



Hurricane Dean 2007

Ramón Frutos, Acting Chief Meteorologist



- Hurricane Dean is the first land-falling category 5 hurricane in the Atlantic basin since Hurricane Andrew struck South Florida in 1992. Its pressure of 906 millibars is the third lowest pressure at landfall behind the 1935 Labor Day Hurricane in the Florida Keys and Hurricane Gilbert in 1988 in Cancun, Mexico.





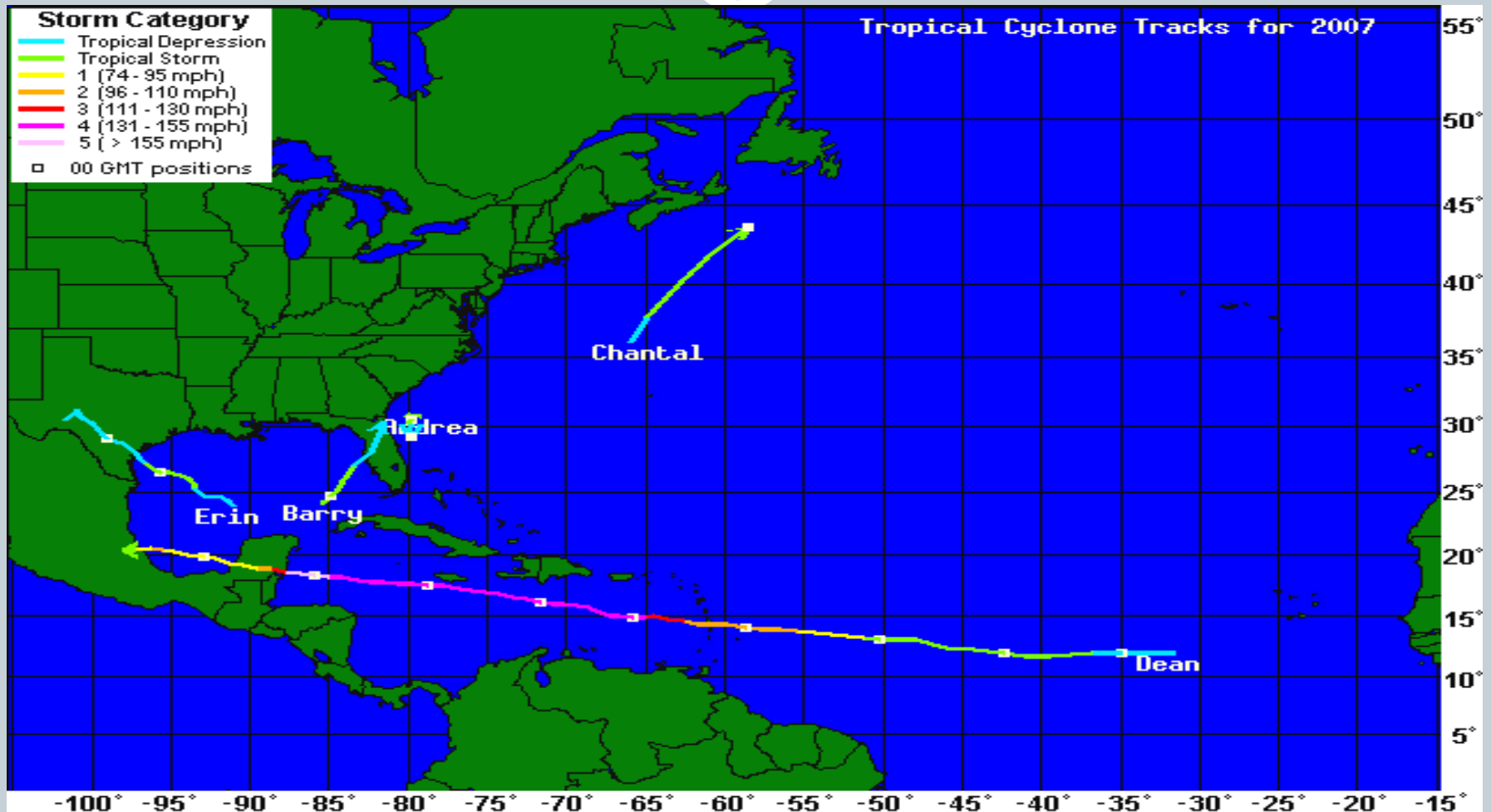
Hurricane Dean 2007



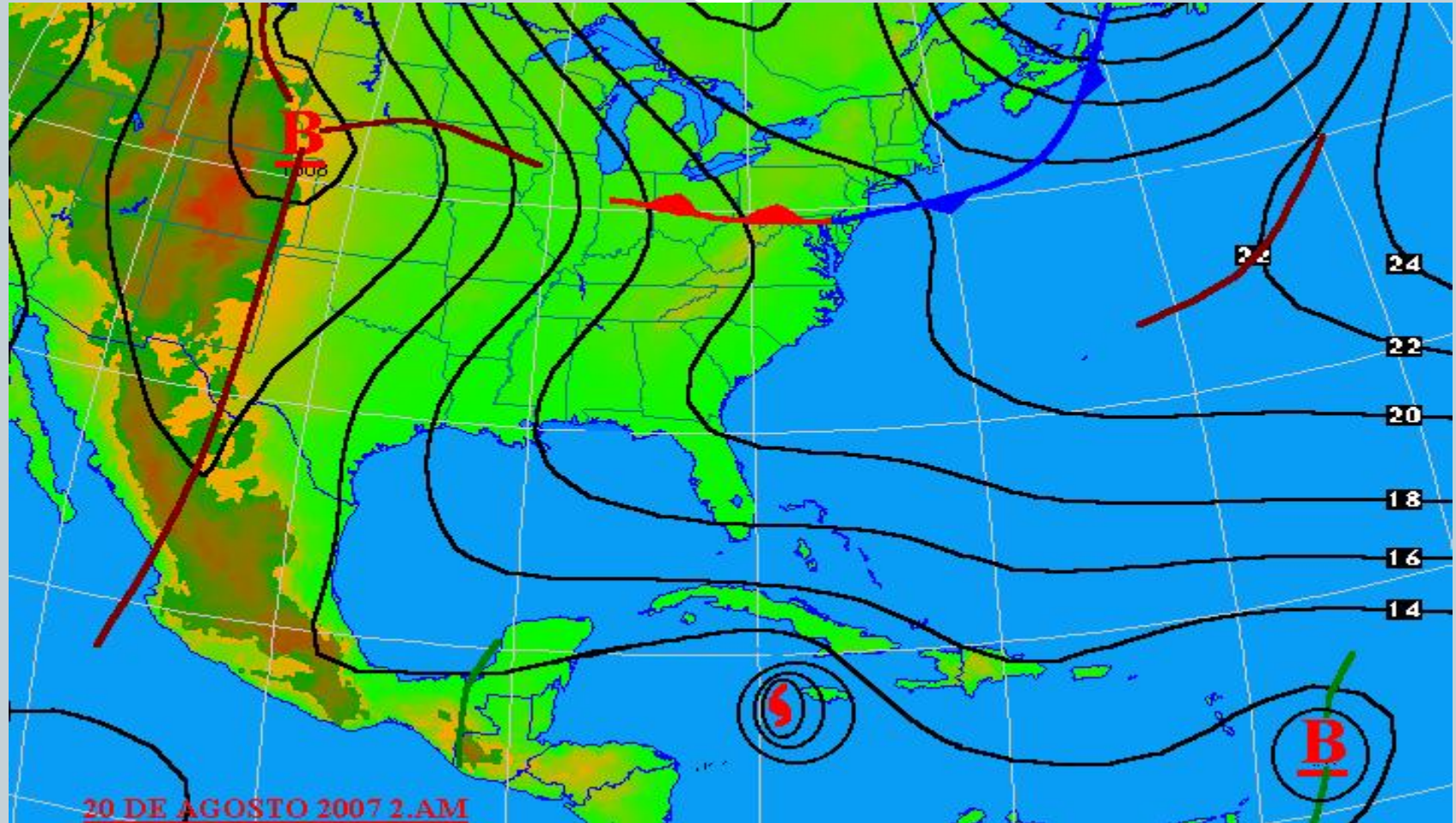
- Tropical Depression number 4 (TD 4) formed over the far eastern Atlantic Ocean at about 2,000 miles east of the Lesser Antilles at 9:00 am on Monday 13th August 2007. TD 4 was upgraded to Tropical Storm Dean (TS Dean) exactly 24 hours later. TS Dean became a hurricane at 3:00 am on Thursday August 16th. At that time Hurricane Dean (H Dean) was 485 miles east of the island of Barbados and was maintaining a westerly track.



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Hurricane Dean

8 AM EDT Mon Aug 20 2007

Position 17.8 N 81.5 W

Maximum Winds 150 mph Gusts 185 mph

Movement W at 20 mph

Minimum Pressure 926 mb (27.33 inches)

