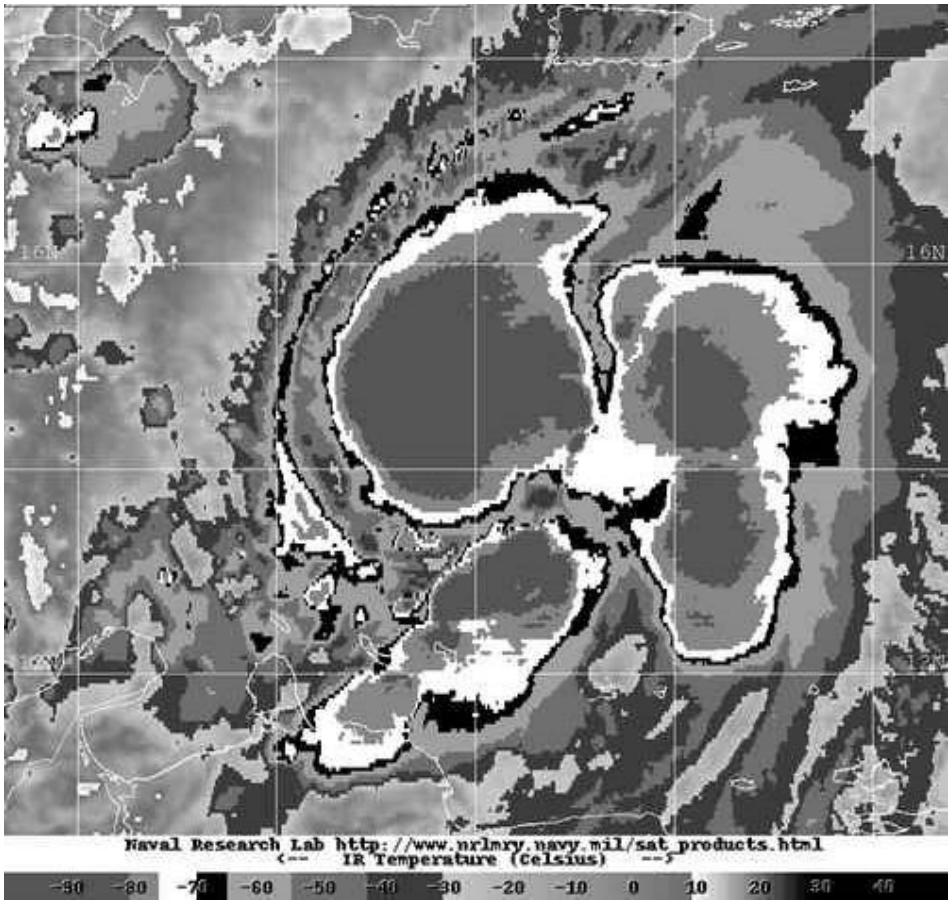
Part 1: What is the initial intensity?

15/0600 UTC



Dvorak Classifications:

TAFB: T4.5
SAB: T4.5

3-hr average ADT: T4.4

Dvorak Scale

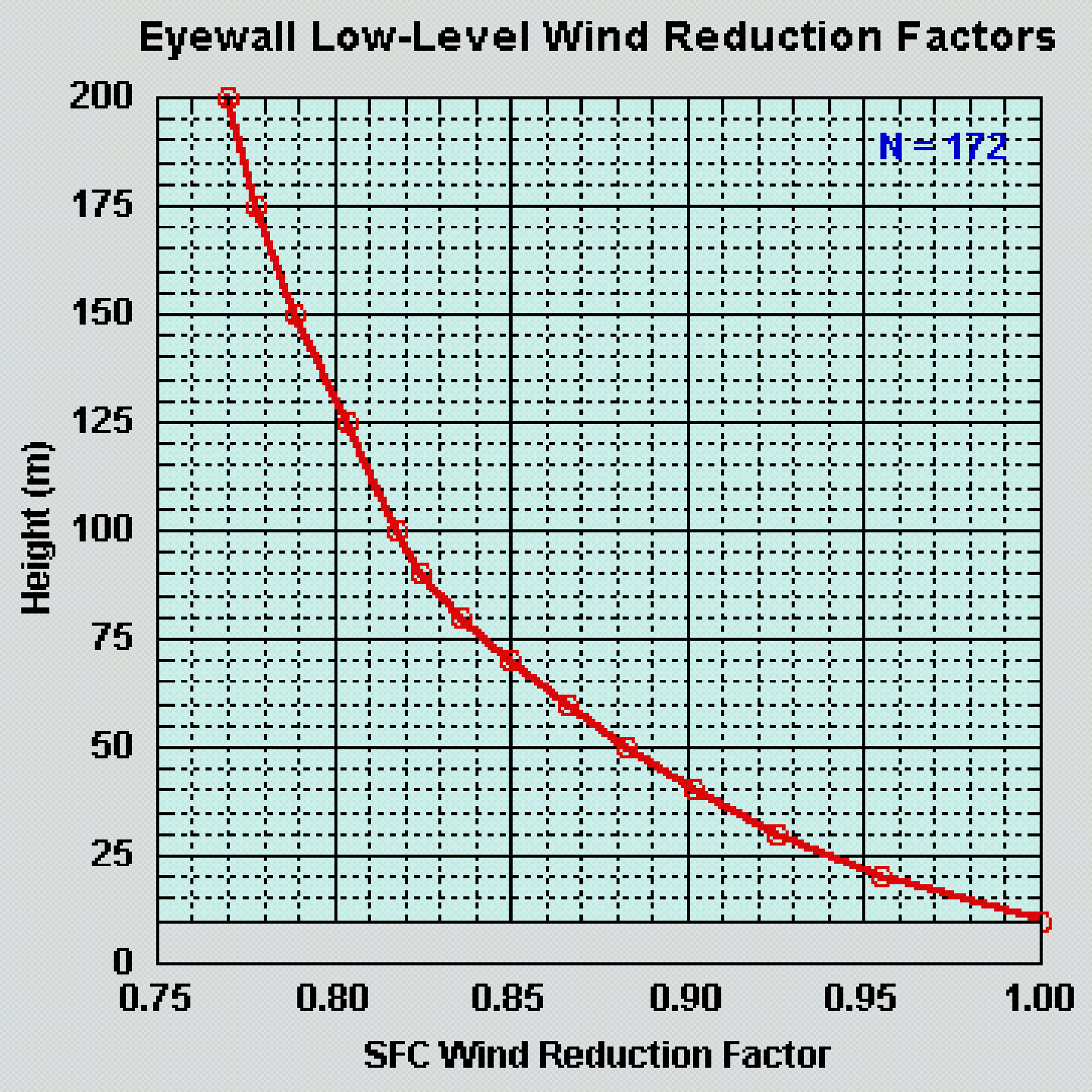
CI Number	MWS (kt)	MSLP (Atlantic)	MSLP (NW Pacific)
1.0	25		
1.5	25		
2.0	30	1009 mb	1000 mb
2.5	35	1005 mb	997 mb
3.0	45	1000 mb	991 mb
3.5	55	994 mb	984 mb
4.0	65	987 mb	976 mb
4.5	77	979 mb	966 mb
5.0	90	970 mb	954 mb
5.5	102	960 mb	941 mb
6.0	115	948 mb	927 mb
6.5	127	935 mb	914 mb
7.0	140	921 mb	898 mb
7.5	155	906 mb	879 mb
8.0	170	890 mb	858 mb

Vortex Message
15 / 0547 UTC

```
000
URNT12 KNHC 150601 CCA
VORTEX DATA MESSAGE
A. 15/05:47:20Z
B. 14 deg 23 min N
  068 deg 05 min W
C. 700 mb 2977 m
D. 65 kt
E. 012 deg 9 nm
F. 095 deg 047 kt
G. 032 deg 025 nm
H. 985 mb
I. 10 C/ 3047 m
J. 15 C/ 3049 m
K. 7 C/ NA
L. OPEN S
M. E36/22/12
N. 12345/7
O. 0.02 / 2 nm
P. AF302 0315A              OB 03 CCA
MAX OUTBOUND AND MAX FL WIND 67 KT SW QUAD 05:50:30 Z
```

Eyewall Dropsonde
15 / 0618 UTC

```
000
UZNT13 KNHC 150618
XXAA  65067 99145 70681 04348 99990 25200 06063 00591 ///// /////
92596 22400 08068 85334 20400 11536 70992 09024 10027 88999 77999
31313 09608 80545
61616 AF302 0315A              OB 04
62626 EYEWALL 045 SPL 1451N06811W 0549 MBL WND 06562 AEV 20800 DL
M WND 09542 989697 WL150 06067 089 REL 1451N06806W 054502 SPG 145
1N06811W 054902 =
XXBB  65068 99145 70681 04348 00990 25200 11850 20400 22713 13618
33697 08025
21212 00990 06063 11977 06069 22936 08054 33930 08558 44924 08070
55920 08571 66913 09064 77899 09565 88888 10057 99877 10553 11873
10056 22866 10537 33859 12040 44850 11536 55778 10042 66697 10027
31313 09608 80545
61616 AF302 0315A              OB 04
62626 EYEWALL 045 SPL 1451N06811W 0549 MBL WND 06562 AEV 20800 DL
M WND 09542 989697 WL150 06067 089 REL 1451N06806W 054502 SPG 145
1N06811W 054902 =
```

