

PRELIMINARY REPORT

Tropical Storm Isaac (28 September - 01 October 1988)

a. Synoptic history

Tropical Storm Isaac can be traced back to a weak disturbance that was near the west coast of Africa on 23 September. This low-latitude disturbance quickly merged with the intertropical convergence zone and moved westward in an undistinguished manner. On the 27th, satellite imagery showed a concentration and organization of convective activity in the mid Atlantic. On the 29th, the system was identified as Tropical Depression Sixteen while centered about 900 n.m. east southeast of Barbados, based on an interpretation of satellite imagery.

Figure 1 shows the best track of Isaac and Table 1 lists the best track statistics. Depression Sixteen moved westward at 14 knots. On the 30th, it shifted two degrees of latitude northward, possibly as a result of the formation of a new center. It then continued westward, crossing through the southern Lesser Antilles and into the southeastern Caribbean on 1 and 2 October. Also, its forward speed increased to 18 knots during this period.

Satellite imagery showed that the low level cloud circulation center was exposed to the west of the deep convection on the 29th and early 30th, indicating a westerly vertical shearing of the horizontal wind. However, late on the 30th, an Air Force plane measured a 1500-foot wind speed of 51 knots to the north of the center and a central surface pressure of 1005 millibars and the depression was upgraded to Tropical Storm Isaac. The storm center was a little over 200 n.m. east southeast of Barbados at this time and a tropical storm warning was issued for the islands of Barbados, the Grenadines, St. Vincint, St. Lucia, Dominica and Martinique at 2200 UTC on the 30th. Trinidad, Tobago and Grenada and its dependencies were placed under a tropical storm watch at 0400 UTC on 1 October.

The intensification to tropical storm status didn't last long because of the shearing environment and Isaac was downgraded to a depression on the morning of the 1 October, while it was centered in the Windward Islands and less than 18 hours after it was named. The depression's circulation completely dissipated shortly thereafter.

b. Meteorological statistics

The maximum one-minute surface wind speed and the minimum surface pressure curves as a function of time are shown in Figures 2 and 3, along with the observations on which these curves are based. The short time that Isaac's surface winds were 34 knots or higher is reflected in the sharpness of the peak of the wind curve. The maximum one-minute surface wind speed during Isaac's existence is estimated to be 40 knots, which is 80 per cent of the highest aircraft flight level wind. The National Hurricane Center (NHC) satellite wind speed estimates appear to have a slight positive bias. That is, the center passed about 60 n.m. south of Barbados at the time of the 0600 UTC NHC satellite wind estimate of 45 knots and Barbados' surface winds were only 10 knots at the time. Tables 2 and 3 list the probabilities that were issued for various cities when the storm was threatening the eastern Caribbean.

c. Casualty and damage statistics

There were no reports of casualties or damage.

d. Forecast and warning critique

Verification is limited since Isaac was a storm for such a short time. Although the track was a mostly westward one, the shift to the north occurred as Isaac was becoming a storm and this resulted in a north bias to the Official forecast at the time that storm warnings were issued. The QLM dynamical model and the NHC83 statistical/dynamical model also exhibited a northward bias.

Table 1. Preliminary best track, Tropical Storm Isaac,
28 September - 01 October 1988.

date/time (UTC)	position		pressure (mb)	wind speed (knots)	stage
	lat.	lon.			
28/1800	9.0	45.5	1009	25	tropical depression
29/0000	9.1	47.0	1008	25	" "
0600	9.3	48.7	1007	25	" "
1200	9.5	50.0	1007	25	" "
1800	9.6	51.3	1006	30	" "
30/0000	9.8	52.2	1006	30	" "
0600	10.2	53.1	1006	30	" "
1200	10.8	54.5	1005	30	" "
1800	11.4	56.0	1005	35	tropical storm
01/0000	11.8	57.7	1005	40	" "
0600	12.0	59.5	1005	35	" "
1200	12.0	61.2	1006	30	tropical depression
1800					tropical wave

maximum wind and minimum pressure:

01/0000	11.8	57.7	1005	40
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Table 2. 72-hour probability, in per cent, of center of Tropical Depression Sixteen passing within 65 miles of listed locations.

