NATIONAL HURRICANE CENTER TROPICAL CYCLONE REPORT

HURRICANE ELIDA

(EP092020)

8–12 August 2020

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NASA MODIS/AQUA VISIBLE IMAGE OF HURRICANE ELIDA AT 2030 UTC 11 AUGUST 2020

Elida was a category two hurricane (on the Saffir-Simpson Hurricane Wind Scale) that developed off the southwestern coast of Mexico and remained out to sea.

Hurricane Elida

8–12 AUGUST 2020

SYNOPTIC HISTORY

The genesis of Elida appears to be primarily associated with a tropical wave that moved off the west coast of Africa on 26 July. This disturbance produced disorganized deep convection while it was travelling across the tropical Atlantic Ocean during the next several days. By the time the wave reached the eastern Caribbean islands on 3 August, the northern portion fractured off and moved northwestward while the southern part continued westward. The southern portion of the wave reached the far eastern Pacific by 6 August, and deep convection gradually increased during the next couple of days. Satellite images indicate that a weak area of low pressure formed in association with the wave around 0000 UTC 8 August, a couple of hundred n mi south of the southern coast of Mexico. Deep convection increased later that day and became sufficiently organized to consider the system a tropical depression by 1800 UTC when it was located about 150 n mi south-southwest of Lazaro Cardenas, Mexico. The "best track" chart of the tropical cyclone's path is given in Fig. 1, with the wind and pressure histories shown in Figs. 2 and 3, respectively. The best track positions and intensities are listed in Table 1[1].

After genesis, thunderstorm activity increased further over the center and data from the European Space Agency's Advanced Scatterometer (ASCAT) indicate that the system became Tropical Storm Elida by 0600 UTC 9 August when it was located about 200 n mi south-southeast of Manzanillo. While slowly gaining strength, Elida was moving west-northwestward on the south side of a mid-level ridge. Among favorable environmental conditions of warm waters, low wind shear, and a high amount of mid-level moisture, Elida slowly strengthened on 9 August and then rapidly intensified on 10 August, reaching a peak intensity of 90 kt by 1200 UTC 11 August. At the time of its peak intensity, Elida displayed a small eye with a fairly symmetrical surrounding ring of cold cloud tops (cover photo). The hurricane was quite compact, with tropical-storm-force winds estimated to extend only 60 n mi from the center and hurricane-force winds confined to a small region of about 15 n mi from the center. Therefore, even though the cyclone only passed a couple of hundred n mi south of the southern portion of the Baja California peninsula on 10 and 11 August, no impacts occurred there.

Shortly after reaching its peak intensity, Elida weakened as quickly as it had strengthened in the days prior. Over cool waters and in a stable air mass, Elida weakened to a tropical storm by 1200 UTC 12 August. Around that time, the cyclone also began to turn toward the northwest as it neared the western periphery of the ridge and felt some influence from a deep-layer trough extending southwestward from California. Elida lost all of its deep convection by 0000 UTC 13 August when it was located about 350 n mi southwest of the central portion of the Baja California

[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 *btk* directory, while previous years' data are located in the *archive* directory.

peninsula coast, and it became a 35-kt post-tropical cyclone. The cyclone turned northward and slowed down later that day and gradually weakened. The remnant low opened into a trough shortly after 0000 UTC 14 August a few hundred n mi west of the central Baja California peninsula coast.

METEOROLOGICAL STATISTICS

Observations in Elida (Figs. 2 and 3) include subjective satellite-based Dvorak technique intensity estimates from the Tropical Analysis and Forecast Branch (TAFB) and the Satellite Analysis Branch (SAB), and objective Advanced Dvorak Technique (ADT) estimates and Satellite Consensus (SATCON) 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 Unit (AMSU), the NASA Global Precipitation Mission (GPM), ASCAT, and Defense Meteorological Satellite Program (DMSP) satellites, among others, were also useful in constructing the best track of Elida.

Elida's estimated peak intensity of 90 kt at 1200 and 1800 UTC 11 August is based on subjective Dvorak satellite classifications of 5.0/90 kt from TAFB and SAB at those times. The estimated minimum pressure of 971 mb is based on the Knaff-Zehr-Courtney pressure wind relationship. It should be noted that the ADT and SATCON estimates did not capture Elida's peak intensity as the scene type for the ADT did not detect Elida's small eye.