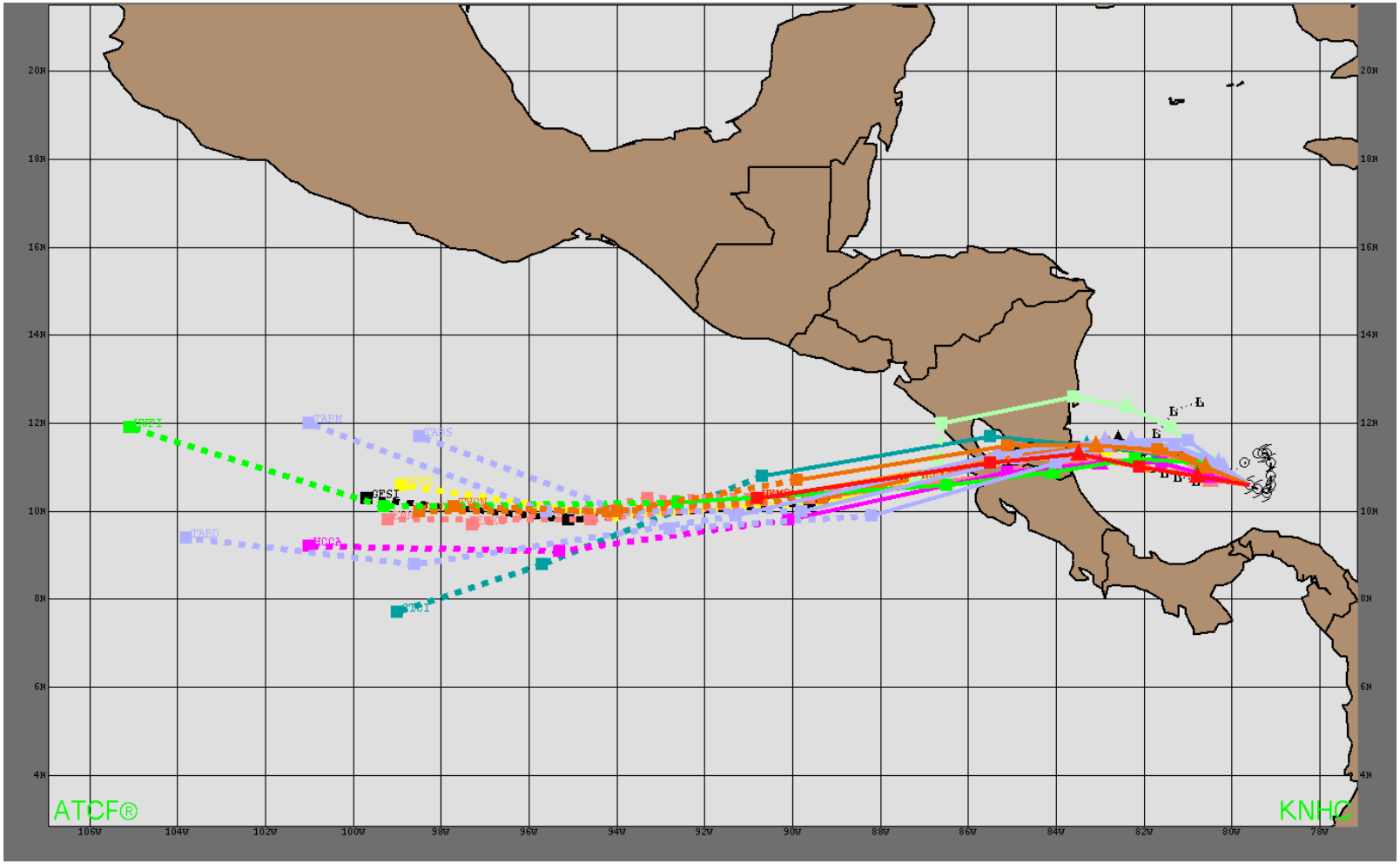

Eyewall Low-Level Wind Reduction Factors
N = 172
Height (m)
200
175
150
125
100
75
50
25
0
0.75
0.80
0.85
0.90
0.95
1.00
SFC Wind Reduction Factor

Part 1: What is the initial intensity given the following estimates?

