NATIONAL HURRICANE CENTER
TROPICAL CYCLONE REPORT

TROPICAL STORM SARA

(AL192024)

14–18 November 2024

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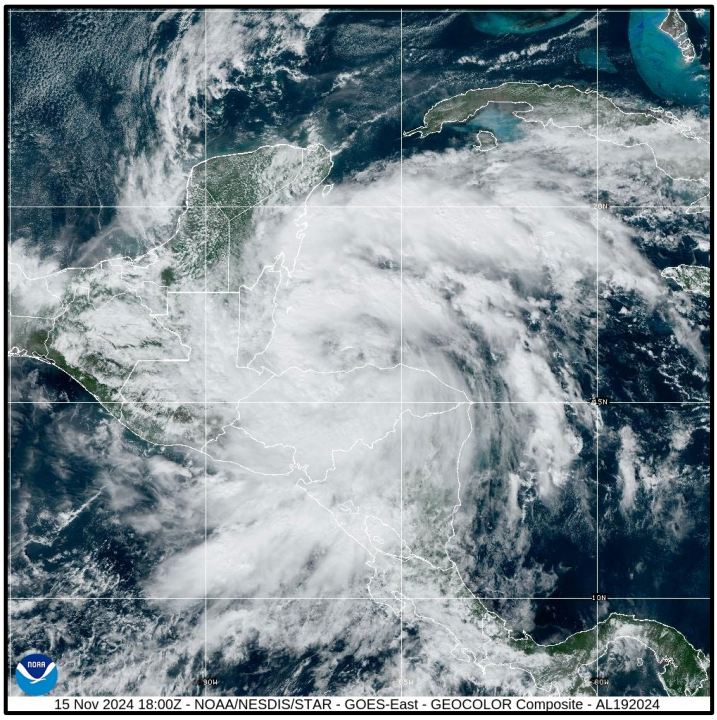
National Hurricane Center
8 April 2025[1]



GOES-EAST GEOCOLOR SATELLITE IMAGE OF TROPICAL STORM SARA AT 1800 UTC 15 NOVEMBER 2024 WHEN IT WAS CENTERED NEAR THE COAST OF HONDURAS. IMAGE COURTESY OF NOAA/NESDIS/STAR.

Sara made landfall as a tropical storm in Honduras and Belize, bringing heavy rainfall and flooding to portions of Central America and southeastern Mexico that resulted in at least 9 direct fatalities.

[1] Original report dated 19 February 2025. This version amends the total fatality count to 9 with the addition of 2 direct fatalities in Honduras and includes updated monetary damages.

Tropical Storm Sara

14–18 NOVEMBER 2024

SYNOPTIC HISTORY

Sara appears to have originated from a large area of low pressure over the southwestern Caribbean Sea that merged with a tropical wave on 11 November. The system was fairly broad and producing disorganized showers and thunderstorms when it passed southwest of Jamaica. The system remained broad, weak, and disorganized during the next couple days as it moved slowly westward. At 2100 UTC 13 November, the National Hurricane Center in coordination with the governments of Honduras and Nicaragua, invoked the option to start Potential Tropical Cyclone advisories and issue Tropical Storm and Hurricane Watches since the system was expected to become a tropical cyclone and bring tropical storm or hurricane conditions to land areas within the next 48 hours. The disturbance continued to move slowly westward while producing convection that gradually increased in organization. Satellite imagery and scatterometer data indicated that the circulation became better defined and that a well-defined center had developed by 0600 UTC 14 November, resulting in the formation of a tropical depression about 130 n mi east-northeast of the Nicaragua/Honduras border.

Convective banding continued to increase, particularly over the western semicircle, and data from an Air Force Reserve Hurricane Hunter reconnaissance aircraft indicated that the system strengthened and became a tropical storm by 1200 UTC 14 November, when it was located about 70 n mi east-northeast of the Nicaragua/Honduras border. The “best track” chart of Sara’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].

Sara moved slowly westward while being steered by a strong, well-established ridge over the southeastern United States. Initially, the system had a large radius of maximum winds with convective bands confined to the northern and western portions of its circulation. However, Sara was able to become better organized and slightly intensify later that day over the very warm waters of the northwestern Caribbean Sea. Convection began to wrap around the center of the storm on 15 November as the system approached the coast of Honduras, with the intensity increasing to 40 kt. It is estimated that Sara made its first landfall as a 40-kt tropical storm near Punta Patuca, Honduras at 0120 UTC 15 November.

After landfall, the center reformed just offshore, and paralleled the northern coast of Honduras. Microwave satellite images revealed an improved structure (Fig. 4), and the system is estimated to have reached a peak intensity of 45 kt, at 1200 UTC 15 November. After emerging

[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.

offshore Sara would drift westward, eventually becoming stationary early on 16 November near the Bay Islands of Honduras.

Late on 16 November the system started to move slowly westward away from the Bay Islands, and into the Gulf of Honduras. However, the interaction of the circulation with the higher terrain and drier air caused the overall convective pattern to degrade. As the system continued to move slowly west-northwestward near the barrier islands of Belize, there was a burst of deep convection to the west of the center which was evident in Belize radar and satellite imagery. It is estimated that Sara made its second landfall as a 35-kt tropical storm near Dangriga, Belize around 1400 UTC 17 November.

After landfall, the land interaction caused Sara to weaken quickly into a tropical depression, and the low-level circulation dissipated inland near the northern Guatemala and Mexico border on 18 November. Remnant vorticity and moisture from Sara moved into the Bay of Campeche and eventually merged with a frontal system over the southeastern United States a couple of days later.

METEOROLOGICAL STATISTICS

Observations in Sara (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), objective Advanced Dvorak Technique (ADT) estimates and Satellite Consensus (SATCON) estimates from the Cooperative Institute for Meteorological Satellite Studies/University of Wisconsin-Madison. Observations also include flight-level, stepped frequency microwave radiometer (SFMR), and dropwindsonde observations from 5 flights of the 53rd Weather Reconnaissance Squadron of the U.S. Air Force Reserve Command (Fig. 5). Data and imagery from NOAA polar-orbiting satellites including the Advanced Microwave Sounding Unit (AMSU), the NASA Global Precipitation Mission (GPM), the European Space Agency's Advanced Scatterometer (ASCAT), Defense Meteorological Satellite Program (DMSP) satellites, and the Time-Resolved Observations of Precipitation structure and storm Intensity with a Constellation of Smallsats (TROPICS) satellites, among others, were also useful in constructing the best track of Sara.

There were no credible ship reports of tropical-storm-force winds associated with Sara. Selected surface observations from land stations and data buoys are given in Table 2, although there are no surface observations that had sustained tropical-storm-force winds.

Winds and Pressure

The estimated peak intensity of 45 kt from 1200 UTC 15 November to 0000 UTC 16 November is based on improved satellite organization and prior data from the Air Force Reserve Hurricane Hunters. The aircraft recorded peak 925-mb flight-level winds of 51 kt at 0131 UTC earlier that day, and applying a standard 75% adjustment factor to the peak flight-level winds supports a surface intensity of about 40 kt. After that time, satellite images suggest the storm became better organized and it is estimated that it reached an intensity of 45 kt by 1200 UTC.

The estimated minimum pressure of 997 mb at 1200 UTC 15 November is based primarily on the Knaff-Zehr-Courtney pressure-wind relationship and earlier dropsonde data from reconnaissance aircraft. A 2305 UTC 14 November center dropsonde reported a surface pressure of 1003 mb with 32-kt surface winds. Given the strengthening that occurred after the time of the reconnaissance mission, the pressure is assumed to have dropped to the estimated minimum pressure of 997 mb.

Rainfall and Flooding

Tropical Storm Sara caused extreme rainfall and severe flooding across portions of Central America, including Honduras and Belize. The slow-moving storm brought heavy rainfall for days, with portions of the northern coast of Honduras (Fig. 6) receiving in excess of 40 inches (1016 mm) of rain. In Nicaragua, rainfall amounts up to 6 inches (152 mm) were reported which led to street and river flooding.