There were no observations from ships or land stations of winds of tropical storm force associated with Elida.

CASUALTY AND DAMAGE STATISTICS

There were no reports of damage or casualties associated with Hurricane Elida.

FORECAST AND WARNING CRITIQUE

The genesis of Elida was forecast well at long range, but the tropical cyclone formed sooner than anticipated (Table 2). The system from which Elida developed was introduced in Tropical Weather Outlook 90 h prior to genesis with a low (<40%) chance of formation during the next 5 days. The 5-day probabilities were increased to the medium (40-60%) and high (>60%) categories 78 h and 60 h before Elida formed, respectively. Regarding the 2-day genesis probabilities, a low chance of genesis was shown 60 h, a medium chance 24 h, and a high chance 6 h before the system developed.

A verification of NHC official track forecasts for Elida is given in Table 3a. Official forecast track errors were a little lower than the mean official errors for the previous 5-yr period at 12 h,

but greater than the long-term means at the other forecast times and nearly double the size of the means at 60 and 72 h. There were no verifying forecasts at 96 or 120 h. The official forecasts had a notable south (left) bias, with many of the forecasts predicting Elida would move more westward than what occurred. NHC forecasters did not anticipate the mid-level ridge to the north of Elida to weaken due to a trough off the northern Baja California peninsula, which resulted in forecasts that were too far south for many of the verifying 60- and 72-h track predictions. A homogeneous comparison of the official track errors with selected guidance models is given in Table 3b. Several of the models had lower track errors than NHC. In particular, the models that are typically less skillful actually had the lowest errors from 48 to 72 h, including CMCI, NVGI, and the simple TABS and TABD models.

A verification of NHC official intensity forecasts for Elida is given in Table 4a. Official forecast intensity errors were slightly above the mean official errors for the previous 5-yr period at 12 h, but well below the long-term means at the other forecast times. NHC did a very good job predicting the rate of Elida's strengthening as well as the timing and value of its peak intensity. However, Elida weakened faster than anticipated (Fig. 4), likely due to the southward track forecast bias. A homogeneous comparison of the official intensity errors with selected guidance models is given in Table 4b. No model consistently beat the official forecasts, but a few of them had lower errors than NHC at 72 h.

There were no coastal watches and warnings associated with Elida.

Table 1. Best track for Hurricane Elida, 8–12 August 2020.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
08 / 0000	12.6	97.9	1008	25	low
08 / 0600	12.9	99.0	1008	25	"
08 / 1200	13.4	100.0	1008	25	"
08 / 1800	14.1	101.0	1007	30	tropical depression
09 / 0000	14.9	102.1	1007	30	"
09 / 0600	15.6	103.4	1006	35	tropical storm
09 / 1200	16.3	104.7	1005	40	"
09 / 1800	16.9	105.9	1003	45	"
10 / 0000	17.5	107.0	998	50	"
10 / 0600	18.1	108.1	995	55	"
10 / 1200	18.7	109.2	993	60	"
10 / 1800	19.2	110.3	990	65	hurricane
11 / 0000	19.8	111.4	983	75	"
11 / 0600	20.4	112.4	978	80	"
11 / 1200	21.1	113.5	971	90	"
11 / 1800	21.7	114.8	971	90	"
12 / 0000	22.2	116.0	976	80	"
12 / 0600	22.7	117.1	988	65	"
12 / 1200	23.1	118.3	995	55	tropical storm
12 / 1800	23.5	119.3	1000	45	"
13 / 0000	24.1	120.0	1004	35	low
13 / 0600	24.8	120.4	1006	30	"
13 / 1200	25.4	120.7	1007	25	"
13 / 1800	26.0	120.9	1009	20	"
14 / 0000	26.6	120.9	1009	20	"
14 / 0600					dissipated
11 / 1200	21.1	113.5	971	90	maximum wind and minimum pressure

Table 2. Number of hours in advance of formation associated with the first NHC Tropical Weather Outlook forecast in the indicated likelihood category. Note that the timings for the "Low" category do not include forecasts of a 0% chance of genesis.

