

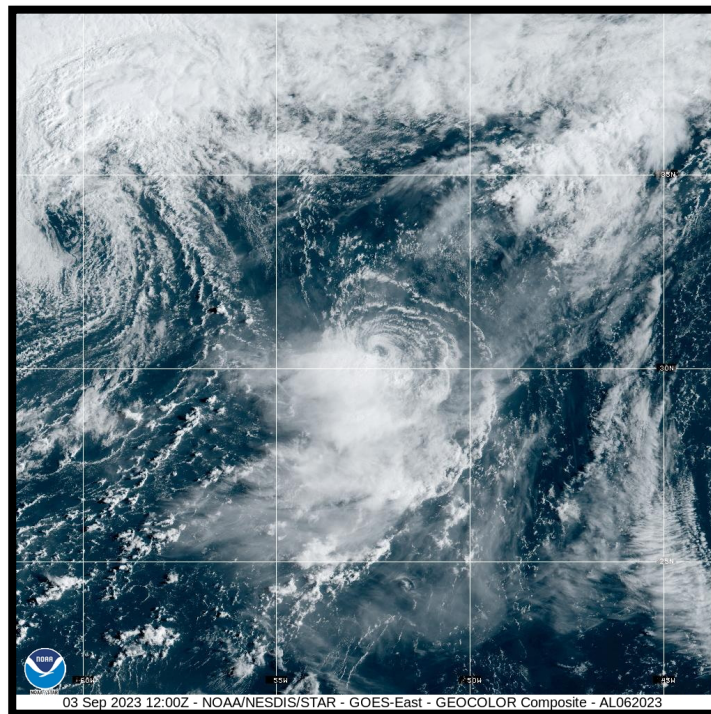


NATIONAL HURRICANE CENTER TROPICAL CYCLONE REPORT¹

TROPICAL STORM GERT (AL062023)

19 August – 4 September 2023

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National Hurricane Center
30 November 2023



GOES-16 GEOCOLOR IMAGE OF TROPICAL STORM GERT AT 1200 UTC 3 SEPTEMBER 2023.
IMAGE COURTESY OF NOAA/NESDIS/STAR.

Gert first developed into a tropical storm in the tropical Atlantic, and its remnants later redeveloped into a tropical storm in the subtropical Atlantic.

¹ This is an abbreviated Tropical Cyclone Report since there were no coastal watches or warnings issued and no direct fatalities reported in association with Gert.

Tropical Storm Gert

19 AUGUST – 4 SEPTEMBER 2023

BEST TRACK

The “best track²” positions and intensities for Tropical Storm Gert are listed in Table 1. The best track chart of Gert’s path is given in Fig. 1, with the wind and pressure histories along with available observations³ shown in Figs. 2 and 3, respectively.

There were no land-based or ship reports of winds of tropical storm force associated with Gert.

Origin

Gert originally developed from a tropical wave that moved off the west coast of Africa on 14 August. After Gert degenerated into a surface trough on 26 August. The remnants of the tropical cyclone meandered east of the Lesser Antilles for several days within light and variable steering flow between nearby Hurricane Franklin and Tropical Storm Jose. The system stayed convectively active, with a trackable low-level vorticity maximum. The remnants re-developed into a tropical cyclone on 31 August, well north of the Leeward Islands.

Peak Intensity and Minimum Pressure

Gert’s peak intensity of 50 kt from 0000 UTC to 1200 UTC 3 September is based on a blend of subjective and objective Dvorak satellite intensity estimates from TAFB and the UW-CIMSS ADT, as well as scatterometer data.

The estimated minimum central pressure of 998 mb is based on a blend of the Knaff-Zehr-Courtney pressure-wind relationship and Dvorak estimates.

² 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 *bt*k directory, while previous years’ data are located in the *archive* directory.

³ Observations 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. 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), and Defense Meteorological Satellite Program (DMSP) satellites, among others, were also useful in constructing the best track of Gert.

CASUALTY AND DAMAGE STATISTICS

There were no reports of damage or casualties associated with Gert.

FORECAST AND WARNING VERIFICATION

Gert was in close proximity to three different tropical cyclones during its long-lived lifetime either in the remnant or tropical cyclone stage. Figure 4 depicts the close proximity of Franklin, Jose, and Idalia. The small size of the system and multiple tropical cyclone interactions proved challenging forecasting the genesis, redevelopment, and overall track and intensity of Gert.

Table 2a and 2b provides the number of hours in advance of formation of Gert and the redevelopment of the tropical cyclone in the subtropical Atlantic with the first NHC Tropical Weather Outlook (TWO) forecast in each likelihood category. The genesis of Gert was not well forecast as the system never entered the high genesis category before its initial formation, and never entered the medium or high category for redevelopment. This could have been due to the small size of the system and its close proximity to other tropical and post-tropical cyclones, and expected unfavorable environmental conditions. Figure 5a and 5b shows composites of 7-day TWO genesis areas for each category prior to the formation and redevelopment of Gert.