Figure 7 shows rainfall totals from Belize during the 4-day period from 14 November to 17 November. The heaviest rain occurred over the central and northern parts of the country with totals ranging from 3 to 18 inches (76-457 mm) . These excessive rainfall amounts led to street and river flooding over the central and western parts of the country.

In Mexico and Guatemala, rainfall amounts of around 3 to 5 inches (76-127 mm) caused some minor flooding. Rainfall totals for Mexico and Guatemala are depicted in Figures 8 and 9, respectively.

CASUALTY AND DAMAGE STATISTICS

Reports from media and the government of Honduras indicate Sara caused at least 9 direct[2] fatalities. Two of these deaths occurred in Nicaragua and 7 deaths occurred in Honduras. All deaths were related to the heavy rainfall and river flooding. Monetary losses to housing and agriculture for each country, if available are indicated below.

Honduras

Extreme rainfall and river flooding occurred across portions of Honduras. The catastrophic flooding caused infrastructure damage to roadways, bridges and underpasses (Figs. 11, 12, and 13). Reports from Honduras indicate 11 bridges and 14 underpasses were destroyed as well as 31 bridges and 12 underpasses damaged. Roadways were completely washed away by rivers and landslides with over 40 roadways destroyed and over 80 damaged. Almost 4,000 homes were damaged with over 400 destroyed from the storm. Sara is responsible for 7 fatalities in

[2] Deaths occurring as a direct result of the forces of the tropical cyclone are referred to as “direct” deaths. These would include those persons who drowned in storm surge, rough seas, rip currents, and freshwater floods. Direct deaths also include casualties resulting from lightning and wind-related events (e.g., collapsing structures). Deaths occurring from such factors as heart attacks, house fires, electrocutions from downed power lines, vehicle accidents on wet roads, etc., are considered “indirect” deaths.

Honduras. The forecasted impacts led to 15,000 people to evacuate with over 8,000 people placed in shelters. Agricultural losses were estimated to be $18 million USD.

Nicaragua

Heavy rainfall caused street and river flooding across portions of Nicaragua. The flooding caused damages to about 1,800 homes, and multiple landslides were reported. Sara is responsible for two fatalities within the country-- one in Cuapa, Chontales and one in Estelí. It is estimated that about 5,000 people were evacuated from their homes.

Belize

Heavy rainfall and the resulting flooding was the most significant hazard related to tropical storm Sara in Belize. The flooding was most severe over the central and western parts of the country, which caused some damages to structures in the area. Estimated damages to the housing infrastructure were $7.23 million USD.

Mexico and Guatemala

Heavy rainfall caused some minor street and river flooding in Mexico and Guatemala, which caused mudslides and damaged homes and buildings.

FORECAST AND WARNING CRITIQUE

Genesis

The genesis of Sara was not well anticipated (Table 3). The disturbance from which Sara developed was introduced in the Tropical Weather Outlook (TWO) 78 h prior to genesis, and the chances were raised rather quickly into the high categories in both the 2-day and 7-day TWO -- 36 h and 54 h before genesis, respectively. There was uncertainty as to how quickly the system would develop into a tropical cyclone. Figure 10 shows composites of 7-day TWO genesis areas for each category prior to the formation of Sara, illustrating the large outlook area given the uncertainty of when and where the system was going to develop, though the location of genesis was captured in all outlooks issued.

Track and Intensity

A verification of NHC official track forecasts for Sara is given in Table 4a. Official track forecast errors were lower than the mean official errors for the previous 5-yr period at all forecast periods. A homogeneous comparison of the official track errors with selected guidance models is given in Table 4b. Overall the models struggled with the track forecast, likely due to the differences in strength of the high-pressure ridge located over the southeastern U.S and Florida. The track forecast impacted the intensity forecast in the early stages of development as there was higher-than-normal uncertainty of potential land interaction with Central America. A verification of NHC official intensity forecasts for Sara is given in Table 5a. Official intensity forecast errors were lower than, the mean official errors for the previous 5-yr period, at all forecast times except 72-h. A

homogeneous comparison of the official intensity errors with selected guidance models is given in Table 5b. Overall the statistical models struggled with the intensity of Sara, initially showing steady strengthening when the track kept Sara a little farther offshore, while some global and regional models depicted that Sara would have more land interaction with Central America and therefore performed better.

Wind Watches and Warnings

Coastal wind watches and warnings associated with Sara are given in Table 6. The NHC initiated potential tropical cyclone advisories at 2100 UTC 13 November on the precursor disturbance to allow the issuance of Tropical Storm and Hurricane Watches for portions of the coasts of Honduras and Nicaragua.

ACKNOWLEDGEMENTS

The national meteorological services of Honduras, Guatemala, Belize and Mexico are recognized for the data, observations, and rainfall maps they provided for this report. Lisa Bucci (NHC) created the reconnaissance summary figure (Fig. 5); Philippe Papin (NHC) created the Graphical TWO verification figure (Fig. 10).

Table 1. Best track for Tropical Storm Sara, 14–18 November 2024.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
13 / 1800	16.1	78.4	1007	25	disturbance
14 / 0000	16.0	79.7	1005	25	"
14 / 0600	15.9	81.1	1003	30	tropical depression
14 / 1200	15.8	82.2	1001	35	tropical storm
14 / 1800	15.8	83.1	1000	35	"
15 / 0000	15.7	84.0	999	40	"
15 / 0120	15.8	84.3	999	40	"
15 / 0600	16.0	85.0	998	40	"
15 / 1200	16.1	85.6	997	45	"
15 / 1800	16.1	86.1	997	45	"
16 / 0000	16.1	86.1	997	45	"
16 / 0600	16.2	86.2	999	40	"
16 / 1200	16.2	86.4	999	40	"
16 / 1800	16.3	86.8	1000	35	"
17 / 0000	16.4	87.1	1000	35	"
17 / 0600	16.5	87.5	1001	35	"
17 / 1200	16.8	87.9	1001	35	"
17 / 1400	17.0	88.3	1001	35	"
17 / 1800	17.4	89.1	1003	30	tropical depression
18 / 0000	17.9	90.2	1004	25	"
18 / 0600					dissipated

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
15 / 1200	16.1	85.6	997	45	maximum winds and minimum pressure
15 / 0120	15.8	84.3	999	40	landfall near Punta Patuca, Honduras
17 / 1400	17.0	88.3	1001	35	landfall near Dangriga, Belize

Table 2. Selected surface observations for Tropical Storm Sara, 14–18 November 2024.

Location	Minimum Sea Level Pressure		Maximum Surface Wind Speed			Total rain (in)
	Date/ time (UTC)	Press. (mb)	Date/ time (UTC)[a]	Sustained (kt)	Gust (kt)	
Honduras						
La Ceiba AHAC (15.75N 86.84W)						41.9
La Ceiba (15.77N 86.80W)						39.5
Tela (15.78N 87.47W)						25.3
Balfate (15.78N 86.38W)						16.6
Jocon (15.29N 86.91W)						14.6
Puerto Cortes (Davis Wx Station)			15/2218	33	50	
Roatan (MHRO) (163.32N 86.52W)	15/2000	999.0				
Belize						
Calabash Caye (17.28N 87.81W)			17/1320		41	
Middle Caye (16.74N 87.81W)						18.4
San Pedro (17.92N 87.97W)						13.3
Dangriga (16.98N 88.23W)						11.6
Caye Caulier (17.73N 88.03W)						9.6
Baldy Beacon (17.00N 88.79W)						12.5
Mexico						
Arrecifes Xcalak (18.27N 87.83W)	16/1930	1004.5	16/1930	32	45	4.41

[a] Date/time is for sustained wind when both sustained and gust are listed.