ADVISORY ISSUANCE TIME:	29/NOON	29/6PM	29/1030PM	30/6AM	30/NOON
PROBABILITY END TIME:	<u>02/8AM</u>	<u>02/2PM</u>	<u>02/8PM</u>	<u>03/2AM</u>	<u>03/8AM</u>
SKPG 125N 717W	X	2	2	2	4
TNCC 122N 690W	3	4	4	5	6
SVMG 110N 640W	9	10	8	11	11
TPPP 106N 614W	12	14	11	15	15
TPPT 112N 608W	13	15	14	16	18
TGPY 120N 618W	11	14	12	15	17
TBPB 131N 595W	13	15	17	17	24
TVSV 131N 612W	11	13	14	15	18
TLPL 138N 610W	11	13	14	14	18
TFFF 146N 610W	10	12	13	13	17
TDPR 153N 614W	8	10	12	11	15
TFFR 163N 615W	7	9	11	10	13
TAPA 171N 618W	5	7	10	8	11
TKPK 173N 627W	5	7	9	7	11
TNCM 181N 631W	3	5	7	6	9
TISX 177N 648W	3	5	6	5	9
TI1T 183N 650W	2	4	6	4	8
TJPS 180N 666W	2	3	4	3	7
MDSD 185N 697W	X	X	2	X	3
MDCB 176N 714W	X	X	X	X	3
MTPP 186N 724W	X	X	X	X	2
TJSJ 184N 661W	2	3	4	3	7
MDPP	X	X	X	X	2
ST CROIX VI	3	5	6	5	9
ST THOMAS VI	2	4	6	4	8
SAN JUAN PR	2	3	4	3	7
PONCE PR	2	3	4	3	7

X MEANS LESS THAN 2 PER CENT

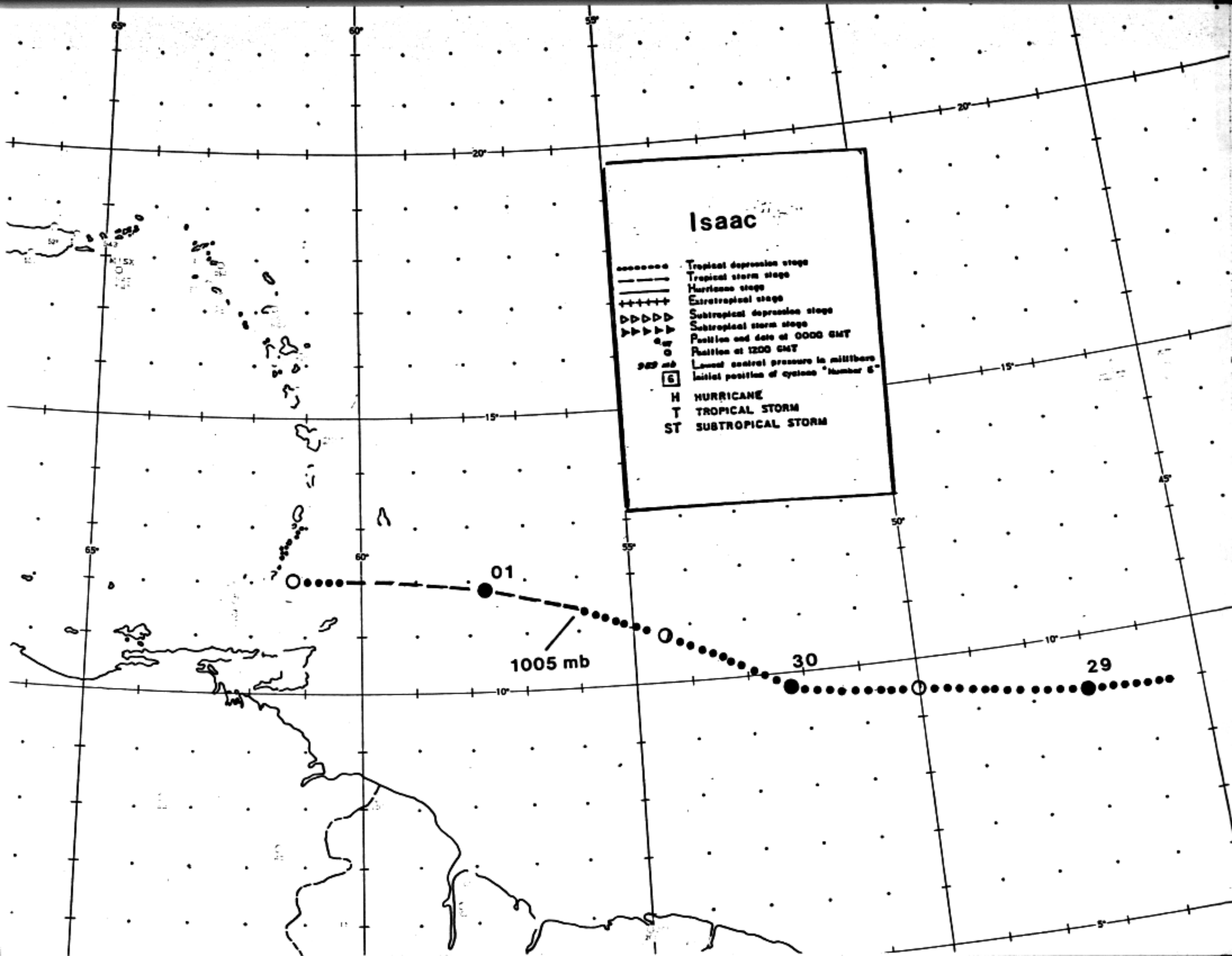
Table 3. 72-hour probability, in per cent, of center of Tropical Storm Isaac passing within 65 miles of listed locations.