	Hours Before Genesis	
	48-Hour Outlook	**120-Hour Outlook**
Low (<40%)	60	90
Medium (40%-60%)	24	78
High (>60%)	6	60

Table 3a. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) track forecast errors (n mi) for Hurricane Elida. Mean errors for the previous 5-yr period are shown for comparison. Official errors that are smaller than the 5-yr means are shown in boldface type.

	Forecast Period (h)							
	12	24	36	48	60	72	96	120
OFCL	**19.7**	39.3	61.1	92.4	119.7	140.0		
OCD5	21.9	48.1	82.3	122.7	172.1	227.8		
Forecasts	14	12	10	8	6	4		
OFCL (2015-19)	21.8	34.0	44.9	55.3	66.2	77.1	99.1	123.2
OCD5 (2015-19)	34.3	69.9	108.7	146.8	181.4	216.0	268.7	328.0

Table 3b. Homogeneous comparison of selected track forecast guidance models (in n mi) for Hurricane Elida. 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 3a due to the homogeneity requirement.

Model ID	Forecast Period (h)							
	12	24	36	48	60	72	96	120
OFCL	17.0	35.7	57.4	92.9	125.2	145.0		
OCD5	17.8	42.2	72.6	109.7	154.4	202.3		
GFSI	17.7	37.4	57.4	**79.9**	**105.2**	**107.4**		
HMNI	26.4	51.4	85.3	120.9	157.9	178.9		
HWFI	26.0	51.2	88.1	133.9	182.7	206.1		
EMXI	**8.7**	**20.0**	**38.2**	**70.3**	**105.8**	**134.6**		
CMCI	18.7	38.5	**51.9**	**63.1**	**59.3**	**65.3**		
NVGI	23.6	41.2	**52.7**	**59.3**	**70.3**	**83.2**		
AEMI	19.7	41.9	67.8	103.3	139.4	166.0		
HCCA	17.2	37.5	64.0	102.2	133.4	148.4		
FSSE	**16.1**	**34.9**	60.4	99.4	**124.0**	**137.3**		
TVCX	**15.6**	**33.3**	**54.0**	**88.6**	129.3	149.3		
GFEX	**12.8**	**28.1**	**43.1**	**71.0**	**103.3**	**123.3**		
TVDG	**15.7**	**33.8**	**55.2**	**88.4**	127.2	**144.4**		
TVCE	18.6	38.2	63.0	98.7	137.3	154.5		
TABD	18.7	**32.8**	**45.4**	**61.9**	**57.8**	**47.5**		
TABM	17.3	37.8	59.5	94.7	136.1	156.6		
TABS	**14.1**	**28.3**	**40.4**	**51.6**	**77.8**	**87.8**		
Forecasts	11	10	8	6	4	3		

Table 4a. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) intensity forecast errors (kt) for Hurricane Elida. Mean errors for the previous 5-yr period are shown for comparison. Official errors that are smaller than the 5-yr means are shown in boldface type.

	Forecast Period (h)							
	12	24	36	48	60	72	96	120
OFCL	6.4	**7.1**	**5.0**	**5.6**	**10.0**	**11.2**		
OCD5	8.1	13.0	16.5	18.5	19.5	12.5		
Forecasts	14	12	10	8	6	4		
OFCL (2015-19)	6.0	9.9	12.1	13.5	14.5	15.4	15.6	16.4
OCD5 (2015-19)	7.8	13.0	16.6	18.9	20.2	21.4	22.6	22.4

Table 4b. Homogeneous comparison of selected intensity forecast guidance models (in kt) for Hurricane Elida. 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	60	72	96	120
OFCL	7.3	7.5	4.4	5.8	8.8	11.7		
OCD5	9.0	13.5	16.1	20.5	17.8	**9.0**		
HWFI	9.4	11.2	8.4	6.7	11.5	**7.0**		
HMNI	9.9	12.4	9.1	8.2	11.0	**6.0**		
DSHP	**6.8**	8.1	6.6	9.2	11.0	21.3		
LGEM	**6.6**	**7.4**	6.9	11.0	9.0	**10.7**		
FSSE	8.0	9.6	6.9	**5.7**	11.2	23.7		
HCCA	7.9	9.5	6.1	**3.7**	**7.5**	15.0		
IVCN	7.8	8.8	5.5	6.8	9.2	11.7		
GFSI	7.5	11.6	10.8	14.3	14.0	**4.7**		
EMXI	12.6	20.8	24.8	30.8	33.8	19.7		
Forecasts	11	10	8	6	4	3		