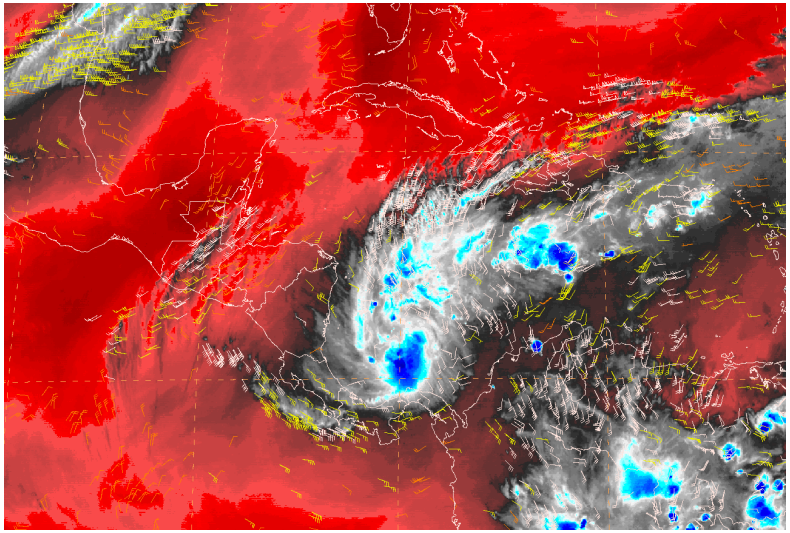
Subjective Dvorak	77 kt
Objective Dvorak (ADT)	75 kt
SFMR Surface Wind	65 kt
Recon-adjusted Flight-level Wind	60 kt
Dropsonde Surface Wind	63 kt
Dropsonde Surface-adjusted MBL	50 kt
Dropsonde Surface-adjusted WL150	55 kt
Official Intensity at 0600 UTC	?

