

080721H Polly

Lead Project Scientist

Preflight

- ☒ 1. Participate in general mission briefing.
- ☒ 2. Determine specific mission and flight requirements for assigned aircraft.
- ☒ 3. Determine from field program director whether aircraft has operational fix responsibility and discuss with AOC flight director/meteorologist unless briefed otherwise by field program director.
- ☒ 4. Contact HRD members of crew to:
 - a. Assure availability for mission.
 - b. Review field program safety checklist
 - c. Arrange ground transportation schedule when deployed.
 - d. Determine equipment status.
- ☐ 5. Meet with AOC flight director and navigator at least 3 hours before take-off for initial briefing.
- ☐ 5. Meet with AOC flight crew at least 2 hours before take-off for crew briefing. Provide copies of flight requirements and provide a formal briefing for the flight director, navigator, and pilots.
- ☐ 6. Report status of aircraft, systems, necessary on-board supplies and crews to appropriate HRD operations center (MGOC in Miami).
- ☐ 7. Before take-off, brief the on-board GPS dropsonde operator on times and positions of drop times.
- ☐ 7. Make sure each HRD flight crew members have life vests
- ☐ 7. Perform a headset operation check with all HRD flight crew members. Make sure everyone can hear and speak using the headset.
- ☐ 8. Collect "mess" fee (\$2.00) from all on-board HRD flight crew members.

In-Flight

- ☐ 1. Confirm from AOC flight director that satellite data link is operative (information).
- ☐ 2. Confirm camera mode of operation.
- ☐ 3. Confirm data recording rate.
- ☐ 4. Complete Lead Project Scientist Form.
- ☐ 5. Check in with the flight director to make sure the mission is going as planned (i.e. turns are made when they are supposed to be made).

Post flight

- ☐ 1. Debrief scientific crew.
- ☐ 2. Report landing time, aircraft, crew, and mission status along with supplies (tapes, etc.) remaining aboard the aircraft to MGOC.
- ☐ 3. Gather completed forms for mission and turn in at the appropriate operations center. [Note: all data removed from the aircraft by HRD personnel should be cleared with the AOC flight director.]
- ☐ 4. Obtain a copy of the 10-s flight listing from the AOC flight director. Turn in with completed forms.
- ☐ 5. Obtain a copy of the radar DAT tapes. Turn in with completed forms.
- ☐ 6. Obtain a copy of the all VHS videos from aircraft cameras (3-4 approx.). Turn in with completed forms.
- ☐ 7. Obtain a copy of CD with all flight data. Turn in with completed forms.
- ☐ 8. Determine next mission status, if any, and brief crews as necessary.
- ☐ 9. Notify MGOC as to where you can be contacted and arrange for any further coordination required.
- ☐ 10. Prepare written mission summary using **Mission Summary** form (due to Field Program Director a week after the flight).

Lead Project Scientist Check List

Date 8/21/08 Aircraft 42 Flight ID 080721H

Dolly

A. Participants:

HRD		AOC	
Function	Participant	Function	Participant
Lead Project Scientist	<u>M. Black</u>	Flight Director	<u>Barry Damiano</u>
Radar	<u>Sylvie Lorusso</u>	Pilots	<u>Barry Chay, DL Givamonte</u>
Workstation	<u>Sylvie Lorusso</u>	Navigator	<u>Tom Gallagher, Kiddle</u>
Cloud Physics		Systems Engineer	<u>Steve Wedge, East</u>
Photographer/Observer		Data Technician	<u>Bobby Peck</u>
/Guests		Electronics Technician	<u>Bill Olney</u>
Dropwindsonde	<u>M. Black</u>	Other	
AXBT/AXCP	<u>M. Black/Lorusso</u>		

B. Take-off and Landing Locations:

Take-Off: _____ Location: Mar P. 11

Landing: _____ Location: _____

Number of Eye Penetrations: _____

C. Past and Forecast Storm Locations:

Date/Time	Latitude	Longitude	MSLP	Maximum Wind
<u>21/12Z</u>	<u>22</u>	<u>88</u>	<u>NW tip of Mexico</u>	

D. Mission Briefing:

Recco, AXBT, Doppler mission
Fix at 12Z @ 15,500 ft, Doppler legs
@ 5 Kft, 12 AXBTs - 3-4 lines
ahead of storm at 24 hr fest,
36 hr fest

Lead Project Scientist Event Log

Date 7/21/08 Flight 080721 H LPS M. Black

Time	Event	Position	Comments
0857	Take off	Map 11	Delayed 1 hr for 12 th site
1027		236'N, 8642'N	TKO
1029	Descend to 1,500 Ft		
1105	No real center		
1120	105 miles west of cts		
1120	Impressive band oriented N/S		
1122	Turn around head east back to supposed center		
1144	Center		
1219	East of center turning to N		
1256	NE of center		
1310	Center	22°04' 89 10'	
1320	West of center		
1321	Climb to 5,000 Ft	hdg WNW	
	to AXBT grid		
134430	AXBT#1	22.5 91.5	28.4° 35m
135716	AXBT#2	23.0 91.0	20 kts ML
135717	Drop#1	Fast Fall	Prop 2 OK
141341	AXBT#3	Ch 12 23.75 90.5	28.2° 45m ML
142133	AXBT#4	Ch 12	28.2° 50m ML
143100	AXBT#5	Ch 12	28.2° 50m ML

