assist two men who ultimately were rescued by the U.S. Coast Guard. This direct fatality was confirmed by the NWS New Orleans in their post storm report.

d. Forecast and Warning Critique

The genesis of Hurricane Ida was not well forecast. Although the precursor disturbance of Ida was introduced in the Tropical Weather Outlook at 1800 UTC 2 November, about 42 hours prior to genesis, the “medium” chance of formation (30 to 50%) was indicated only 18 hours before genesis, and the “high” chance was not reached until genesis in the post-analysis. Although they were not consistent, global models generally suggested the formation of a low pressure area in the western Caribbean Sea for a few days before genesis.

Operationally, Ida was not upgraded to a hurricane on the afternoon of 9 November, based on the assessment that the strong winds reported by the SMFR around 1935 UTC were associated with a convective downburst, and therefore not representative of the circulation. Hurricane warnings were not re-issued for portions of the northeastern Gulf of Mexico coastline because, whether representative or not, these winds were expected to diminish below hurricane force before reaching the coastline. Indeed, Ida’s weakening trend resumed as soon as the aforementioned convective burst became sheared off. However, the oil rig data show that hurricane-force winds persisted for at least two hours, a long enough period to consider the wind representative. Consequently, Ida’s estimated intensity has been revised upward in the post-storm analysis.

A verification of NHC official track forecasts for Ida is given in Table 4a. Official track forecast errors were lower than the mean official errors for the previous five-year period from 12 to 48 hours, but the errors were much higher thereafter. These large errors were mostly related to forward speed rather than the direction of motion, as the cyclone moved much faster northward than predicted. Ida was a difficult cyclone to forecast according to the large climatology-persistence errors shown in Table 4a.

A homogeneous comparison of the official track errors with selected guidance models is given in Table 4b. On average, dynamical models were better than the official forecast at the 5 day period. However, only the model consensus (TVCN) was better than the official forecast from the 36-120 h. It is interesting to note that the European Global Model EMXI did not perform to its previous high standards and that its errors were larger than the official forecasts at all times primarily beyond 48 hours. This model produced a rather intense cyclone, which in most of the runs was forecast to remain stationary over the western Caribbean Sea or in the extreme southern Gulf of Mexico.

A verification of NHC official intensity forecasts is given in Table 5a. Official forecast intensity errors were higher than the mean official errors for the previous five-year period for all but the 120 h forecast period. It is also worth noting that the Climatology and Persistence model (OCD5) errors for Ida were much larger than the five-year mean OCD5 errors at all times, indicating that Ida's intensity was more difficult than average to forecast. A homogeneous comparison of the official intensity errors with selected guidance models is given in Table 5b. The intensity consensus ICON and IVCN forecasts were better than the official forecast at the 48 h period and beyond.

Watches and warnings associated with Ida are shown in Table 6.

Table 1. Best track for Hurricane Ida, 4-10 November 2009.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
04 / 0600	11.0	81.3	1007	30	tropical depression
04 / 1200	11.4	81.8	1004	35	tropical storm
04 / 1800	11.8	82.3	998	45	"
05 / 0000	12.3	82.8	995	55	"
05 / 0600	12.6	83.3	987	65	hurricane
05 / 1200	12.9	83.6	985	70	"
05 / 1800	13.2	83.8	996	50	tropical storm
06 / 0000	13.6	83.9	1003	35	"
06 / 0600	14.1	84.0	1005	30	tropical depression
06 / 1200	14.7	83.9	1006	30	"
06 / 1800	15.4	83.9	1007	30	"
07 / 0000	16.1	84.0	1006	30	"
07 / 0600	16.8	84.0	1004	35	tropical storm
07 / 1200	17.7	84.0	997	55	"
07 / 1800	18.7	84.1	990	60	"
08 / 0000	19.5	84.5	987	70	hurricane
08 / 0600	20.1	85.3	984	80	"
08 / 1200	20.9	85.8	983	85	"
08 / 1800	21.9	86.2	975	85	"
09 / 0000	23.0	86.5	979	90	"
09 / 0600	24.4	87.5	988	80	"
09 / 1200	26.3	88.3	989	60	tropical storm
09 / 1800	27.9	88.6	990	65	hurricane
09 / 2100	28.5	88.7	990	75	"
10 / 0000	28.9	88.7	993	60	tropical storm
10 / 0600	29.8	88.6	998	50	"
10 / 0900	30.1	88.3	998	45	extratropical
10 / 1200	30.3	88.0	999	35	"
10 / 1800	30.6	87.2	1002	30	"
11 / 0000	30.6	86.3	1005	25	"
11 / 0600	30.8	85.5	1006	25	"
11 / 1200					dissipated
05 / 1200	12.8	83.5	985	70	landfall on Rio Grande, on the east coast of Nicaragua
08 / 1800	21.9	86.2	975	85	minimum pressure
09 / 0000	23.0	86.5	979	90	maximum winds

Table 2. Selected ship reports with winds of at least 34 kt for Hurricane Ida, 4-10 November 2009.