Storm Category

Tropical
Depression

Tropical
Storm

Category
1

Category
2

Category
3

Category
4

Category
5

< 39
mph

39-73
mph

74-95
mph

96-110
mph

111-130
mph

131-155
mph

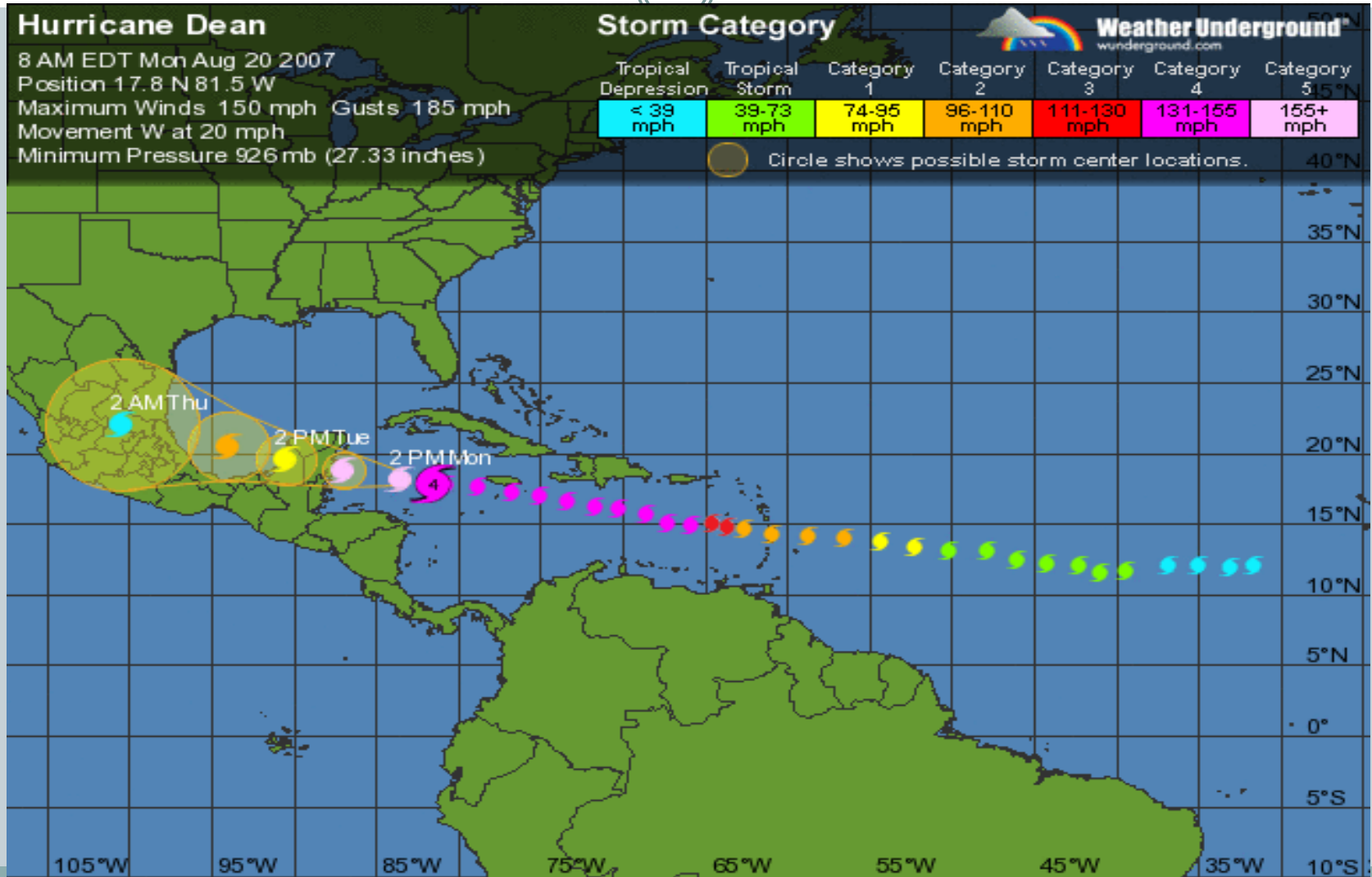
155+
mph



Weather Underground
wunderground.com



Circle shows possible storm center locations.

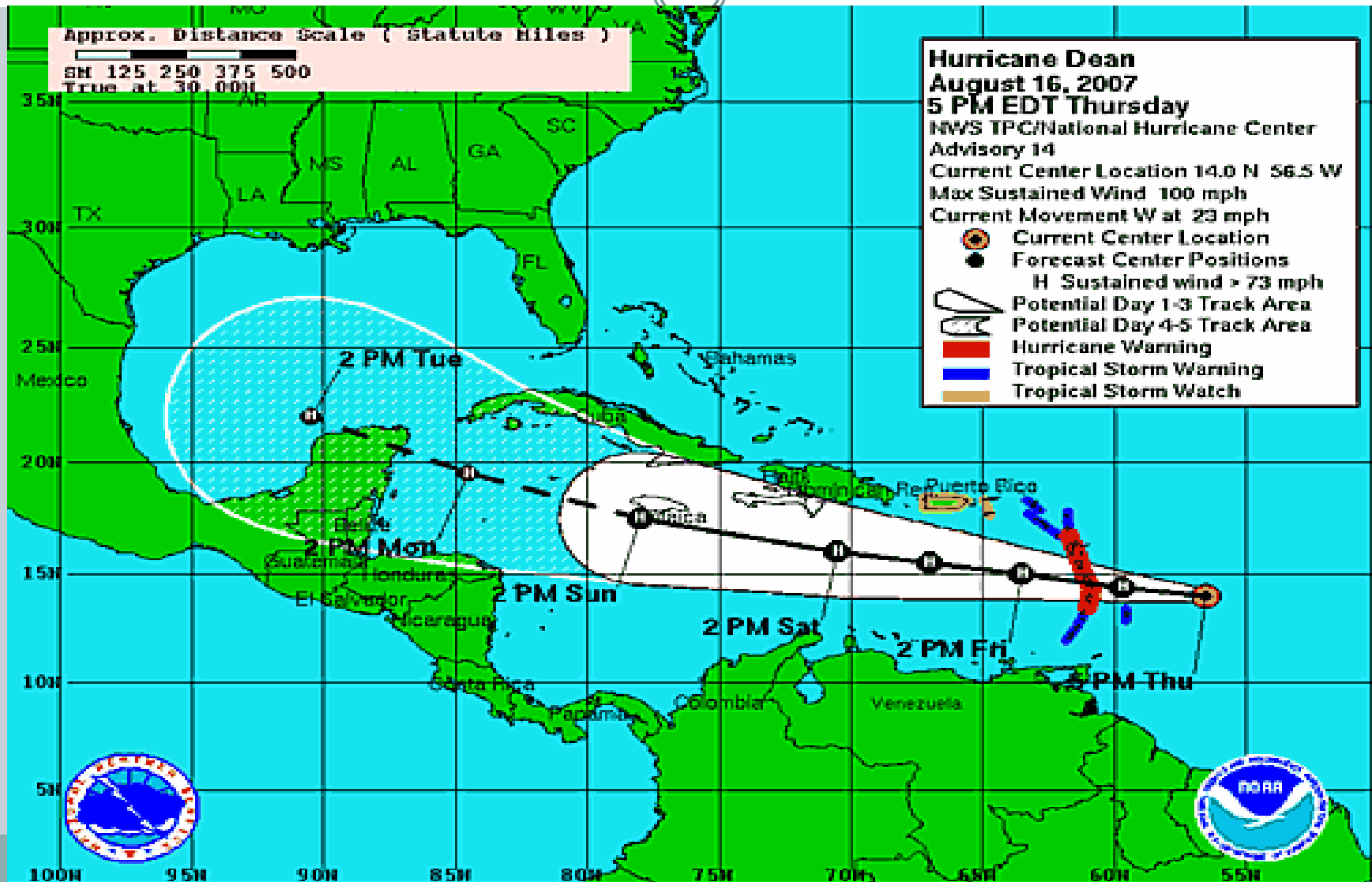


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- **Friday August 18th**
- H Dean entered the eastern Caribbean at around 3:00 am on Friday August 17th as a Category II hurricane. Dean strengthened to a major hurricane at 12:00 pm. At that time H Dean had maximum sustained winds of 125 mph and was some 300 miles southeast of San Juan, Puerto Rico.
- **Saturday August 18th**
- H Dean continued on a west-northwesterly track after battering the islands of Martinique and Saint Lucia. The forecast track from the models were projecting H Dean to move directly across Jamaica late Saturday, intensifying to a Category IV hurricane before reaching Jamaica. The eye of H Dean passed just south of Kingston, Jamaica during the mid-afternoon on Saturday, August 18, 2007. Hurricane forced winds and battering waves whipped the southern coastal regions of Jamaica, while tropical storm force winds swept across the island. This activity continued across Jamaica during the night and early Sunday.