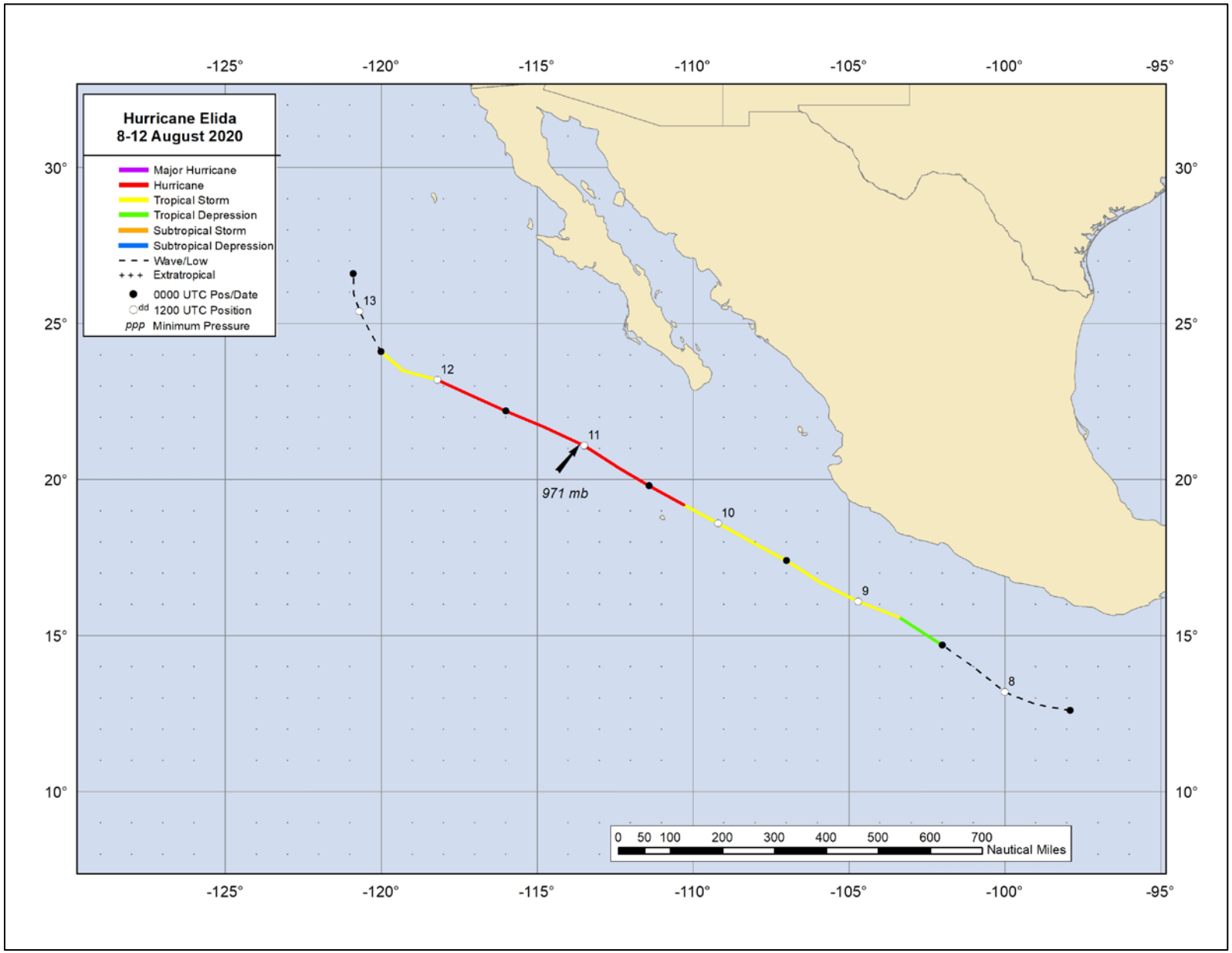

Figure 1. Best track positions for Hurricane Elida, 8–12 August 2020.