Failed

Prop 2

Prop 3

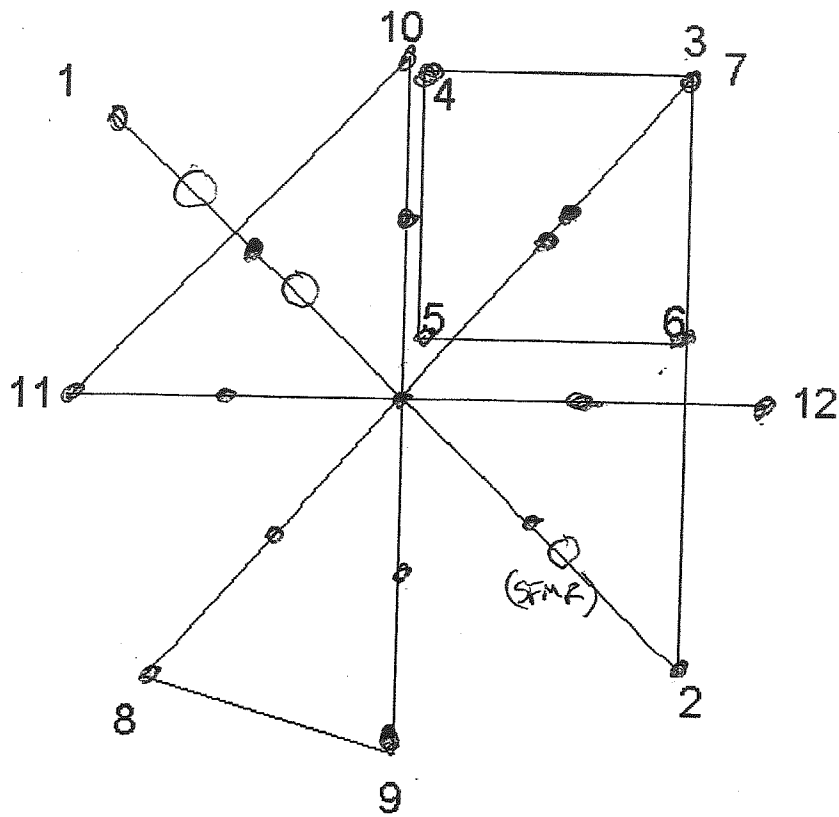
Prop 4

Lead Project Scientist Event Log

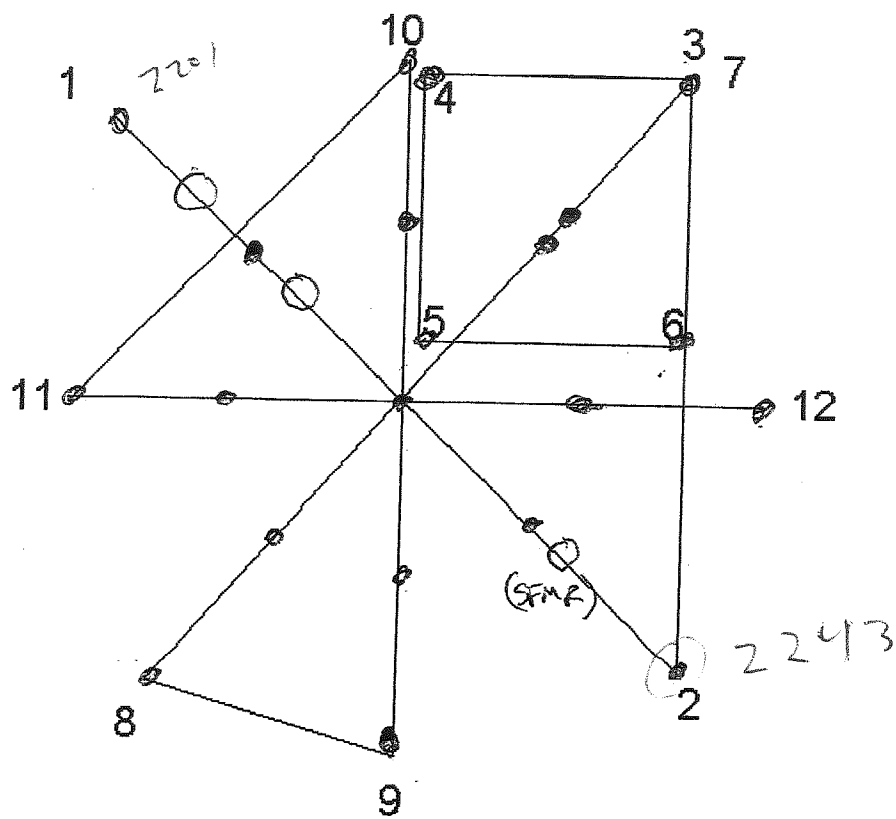
Date _____ Flight _____ LPS _____

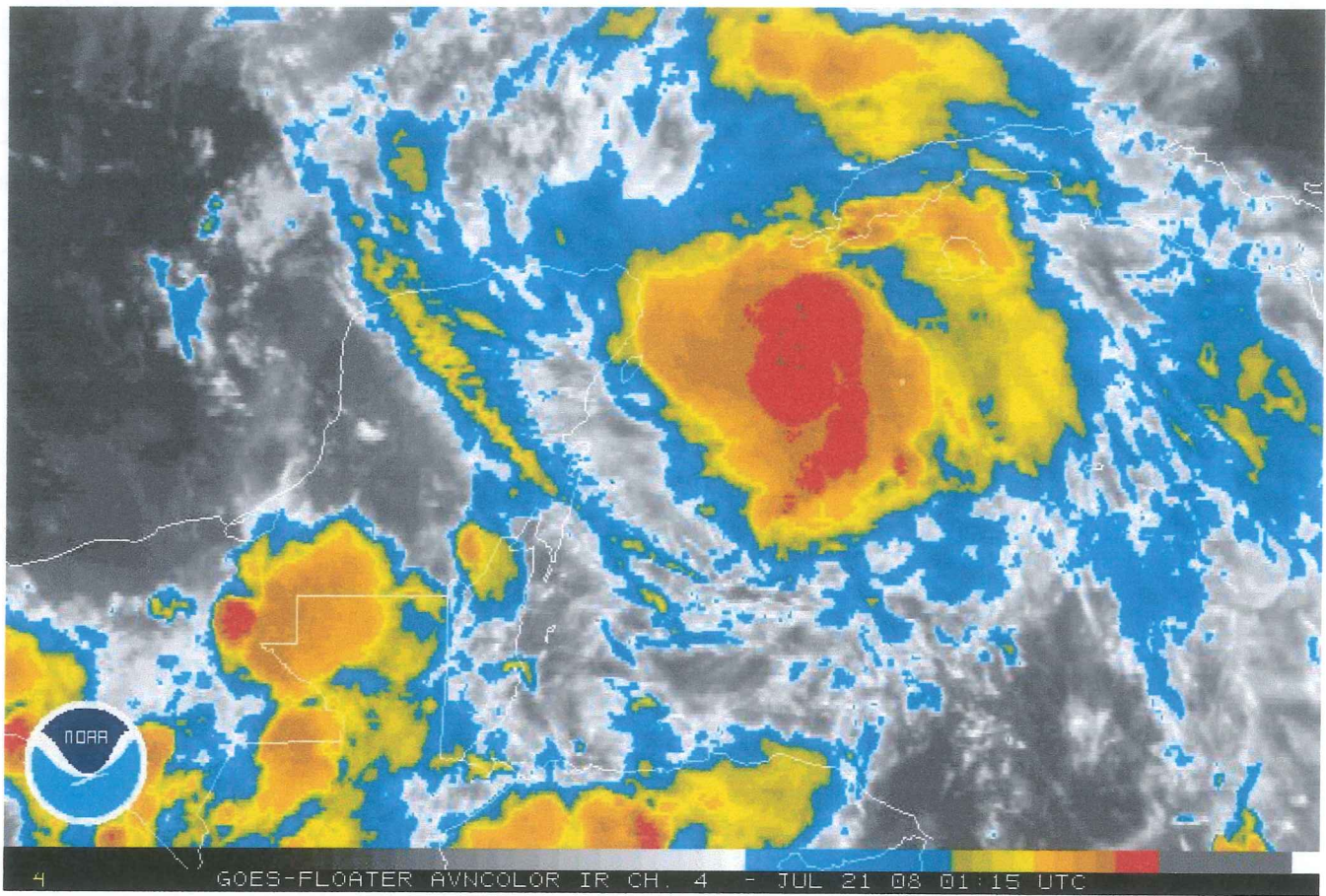
221008 Post B75 1-6

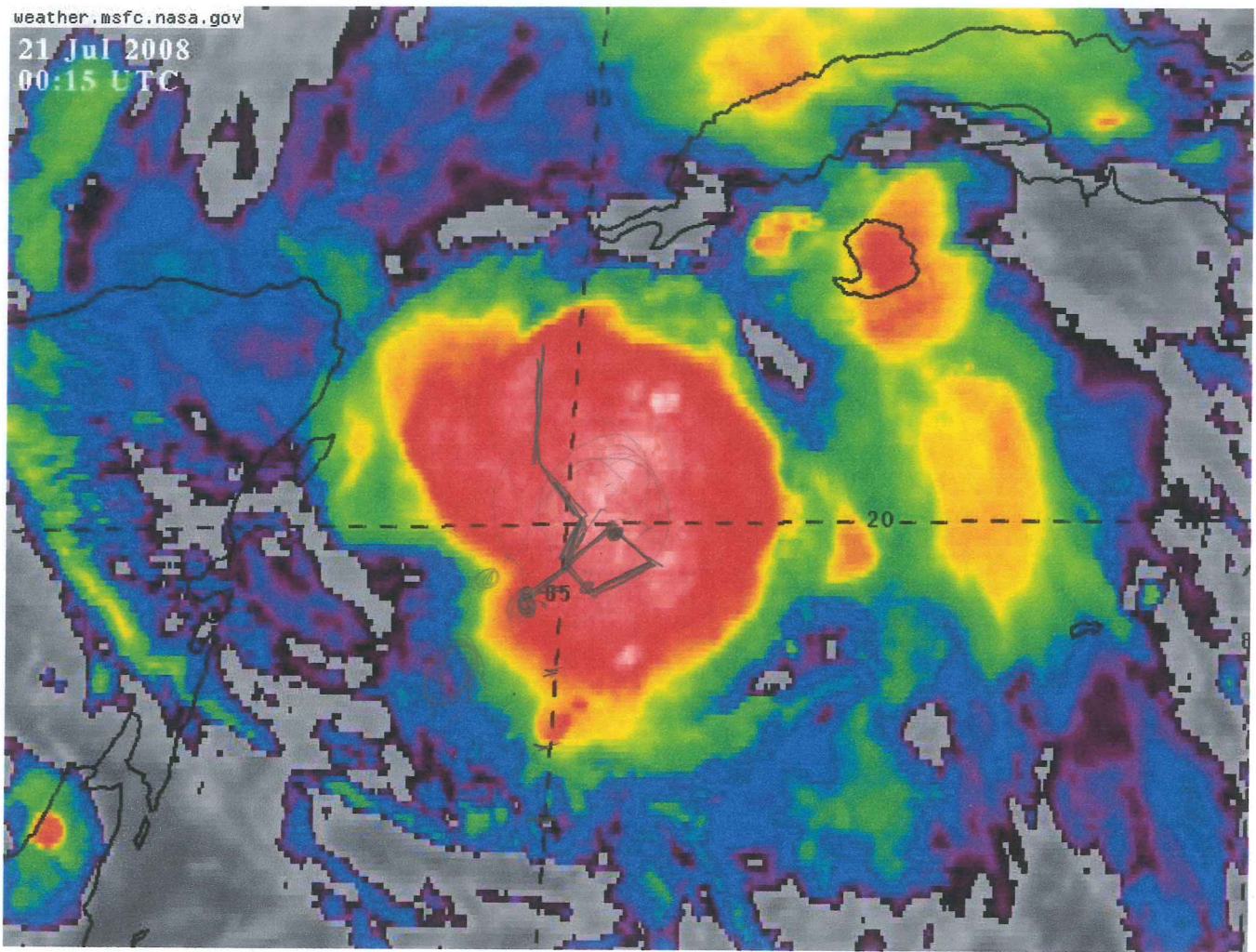
[illegible] 28.2°



1st cent. 2221



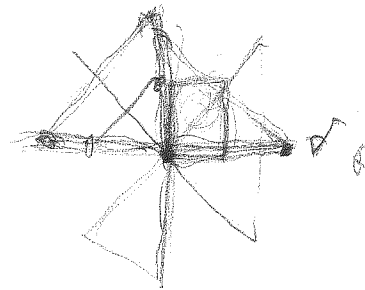
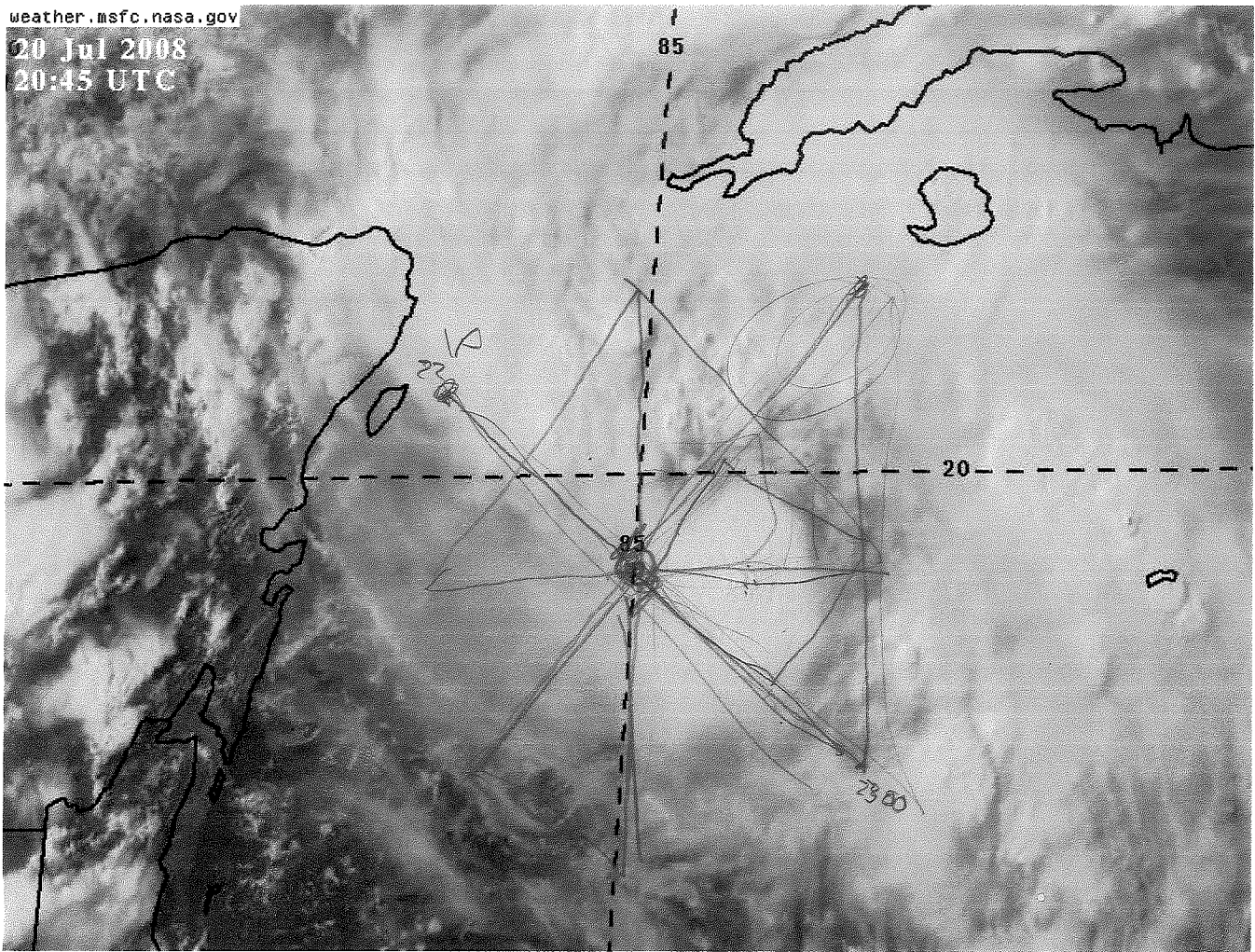