A verification of NHC official track forecasts for Gert is given in Table 3a. Official track forecast errors were greater than the mean official errors for the previous 5-yr period. This was likely due to a complex steering pattern, including multiple interactions with surrounding tropical cyclones. A homogeneous comparison of the official track errors with selected guidance models is given in Table 3b.

A verification of NHC official intensity forecasts for Gert is given in Table 4a. Official intensity forecast errors were lower than the mean official errors for the previous 5-yr period for the short-term forecasts, and larger than the mean official errors at the longer forecast ranges. This was likely due to the complexity of the track forecast and influences from surrounding tropical cyclones. A homogeneous comparison of the official intensity errors with selected guidance models is given in Table 4b.

There were no coastal watches or warnings issued for Gert.



Table 1. Best track for Tropical Storm Gert, 19 August–4 September 2023.

Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
19 / 0000	14.7	46.6	1008	30	low
19 / 0600	15.4	47.8	1007	30	tropical depression
19 / 1200	16.1	48.8	1006	30	"
19 / 1800	16.6	49.9	1006	30	"
20 / 0000	16.9	51.1	1006	30	"
20 / 0600	16.8	52.3	1006	30	"
20 / 1200	16.7	53.3	1005	35	tropical storm
20 / 1800	16.6	54.2	1005	35	"
21 / 0000	16.6	55.1	1005	35	"
21 / 0600	16.6	55.9	1005	35	"
21 / 1200	16.7	56.6	1006	30	tropical depression
21 / 1800	16.9	57.2	1006	25	"
22 / 0000	17.0	57.9	1006	25	"
22 / 0600	17.1	58.7	1007	25	"
22 / 1200	17.4	59.5	1008	25	low
22 / 1800	17.7	60.1	1008	25	"
23 / 0000	18.1	60.2	1008	25	"
23 / 0600	18.3	59.7	1008	25	"
23 / 1200	18.5	59.2	1009	25	"
23 / 1800	18.3	59.0	1009	25	"
24 / 0000	18.1	58.9	1010	20	"
24 / 0600	17.7	58.7	1010	20	"
24 / 1200	17.3	58.5	1010	20	"
24 / 1800	16.9	58.6	1010	20	"



Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
25 / 0000	16.5	58.8	1010	20	"
25 / 0600	16.1	59.1	1010	20	"
25 / 1200	16.0	59.3	1010	20	"
25 / 1800	16.0	59.5	1010	20	"
26 / 0000	16.1	59.7	1010	20	"
26 / 0600	16.3	59.8	1010	25	"
26 / 1200	16.9	59.7	1010	25	disturbance
26 / 1800	17.8	59.5	1010	25	"
27 / 0000	18.7	59.4	1010	25	"
27 / 0600	19.4	59.5	1010	25	"
27 / 1200	19.9	59.6	1010	25	"
27 / 1800	20.2	59.6	1010	25	"
28 / 0000	20.5	59.6	1010	25	"
28 / 0600	20.8	59.4	1010	25	"
28 / 1200	21.2	59.2	1010	25	"
28 / 1800	21.6	59.2	1010	25	"
29 / 0000	22.3	59.4	1011	25	"
29 / 0600	23.0	59.6	1011	25	"
29 / 1200	23.8	59.6	1012	25	"
29 / 1800	24.6	59.6	1012	25	"
30 / 0000	25.4	59.3	1012	25	"
30 / 0600	26.2	59.0	1010	25	"
30 / 1200	27.0	58.7	1010	25	"
30 / 1800	27.5	58.5	1009	25	"
31 / 0000	28.0	58.3	1009	30	low



Date/Time (UTC)	Latitude (°N)	Longitude (°W)	Pressure (mb)	Wind Speed (kt)	Stage
31 / 0600	28.4	58.1	1008	30	"
31 / 1200	28.5	57.6	1008	30	"
31 / 1800	28.6	57.0	1007	30	tropical depression
01 / 0000	28.8	56.4	1006	30	"
01 / 0600	28.8	55.7	1006	30	"
01 / 1200	28.4	55.2	1006	30	"
01 / 1800	27.9	54.8	1005	35	tropical storm
02 / 0000	27.7	54.6	1005	35	"
02 / 0600	27.6	54.4	1003	40	"
02 / 1200	27.7	54.1	999	45	"
02 / 1800	28.1	53.8	999	45	"
03 / 0000	28.6	53.5	998	50	"
03 / 0600	29.3	53.0	998	50	"
03 / 1200	30.4	52.4	998	50	"
03 / 1800	31.9	51.6	999	45	"
04 / 0000	33.9	50.9	1000	45	"
04 / 0600	36.5	50.7	1000	45	"
04 / 1200	39.4	50.8	1001	40	low
04 / 1800					dissipated
03 / 0000	28.6	53.5	998	50	minimum pressure and maximum winds