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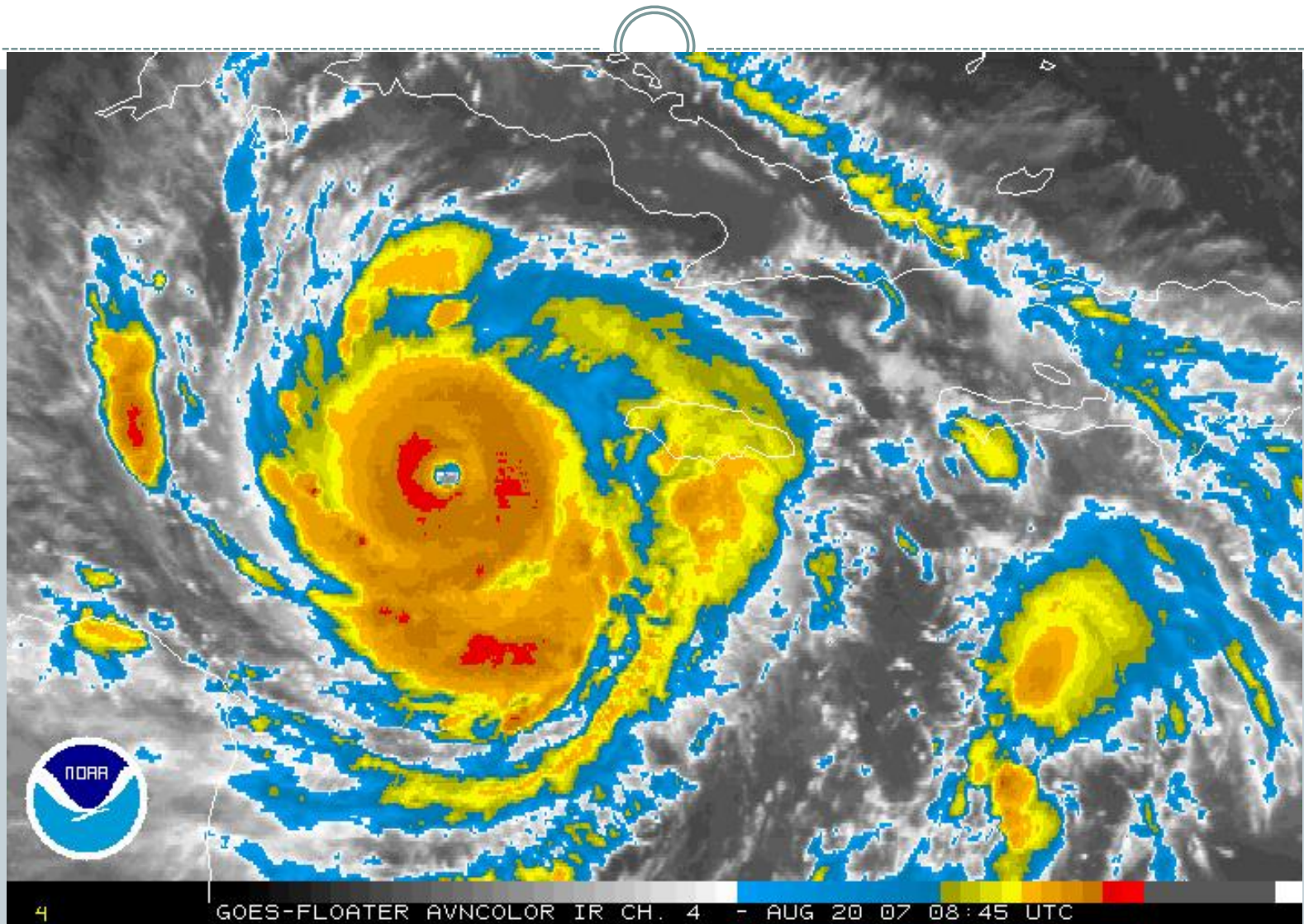


- **Sunday August 19th**
- At 3:00 pm on Sunday August 19th H Dean now a Category IV hurricane passed south of Jamaica. At 6:00 pm the government of Belize issued a Hurricane Watch from Belize City northward to the Belize/Mexico border and a tropical storm watch from south of Belize City to the Belize Mexican border.
- The Red I phase of the National Emergency Plan was declared at 3:00 pm by the government of Belize. H. Dean at this time was moving towards the west at 20 mph. Maximum sustained winds were 150 miles per hour. Dean was centered at latitude 17.5 North and longitude 77.8 West at 6:00 pm on that day. Note: This latitude is the same as that of Belize City.



- **Monday August 20th**
- The Hurricane Forecaster on duty at National Hurricane Center (NHC), Miami in an official communication with the Acting Deputy Chief Meteorologist at 2:15 am (Monday 20th August) stated that we could expect landfall about 30 miles north of Chetumal, Mexico at a time between midnight and 3:00 am on Tuesday 21st August. H Dean was also expected to become a Category 5 hurricane with 161 mph winds just before landfall. The consensus was that hurricane force winds would affect mainly the northern sections of Belize. The Red II Phase was declared by the government of Belize at 6:00 am based on these developments.
- A later briefing with the Hurricane Forecaster at NHC, Miami disclosed that they were shifting the official track some 5 to 10 miles to the South, thus putting a larger portion of Belize at risk. As a result of this development, the government of Belize extended its hurricane warning to cover the entire coast of Belize. The Hurricane Warning for the country of Belize was declared at 6:00 am on Monday 20th August.

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5 PM EDT Sun Aug 19 2007

Models: Points 12 hours apart (GFDL 6 hours)