Table 3. Number of hours in advance of formation of Sara 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	**168-Hour Outlook**
Low (<40%)	60	78
Medium (40%-60%)	42	66
High (>60%)	36	54

Table 4a. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) track forecast errors (n mi) for Tropical Storm Sara, 14–18 November 2024. 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	**14.0**	**21.4**	**23.8**	**23.0**	**39.9**	**75.8**		
OCD5	30.9	59.1	94.0	126.1	79.2	76.7		
Forecasts	14	12	10	8	6	4		
OFCL (2019-23)	23.9	36.5	49.3	63.4	79.2	93.4	132.9	190.4
OCD5 (2019-23)	45.7	97.1	153.0	205.4	254.9	297.8	372.7	439.1

Table 4b. Homogeneous comparison of selected track forecast guidance models (in n mi) for Tropical Storm Sara, 14–18 November 2024. Mean errors for the previous 5-yr period are shown for comparison. 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	14.4	18.0	17.2	15.1	23.1	67.8		
OCD5	31.7	60.8	97.6	119.8	50.7	97.4		
GFSI	17.5	20.8	28.3	24.6	36.7	**36.4**		
HWFI	21.4	30.7	37.4	53.5	61.0	79.8		
HMNI	19.0	25.7	30.8	39.1	35.3	**47.9**		
HFAI	20.4	28.1	31.9	32.3	46.1	81.4		
HFBI	16.1	20.9	26.2	21.7	25.5	**48.6**		
EGRI	17.7	21.4	28.2	21.0	27.9	81.7		
EMXI	15.9	24.9	26.6	19.3	35.3	86.8		
NVGI	24.3	25.8	35.6	38.0	45.7	86.0		
CMCI	17.5	**17.2**	21.4	25.2	39.5	**64.0**		
TVCA	14.5	**16.0**	18.3	17.4	26.2	**60.6**		
TVCX	**13.9**	**16.5**	18.1	17.6	26.8	**65.3**		
GFEX	15.2	21.1	27.3	19.6	26.1	**51.8**		
TVDG	14.5	**15.8**	19.1	15.4	24.9	**62.9**		
HCCA	14.5	**16.9**	21.0	22.4	35.3	68.5		
FSSE	15.1	20.2	26.9	30.2	45.7	91.7		
AEMI	17.9	23.0	32.1	35.7	54.0	81.2		
TABS	24.9	38.3	51.2	61.3	68.2	**44.8**		
TABM	21.5	30.5	47.6	63.7	82.6	**59.9**		
TABD	25.1	34.1	49.0	69.0	77.6	**49.8**		
Forecasts	12	10	8	6	4	2	0	0

Table 5a. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) intensity forecast errors (kt) for Tropical Storm Sara, 14–18 November 2024. 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	**3.2**	**5.0**	**7.5**	**9.4**	**10.0**	11.2		
OCD5	5.3	11.7	12.2	12.2	4.7	7.2		
Forecasts	14	12	10	8	6	4		
OFCL (2019-23)	5.0	7.3	8.5	9.7	10.4	10.9	12.9	15.5
OCD5 (2019-23)	6.6	10.2	13.1	15.6	17.2	18.6	21.8	22.6

Table 5b. Homogeneous comparison of selected intensity forecast guidance models (in kt) Tropical Storm Sara, 14–18 November 2024. 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	60	72	96	120
OFCL	3.3	5.5	8.1	10.0	7.5	10.0		
OCD5	5.3	11.4	11.0	12.7	**3.5**	**8.0**		
HWFI	**2.6**	**3.1**	**5.8**	**5.5**	8.5	10.0		
HMNI	3.8	**2.6**	**2.8**	**1.5**	**3.5**	**2.5**		
HFAI	**2.8**	**5.1**	**6.6**	**8.0**	8.2	**8.5**		
HFBI	3.4	**4.9**	**4.4**	**4.0**	**5.0**	**3.0**		
DSHP	6.4	13.9	20.5	25.8	28.0	35.0		
LGEM	4.5	9.5	16.5	23.8	26.8	37.0		
ICON	3.5	6.0	10.4	13.8	16.5	21.5		
IVCN	**3.2**	**5.4**	**8.0**	10.7	11.2	14.5		
IVDR	**3.1**	**4.0**	**6.0**	**7.5**	8.0	**9.5**		
GFSI	**3.0**	**3.7**	**1.8**	**2.0**	**3.0**	**4.0**		
EMXI	**3.2**	**4.9**	**3.9**	**3.8**	**4.5**	**2.0**		
HCCA	3.8	6.3	9.6	10.3	10.0	13.0		
FSSE	3.3	5.6	8.8	11.7	12.8	17.0		
Forecasts	12	10	8	6	4	2	0	0

Table 6. Watch and warning summary for Tropical Storm Sara,14–18 November 2024.

Date/Time (UTC)	Action	Location
13 / 2100	Hurricane Watch issued	Punta Castilla, Honduras eastward to the Honduras/Nicaragua Border
13 / 2100	Tropical Storm Watch issued	Honduras/Nicaragua border southward to Puerto Cabezas, Nicaragua
14 / 0300	Tropical Storm Warning issued	Punta Sal, Honduras to the Honduras/Nicaragua Border
14 / 0300	Tropical Storm Warning issued	Bay Islands of Honduras
14 / 0300	Hurricane Watch issued	Bay Islands of Honduras
14 / 1500	Hurricane Watch discontinued	All
15 / 0300	Tropical Storm Watch discontinued	Nicaragua
15 / 1200	Tropical Storm Warning issued	Punta Sal, Honduras to Punta Barrios, Guatemala
15 / 1215	Tropical Storm Watch issued	Placencia, Belize northward to Belize City. Belize
15 / 1500	Tropical Storm Watch upgraded to Tropical Storm Warning	Belize/Guatemala border to Belize City, Belize
15 / 2100	Tropical Storm Warning discontinued	Nicaragua/Honduras border to Punta Patuca, Honduras
15 / 2100	Tropical Storm Warning issued	Puerto Costa Maya, Mexico to Belize City Belize
16 / 2100	Tropical Storm Warning discontinued	Punta Patuca, Honduras to Punta Castilla, Honduras
17 / 1500	Tropical Storm Warning discontinued	Honduras and the Bay Islands
17 / 1800	Tropical Storm Warning discontinued	All