Table 2a. Number of hours in advance of the formation of Tropical Storm Gert in the tropical Atlantic 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%)	66	108
Medium (40%-60%)	36	60
High (>60%)	-	-

Table 2b. Number of hours in advance of redevelopment of Tropical Storm Gert in the subtropical Atlantic 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%)	36	36
Medium (40%-60%)	-	-
High (>60%)	-	-



Table 3a. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) track forecast errors (n mi) for Gert. 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	31.1	51.7	76.8	108.6	103.4	118.5		
OCD5	54.3	120.6	202.1	243.5	181.7	150.0		
Forecasts	20	14	9	6	3	1		
OFCL (2018-22)	23.8	35.7	47.8	61.4	76.1	90.5	125.7	172.1
OCD5 (2018-22)	46.4	99.2	157.4	215.0	254.9	321.2	405.1	486.6



Table 3b. Homogeneous comparison of selected track forecast guidance models (in n mi) for Gert. 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	24.3	39.3	68.4	108.0				
OCD5	47.9	108.4	194.4	224.6				
GFSI	30.0	51.7	88.6	130.8				
HWFI	25.4	50.6	79.6	107.1				
HMNI	33.2	51.3	89.1	151.0				
HFAI	27.1	44.7	68.9	107.3				
HFBI	30.0	40.7	70.5	114.5				
EGRI	20.2	29.1	64.2	105.4				
EMXI	27.1	37.8	60.5	115.5				
CMCI	27.4	38.2	85.8	163.5				
CTCI	29.1	44.4	76.9	140.6				
TVCA	24.4	39.5	68.0	113.7				
TVCX	25.1	38.0	65.6	114.3				
GFEX	27.9	43.2	72.0	113.0				
TVDG	23.1	36.8	65.0	109.1				
HCCA	24.1	33.4	61.6	118.1				
AEMI	32.5	55.2	86.0	96.8				
TABS	29.8	65.0	97.7	139.0				
TABM	28.8	55.4	100.7	140.2				
TABD	49.1	104.5	200.7	290.4				
Forecasts	10	6	6	3				



Table 4a. NHC official (OFCL) and climatology-persistence skill baseline (OCD5) intensity forecast errors (kt) for Gert. 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	3.8	6.1	10.0	11.7	13.3	20.0		
OCD5	3.8	5.6	7.3	9.8	5.7	7.0		
Forecasts	20	14	9	6	3	1		
OFCL (2018-22)	5.1	7.6	8.9	10.1	10.7	11.5	13.3	15.5
OCD5 (2018-22)	6.8	10.7	13.9	16.5	18.3	20.2	22.9	23.4



Table 4b. Homogeneous comparison of selected intensity forecast guidance models (in kt) for Gert. 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	4.2	5.5	8.3	6.7	10.0			
OCD5	3.1	4.8	7.5	12.7	10.0			
HWFI	5.8	6.5	8.3	12.0	12.0			
HMNI	5.1	6.6	11.5	14.7	16.0			
HFAI	5.4	5.4	7.5	7.3	1.0			
HFBI	4.8	4.2	8.8	12.3	0.0			
DSHP	4.9	6.7	9.2	10.0	8.0			
LGEM	5.2	7.9	10.5	12.7	16.0			
IVCN	4.8	5.0	7.0	9.3	8.0			
IVDR	4.8	5.2	7.2	9.7	8.0			
CTCI	4.7	5.0	6.5	5.0	7.0			
GFSI	6.8	8.7	11.8	13.7	17.0			
EMXI	6.3	8.2	9.5	7.7	10.0			
HCCA	4.9	5.4	6.2	7.3	6.0			
Forecasts	13	10	6	3	1			