weather.msfc.nasa.gov

20 Jul 2008

20:45 UTC

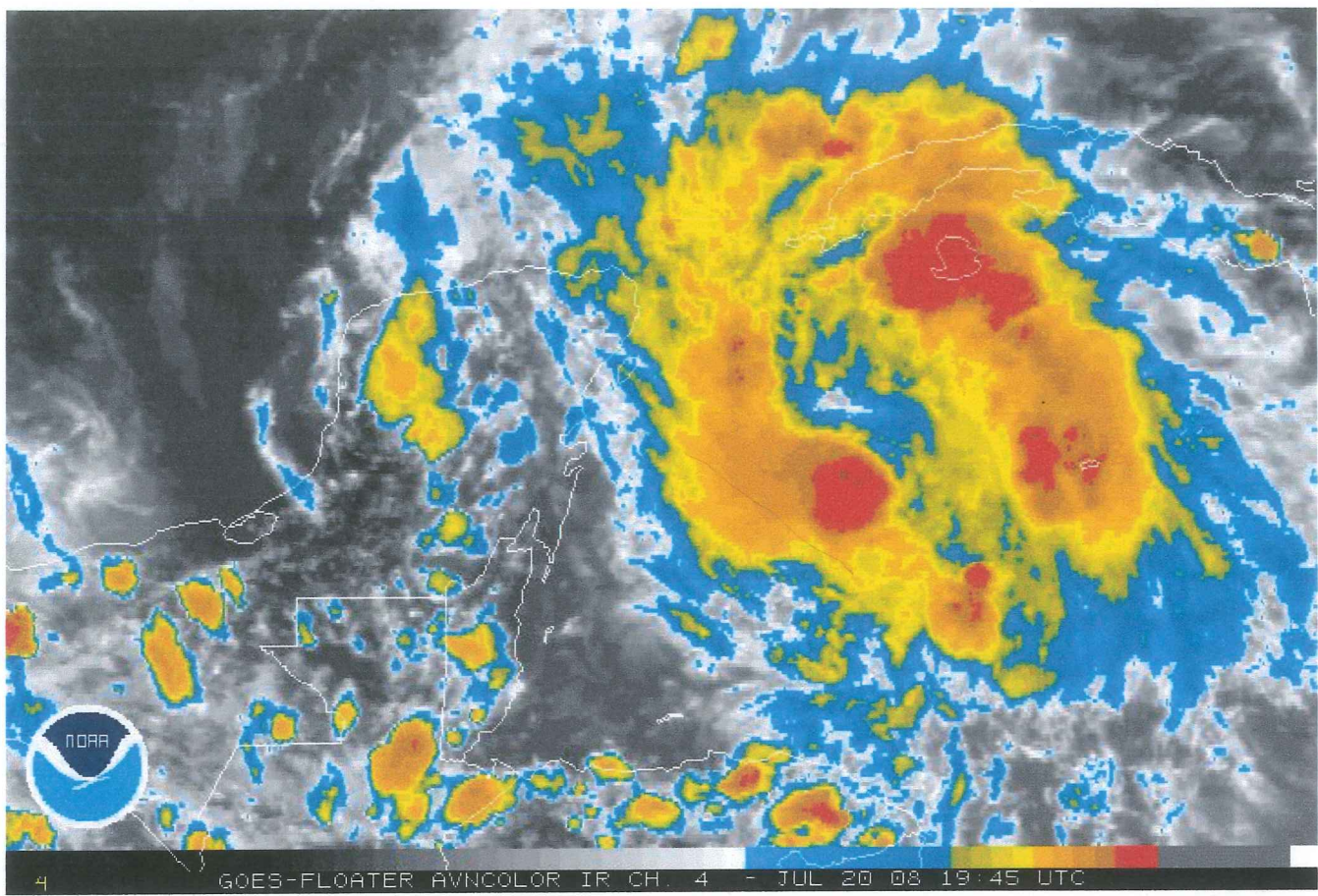


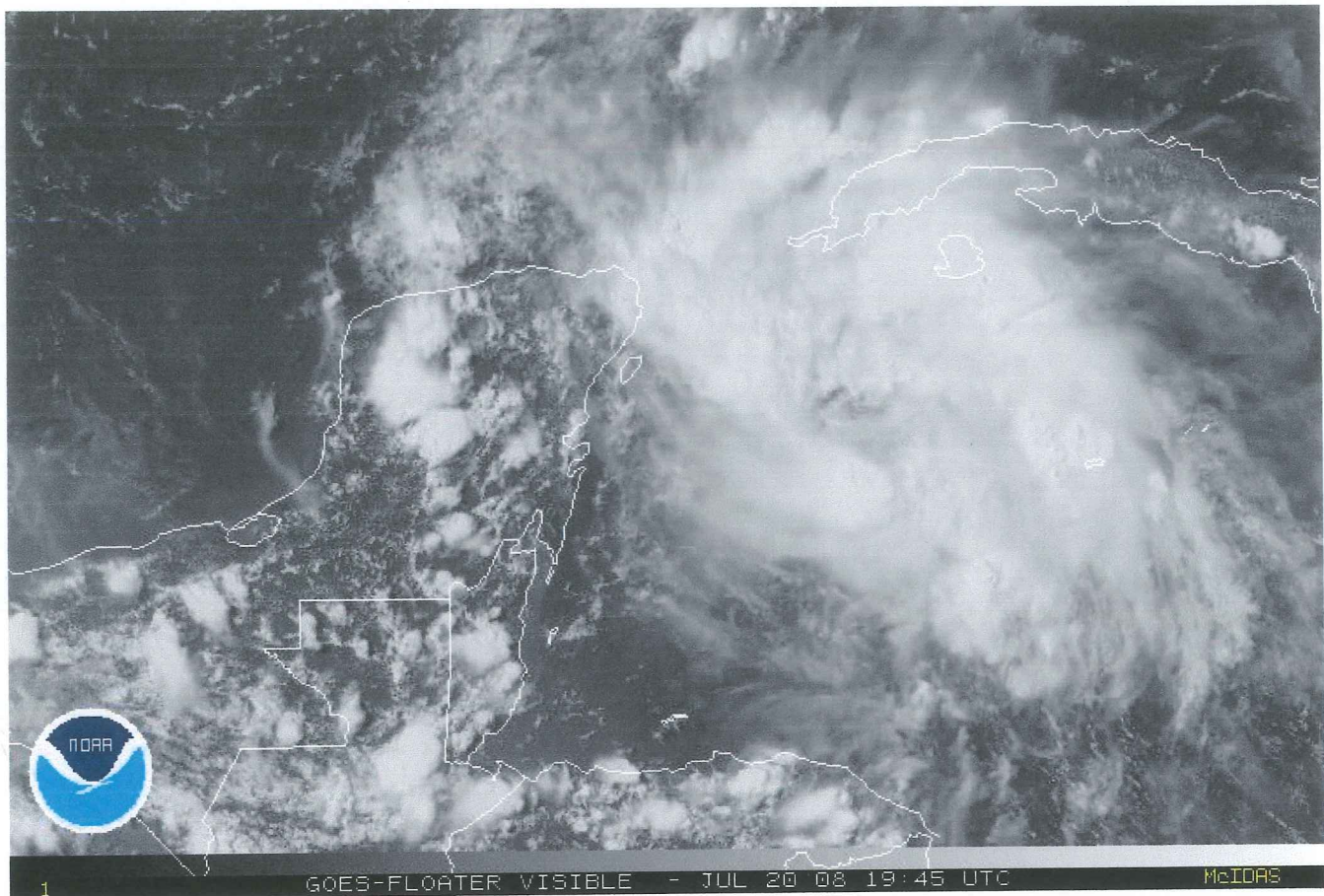
45 min
4 min
20 min

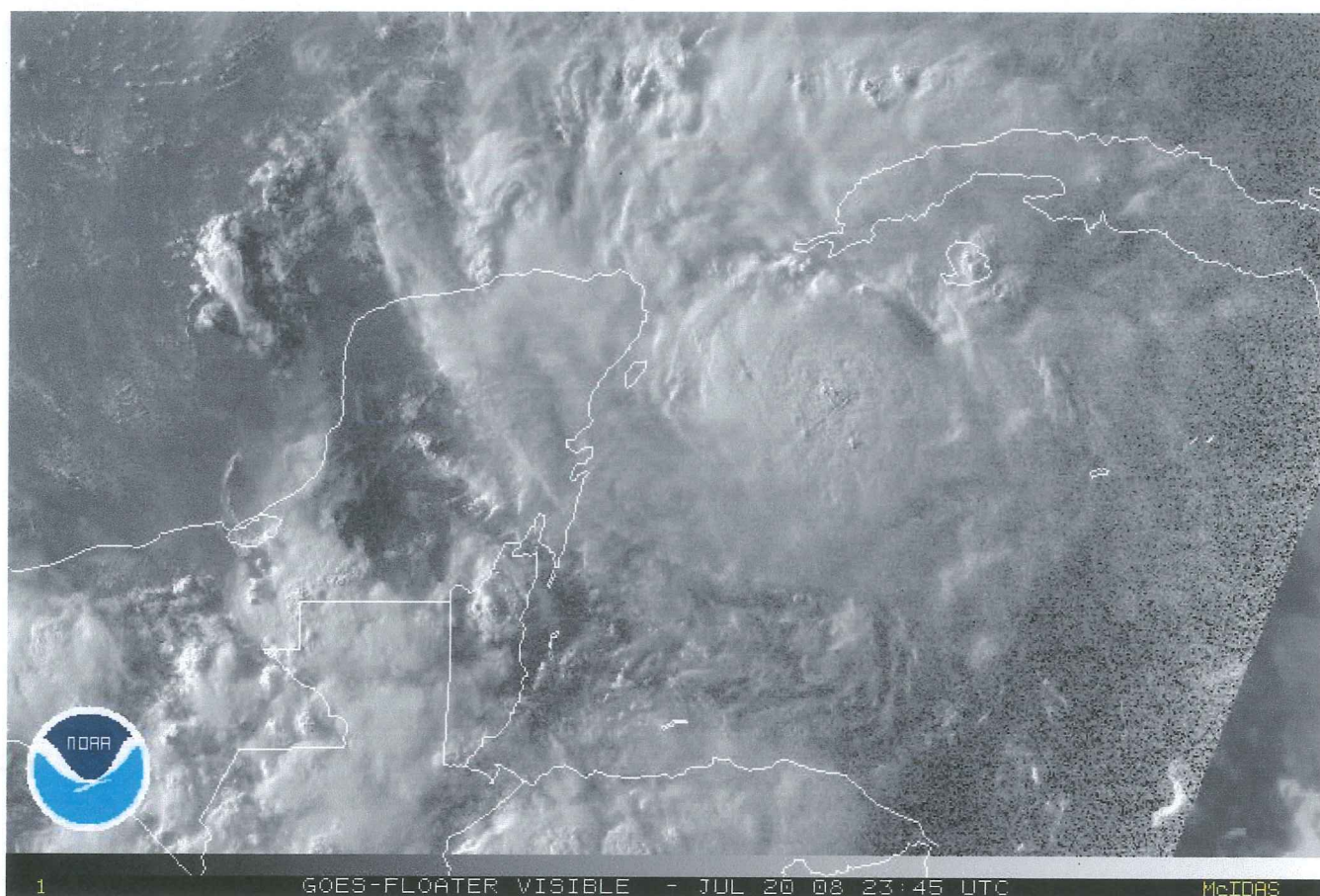
120° 75 mm

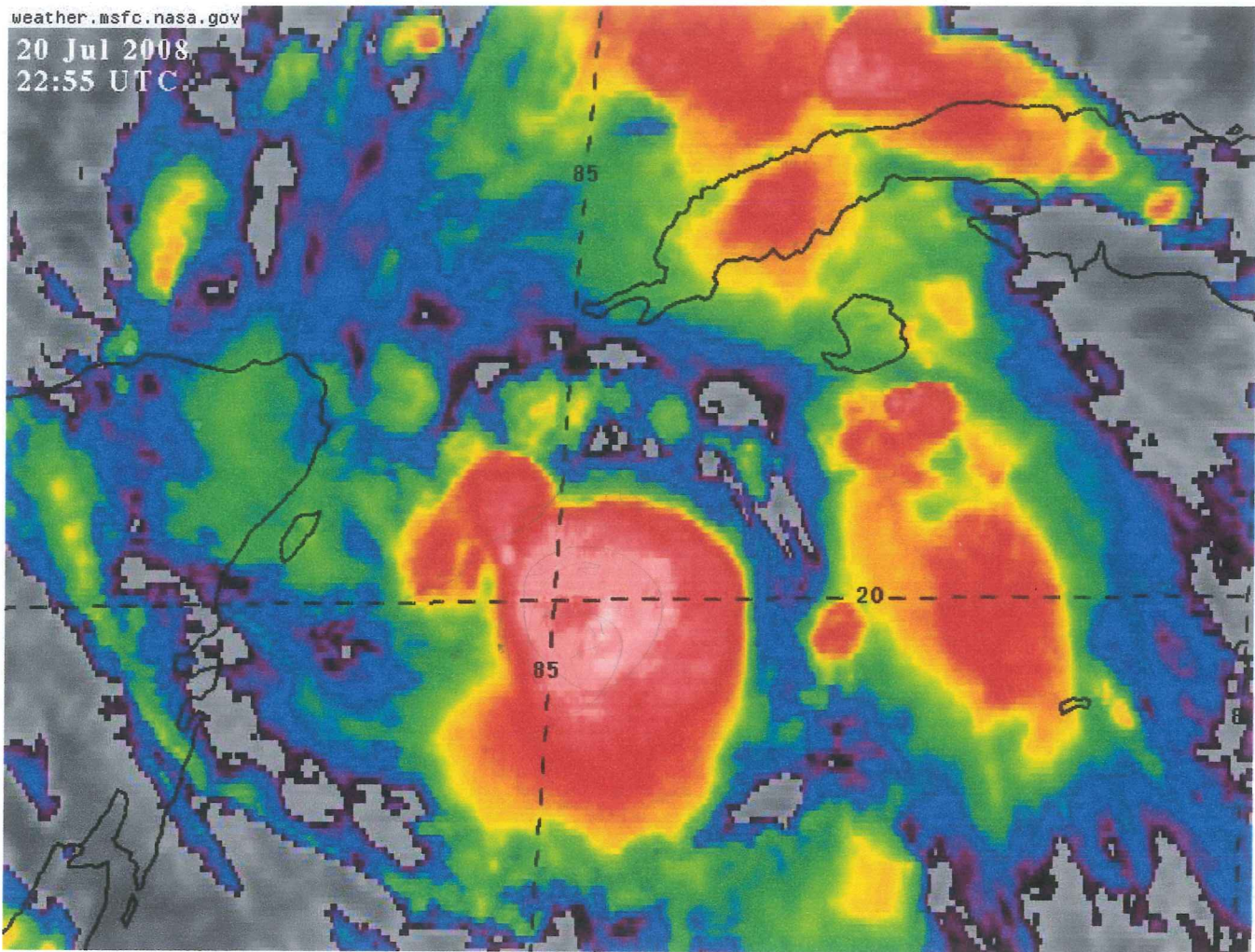