ADVISORY ISSUANCE TIME:	30/6PM	01/0AM	01/6AM
PROBABILITY END TIME:	<u>03/2PM</u>	<u>03/8PM</u>	<u>04/2AM</u>
SKPG 125N 717W	5	5	6
TNCC 122N 690W	7	7	9
SVMG 110N 640W	9	8	10
TTPP 106N 614W	10	5	10
TTPT 112N 608W	17	12	27
TGPY 120N 618W	19	19	31
TBPB 131N 595W	50	71	68
TVSV 131N 612W	31	40	53
TLPL 138N 610W	33	46	46
TFFF 146N 610W	28	39	32
TDPR 153N 614W	23	30	23
TFFR 163N 615W	18	21	17
TAPA 171N 618W	16	17	14
TKPK 173N 627W	15	17	15
TNCM 181N 631W	13	14	13
TISX 177N 648W	13	15	14
TIST 183N 650W	12	14	13
TJPS 180N 666W	11	13	12
MDSO 185N 697W	7	9	9
MDCB 176N 714W	6	7	7
MTPP 186N 724W	4	5	5
MICA 183N 738W	3	4	4
MKJP 179N 768W	X	2	2
MUGM 200N 751W	X	2	2
TJSJ 184N 661W	11	13	12
MDPP 198N 707W	5	6	6
MBJT 215N 712W	X	4	4
MYMM 224N 730W	X	2	2
ST CROIX VI	13	15	14
ST THOMAS VI	12	14	13
SAN JUAN PR	11	13	12
PONCE PR	11	13	12

X MEANS LESS THAN 2 PER CENT

Figure captions:

- Figure 1. Best track of Tropical Storm Isaac, 28 September - 01 October 1988.
- Figure 2. Maximum one-minute surface wind speed versus time for Tropical Storm Isaac, 28 September - 01 October 1988.
- Figure 3. Minimum central surface pressure versus time for Tropical Storm Isaac, 28 September - 01 October 1988.



Isaac

- Tropical depression stage
- Tropical storm stage
- ===== Hurricane stage
- +++++ Extratropical stage
- ▽▽▽ Subtropical depression stage
- △△△ Subtropical storm stage
- Position and date at 0000 GMT
- Position at 1200 GMT
- 999 mb Lowest central pressure in millibars
- 6 Initial position of cyclone "Number 6"
- H HURRICANE
- T TROPICAL STORM
- ST SUBTROPICAL STORM

01

1005 mb

30

29

PRESSURE (MB)