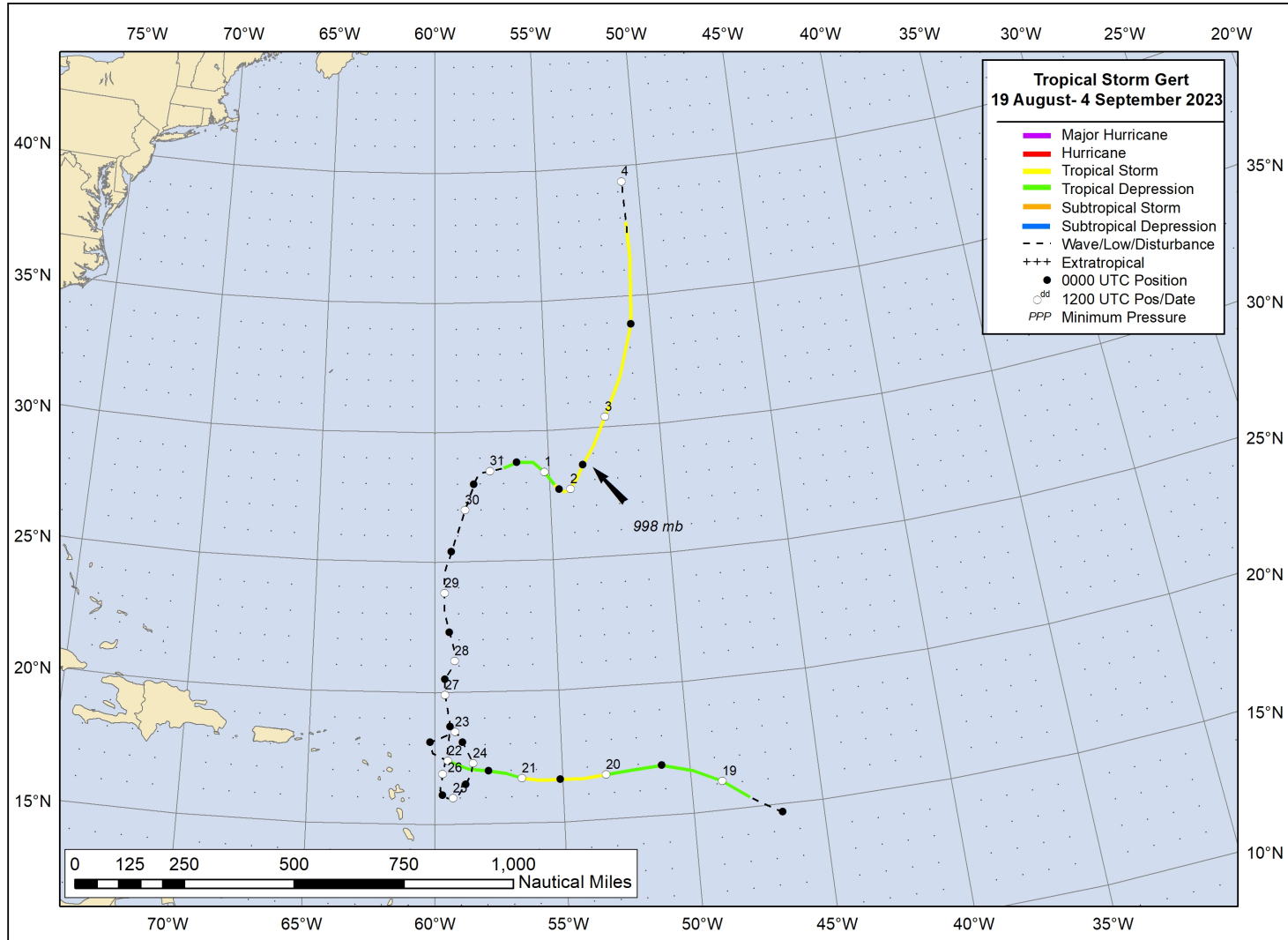


Figure 1. Best track positions for Tropical Storm Gert, 19 August – 4 September 2023.