Date/Time (UTC)	Ship call sign	Latitude (°N)	Longitude (°W)	Wind dir/speed (kt)	Pressure (mb)
07 / 0900	3FPQ9	22.9	87.8	070 / 35	1011.0
07 / 0900	WKAE	24.2	82.5	070 / 39	1013.6
07 / 1300	C6TQ6	23.8	86.8	060 / 42	1014.0
08 / 0600	PHDL	26.6	83.6	050 / 40	1014.1
08 / 0700	9HJB9	22.2	79.0	070 / 40	1016.0
08 / 0700	C6FN4	23.4	79.1	090 / 40	1014.0
08 / 0900	C6FZ7	22.3	85.4	100 / 43	1008.0
08 / 1200	H3GS	24.3	87.6	090 / 45	1011.0
08 / 2100	WPPO	25.0	85.1	090 / 37	1008.0
08 / 2100	ZCBN5	25.1	84.5	100 / 43	1010.4
09 / 0000	LAVV4	23.1	85.6	090 / 46	1002.5
09 / 0000	MCCN6	24.2	84.0	100 / 41	1010.8
09 / 0000	WPPO	24.8	84.7	110 / 37	1009.8
09 / 0000	PDBO	25.4	85.7	070 / 35	1011.5
09 / 0000	9HJD9	25.7	79.9	090 / 45	1017.0
09 / 0400	PINX	24.9	79.6	080 / 46	1018.0
09 / 0400	WDC697	28.6	86.3	100 / 37	1015.0
09 / 0500	SANF1	24.5	81.9	100 / 39	1015.7
09 / 0600	PHFV	26.1	83.1	090 / 50	1011.0
09 / 0900	3FPQ9	27.2	92.6	060 / 40	1009.0
09 / 1200	H3VT	24.9	83.4	130 / 55	1012.0
09 / 1500	WDB325	27.6	84.6	090 / 44	1016.8
09 / 1500	V7HC8	28.0	88.1	070 / 40	1009.0
09 / 1800	H3VT	23.3	84.3	130 / 36	1011.0
09 / 1800	V7HC9	28.2	88.8	070 / 71	1008.5
09 / 2100	SPLL1	28.9	90.5	050 / 35	
10 / 0000	C6KJ5	25.9	91.7	020 / 50	1010.0
10 / 0300	SGOF1	29.4	84.9	110 / 41	1013.5

Table 3. Selected surface observations for Hurricane Ida, 4-10 November 2009.

Location	Minimum Sea Level Pressure		Maximum Surface Wind Speed			Storm surge (ft) ^c	Storm tide (ft) ^d	Total rain (in)
	Date/time (UTC)	Press. (mb)	Date/time (UTC) ^a	Sustained (kt) ^b	Gust (kt)			
Nicaragua								
Puerto Cabezas								9.1
Bluefields								2.5
Corn Island								7.4
Bonanza								8.5
San Juan del Sur								3.0
Honduras								
Roatan								1.7
Amapala								4.8
Puerto Lempira								7.1
Cuba								
Manuel Lazo								12.5
General Bolivar								8.3
Guane								7.7
Sandino								7.0
La Bajada								6.9
Las Martinas								6.2
Isabel Rubio								6.1
Punta de Cartas								5.9
Cortes								5.2
Cabo San Antonio								4.7
Arroyo de Mantua								4.5
La Coloma								3.7
Mantua								3.6
San Juan y Martinez								3.6