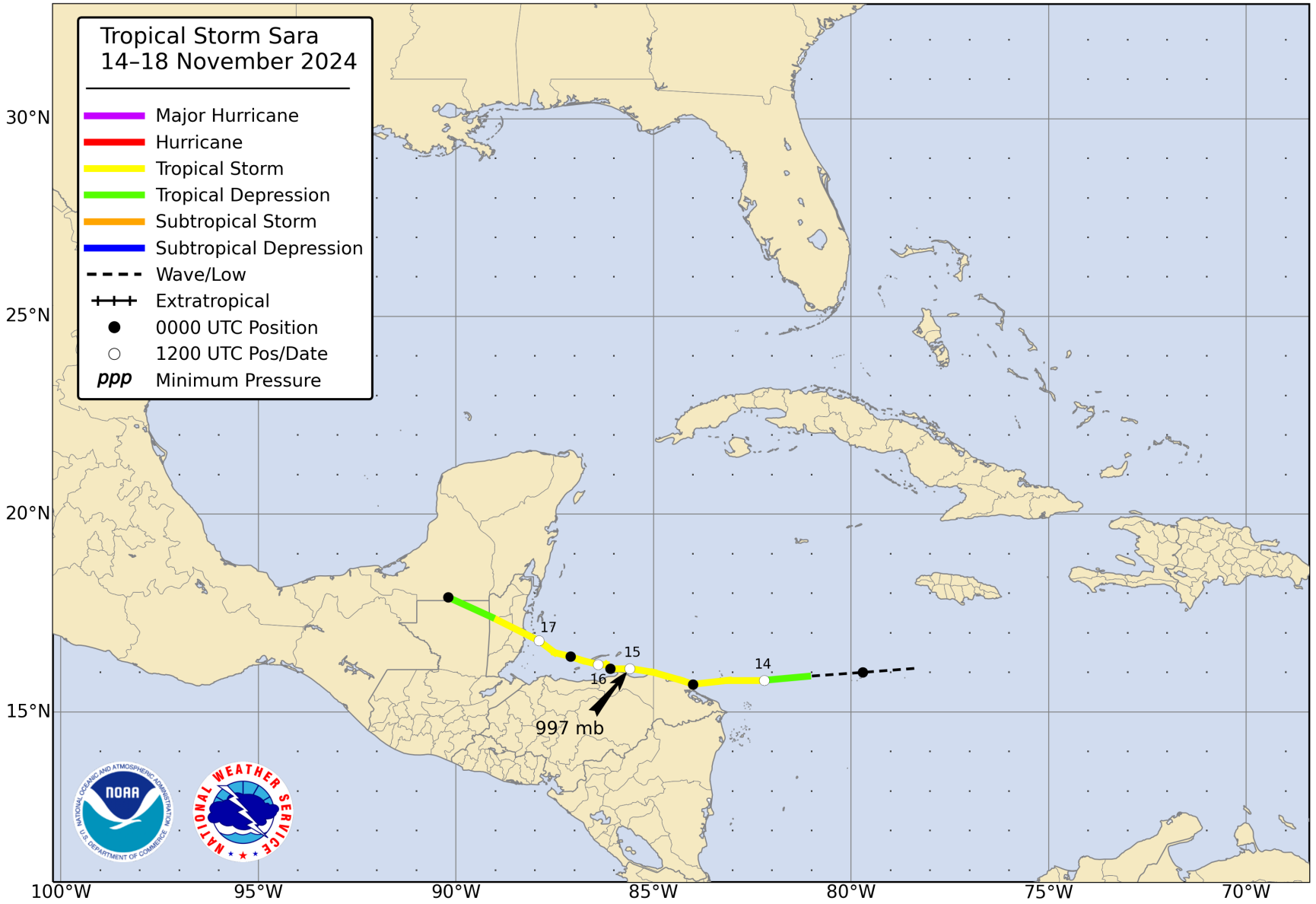


Figure 1. Best track positions for Tropical Storm Sara, 14–18 November 2024.

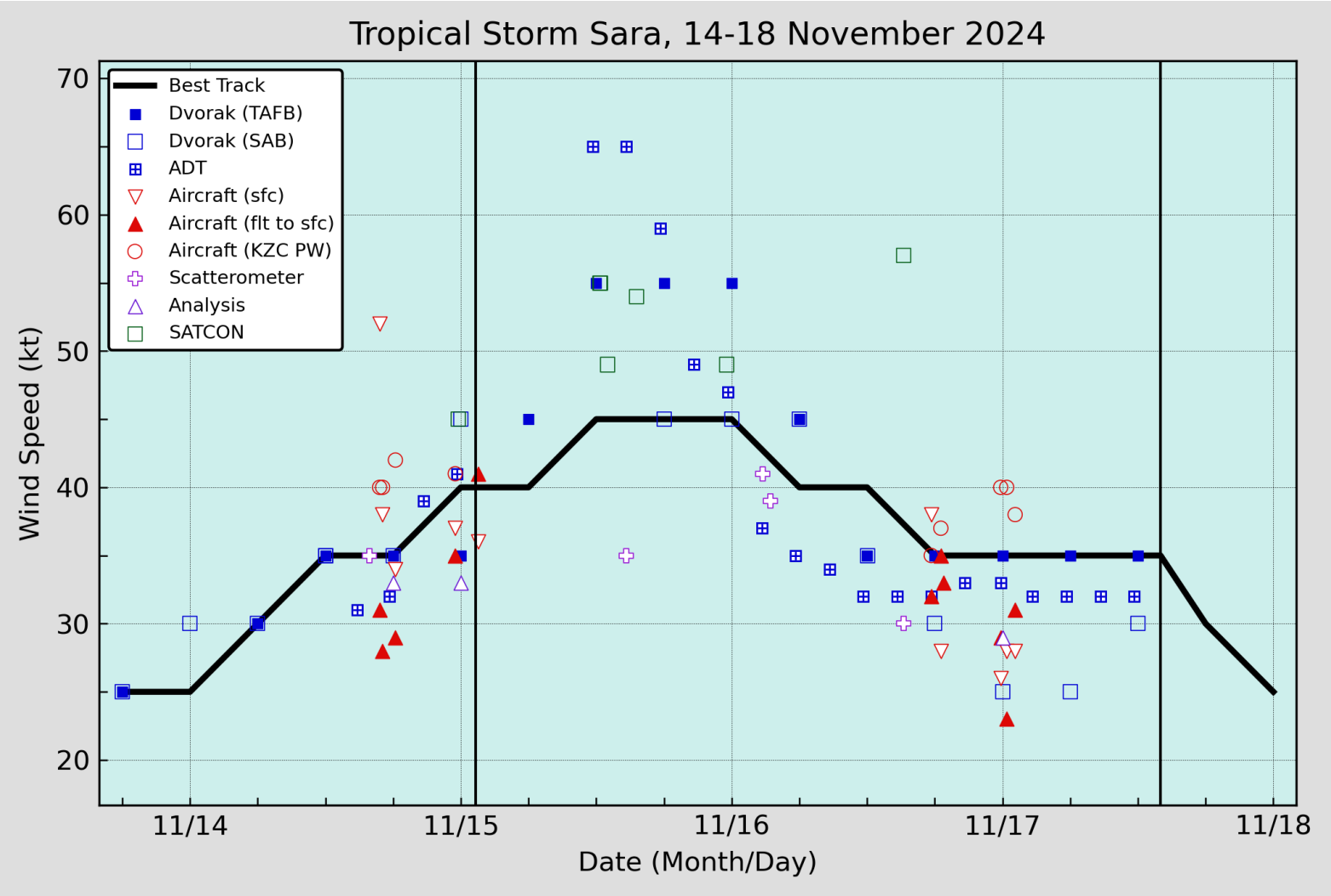


Figure 2. Selected wind observations and best track maximum sustained surface wind speed curve for Tropical Storm Sara, 14–18 November 2024. Aircraft observations have been adjusted for elevation using an 75% adjustment factor for observations from 925 mb. Dropwindsonde observations include actual 10 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 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, and the solid vertical line corresponds to landfall.