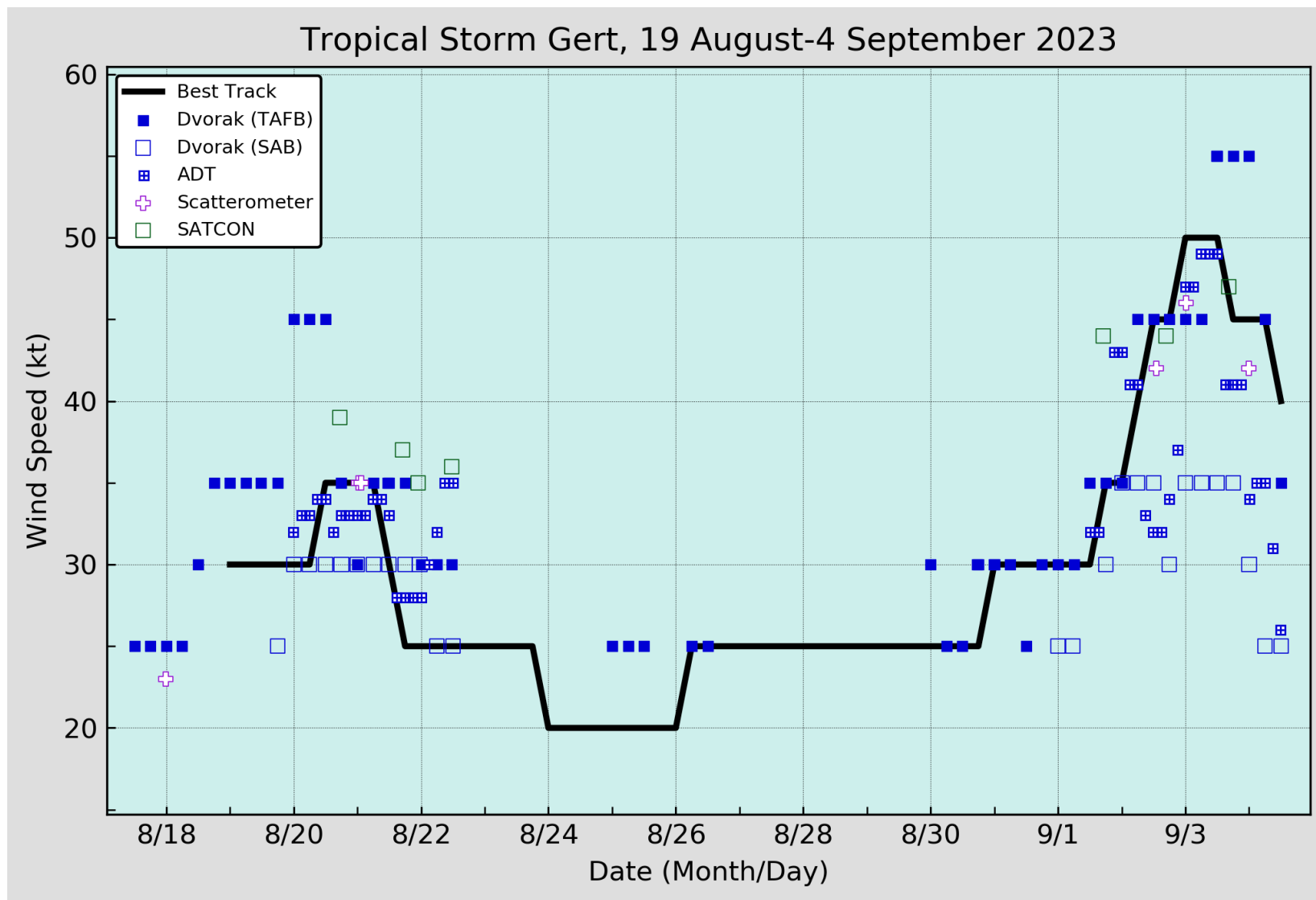


Figure 2. Selected wind observations and best track maximum sustained surface wind speed curve for Tropical Storm Gert, 19 August – 4 September 2023. Advanced Dvorak Technique estimates represent the Current Intensity at the nominal observation time. SATCON intensity estimates are from the Cooperative Institute for Meteorological Satellite Studies. Dashed vertical lines correspond to 0000 UTC.