GFS Initialized on Sun 2:00 PM EDT **NOGAPS** Initialized on Sun 8:00 AM EDT

UKMET Initialized on Sun 8:00 AM EDT **GFDL** Initialized on Sun 2:00 PM EDT

BAMM Initialized on Sun 2:00 PM EDT

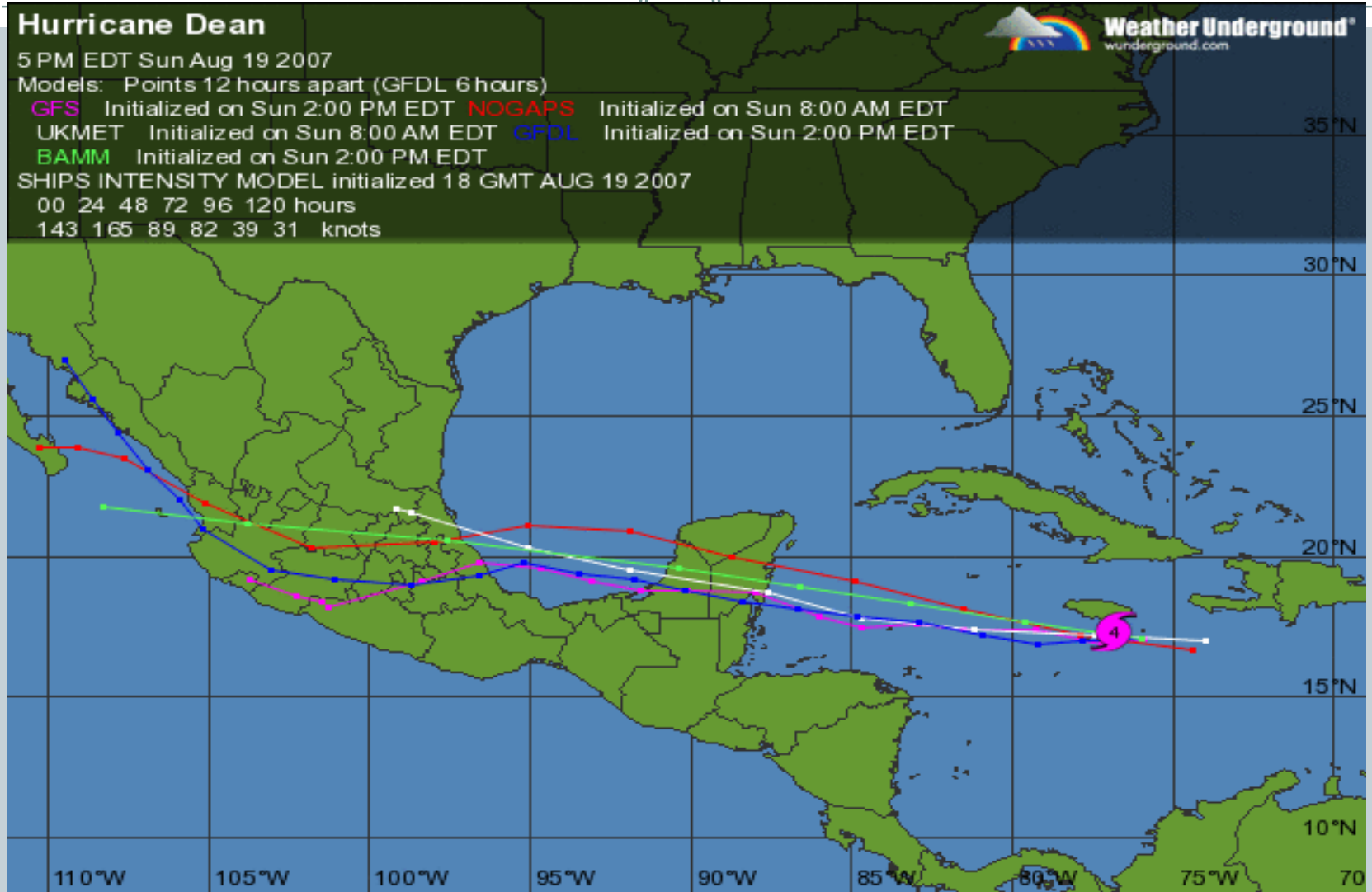
SHIPS INTENSITY MODEL initialized 18 GMT AUG 19 2007