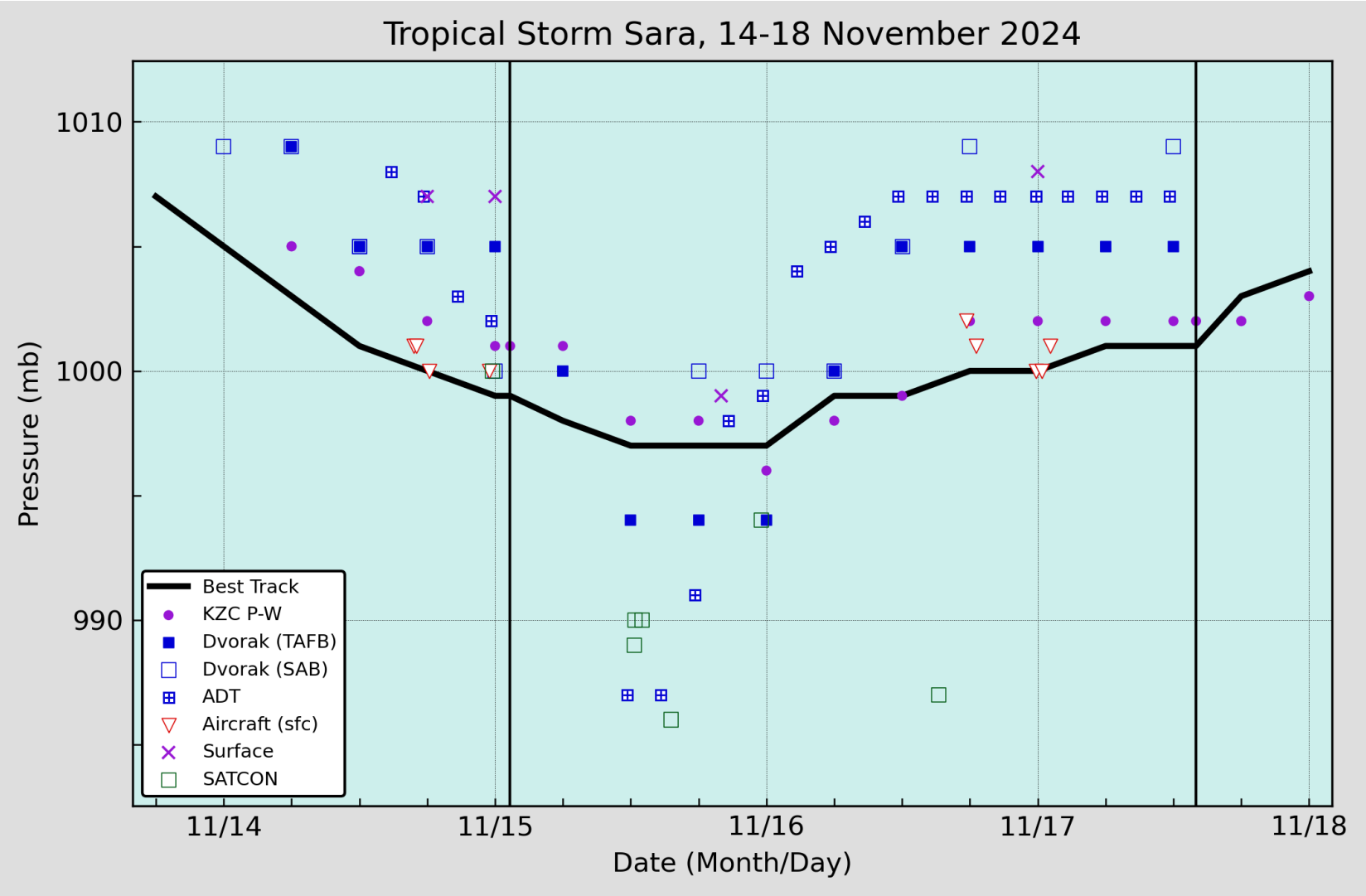


Figure 3. Selected pressure observations and best track minimum central pressure curve for Tropical Storm Sara, 14–18 November 2024. Advanced Dvorak Technique estimates represent the Current Intensity at the nominal observation time. SATCON intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies. KZC P-W refers to pressure estimates derived using the Knaff-Zehr-Courtney pressure-wind relationship. Dashed vertical lines correspond to 0000 UTC, and the solid vertical line corresponds to landfall.

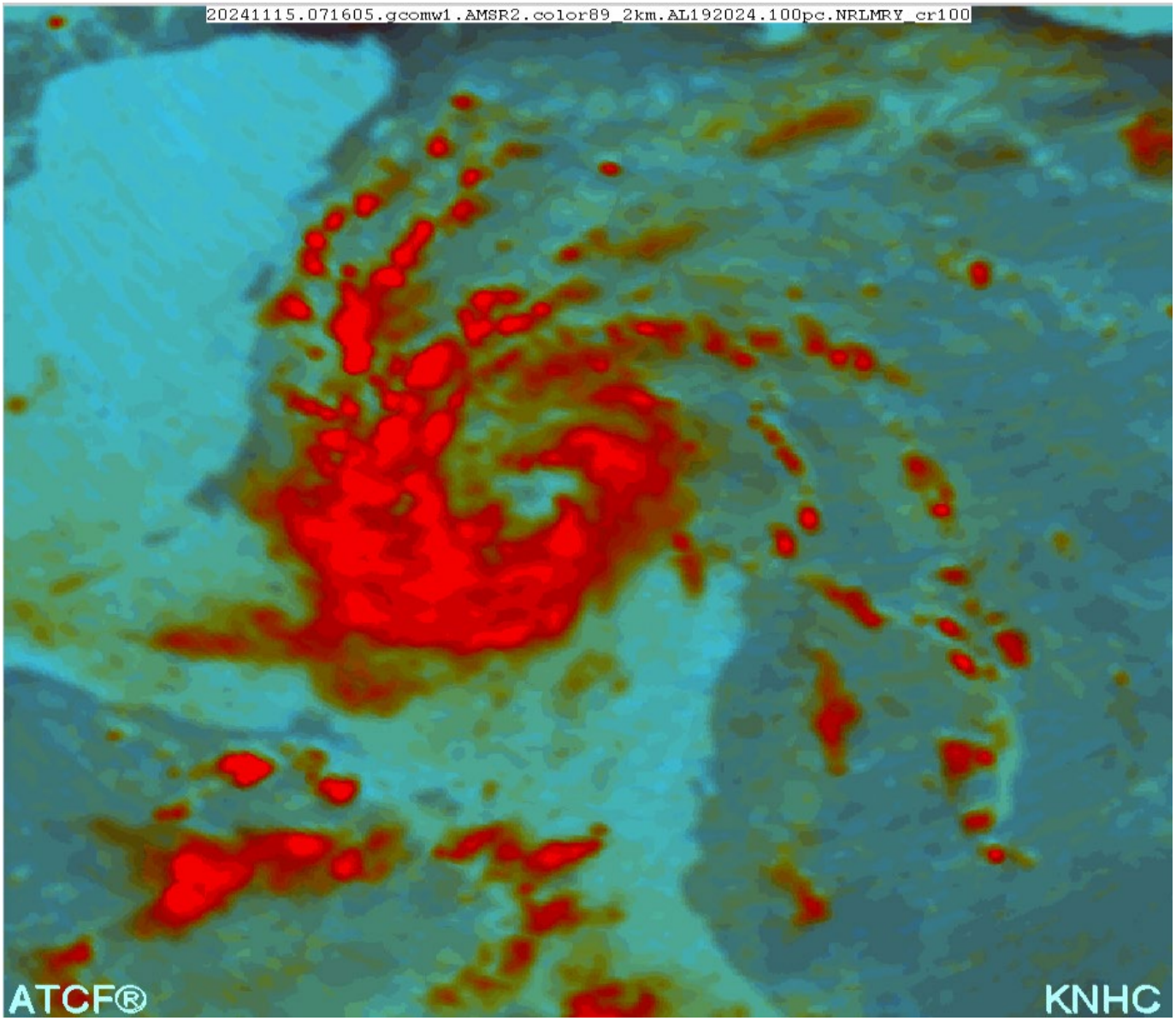


Figure 4. AMSR2 89-GHz color composite image of Tropical Storm Sara at 0716 UTC 15 November, with improved curved banding features.