$$(4 \text{ mm/min}) (45 \text{ min}) = 180 \text{ mm} / 4 = 45 \text{ mm on a side}$$

sides



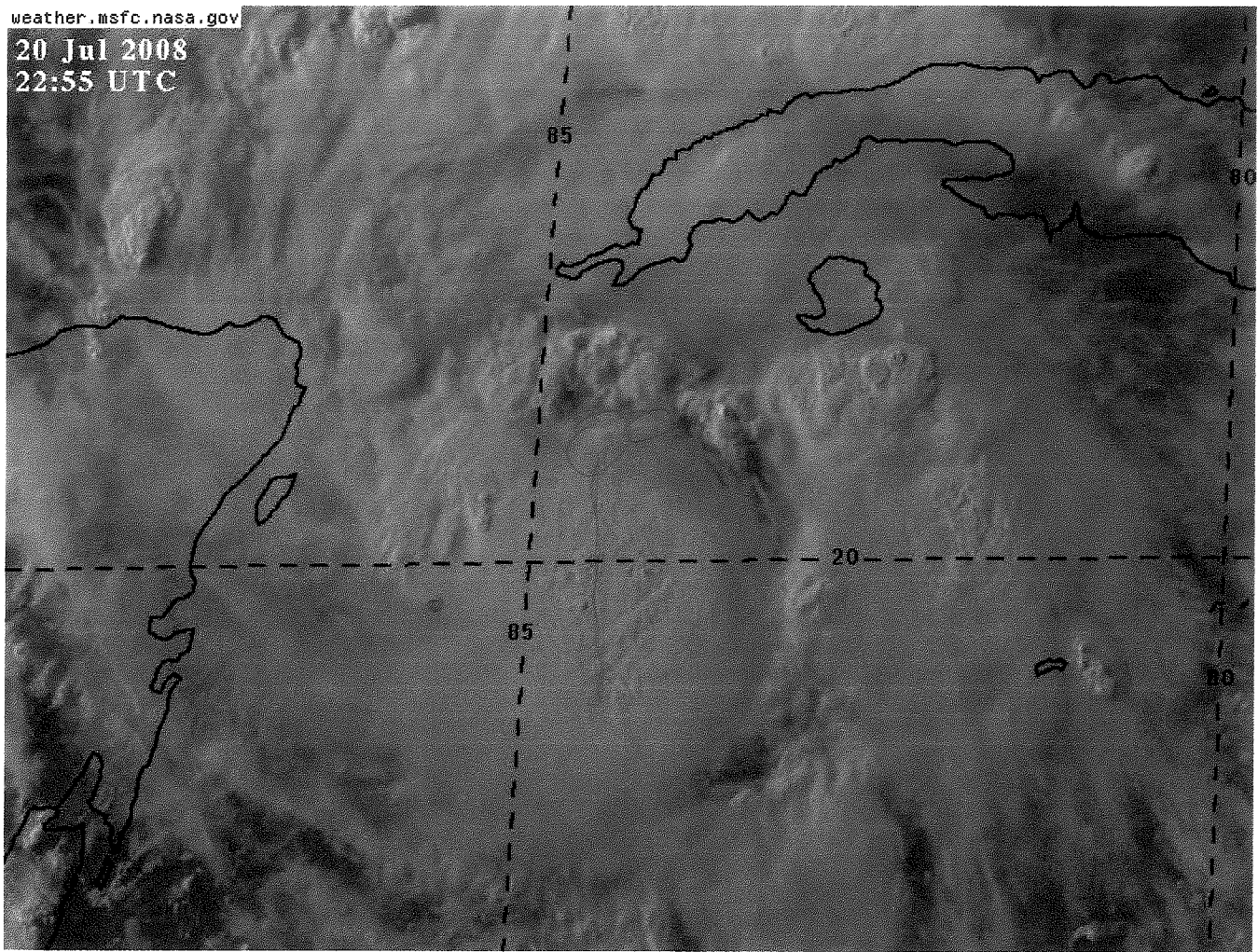






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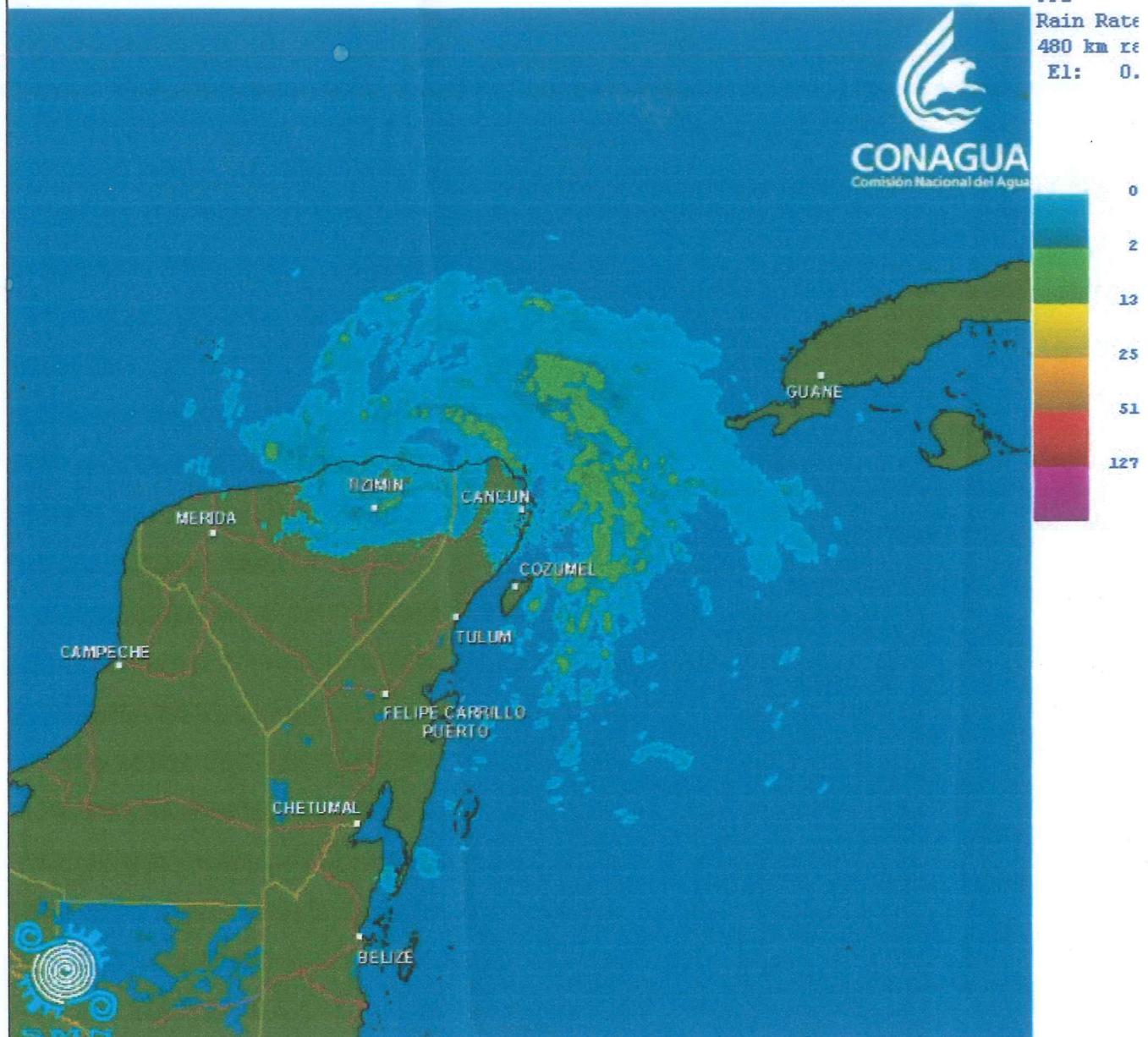
20 Jul 2008
22:55 UTC