Part 2: 36-Hour Forecast Intensity

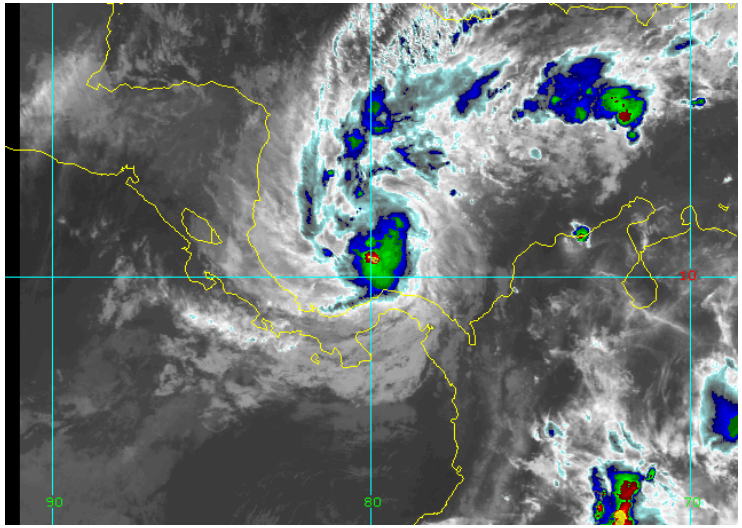
Model Track Guidance

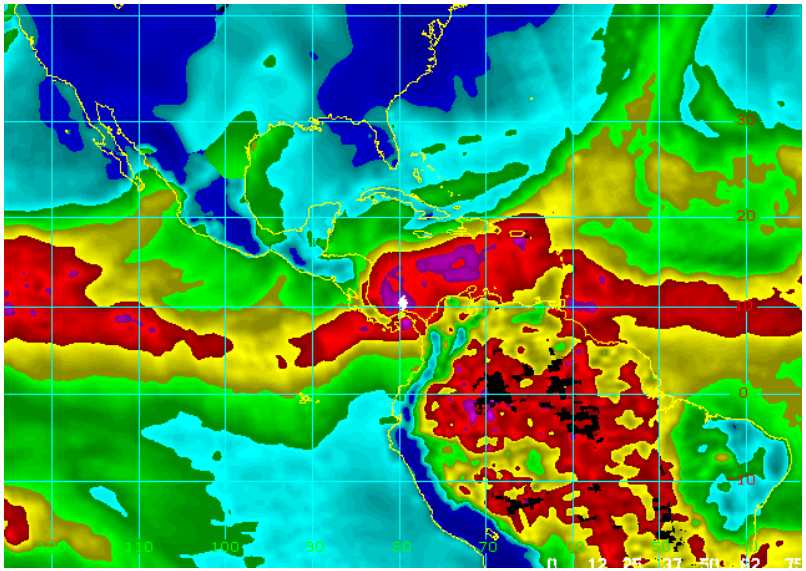


Water Vapor Imagery and Mid- to Upper Level Winds

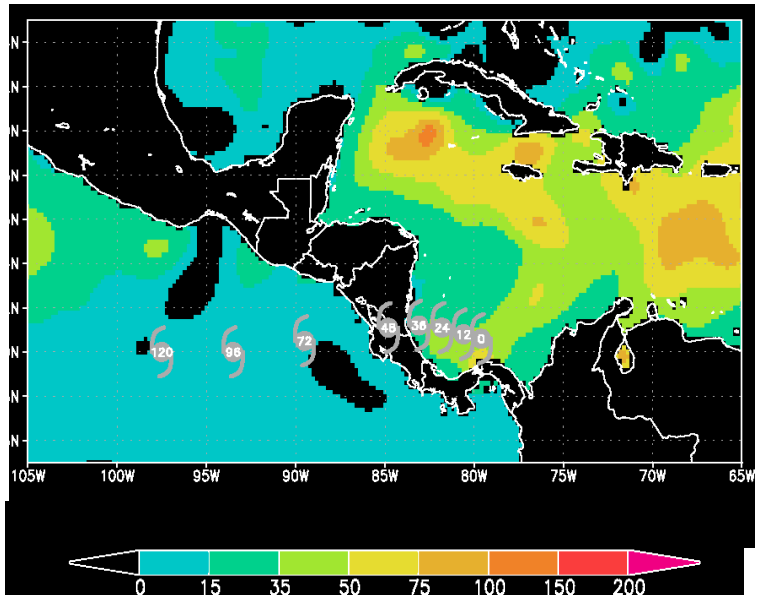


Infrared Imagery (Window Channel)