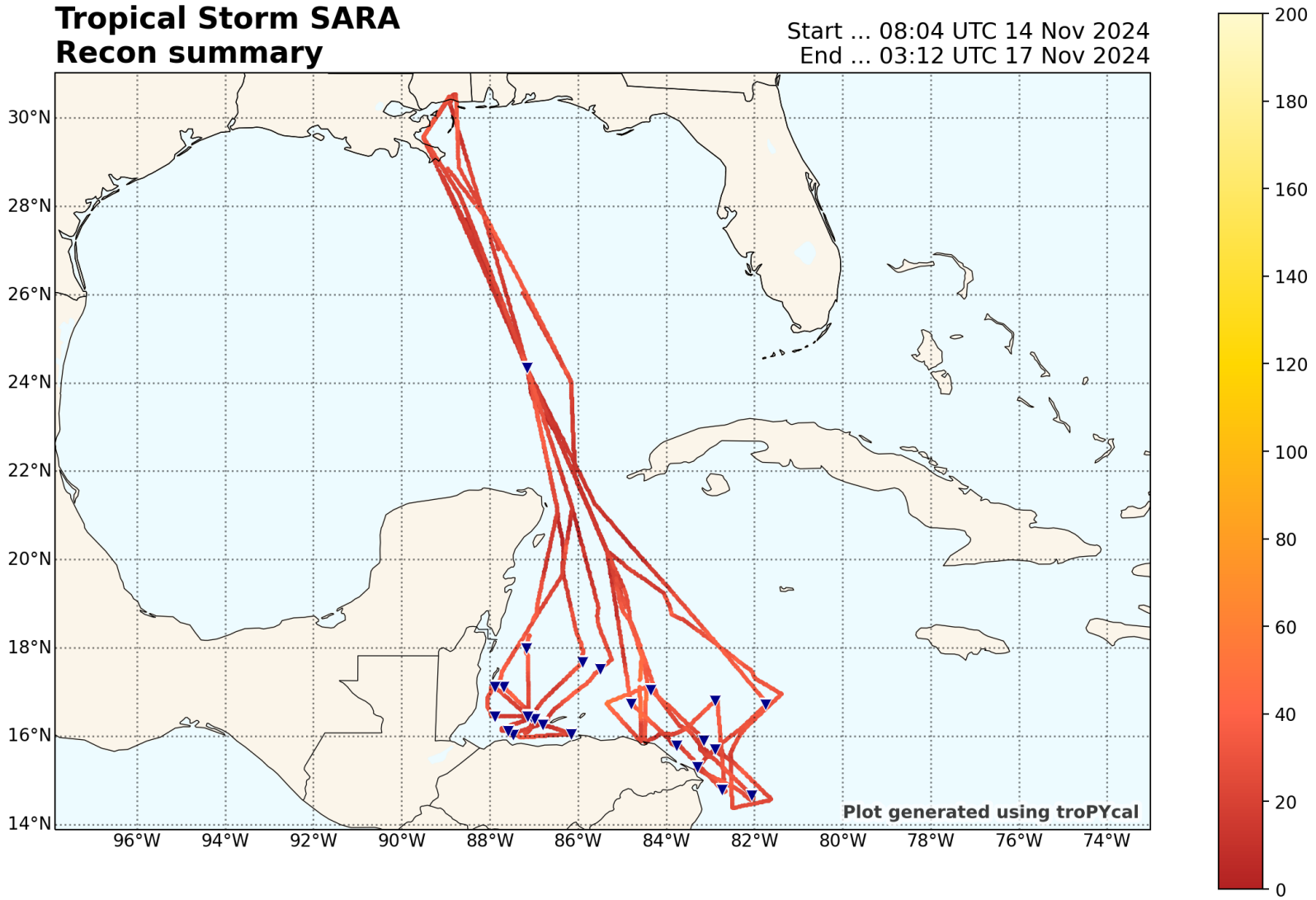


Figure 5. Air Force Reserve Hurricane Hunter aircraft flight tracks (red) from reconnaissance missions into Sara. The black hexagonal markers denote center fixes, and the blue triangles indicate dropsonde locations. The color coding of the flight tracks is based on the observed flight-level wind speed with the color legend to the right of the map representing the color associated with the various wind speeds in knots.

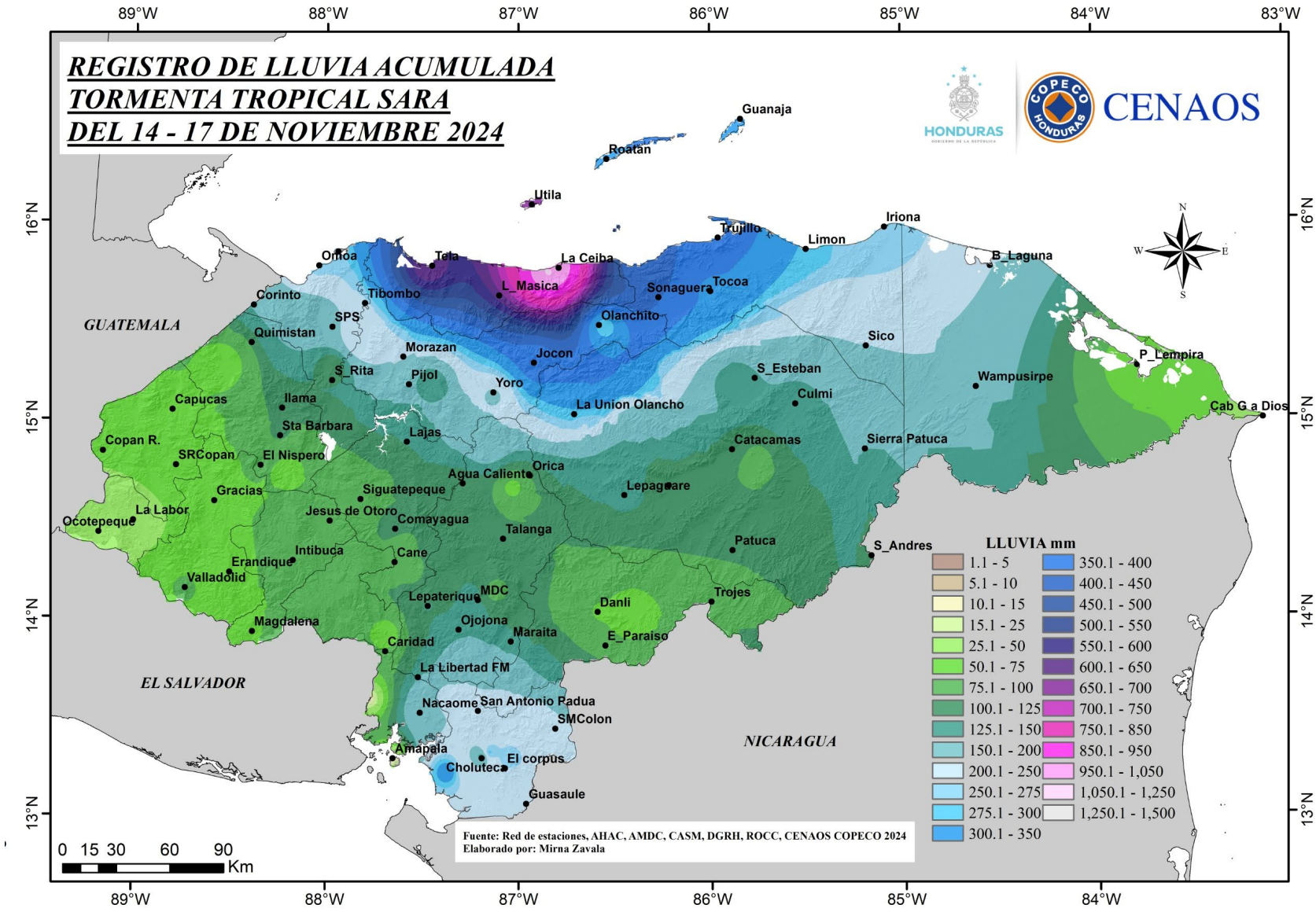


Figure 6. Rainfall accumulations (mm) in Honduras from 14 –17 November 2024. Data and image courtesy of the National Meteorological Service of Honduras.