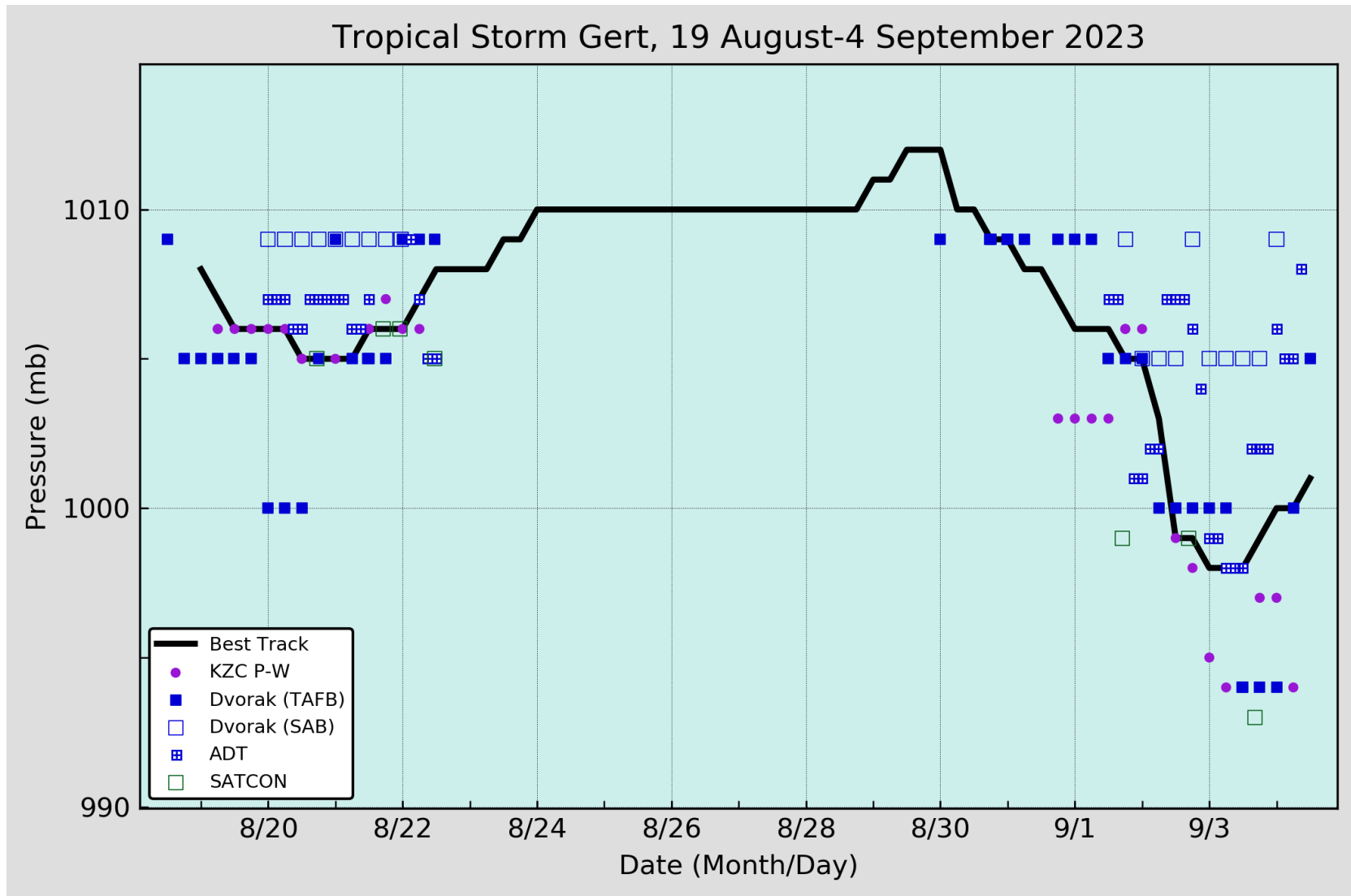


Figure 3. Selected pressure observations and best track minimum central pressure curve for Tropical Storm Gert, 19 August – 4 September 2023. Advanced Dvorak Technique estimates represent the Current Intensity at the nominal observation time. SATCON intensity estimates are from the Cooperative Institute 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.