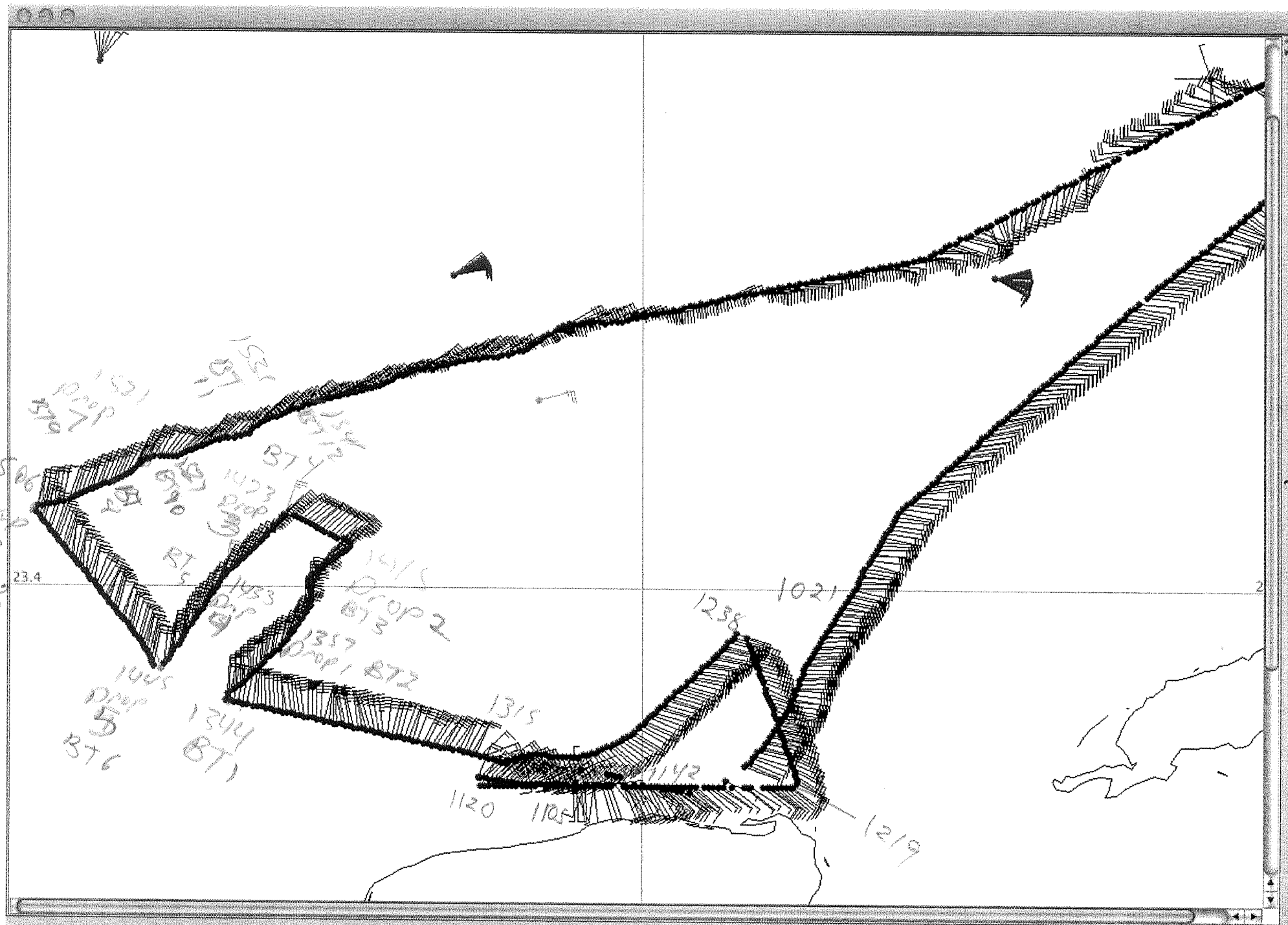
21 Jul

07/21/08 09:02:54

PPI
Rain Rate
480 km r
El: 0.



Site Name: EEC
PRF : 250 Hz
PW : 2 μ Sec
Range : 480 km
Gates : 240
Gatewidth: 2000 m
Samples : 20
Filter : 0
Normalize: ON



Maximum Wind 52.06 kt at 22.367, -90.850; 13:35z (SFMR42)

mblack [hrd] logged in.