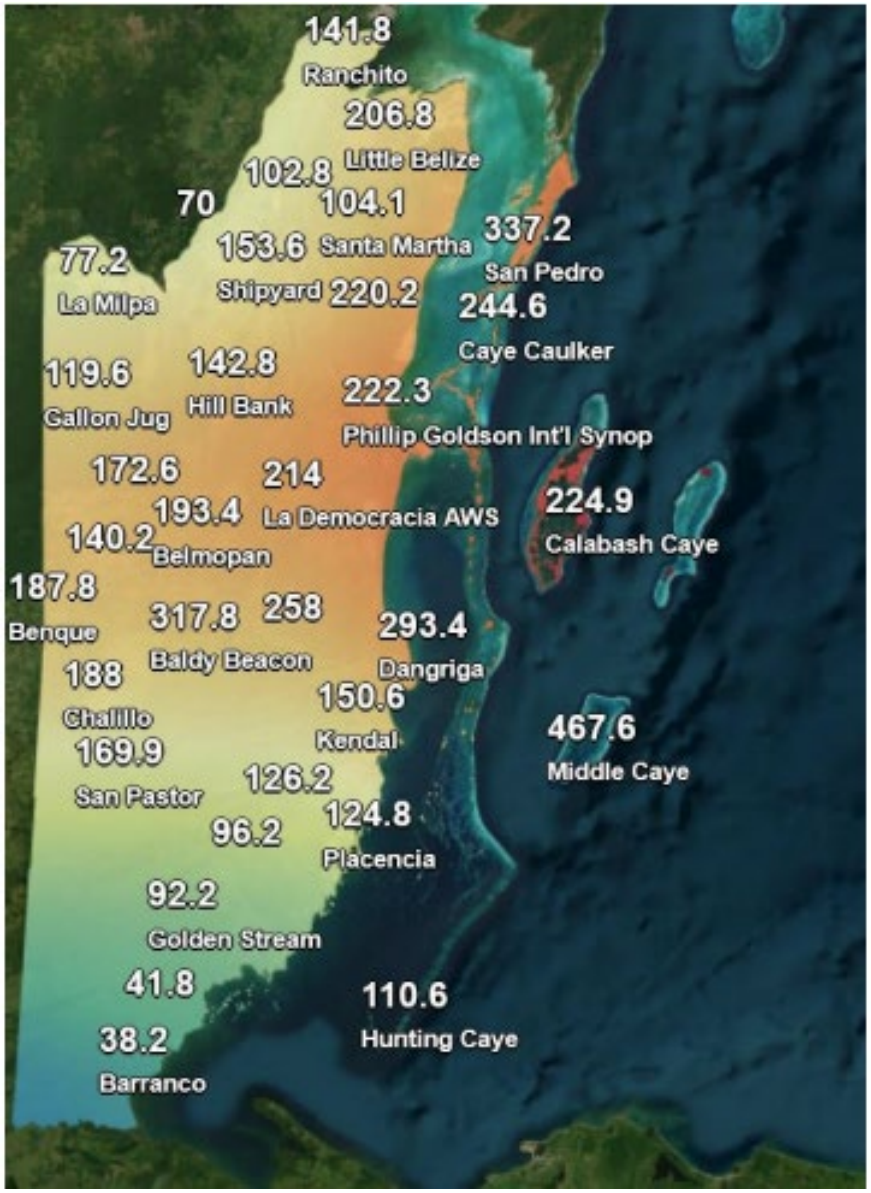


Figure 7. Rainfall accumulations (mm) in Belize from 14–17 November 2024. Th heaviest rainfall occurred over central and northern Belize Data and image courtesy of the National Meteorological Service of Belize.

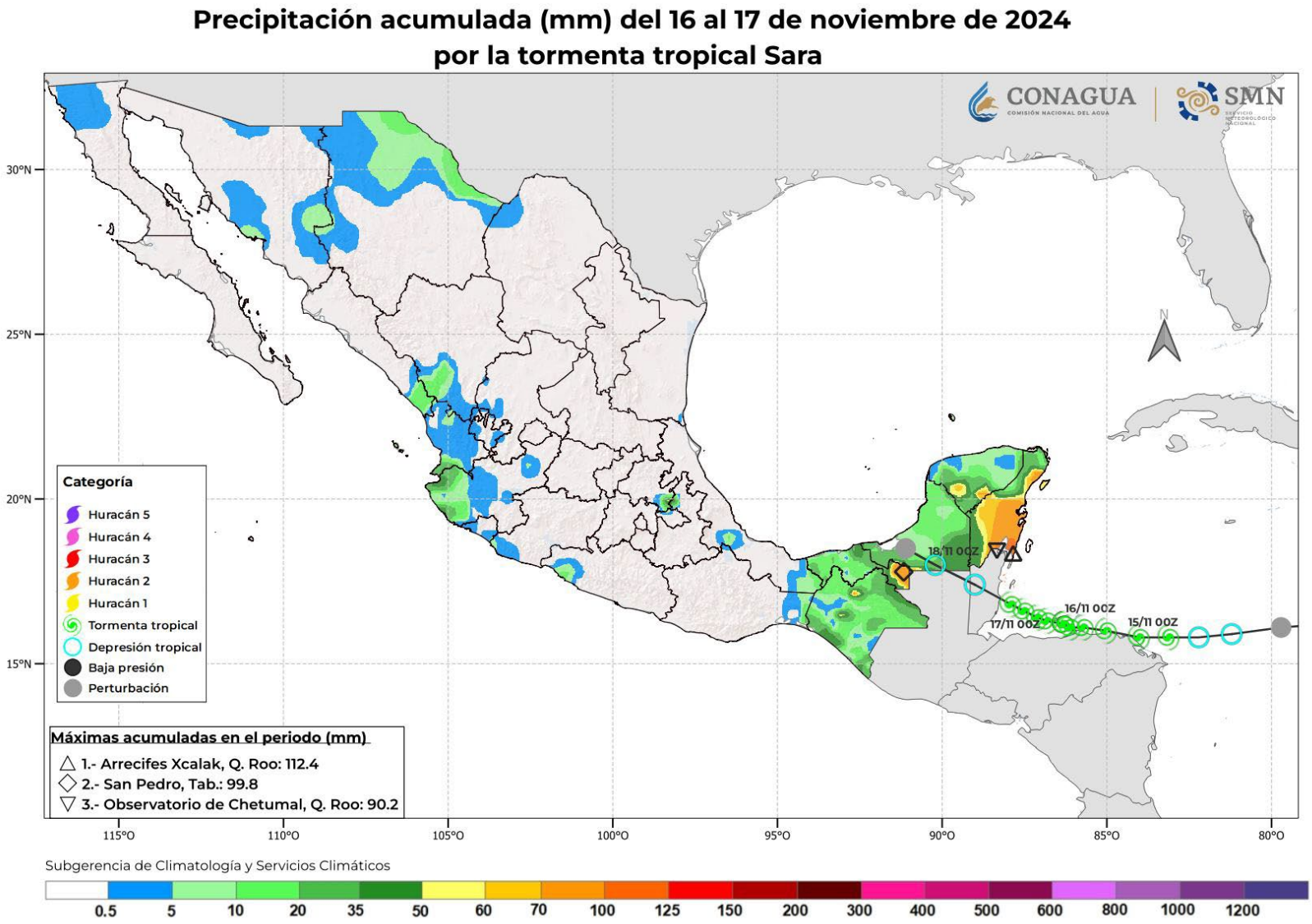


Figure 8. Rainfall accumulations (mm) in Mexico from 16–17 November 2024. Track and intensity are based on the operational NHC assessment. Not all of the rainfall depicted here is related to Sara. Image courtesy of CONAGUA and the National Meteorological Service of Mexico.