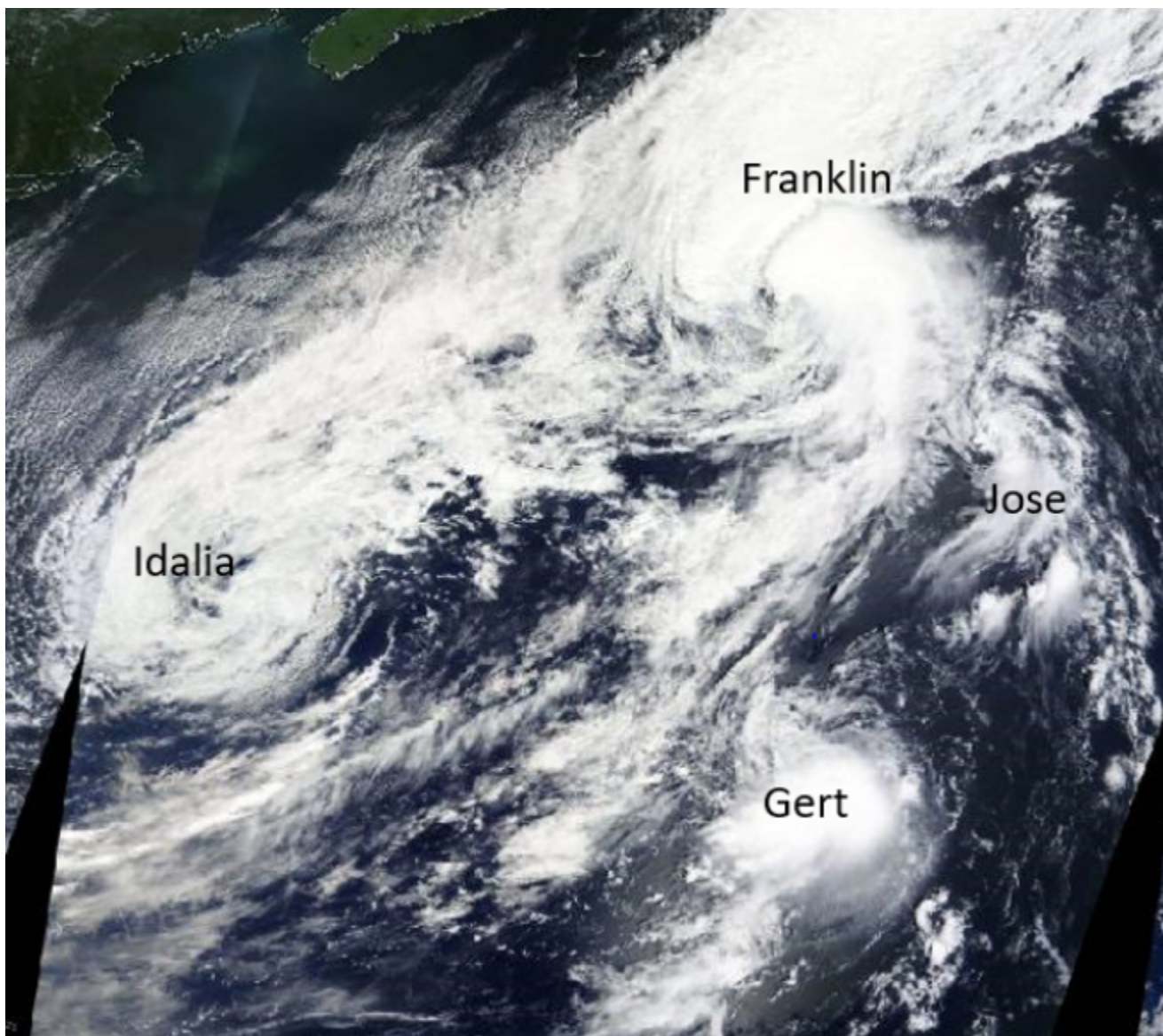


Figure 4. EOSDIS NASA imagery from 3 September 2023, depicting the close proximity of four tropical or post-tropical cyclones Idalia, Franklin, Jose and Gert.

Gert 7-day Tropical Weather Outlook Areas

From: 0000 UTC 14 Aug 2023 to 0600 UTC 19 Aug 2023

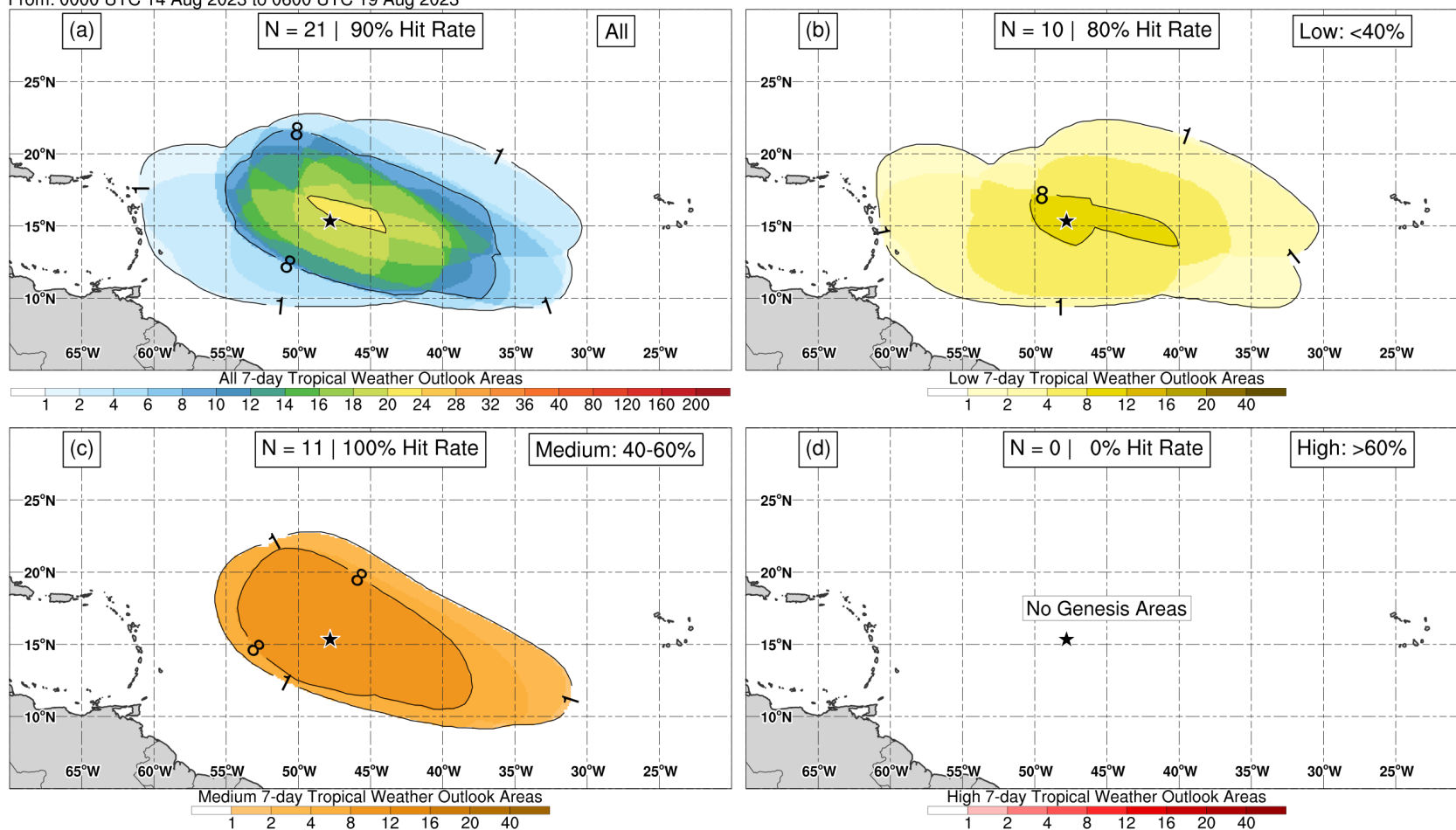


Figure 5a. Composites of 7-day tropical cyclone genesis areas depicted in NHC’s Tropical Weather Outlooks prior to the formation of Gert in the tropical Atlantic for (a) all probabilistic genesis categories, (b) the low (<40%) category, (c) medium (40–60%) category, and (d) high (>60%) category. The location of genesis is indicated by the black star.