Logout

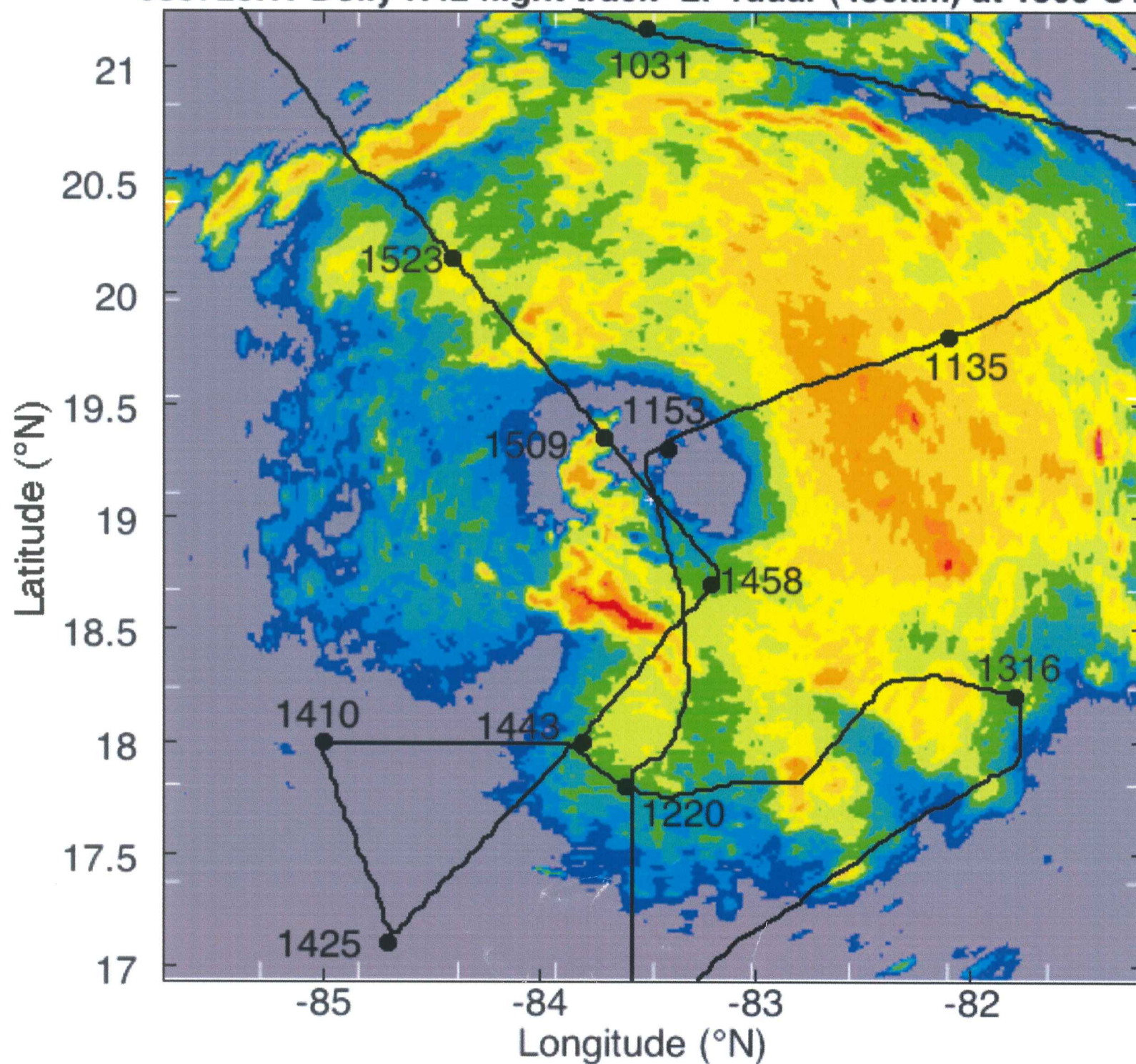
LOCATION: 20.925 lat, -90.190 lon

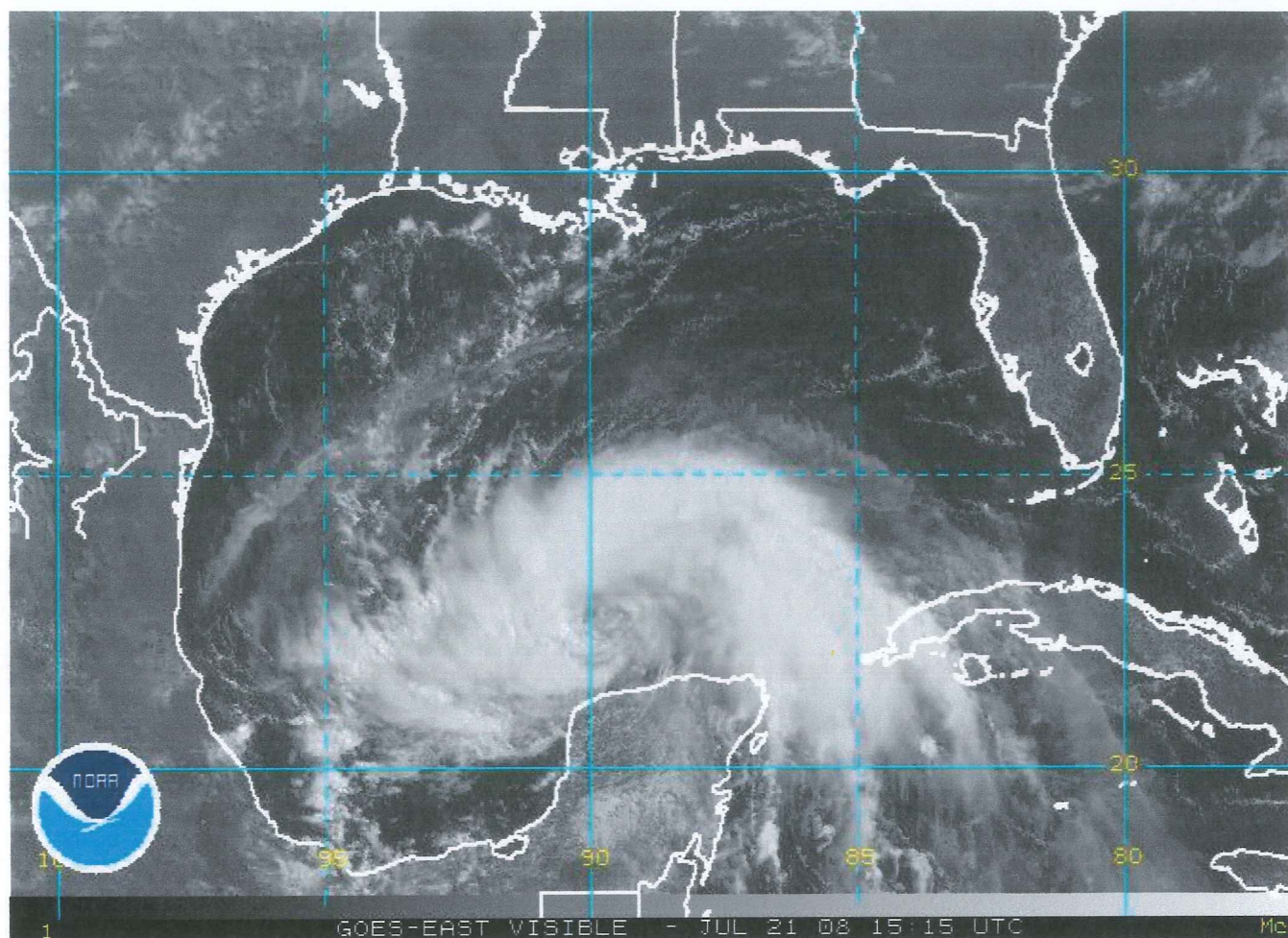
Track: Begin Center End

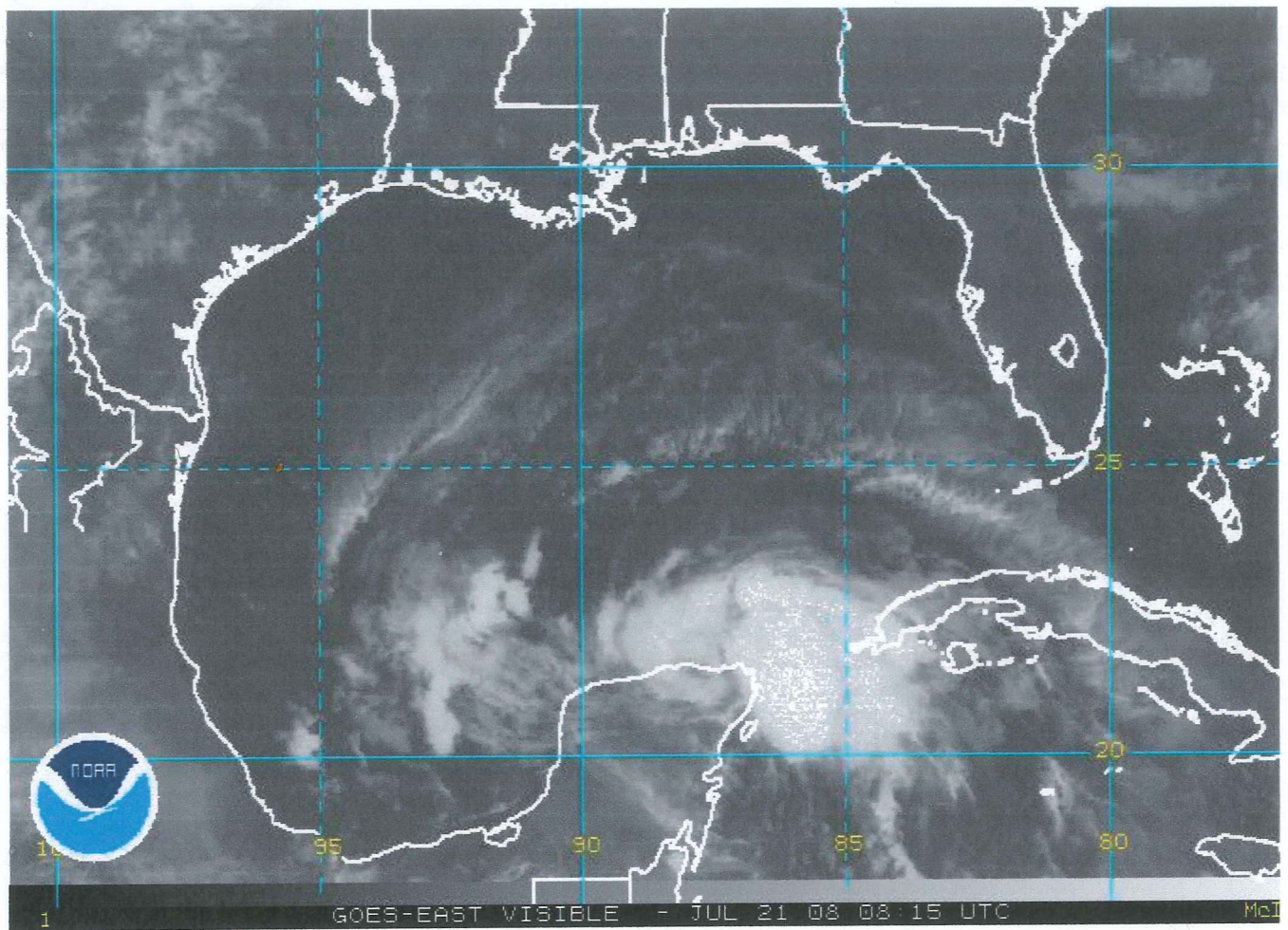
☐ Auto Pilot for

Check New Data Now

080720H1 Dolly N42 flight track- LF radar (480km) at 1505 UTC









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WTNT44 KNHC 202053

TCDAT4

TROPICAL STORM DOLLY DISCUSSION NUMBER 2

NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL042008

500 PM EDT SUN JUL 20 2008

DOLLY APPEARS TO BE SLOWLY ORGANIZING OVER THE VERY WARM WATERS OF THE NORTHWESTERN CARIBBEAN...ALTHOUGH DATA FROM THE AIR FORCE RECONNAISSANCE AIRCRAFT INDICATE THE LOW-LEVEL CIRCULATION IS NOT QUITE AS WELL-DEFINED AS IT WAS THIS MORNING. DEEP CONVECTION HAS BEEN PERSISTENT THROUGHOUT THE DAY...AND SFMR AND FLIGHT-LEVEL WINDS SUPPORT MAINTAINING THE INTENSITY AT 40 KT. UPPER-LEVEL OUTFLOW IS GRADUALLY EXPANDING...EVEN TO THE WEST...AS WATER VAPOR IMAGERY SHOWS THAT THE UPPER-LEVEL LOW JUST WEST OF DOLLY IS HEADED RAPIDLY SOUTHWESTWARD AND IS WEAKENING. DOLLY IS NOT EXPECTED TO STRENGTHEN MUCH...IF AT ALL...AS IT CROSSES THE YUCATAN PENINSULA EARLY TOMORROW. ONCE IT EMERGES OVER THE SOUTHERN GULF... HOWEVER...IT WILL BE SITUATED BENEATH A LARGE UPPER-LEVEL ANTICYCLONE AND OVER SEA-SURFACE TEMPERATURES OF AT LEAST 28 CELSIUS. GIVEN THESE CONDITIONS...AND ASSUMING THE CYCLONE REMAINS INTACT AND VERTICALLY ALIGNED AFTER ITS PASSAGE OVER YUCATAN... STRENGTHENING OVER THE GULF APPEARS TO BE THE MOST LIKELY SCENARIO. ALL OF THE PRIMARY OBJECTIVE INTENSITY MODELS FORECAST THAT TO HAPPEN...AND ALL FORECAST DOLLY TO ATTAIN HURRICANE STATUS OVER THE WESTERN GULF. THE NEW OFFICIAL INTENSITY FORECAST FOLLOWS THAT GUIDANCE...BUT IT IS IMPORTANT TO REMEMBER THAT LONG-RANGE INTENSITY FORECASTS HAVE A SIGNIFICANT AMOUNT OF UNCERTAINTY.

EVEN WITH THE AIRCRAFT DATA...THE INITIAL MOTION HAS BEEN A LITTLE DIFFICULT TO GAUGE...BUT IT IS ESTIMATED TO BE 305/12. THE MODELS FORECAST A SOMEWHAT FASTER FORWARD MOTION DURING THE NEXT 24-36 HOURS...BUT THE OFFICIAL FORECAST LAGS A LITTLE BEHIND THE CONSENSUS DURING THAT PERIOD...GIVEN THE SLOWER INITIAL MOTION AND THAT THERE IS NO STRONG INDICATION FROM THE MODEL FIELDS THAT DOLLY SHOULD ACCELERATE MUCH. THE MID-LEVEL RIDGE ALONG THE GULF COAST IS FORECAST BY ALL OF THE MODELS TO GRADUALLY WEAKEN AFTER DOLLY REACHES THE GULF...SO THEY ALL FORECAST A DECREASE IN FORWARD MOTION STARTING IN A COUPLE OF DAYS. THE TRACK MODEL SPREAD IS NOT ALL THAT LARGE THROUGH 72 HOURS...AND THE CONSENSUS HAS NOT MOVED MUCH SINCE THIS MORNING...SO THE NEW OFFICIAL TRACK IS VERY SIMILAR TO THE PREVIOUS ONE...JUST PERHAPS A LITTLE FASTER AT THE END. IT IS FAR TOO EARLY TO DETERMINE EXACTLY WHERE DOLLY WILL MAKE FINAL LANDFALL.