Location	Minimum Sea Level Pressure		Maximum Surface Wind Speed			Storm surge (ft) ^c	Storm tide (ft) ^d	Total rain (in)
	Date/time (UTC)	Press. (mb)	Date/time (UTC) ^a	Sustained (kt) ^b	Gust (kt)			
United States								
Louisiana								
International Civil Aviation Organization (ICAO) Sites								
Boothville (KBVE)	10/0351	1004.7	09/2351		50			
Lakefront Airp. New Orleans (KNEW)	10/0853	1009.5	09/2141		39			
Belle Chasse (KNBG)	10/0755	1009.9	09/2119		38			
Louis Armstrong Airp. New Orleans (KMSY)			09/2129		36			
Coastal-Marine Automated Network (C-MAN) Sites								
BURL1(28.9° N 89.4 °W)	9/2200	1004.5	9/2110	50	59			
National Ocean Service (NOS) Sites								
Grand Isle (GISL1)	09/2130	1007.9	09/2354	33	44			
Pilots Stat-E (PSTL1)	09/2236	1003.9	09/2236	52	64			
Shell Beach (SHBL1)	10/0630	1007.4	10/0012	43	55	5.62	6.09	
New Canal (NWCL1)	10/0730	1010.0	09/2130		36			
University Networks								
South Pelto- LSU (SPLL1)			09/2100	35	41			
Sites from other Government Agencies								
Bayou Dupre						4.18	5.43	
Bayou Bienvenue						3.57	5.07	
Public/Other								
Bay Gardene						6.53	7.33	
Coastal Research Station (CRSL1)			10/0021	35	47			
Mississippi								
ICAO Sites								
Biloxi (KBIX)			10/0432		42			
Pascagoula (KPQL)			10/0432		39			

C-MAN Sites								
NOS Sites								
Petit Bois Isl. (PTBM6)			10/0454	40	51			
Bay Waveland Yatch Club (WYCM6)			10/0736	38	48	3.19	4.66	
Gulfport (GPOM6)			10/0242	37	45			
GWPM6			10/0306	34	46			
E Pascagoula						3.59	4.98	
NOAA Lab Pascagoula						3.17	4.46	
Sites from other Government Agencies								
Jackson County EOC	10/0554	1008.8	10/0541	33	41			
Alabama								
ICAO Sites								
Mobile (KMOB)			10/0705		41			
Gulf Shores (KJKA)			10/0100		38			
C-MAN Sites								
Dauphin Island (DPIA1)	10/1100	1001.4	09/2350		42			
Florida								
ICAO Sites								
Pensacola Naval Air Station (KNPA)			10/0732		37			
Pensacola (KPNS)			10/0550		38			
Destin (KDTS)			10/0710		40			
C-MAN Sites								
Sand Key(SANF1)			08/1700	40				
Pulaski Shoal Light (PLSF1)			08/2000	37				
NOS Sites								
Apalachicola (APCF1)			10/0448		38			
Sites from other Government Agencies								
Tyndall AFB (SGOF1)			10/0300	41	50			
Buoys and oil rigs								
42056 (19.9°N 85.1°W)	8/0346	985.6	8/0319	64	75			
42001(25.9°N 89.7°W)	9/0850	1006.7	8/2124		39			
41003(26.0° N 85.6°W)	9/1150	1006.0	9/1200	39	50			
42039 (28.8° N 86.0 °W)	10/0650	1008.2	9/1820	38	49			
42007 (30.1 °N 88.8° W)	10/0850	1002.4	10/0320	36	45			
42012 (30.1° N 87.6 °W)	10/1150	1002.6	10/0100	36	49			

44887(28.2 °N 88.5° W)			09/1300	58				
42363(28.2 °N 89.2° W)			09/2100	60				
Middle Bay Light (MBLA1)			10/1500	35				

- ^a Date/time is for sustained wind when both sustained and gust are listed.
- ^b Except as noted, sustained wind averaging periods for land-based reports are 10 min; buoy averaging periods are 8 min.
- ^c Storm surge is water height above normal astronomical tide level.
- ^d Storm tide is water height above National Geodetic Vertical Datum (1929 mean sea level).

Table 4a. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) track forecast errors (n mi) for Hurricane Ida, 4-10 November 2009. Mean errors for the five-year period 2004-8 are shown for comparison. Official errors that are smaller than the five-year means are shown in boldface type.