Gert (Redevelopment) 7-day Tropical Weather Outlook Areas

From: 0600 UTC 30 Aug 2023 to 1800 UTC 31 Aug 2023

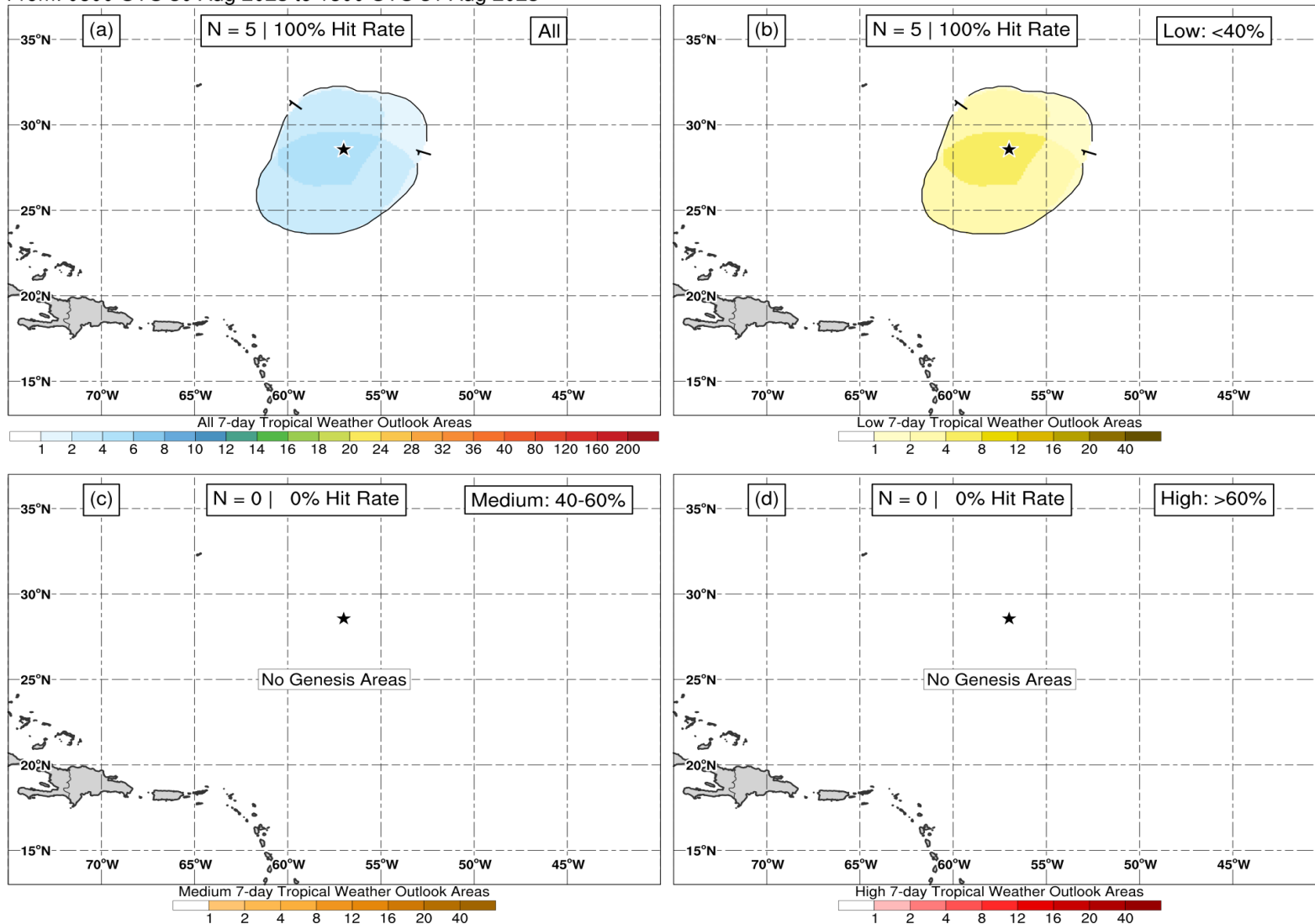


Figure 5b. Composites of 7-day tropical cyclone genesis areas depicted in NHC’s Tropical Weather Outlooks prior to the redevelopment of Gert in the subtropical Atlantic for (a) all probabilistic genesis categories, (b) the low (<40%) category, (c) medium (40–60%) category, and (d) high (>60%) category. The location of genesis is indicated by the black star.