FORECAST POSITIONS AND MAX WINDS

INITIAL	20/2100Z	18.9N	85.0W	40 KT
12HR VT	21/0600Z	20.1N	86.9W	45 KT
24HR VT	21/1800Z	21.6N	89.8W	45 KT
36HR VT	22/0600Z	22.9N	92.4W	50 KT
48HR VT	22/1800Z	23.8N	94.1W	55 KT
72HR VT	23/1800Z	25.0N	96.5W	65 KT
96HR VT	24/1800Z	26.0N	99.0W	35 KT...INLAND
120HR VT	25/1800Z	27.0N	101.5W	25 KT...INLAND

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FORECASTER KNABB

19.33 85.25 400 UTC

19.3 85.65 interp

14

40kts at 25 hrs



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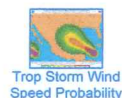
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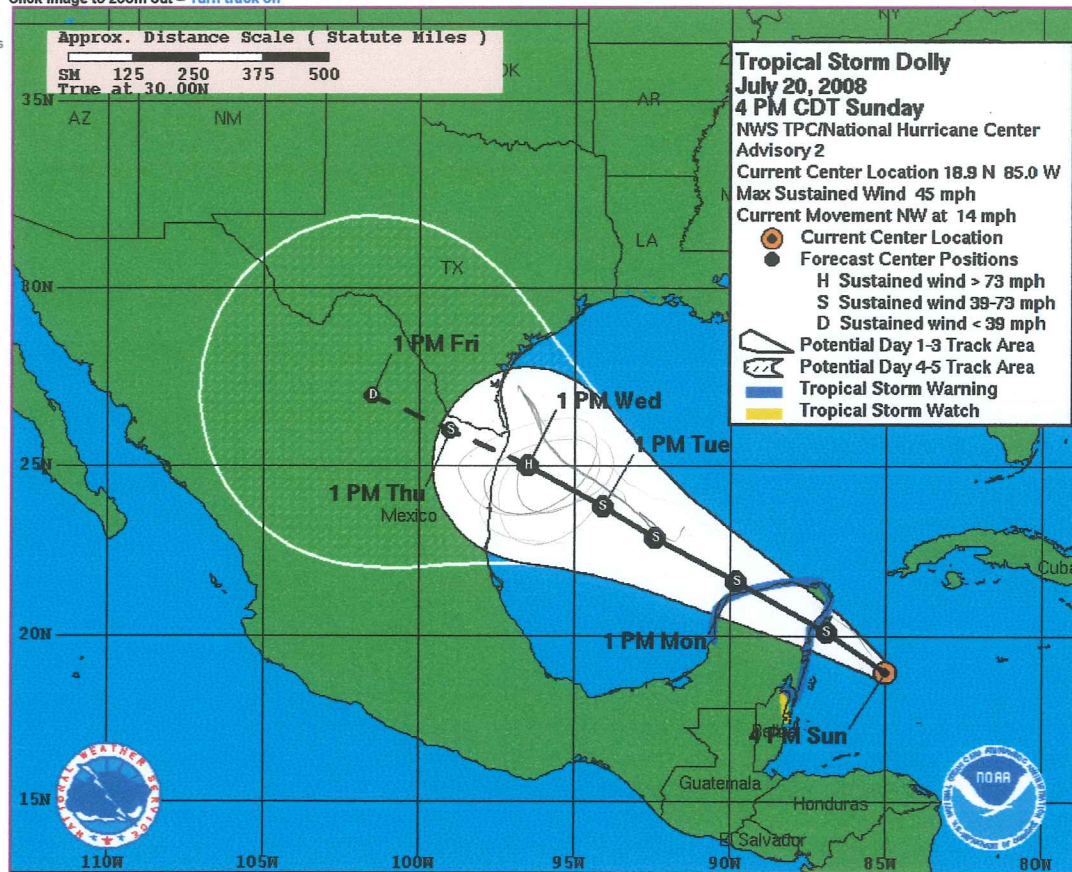
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Coastal Watches/Warnings and 5-Day Track Forecast Cone

Click image to zoom out - Turn track off



Click Here for a Printer Friendly Graphic

Note: If a storm is expected to dissipate within 5 days, its track will be shorter

About this product:

This graphic shows an approximate representation of coastal areas under a hurricane warning (red), hurricane watch (pink), tropical storm warning (blue) and tropical storm watch (yellow). The National Hurricane Center (NHC) forecast track of the center at the times indicated. The dot indicating the forecast center location will be black if the cyclone is forecast to be a remnant low. The letter inside the dot indicates the NHC's forecast intensity for that time.

NHC forecast tracks of the center can be in error; track forecast errors in recent years were used to construct the areas of uncertainty for the first 3 days (solid white area) ; circles (not shown) along the forecast track (at 12, 24, 36 hours, etc). The size of each circle is set so that two-thirds of historical official forecast errors over a 5-year sample are within the outer uncertainty area about 60-70% of the time. There is also uncertainty in the NHC intensity forecasts. The [Maximum 1-minute Wind Speed Probability Table](#) provides more detail.

It is also important to realize that a tropical cyclone is not a point. Their effects can span many hundreds of miles from the center. The area experiencing hurricane force (or higher) winds can extend well beyond the white areas shown enclosing the most likely track area of the center. The distribution of hurricane and tropical storm force winds in this track forecast cone is also shown.

Considering the combined forecast uncertainties in track, intensity, and size, the chances that any particular location will experience winds of 34 kt (tropical storm force), 50 kt (hurricane force), or 64 kt (major hurricane force) are also presented in graphical form for the 34 kt, 50 kt, and 64 kt thresholds.

Note: A detailed definition of the NHC track forecast cone is also available.