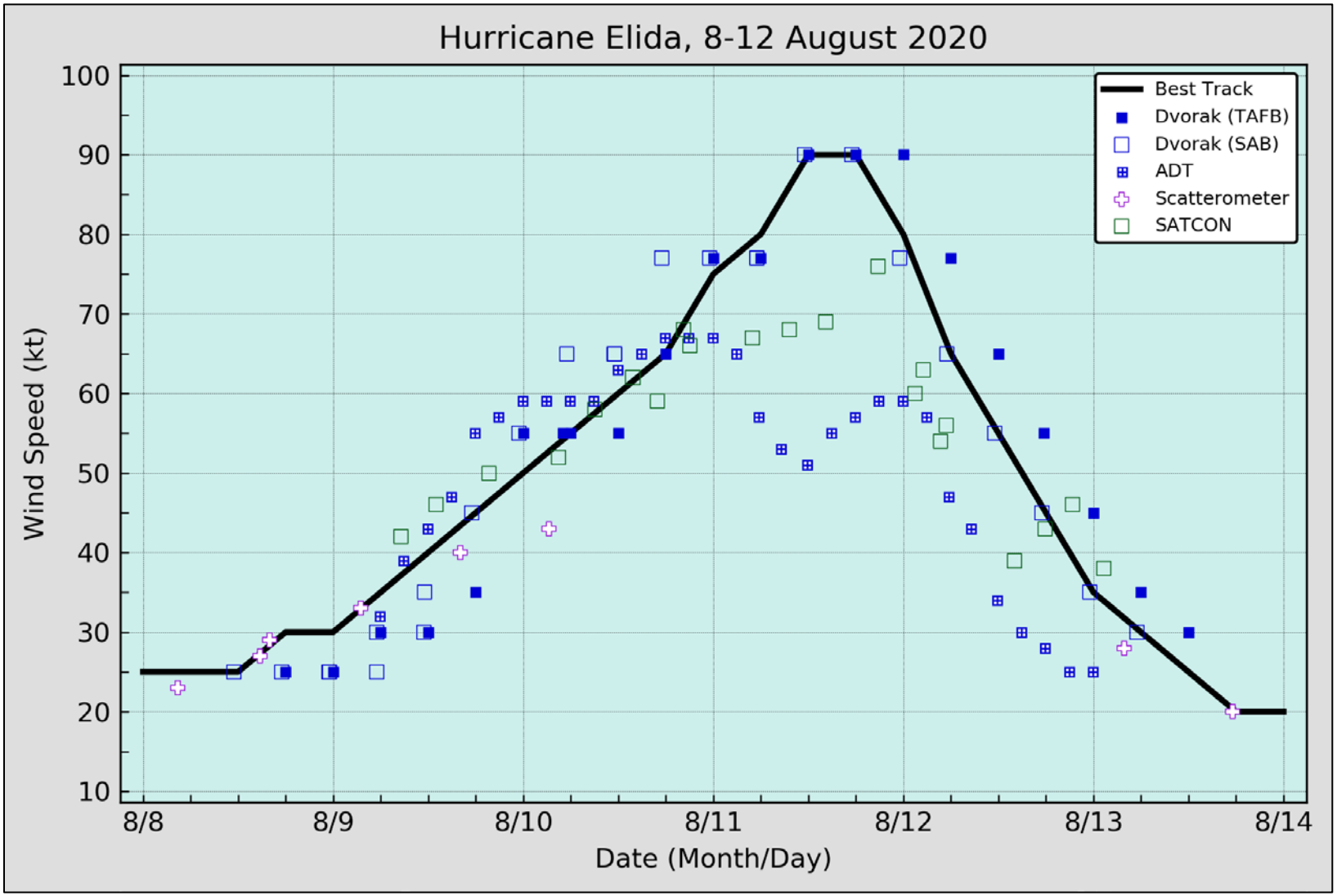

Figure 2. Selected wind observations and best track maximum sustained surface wind speed curve for Hurricane Elida, 8–12 August 2020. AMSU intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies technique. Advanced Dvorak Technique estimates represent the Current Intensity at the nominal observation time. SATCON intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies. Dashed vertical lines correspond to 0000 UTC.