00 24 48 72 96 120 hours

143 165 89 82 39 31 knots



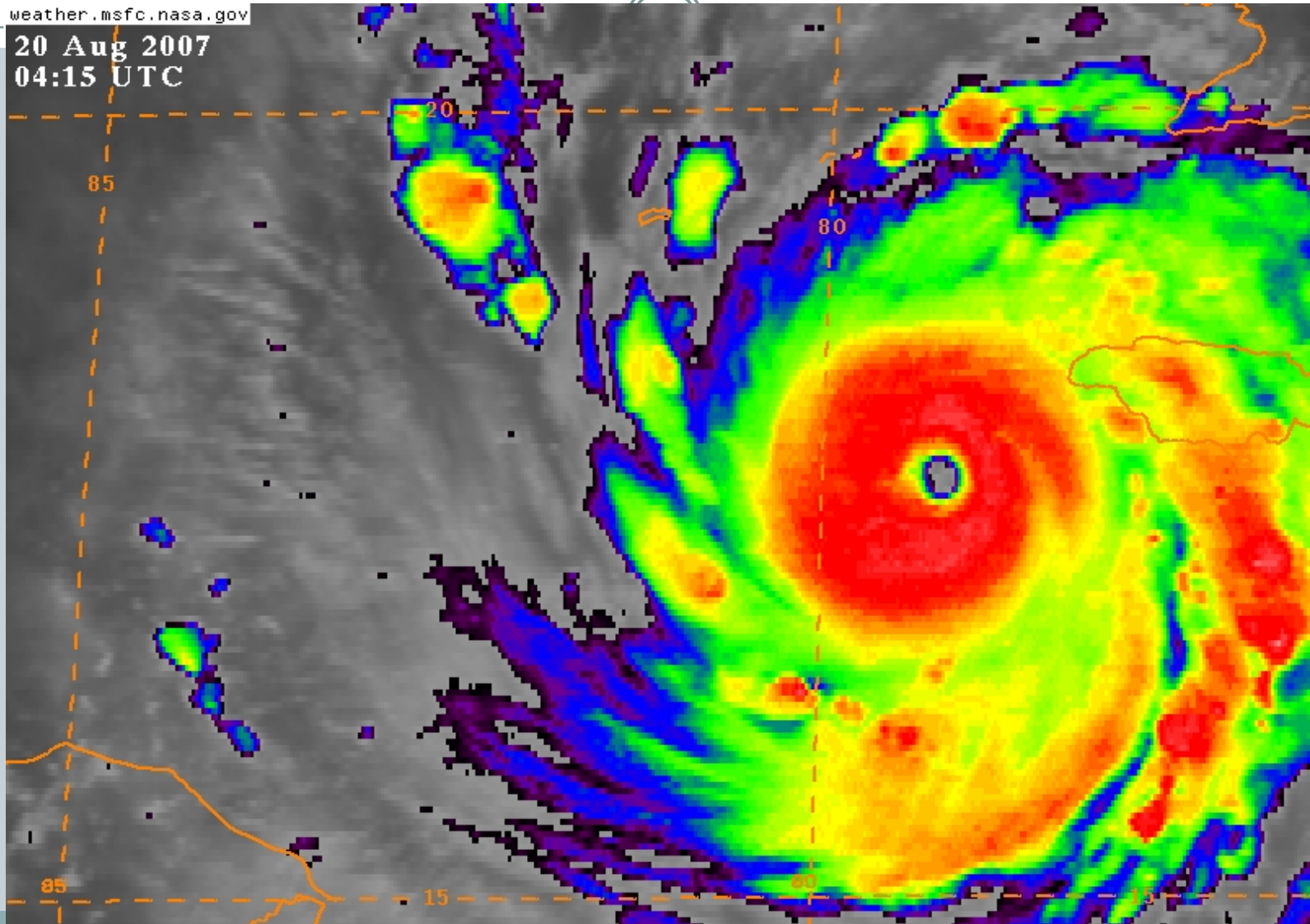
Weather Underground®
wunderground.com



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weather.msfc.nasa.gov

20 Aug 2007
04:15 UTC



Hurricane Dean 2007



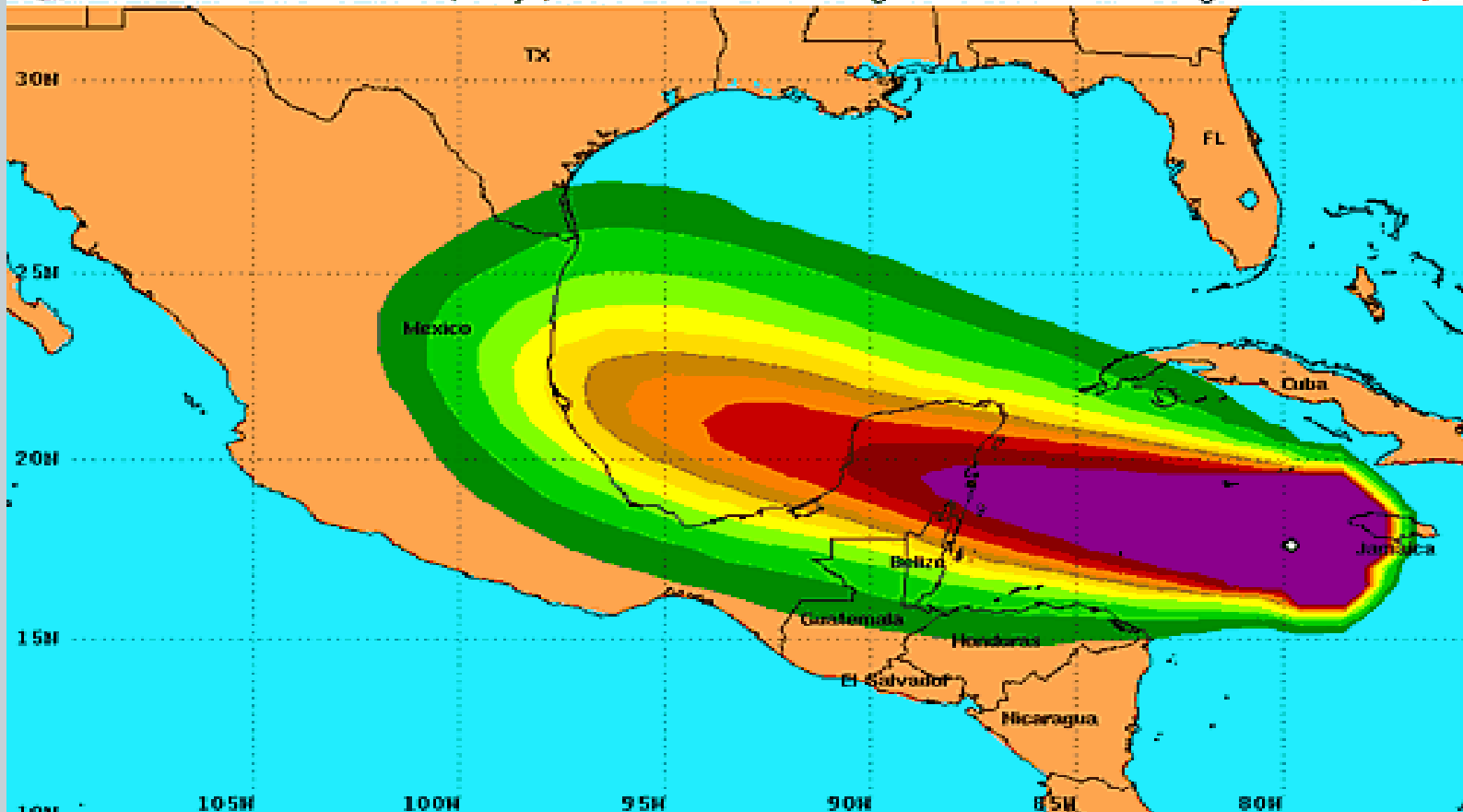
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Tropical Storm Force Wind Speed Probabilities
For the 120 hours (5 days) from 2 AM EDT Mon Aug 20 to 2 AM EDT Sat Aug 25



Probability of tropical storm force surface winds (1-minute average ≥ 39 mph) from all tropical cyclones