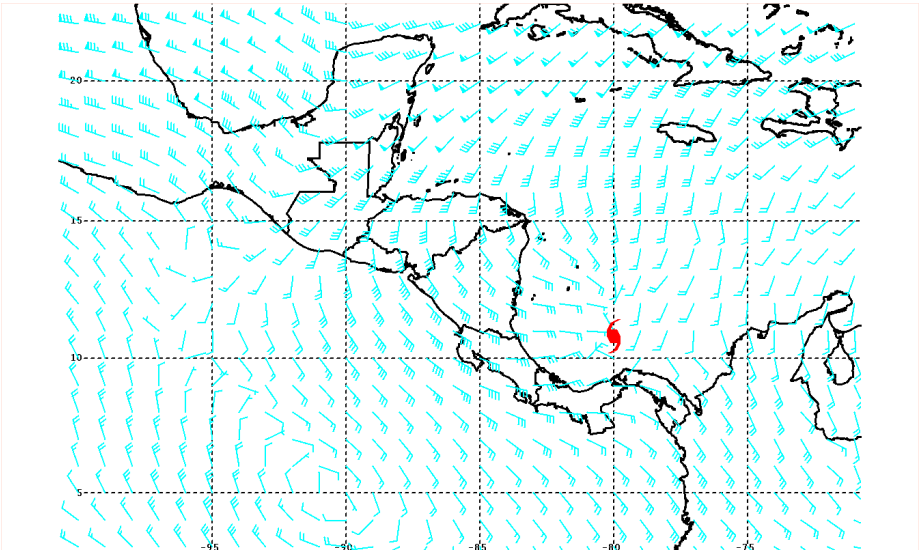


Total Precipitable Water

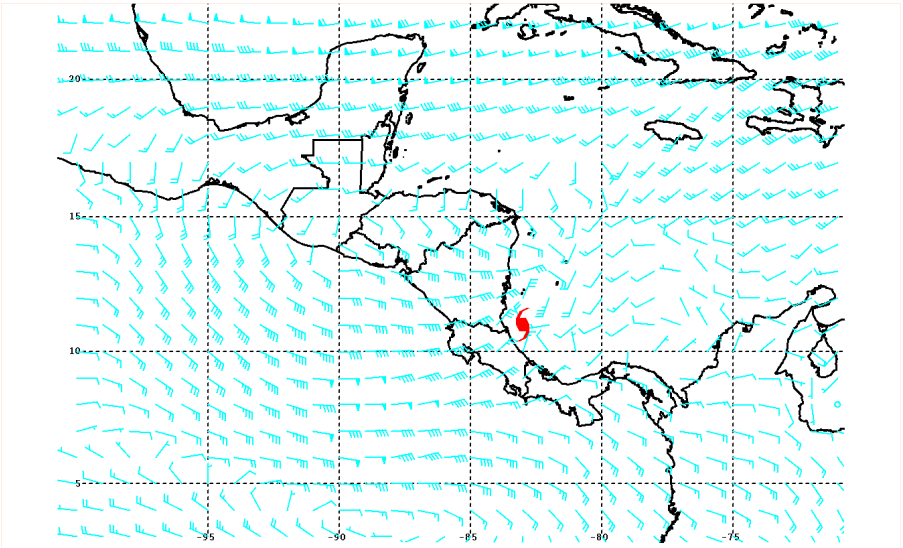


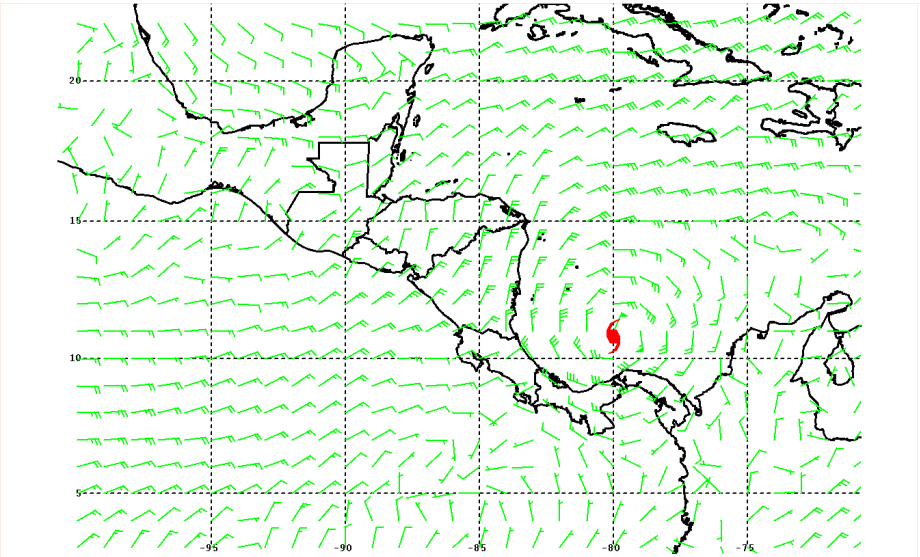
Oceanic Heat Content

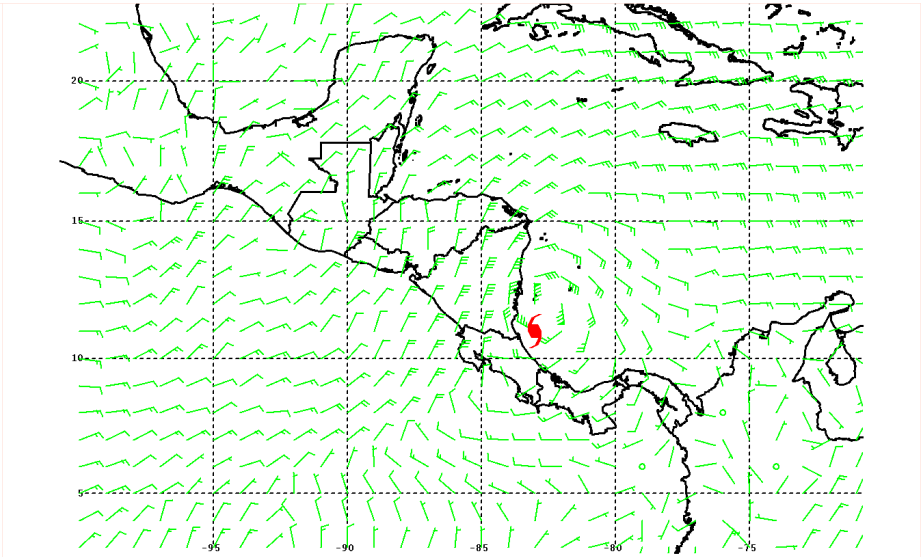
200 hPa Wind 6 hr GFS forecast



200 hPa Wind 42 hr GFS forecast