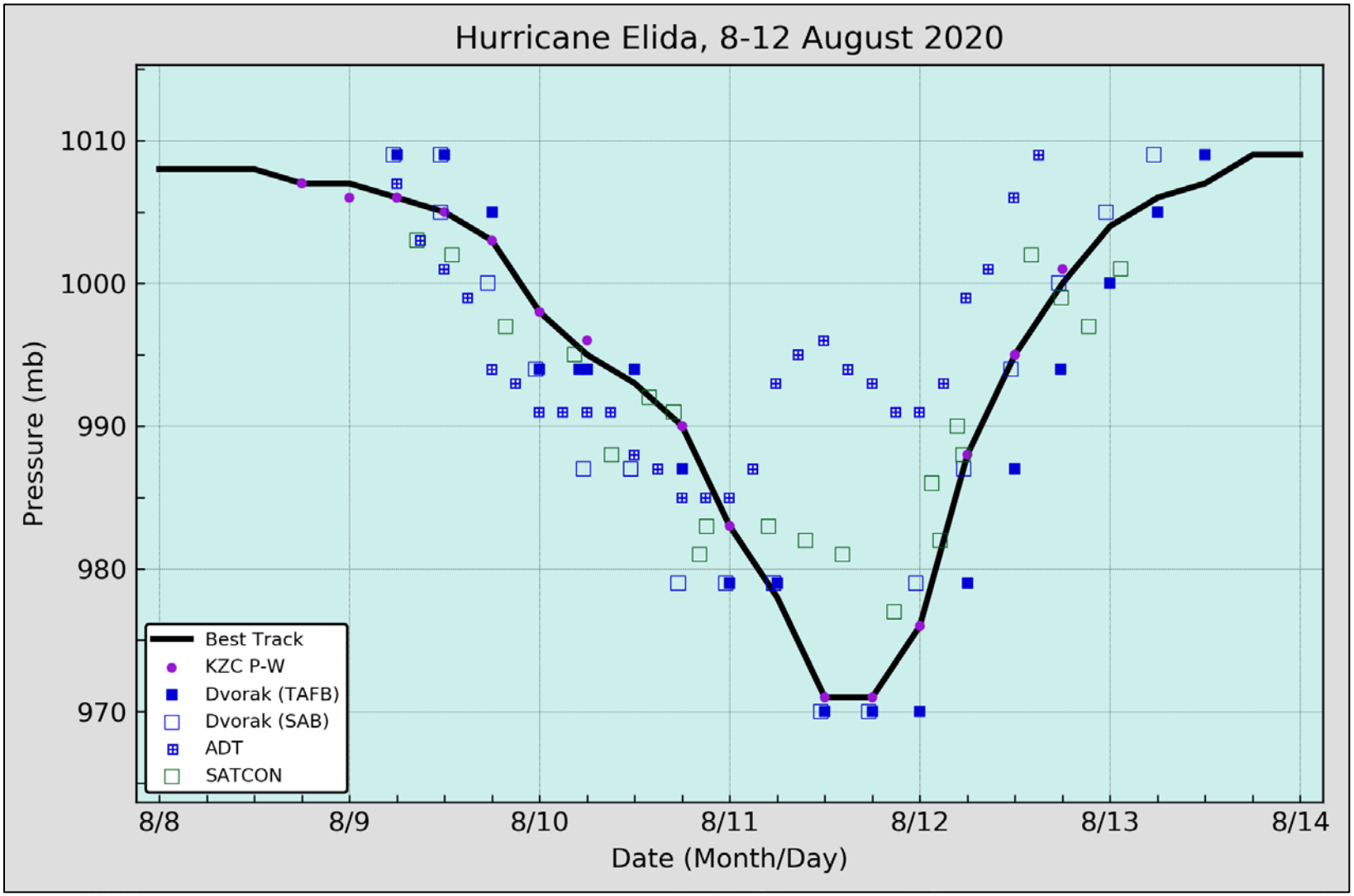

Figure 3. Selected pressure observations and best track minimum central pressure curve for Hurricane Elida, 8–12 August 2020. AMSU intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies technique. KZC P-W refers to pressure estimates derived using the Knaff-Zehr-Courtney pressure-wind relationship. Advanced Dvorak Technique estimates represent the Current Intensity at the nominal observation time. SATCON intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies. Dashed vertical lines correspond to 0000 UTC.