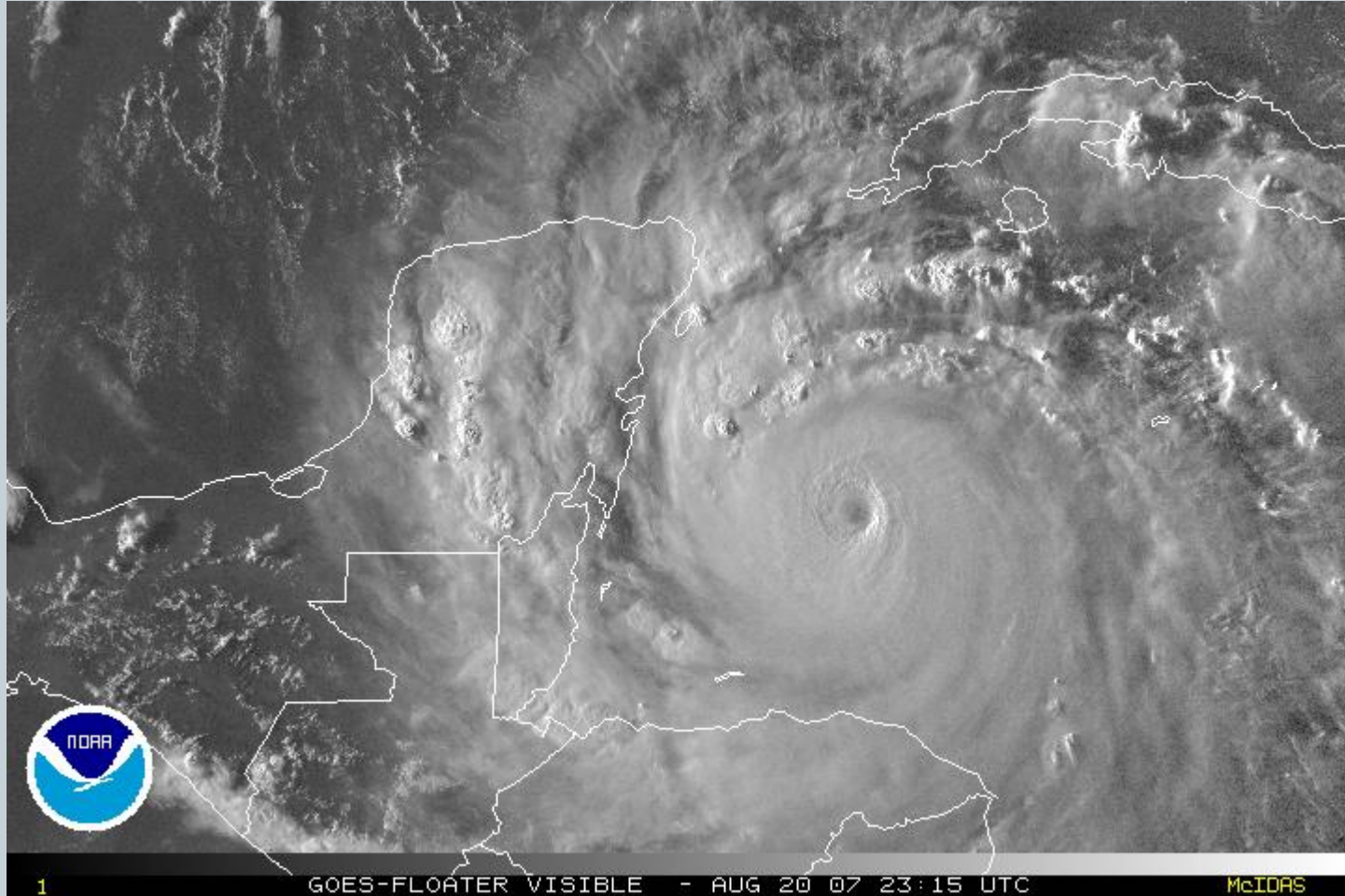
◆ indicates HURRICANE DEAN center location at 2 AM EDT Mon Aug 20 2007 (Forecast/Advisory #29)



Hurricane Dean 2007



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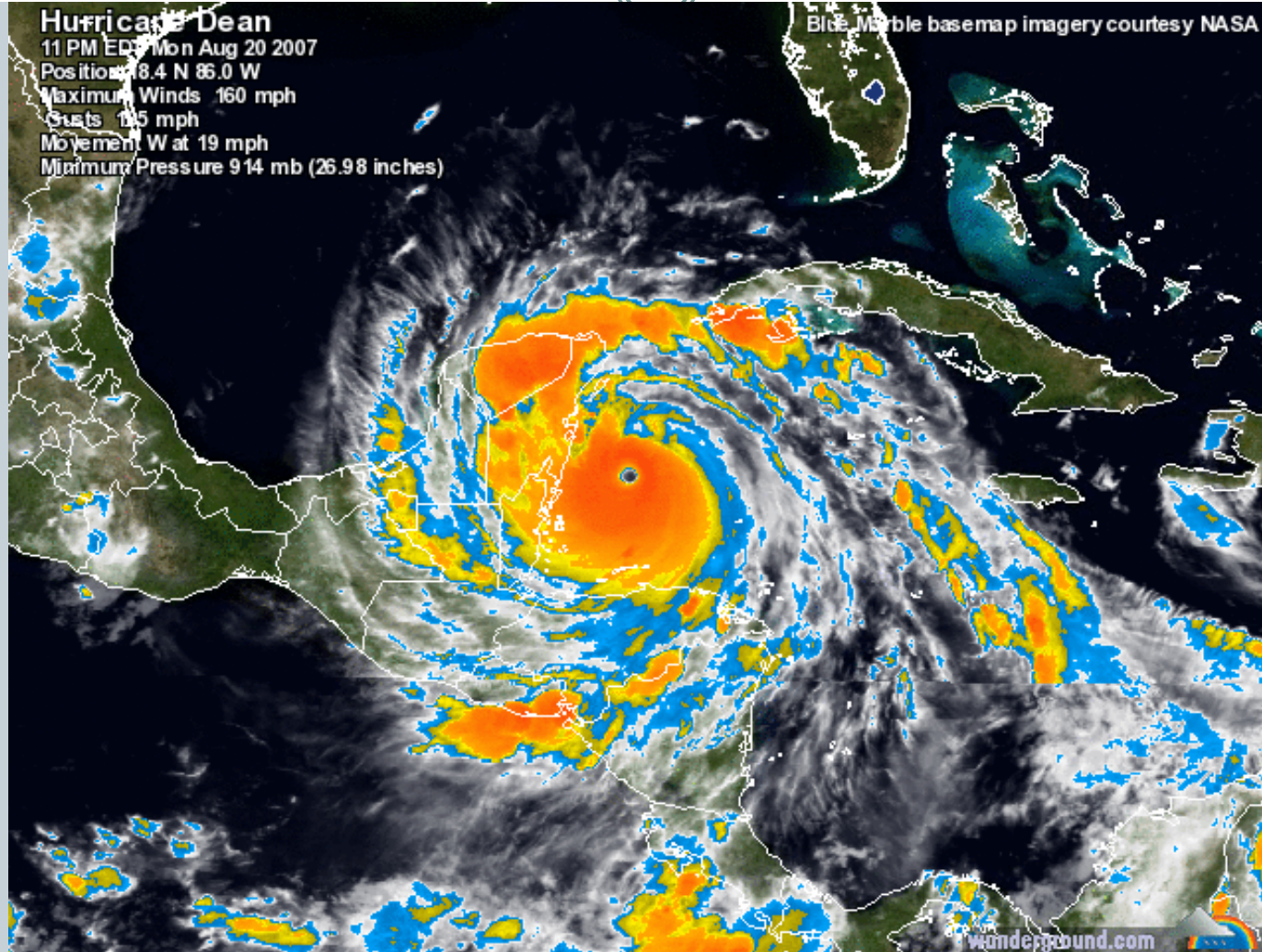
- **Monday August 20th**
- The first feeder-band spiraling into H. Dean crossed the country between 1:00 and 2:00 pm with showers and an impressive display of lightning. H. Dean continued on its westward track and by 6:00 pm was near latitude 18.2 N and longitude 85.1 W or about 216 miles east-southeast of Corozal Town. By 9:00 pm Dean was a Category V hurricane with maximum sustained winds of 160 mph and was about 150 miles east of Corozal Town.