	Forecast Period (h)						
	12	24	36	48	72	96	120
OFCL	26.2	39.0	59.7	90.3	178.0	304.6	479.0
OCD5	46.8	101.0	170.9	231.7	336.1	436.4	526.1
Forecasts	22	20	18	16	12	8	4
OFCL (2004-8)	32.1	54.9	77.1	99.0	147.0	200.3	263.6
OCD5 (2004-8)	45.8	95.7	152.8	208.6	306.2	393.6	472.9

Table 4b. Homogeneous comparison of selected track forecast guidance models (in n mi) for Hurricane Ida, 4-10 November 2009. Errors smaller than the NHC official forecast are shown in boldface type. The number of official forecasts shown here will generally be smaller than that shown in Table 4a due to the homogeneity requirement.

Model ID	Forecast Period (h)						
	12	24	36	48	72	96	120
OFCL	25.8	39.8	61.9	92.1	176.1	312.6	467.8
OCD5	51.8	109.6	185.0	249.5	367.2	497.7	561.9
GFSI	29.0	46.1	75.6	100.2	212.5	325.0	217.5
GHMI	35.9	46.0	66.2	93.9	199.1	304.6	459.7
HWFI	27.1	41.6	65.3	94.3	177.3	229.7	135.3
UKMI	35.1	56.1	87.2	116.8	176.7	205.2	208.4
EMXI	34.9	54.8	88.7	123.0	210.5	374.1	496.1
TVCN	28.0	39.8	59.0	81.8	152.0	247.6	345.7
TVCC	30.3	46.8	70.5	99.3	182.5	310.7	443.4
BAMD	34.6	59.1	84.7	110.3	160.0	227.5	328.7
BAMM	35.7	62.9	90.1	119.1	234.3	337.8	440.0
BAMS	58.4	108.9	154.3	204.9	357.8	557.5	716.3
LBAR	31.3	57.1	84.6	123.7	225.6	406.5	631.1
Forecasts	19	18	16	14	10	6	2

Table 5a. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) intensity forecast errors (kt) for Hurricane Ida, 4-10 November 2009. Mean errors for the five-year period 2004-8 are shown for comparison. Official errors that are smaller than the five-year means are shown in boldface type.

	Forecast Period (h)						
	12	24	36	48	72	96	120
OFCL	8.6	15.8	17.8	21.6	30.4	31.9	17.5
OCD5	10.0	16.7	20.3	25.1	36.8	44.0	39.3
Forecasts	22	20	18	16	12	8	4
OFCL (2004-8)	7.1	10.5	12.8	14.7	18.1	19.0	20.9
OCD5 (2004-8)	8.5	12.3	15.3	17.7	20.8	23.1	23.2

Table 5b. Homogeneous comparison of selected intensity forecast guidance models (in kt) for Hurricane Ida, 4-10 November 2009. Errors smaller than the NHC official forecast are shown in boldface type. The number of official forecasts shown here will generally be smaller than that shown in Table 5a due to the homogeneity requirement.

Model ID	Forecast Period (h)						
	12	24	36	48	72	96	120
OFCL	8.6	16.1	18.8	22.7	30.0	29.3	15.0
OCD5	10.0	17.2	21.4	26.6	37.1	40.9	35.7
HWFI	10.2	17.1	20.1	25.9	29.7	34.1	25.0
GHMI	11.7	18.8	22.2	22.7	11.9	33.9	48.7
DSHP	9.9	15.8	19.5	24.9	33.9	37.6	34.0
LGEM	10.1	16.7	20.6	26.5	41.7	41.7	23.7
ICON	9.8	16.5	19.1	22.5	24.4	20.0	9.3
IVCN	10.0	16.3	18.3	20.9	24.0	20.3	9.3
Forecasts	21	19	17	15	11	7	3

Table 6. Watch and warning summary for Hurricane Ida 4-10 November 2009.