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Vortex Data Message

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000
URNT12 KNHC 201949
VORTEX DATA MESSAGE AL042008
A. 20/19:21:00Z
B. 18 deg 38 min N
   084 deg 44 min W
C. NA mb NA m
D. 20 kt
E. 129 deg 41 nm
F. 167 deg 024 kt
G. 130 deg 053 nm
H. EXTRAP 1008 mb
I. 24 C/ 400 m
J. 23 C/ 398 m
K. 20 C/ NA
L. NA
M. NA
N. 134/1
O. 0.02 / 5 nm
P. AF304 0604A DOLLY          OB 09
MAX FL WIND 45 KT NE QUAD 17:12:20 Z
MAX FL TEMP 24 C, 130 / 52NM
SLP EXTRAP FROM 1500 FT
MAX OUTBOUND FL WIND 24KT NW QUAD 1931Z
  
```

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WTNT44 KNHC 210856

TCDAT4

TROPICAL STORM DOLLY DISCUSSION NUMBER 4

NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL042008

500 AM EDT MON JUL 21 2008

SATELLITE IMAGERY AND RADAR OBSERVATIONS FROM CANCUN MEXICO INDICATE THAT THE MID-LEVEL CENTER OF THE TROPICAL CYCLONE REFORMED TO THE NORTH OF THE PREVIOUS TRACK. HOWEVER...SYNOPTIC DATA CAST DOUBT ON THE EXISTENCE OF A SURFACE CIRCULATION CENTER. SINCE THE SYSTEM CONTINUES TO GENERATE VIGOROUS CONVECTION AND STRONG WINDS...AND IT APPEARS LIKELY THAT THE SURFACE CENTER WILL SOON REAPPEAR...IT IS PRUDENT TO CONTINUE ISSUING ADVISORIES AND WARNINGS ON DOLLY.

THE CURRENT INTENSITY ESTIMATE IS 45 KT...IN LINE WITH THE LATEST DVORAK ANALYSES FROM TAFB. AN UPPER-LEVEL LOW IS MOVING INTO THE BAY OF CAMPECHE AND SEEMS TO BE INCREASING ITS SEPARATION DISTANCE FROM THE TROPICAL CYCLONE...AND ALSO DIMINISHING ITS SHEARING INFLUENCE. UPPER-LEVEL OUTFLOW IS EXPANDING OVER THE NORTHERN SEMICIRCLE OF DOLLY AND THIS...COMBINED WITH THE WARM WATERS OF THE GULF OF MEXICO...PRESAGES INTENSIFICATION. THE CURRENT NHC INTENSITY FORECAST IS SIMILAR TO THE PREVIOUS ONE AND ALSO SIMILAR TO THE DYNAMICAL INTENSITY MODEL CONSENSUS.

WITH THE LACK OF A SURFACE CENTER AND THE REFORMATION...INITIAL MOTION IS SOMEWHAT UNCERTAIN. MY BEST GUESS...305/13...IS NOT MUCH DIFFERENT THAN IN THE PREVIOUS PACKAGE. A MID-LEVEL RIDGE TO THE NORTH OF THE STORM IS FORECAST TO WEAKEN IN A COUPLE OF DAYS AND THE TRACK GUIDANCE IS FAIRLY CONSISTENT IN CALLING FOR A SLOWING OF FORWARD SPEED BY 48 HOURS...THEREAFTER...THE KEY PLAYER IN THE STEERING PATTERN FOR DOLLY IS A MID-LEVEL RIDGE OVER THE SOUTHERN PLAINS. GLOBAL MODELS SHOW SLIGHTLY DIFFERENT STRENGTHS AND CONFIGURATIONS OF THIS RIDGE AROUND 72 HOURS AND DIFFERENT LATITUDES OF LANDFALL ALONG THE WESTERN GULF OF MEXICO COAST. ALTHOUGH ONE SHOULD NOT FOCUS ON THE EXACT LANDFALL POINT IN 2 TO 3 DAYS TIME...INTERESTS IN THE WESTERN GULF OF MEXICO SHOULD MONITOR THE PROGRESS OF DOLLY.

ANOTHER NOAA P3 AIRCRAFT IS SCHEDULED TO INVESTIGATE THE STORM LATER THIS MORNING.

FORECAST POSITIONS AND MAX WINDS

INITIAL	21/0900Z	21.3N	87.4W	45 KT
12HR VT	21/1800Z	22.6N	89.6W	50 KT
24HR VT	22/0600Z	23.6N	92.2W	55 KT
36HR VT	22/1800Z	24.4N	94.2W	65 KT
48HR VT	23/0600Z	25.0N	95.5W	75 KT

72HR VT 24/0600Z 26.0N 98.0W 65 KT...INLAND
96HR VT 25/0600Z 26.5N 100.5W 30 KT...INLAND
120HR VT 26/0600Z...DISSIPATED

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WTNT44 KNHC 211500

TCDAT4

TROPICAL STORM DOLLY DISCUSSION NUMBER 5

NWS TPC/NATIONAL HURRICANE CENTER MIAMI FL AL042008

1100 AM EDT MON JUL 21 2008

THERE IS LITTLE DOUBT NOW THAT DOLLY HAS A CLOSED SURFACE CIRCULATION...WHICH HAS BECOME EVIDENT IN VISIBLE SATELLITE IMAGERY OVER THE GULF OF MEXICO JUST OFF THE NORTHERN COAST OF THE YUCATAN PENINSULA. A NOAA RECONNAISSANCE AIRCRAFT RECENTLY CONFIRMED THE EXISTENCE OF THE CLOSED CIRCULATION IN THE LOW-LEVEL WIND FIELD...AND FOUND THAT MAXIMUM WINDS REMAIN ABOUT 45 KT. THE DEEP CONVECTION IS NOW STARTING TO WRAP AROUND THE WESTERN SIDE OF THE CIRCULATION...AND OUTFLOW CONTINUES TO EXPAND IN ALL QUADRANTS. A LARGE UPPER-LEVEL ANTICYCLONE COVERS MOST OF THE GULF OF MEXICO...SO THE ATMOSPHERIC ENVIRONMENT APPEARS QUITE CONDUCTIVE FOR STRENGTHENING...AND THE SEA-SURFACE TEMPERATURES ALONG THE ENTIRE OVER-WATER FORECAST TRACK ARE QUITE WARM. IN ABOUT 18-24 HOURS...DOLLY IS EXPECTED TO PASS OVER SSTs GREATER THAN 29 CELSIUS...AND A RELATIVE MAXIMUM IN OCEAN HEAT CONTENT...AN AREA WITH A SOMEWHAT DEEPER RESERVOIR OF WARM WATER BENEATH THE SURFACE. AS A RESULT OF THESE CONDITIONS...STRENGTHENING APPEARS LIKELY...BUT GIVEN THE CURRENT SPRAWLING NATURE OF THE CIRCULATION...THE RATE OF INTENSIFICATION IS DIFFICULT TO FORECAST...SINCE IT IS UNCERTAIN HOW LONG IT WILL TAKE FOR A TRUE INNER CORE TO DEVELOP. THE NEW OFFICIAL FORECAST LEANS TOWARD THE HIGHER END OF THE INTENSITY GUIDANCE...CLOSE TO THE GFDL SOLUTION...IN CALLING FOR A SLIGHTLY HIGHER PEAK INTENSITY THAN THE PREVIOUS ADVISORY. SINCE THE EXACT TIMING AND LOCATION OF LANDFALL ARE UNCERTAIN...THE FORECAST WEAKENING BETWEEN 48 AND 72 HOURS ONLY RESULTS FROM THE 72-HOUR POINT BEING INLAND...AND A STRENGTHENING TREND IS FORECAST UP TO THE TIME OF FINAL LANDFALL.

DOLLY IS STILL MOVING RATHER QUICKLY...300/16...TO THE SOUTH OF A MID-LEVEL RIDGE OVER THE SOUTHEASTERN UNITED STATES. ALL OF THE DYNAMICAL MODELS FORECAST THIS RIDGE TO GRADUALLY WEAKEN DURING THE NEXT FEW DAYS...RESULTING IN TRACK GUIDANCE SHOWING A SIGNIFICANT SLOWING OF THE FORWARD MOTION AS THE CYCLONE PROCEEDS INTO THE WESTERN GULF. MOST OF THE GUIDANCE HAS SHIFTED A LITTLE NORTHWARD OVER THE WESTERN GULF...AND SO HAS THE OFFICIAL FORECAST...WHICH REMAINS DOWN THE MIDDLE OF THE GUIDANCE ENVELOPE. THERE ARE VERY RELIABLE MODELS ON BOTH SIDES OF THE OFFICIAL TRACK...SO IT IS IMPORTANT NOT TO FOCUS ON THE EXACT LOCATION OF LANDFALL IMPLIED BY THE OFFICIAL TRACK.

THE NEW FORECAST REQUIRES THE ISSUANCE OF HURRICANE AND TROPICAL

STORM WATCHES FOR THE COAST OF THE WESTERN GULF OF MEXICO.

FORECAST POSITIONS AND MAX WINDS

INITIAL	21/1500Z	22.1N	89.5W	45 KT
12HR VT	22/0000Z	23.0N	91.6W	55 KT
24HR VT	22/1200Z	24.2N	93.8W	60 KT
36HR VT	23/0000Z	25.1N	95.2W	70 KT
48HR VT	23/1200Z	25.9N	96.4W	80 KT
72HR VT	24/1200Z	26.5N	98.5W	50 KT...INLAND
96HR VT	25/1200Z	27.0N	100.5W	30 KT...INLAND
120HR VT	26/1200Z	...	DISSIPATED	

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FORECASTER KNABB

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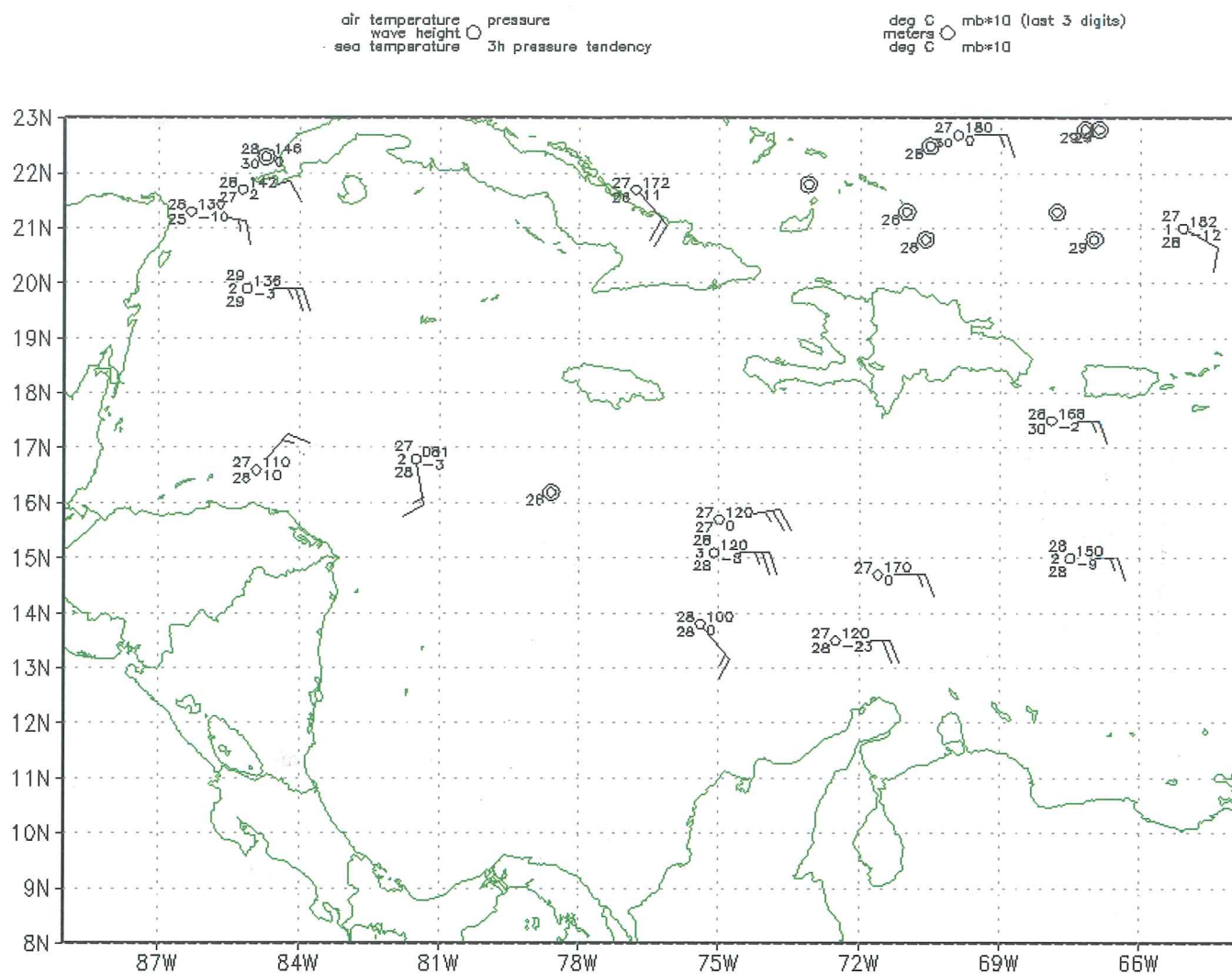
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Offshore Surface Plot at 06Z / JUL 20, 2008

STORM WATCHES FOR THE COAST OF THE WESTERN GULF OF MEXICO.

FORECAST POSITIONS AND MAX WINDS

INITIAL	21/1500Z	22.1N	89.5W	45 KT
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72HR VT	24/1200Z	26.5N	98.5W	50 KT...INLAND
96HR VT	25/1200Z	27.0N	100.5W	30 KT...INLAND
120HR VT	26/1200Z	...	DISSIPATED	

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1. FM/S.

Flight ID: H080721

Take off time:

~~08:57~~ 08:57 Z

PRF1 = PRF2 = 2100 Hz

Start recording
lat

Mission IP

0904A Dolly

LF stopped @ 9:51

Restarted @ 9:55:42.

cells @ ~40 dBZ @ 1007 lat: $24^{\circ} 1' N$, long: $86^{\circ} 10' W$
~ LF

Descent to 1000 ft @ 1014 Z

~~12:55~~

~~12~~ 12:56 → Track. Leg start.

$23T^{\circ}$ track

1258 →

$24T^{\circ}$ Track

1301

$25T$

Fix: $22^{\circ} 04'$

$-89^{\circ} 10'$ @ 1310 Z

LF stopped 13:15

Restarted 13:16

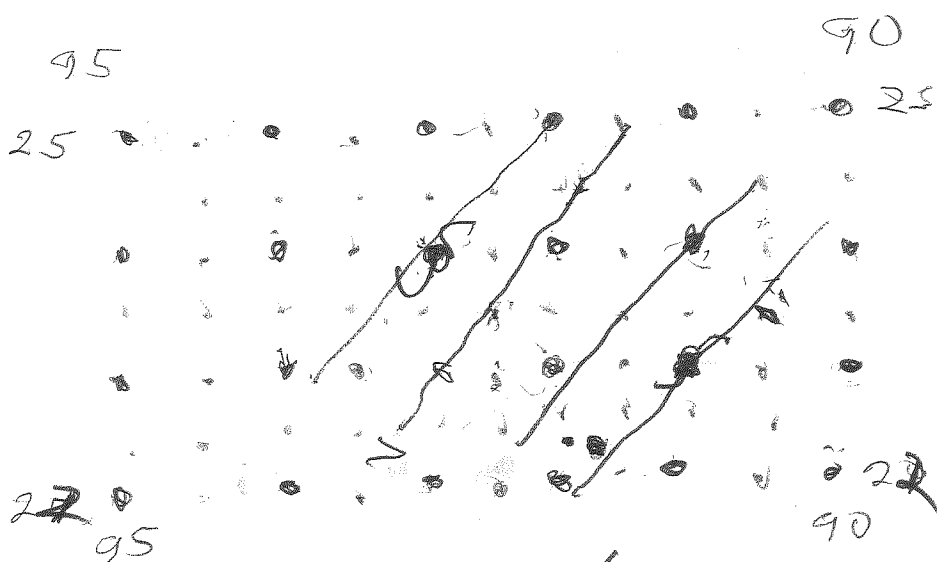
Landing Time 17:28

JATB125@yahoo.com

Tropical Atlantic
com

21	18	22.6	89.6
22	06	23.6	92.2
23	06	25.0	95.5

22
22
0
2
12
23
24
91
93



22/007

1	22.5	91.5
2	23	91.0
3	23.75	90.5
4	24	91
5	23.5	91.5
6	22.75	92

7	22.75	93.25
8	23.5	92.5
9	24.0	91.0
10	25.0	92.0
11	24.0	93.0
12	23.0	93.75