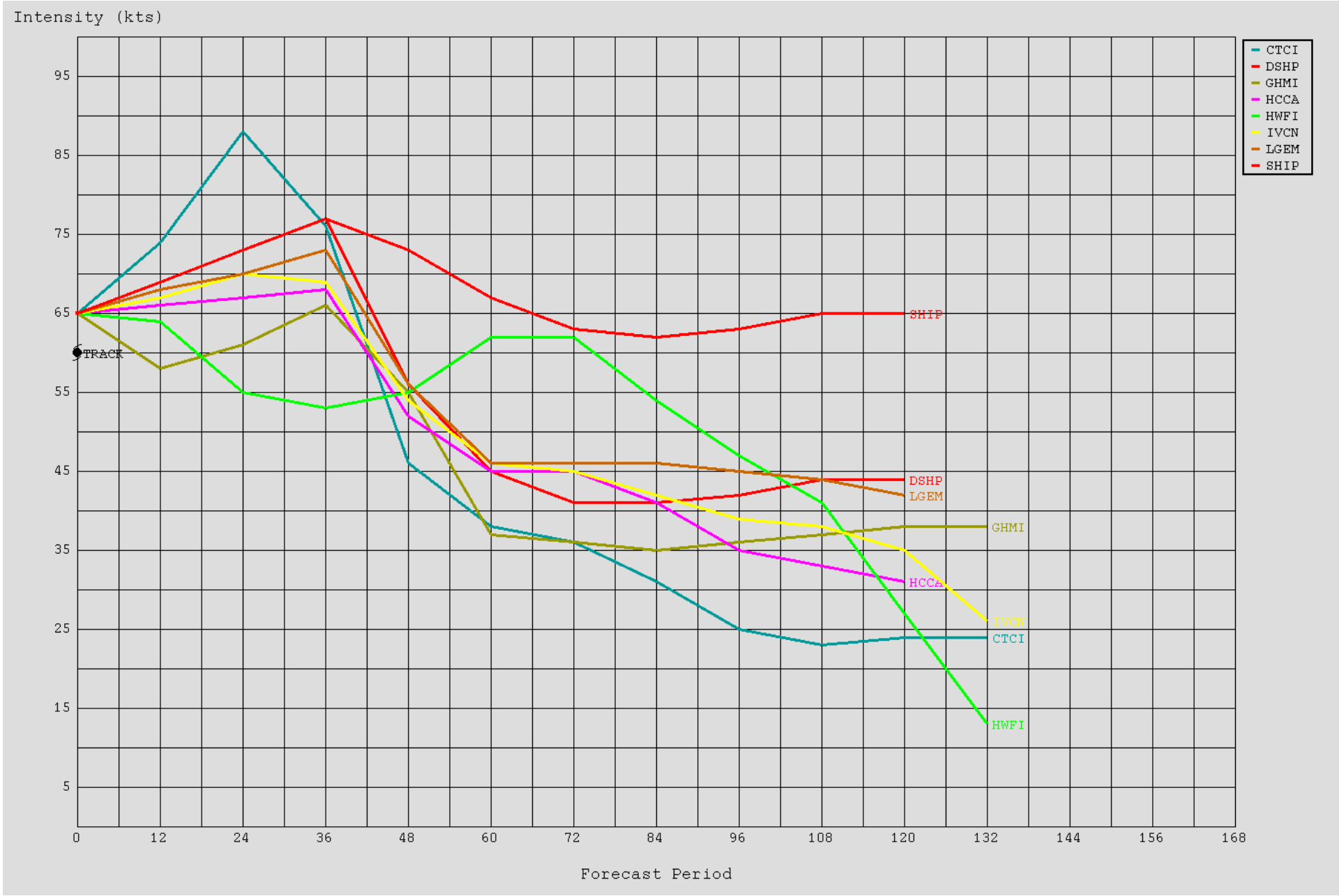




850 hPa Wind 6 hr GFS forecast

850 hPa Wind 42 hr GFS forecast

Intensity Model Guidance



SHIPS/LGEM Model Guidance

```
* ATLANTIC     SHIPS INTENSITY FORECAST          *
* IR SAT DATA AVAILABLE,       OHC AVAILABLE     *
```