Date/Time (UTC)	Action	Location
4 / 1500	Tropical Storm Warning issued	Nic/CR border to Nic/Honduras border
4 / 1500	Tropical Storm Warning issued	San Andres to Providencia
4 / 2300	Hurricane Watch issued	Bluefields to Nic/Honduras border
5 / 0300	Tropical Storm Warning discontinued	San Andres to Providencia
5 / 1200	Tropical Storm Warning modified to	Puerto Cabezas to Nic/Honduras border
5 / 1200	Hurricane Watch modified to	Puerto Cabezas to Nic/Honduras border
5 / 1200	Hurricane Warning issued	Bluefields to Puerto Cabezas
5 / 1500	Tropical Storm Warning discontinued	Nic/CR border to Bluefields
5 / 1800	Tropical Storm Warning modified to	Bluefields to Nic/Honduras border
5 / 1800	Hurricane Watch discontinued	All
5 / 1800	Hurricane Warning discontinued	All
5 / 2100	Tropical Storm Watch issued	Nic/Honduras border to Limon
6 / 0300	Tropical Storm Warning discontinued	All
6 / 1500	Tropical Storm Watch discontinued	All
7 / 0900	Tropical Storm Watch issued	Punta Allen to San Felipe
7 / 0900	Tropical Storm Watch issued	Pinar del Rio, Cuba
7 / 1200	Tropical Storm Warning issued	Grand Cayman
7 / 1500	Tropical Storm Watch changed to Tropical Storm Warning	Punta Allen to San Felipe
7 / 1500	Tropical Storm Watch changed to Tropical Storm Warning	Pinar del Rio
7 / 1500	Tropical Storm Watch issued	Isle of Youth, Cuba
7 / 1500	Hurricane Watch issued	Tulum to Cabo Catoche
8 / 0700	Tropical Storm Warning modified to	Punta Allen to Playa del Carmen
8 / 0700	Hurricane Watch modified to	Tulum to Playa del Carmen
8 / 0700	Hurricane Warning issued	Playa del Carmen to Cabo Catoche
8 / 1200	Tropical Storm Warning discontinued	Grand Cayman
8 / 1500	Hurricane Watch issued	Grand Isle to AL/MS border
8 / 1800	Hurricane Watch modified to	Grand Isle to Mexico Beach
9 / 0000	Tropical Storm Warning discontinued	Punta Allen to Playa del Carmen
9 / 0000	Tropical Storm Warning discontinued	Cabo Catoche to San Felipe
9 / 0000	Hurricane Watch discontinued	Tulum to Playa del Carmen
9 / 0000	Hurricane Warning discontinued	All
9 / 0300	Tropical Storm Watch discontinued	All
9 / 0300	Tropical Storm Warning discontinued	Pinar del Rio
9 / 0300	Tropical Storm Warning issued	Grand Isle to Pascagoula
9 / 0300	Tropical Storm Warning issued	Indian Pass to Aucilla River
9 / 0300	Hurricane Watch modified to	Grand Isle to Pascagoula

9 / 0300	Hurricane Warning issued	Pascagoula to Indian Pass
9 / 1500	Tropical Storm Warning modified to	Grand Isle to Aucilla River
9 / 1500	Tropical Storm Warning modified to	Grand Isle to Aucilla River
9 / 1500	Hurricane Watch discontinued	All
9 / 1500	Hurricane Warning discontinued	All
10 / 1500	Tropical Storm Warning discontinued	All