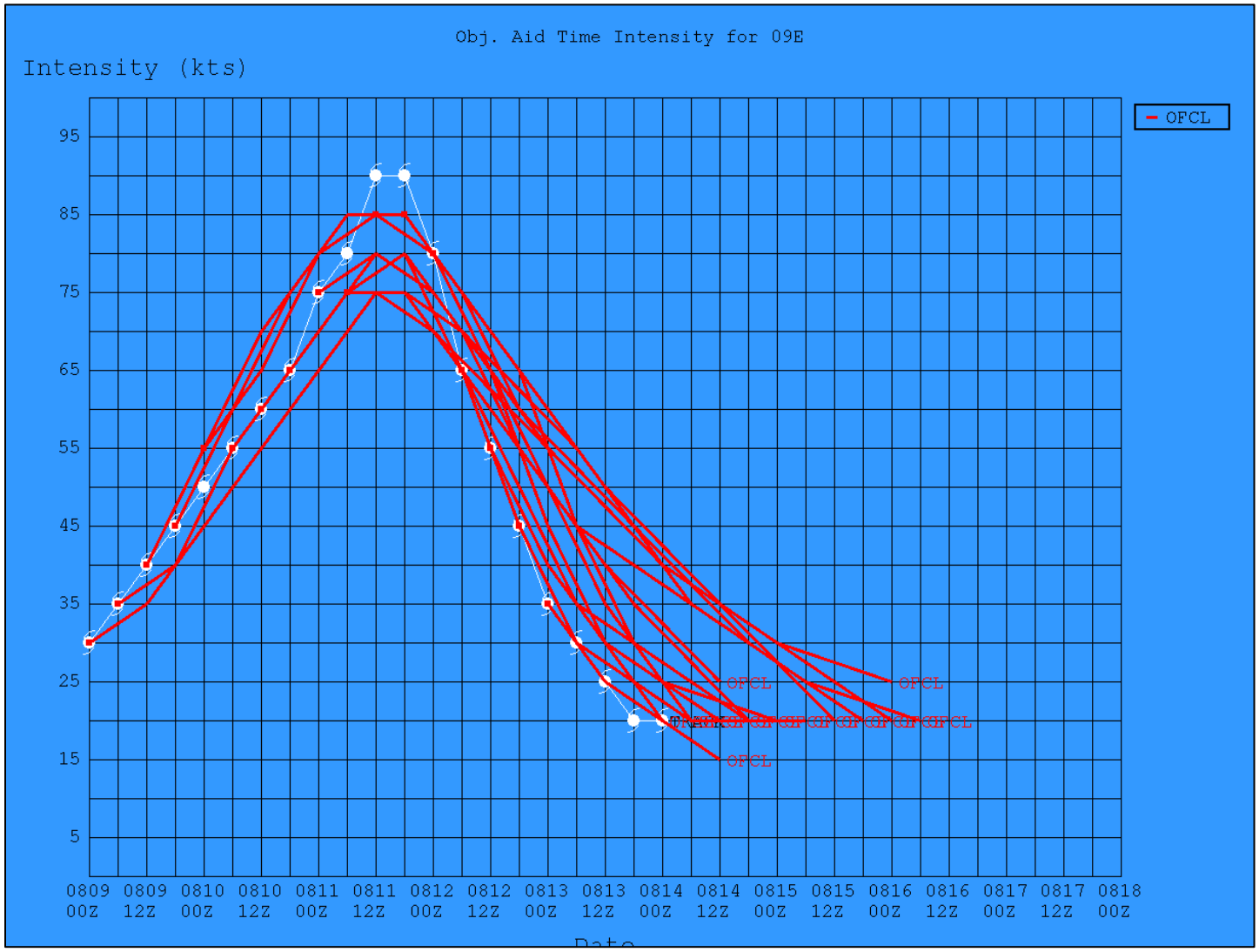

Figure 4. NHC official intensity forecasts (kt, red lines) from 0000 UTC 9 August to 0000 UTC 13 August 2020 for Hurricane Elida. The verifying intensity (kt) is shown in white.