TIME (HR)	0	6	12	18	24	36	48	60	72	84	96	108	120
V (KT) NO LAND	65	67	69	71	73	77	73	67	63	62	63	65	65
V (KT) LAND	65	67	69	71	73	77	56	45	41	41	42	44	44
V (KT) LGEM	65	67	68	69	70	73	56	46	46	46	45	44	42
Storm Type	TROP	TROP	TROP	TROP	TROP	TROP	TROP	TROP	TROP	TROP	TROP	TROP	TROP
SHEAR (KT)	14	13	12	11	12	11	16	22	25	25	20	20	24
SHEAR ADJ (KT)	0	-1	-3	-4	-4	-2	-1	-1	0	1	4	8	7
SHEAR DIR	136	151	151	123	116	119	133	135	125	125	115	108	89
SST (C)	29.0	29.0	29.0	29.0	29.1	29.2	28.7	28.1	28.1	28.7	29.1	29.1	28.6
POT. INT. (KT)	148	148	149	150	152	154	147	139	138	146	152	154	147
ADJ. POT. INT.	141	142	144	147	149	151	146	140	139	144	152	160	153
200 MB T (C)	-52.9	-53.0	-53.2	-52.6	-52.8	-53.3	-53.0	-53.6	-53.3	-54.1	-53.8	-54.4	-54.1
200 MB VXT (C)	-0.2	-0.2	-0.1	0.0	0.1	0.1	0.1	0.2	0.3	0.1	0.0	0.0	0.0
TH_E DEV (C)	6	5	4	5	5	4	5	4	5	4	4	4	5
700-500 MB RH	63	66	67	69	70	74	75	74	71	65	67	60	58
MODEL VTX (KT)	17	18	18	18	17	20	15	11	8	10	11	11	10
850 MB ENV VOR	51	63	64	66	62	62	61	46	48	28	8	-6	-7
200 MB DIV	68	86	109	104	61	64	61	45	61	65	80	77	65
700-850 TADV	0	1	0	0	1	1	6	10	9	10	8	5	1
LAND (KM)	111	135	163	212	196	85	-55	83	311	412	463	559	695
LAT (DEG N)	10.6	10.8	10.9	11.0	11.1	11.1	11.1	10.8	10.3	10.0	9.9	9.8	9.5
LONG(DEG W)	79.6	79.9	80.2	80.8	81.5	82.9	84.4	86.6	89.1	91.1	92.2	94.3	97.1
STM SPEED (KT)	3	3	5	6	7	7	9	12	11	7	8	12	14
HEAT CONTENT	44	41	37	35	35	31	24	3	12	4	6	7	3

```
FORECAST TRACK FROM OFCI      INITIAL HEADING/SPEED (DEG/KT):290/  2      CX,CY:  -1/  1
T-12 MAX WIND:  60            PRESSURE OF STEERING LEVEL (MB):  591  (MEAN=618)
GOES IR BRIGHTNESS TEMP. STD DEV.  50-200 KM RAD:  10.1 (MEAN=14.5)
% GOES IR PIXELS WITH T < -20 C    50-200 KM RAD:  74.0 (MEAN=65.0)
PRELIM RI PROB (DV .GE. 30 KT IN 24 HR):           10.4
```

Rapid Intensification Index

```
     **    ATLANTIC RI INDEX                                    **
(SHIPS-RII PREDICTOR TABLE for 30 KT OR MORE MAXIMUM WIND INCREASE IN NEXT 24-h)

    Predictor                Value   RI Predictor Range  Scaled Value(0-1) % Contribution
12 HR PERSISTENCE (KT):       5.0     -49.5  to   33.0       0.66            6.3
850-200 MB SHEAR (KT) :      12.5      28.8  to    2.9       0.63            2.7
HEAT CONTENT (KJ/cm2) :      38.4       0.0  to  155.1       0.25            0.8
STD DEV OF IR BR TEMP :      10.1      37.5  to    2.9       0.79            3.3
2nd PC OF IR BR TEMP  :       0.1       2.8  to   -3.1       0.45            1.9
MAXIMUM WIND (kt)     :      65.0      22.5  to  121.0       0.89            1.3
D200 (10**7s-1)       :      85.6     -23.1  to  181.5       0.53            0.9
POT = MPI-VMAX (KT)   :      79.6      28.4  to  139.1       0.46            1.1
% AREA WITH TPW <45 mm:       0.0     100.0  to    0.0       1.00            1.0
BL DRY-AIR FLUX (w/m2):     156.8     960.3  to  -67.1       0.78            0.0

SHIPS Prob RI for 20kt/ 12hr RI threshold=  11% is   2.0 times sample mean ( 5.5%)
SHIPS Prob RI for 25kt/ 24hr RI threshold=  33% is   2.8 times sample mean (11.6%)
SHIPS Prob RI for 30kt/ 24hr RI threshold=  19% is   2.7 times sample mean ( 7.2%)
SHIPS Prob RI for 35kt/ 24hr RI threshold=  15% is   3.7 times sample mean ( 4.2%)
SHIPS Prob RI for 40kt/ 24hr RI threshold=  11% is   3.8 times sample mean ( 2.8%)
SHIPS Prob RI for 45kt/ 36hr RI threshold=  21% is   4.3 times sample mean ( 4.9%)
SHIPS Prob RI for 55kt/ 48hr RI threshold=  20% is   3.8 times sample mean ( 5.1%)
```

What is your 36 hr Intensity Forecast?