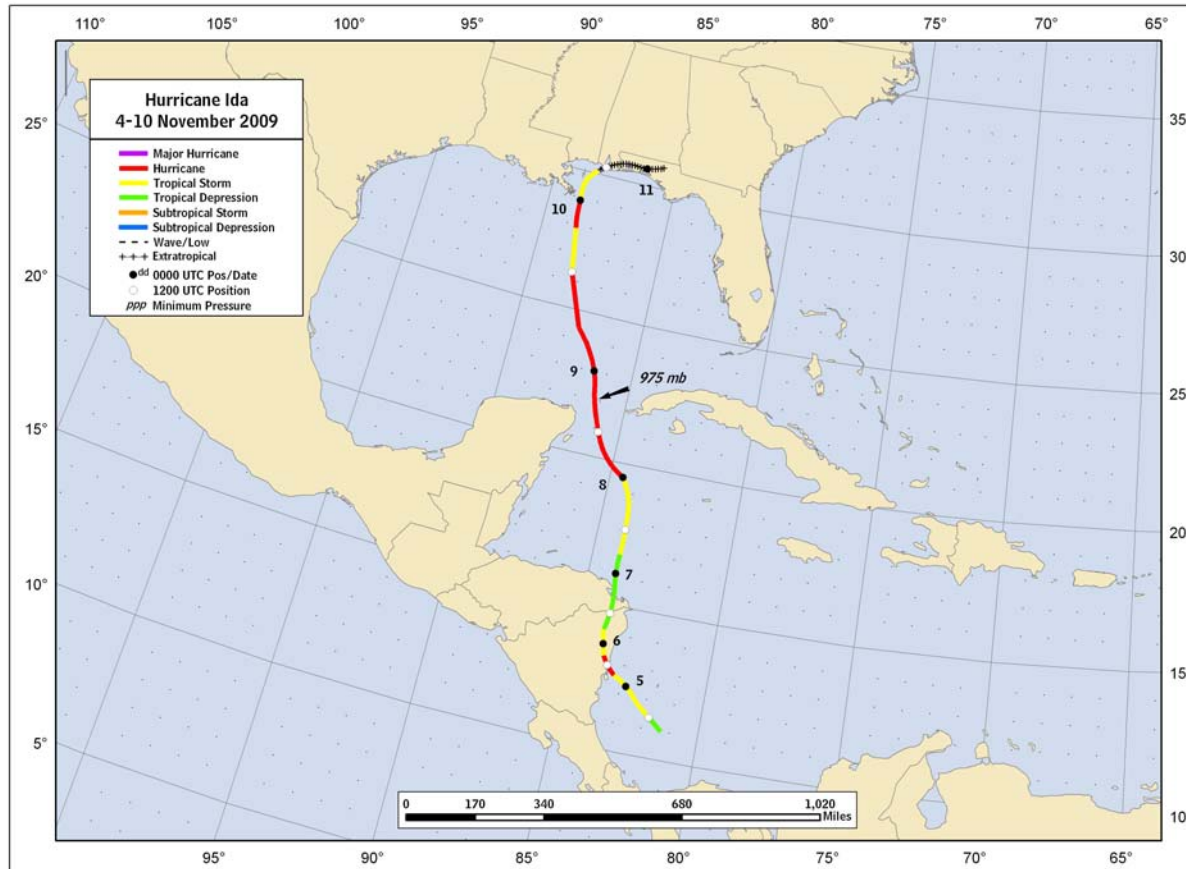


Figure 1. Best track positions for Hurricane Ida, 4-10 November 2009.