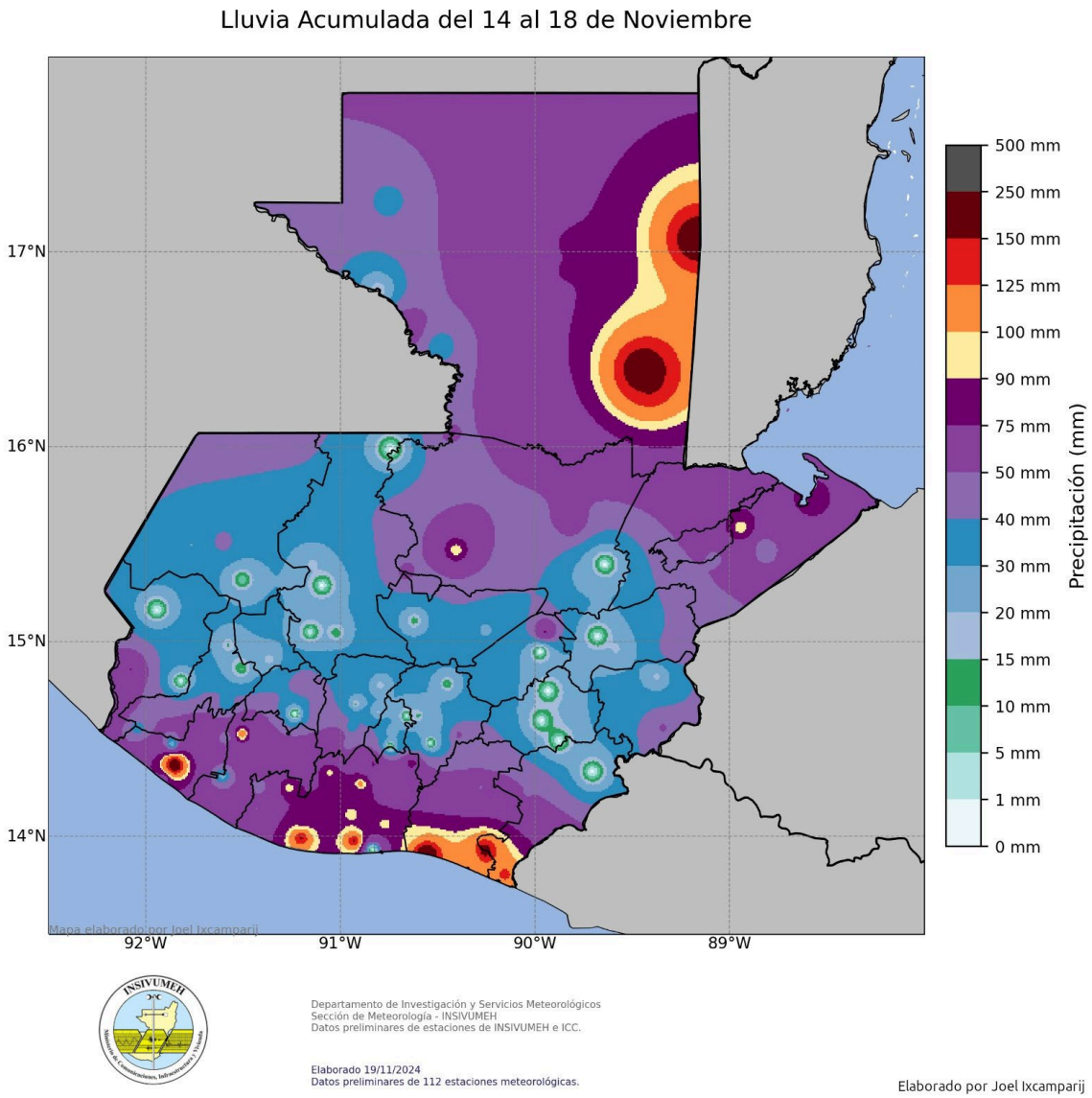


Figure 9. Rainfall accumulations (mm) in Guatemala from 14–18 November 2024. Data and image courtesy of the National Meteorological Service of Guatemala.

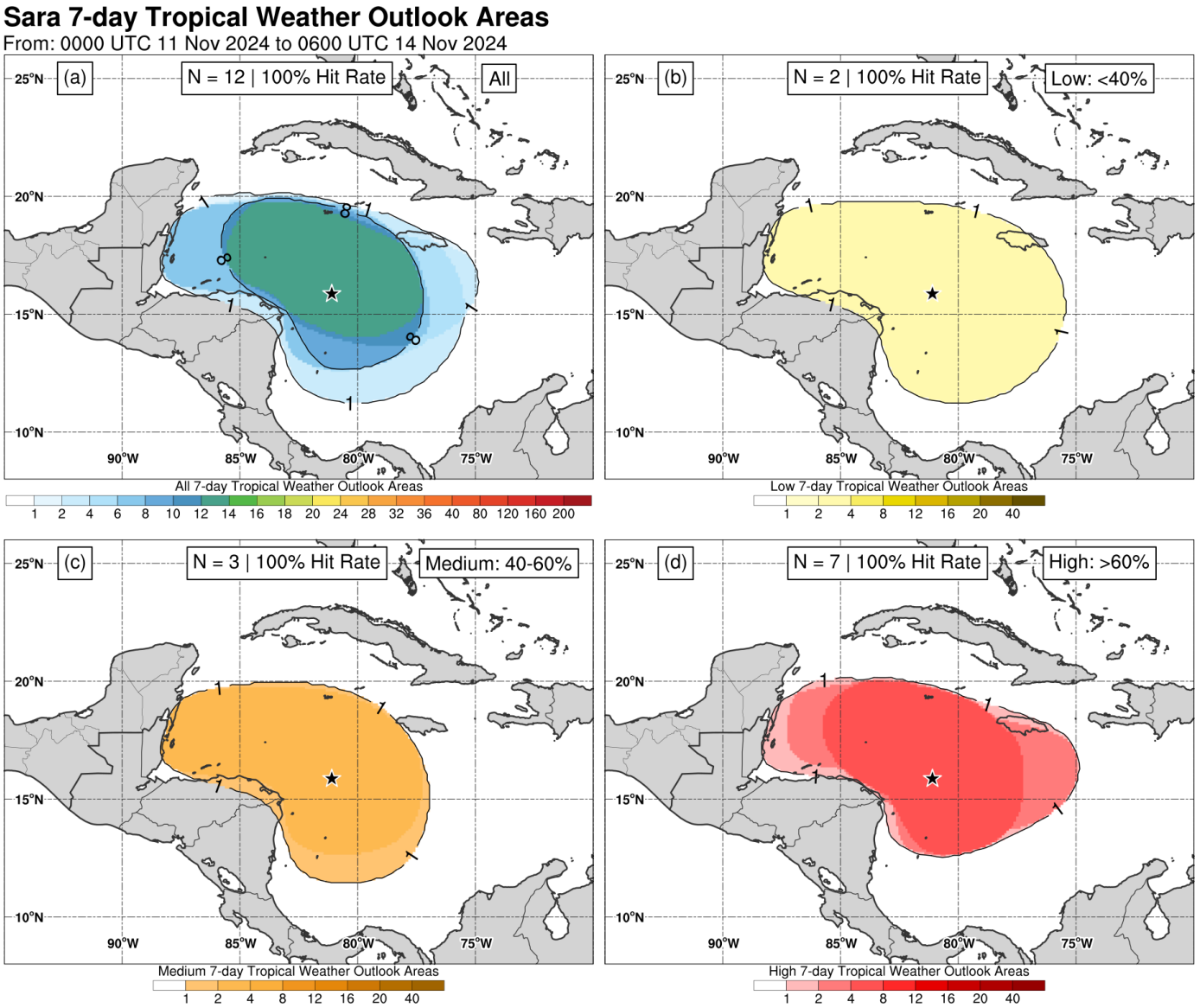


Figure 10. Composites of 7-day tropical cyclone genesis areas depicted in NHC's Tropical Weather Outlooks prior to the formation of Sara for (a) all probabilistic genesis categories, (b) the low (<40%) category, (c) medium (40–60%) category, and (d) high (>60%) category. The location of genesis is indicated by the black star.

Figure 11. Residents stand alongside the banks of a river overrun by rains brought on by Tropical Storm Sara, on the outskirts of San Pedro Sula, Honduras 16 November 2024. Image courtesy of AP Photo/ Moises Castillo.

Figure 12. Residents stand alongside the banks of a river overrun by rains brought on by Tropical Storm Sara, on the outskirts of San Pedro Sula, Honduras 16 November 2024. Image courtesy of AP Photo/ Moises Castillo.

Figure 13. People gather at the site of a partial bridge collapse after the Cangrejal River overflowed its banks due to heavy rain brought by Tropical Storm Sara in La Ceiba, Honduras on 15 November 2024. Image courtesy of Yahoo News.