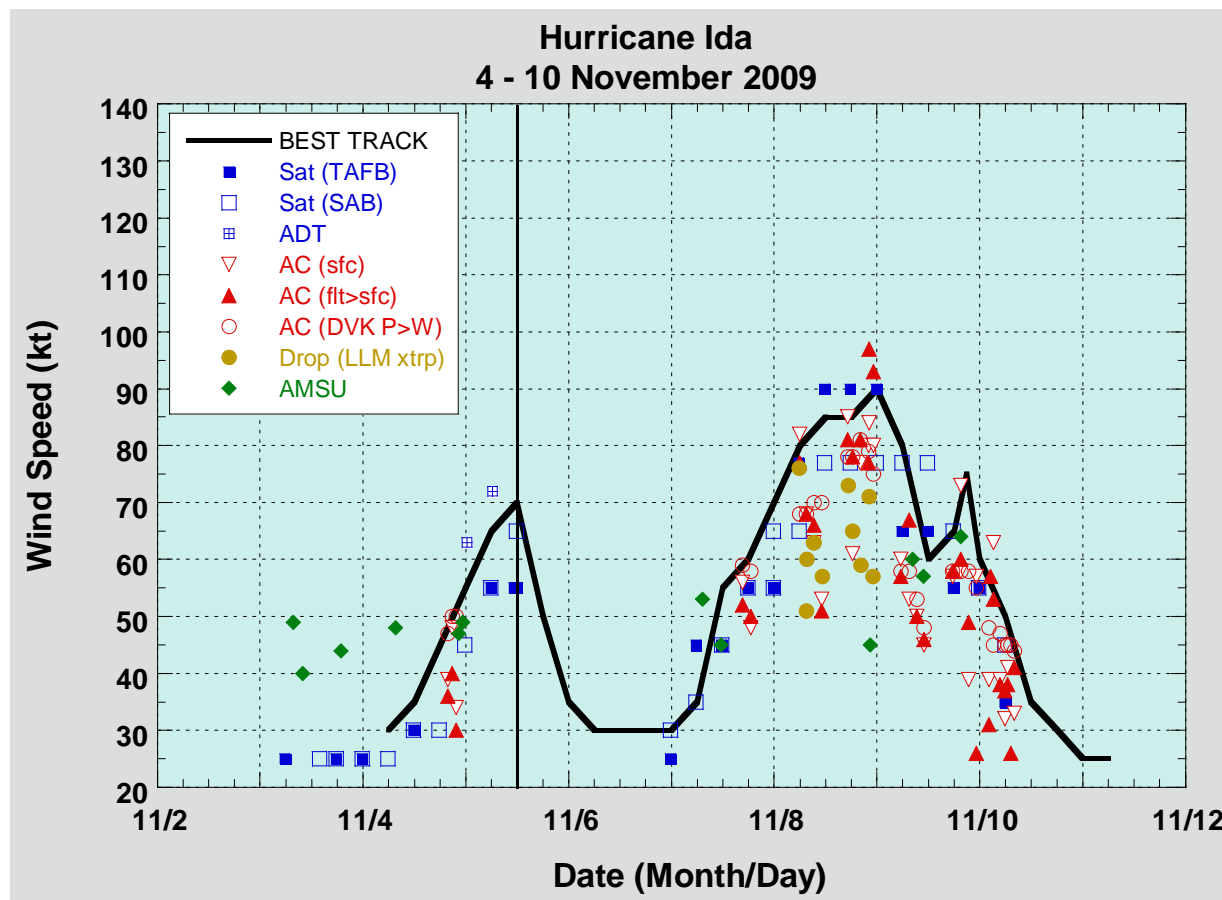


Figure 2. Selected wind observations and best track maximum sustained surface wind speed curve for Hurricane Ida, 4-10 November 2009. Aircraft observations have been adjusted for elevation using 90%, 80%, and 80% adjustment factors for observations from 700 mb, 850 mb, and 1500 ft, respectively. Dropwindsonde observations include actual 10 m winds (sfc), as well as surface estimates derived from the mean wind over the lowest 150 m of the wind sounding (LLM). Advanced Dvorak Technique estimates represent linear averages over a three-hour period centered on the nominal observation time and were provided by the Cooperative Institute of Meteorological Satellite Studies (CIMSS). Dashed vertical lines correspond to 0000 UTC. Solid vertical line corresponds to landfall.

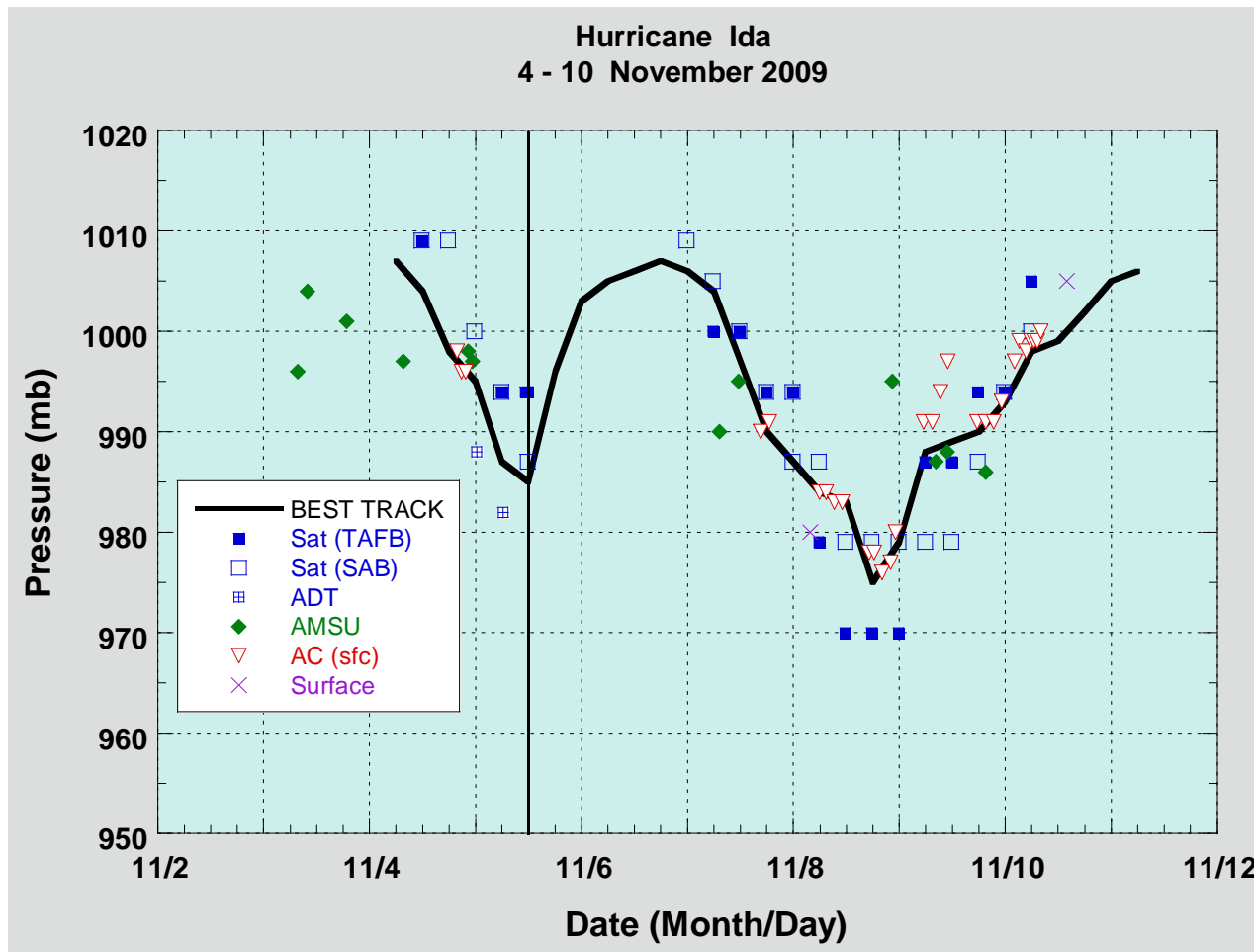


Figure 3. Selected pressure observations and best track minimum central pressure curve for Hurricane Ida, 4- 10 November 2009. Advanced Dvorak Technique estimates were provided by the Cooperative Institute of Meteorological Satellite Studies (CIMSS). Dashed vertical lines correspond to 0000 UTC. Solid vertical line corresponds to landfall.

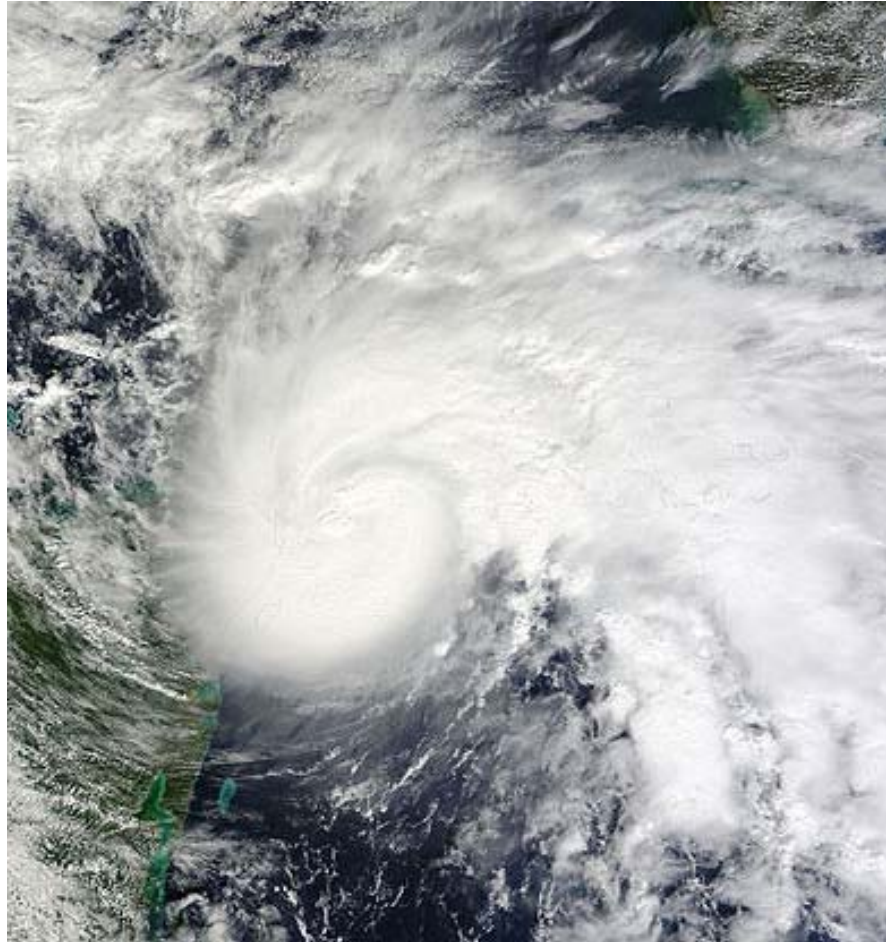


Figure 4. Visible satellite image of intensifying Hurricane Ida at 1635 UTC 8 November, 2009 while the hurricane was heading toward the Yucatan Channel