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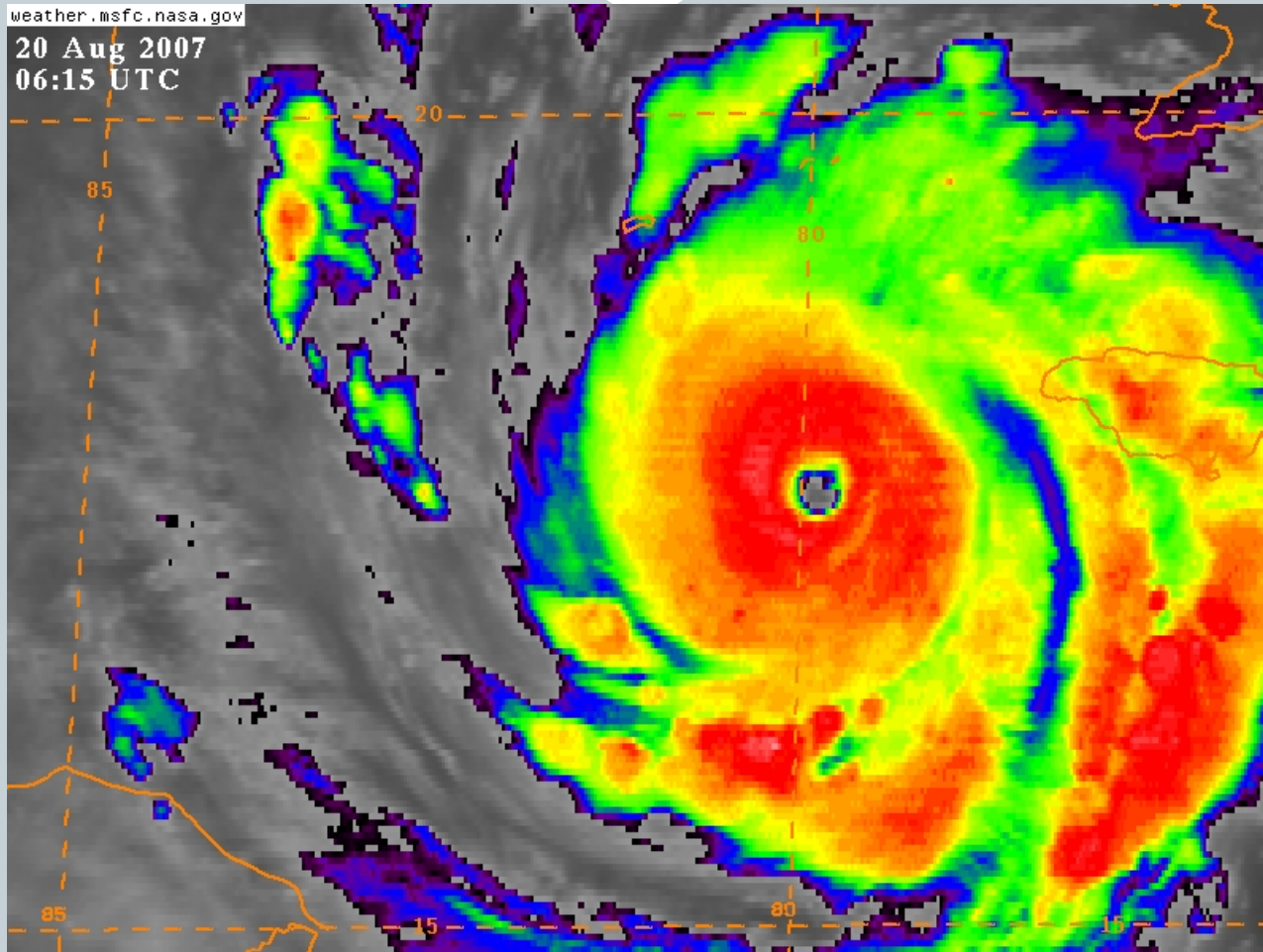


- **Tuesday August 21st**
- Winds began to increase in the north around 1:30 or 2:00am on Tuesday morning, 21st August, and persisted until near 6:00 am according to some reports received.
- Based on local tracking done at the National Meteorological Service of Belize, Hurricane Dean made landfall as a Category 5 hurricane (Maximum sustained winds of 165 miles per hour) at about 1:45 am (0745 UTC) on Tuesday, 21st August at a location latitude 18.7 North and longitude 87.8 West. That position was about 43 miles northeast of Corozal Town near Majuahil, a coastal community in the state of Quintana Roo, Mexico. See Figure 1 below.

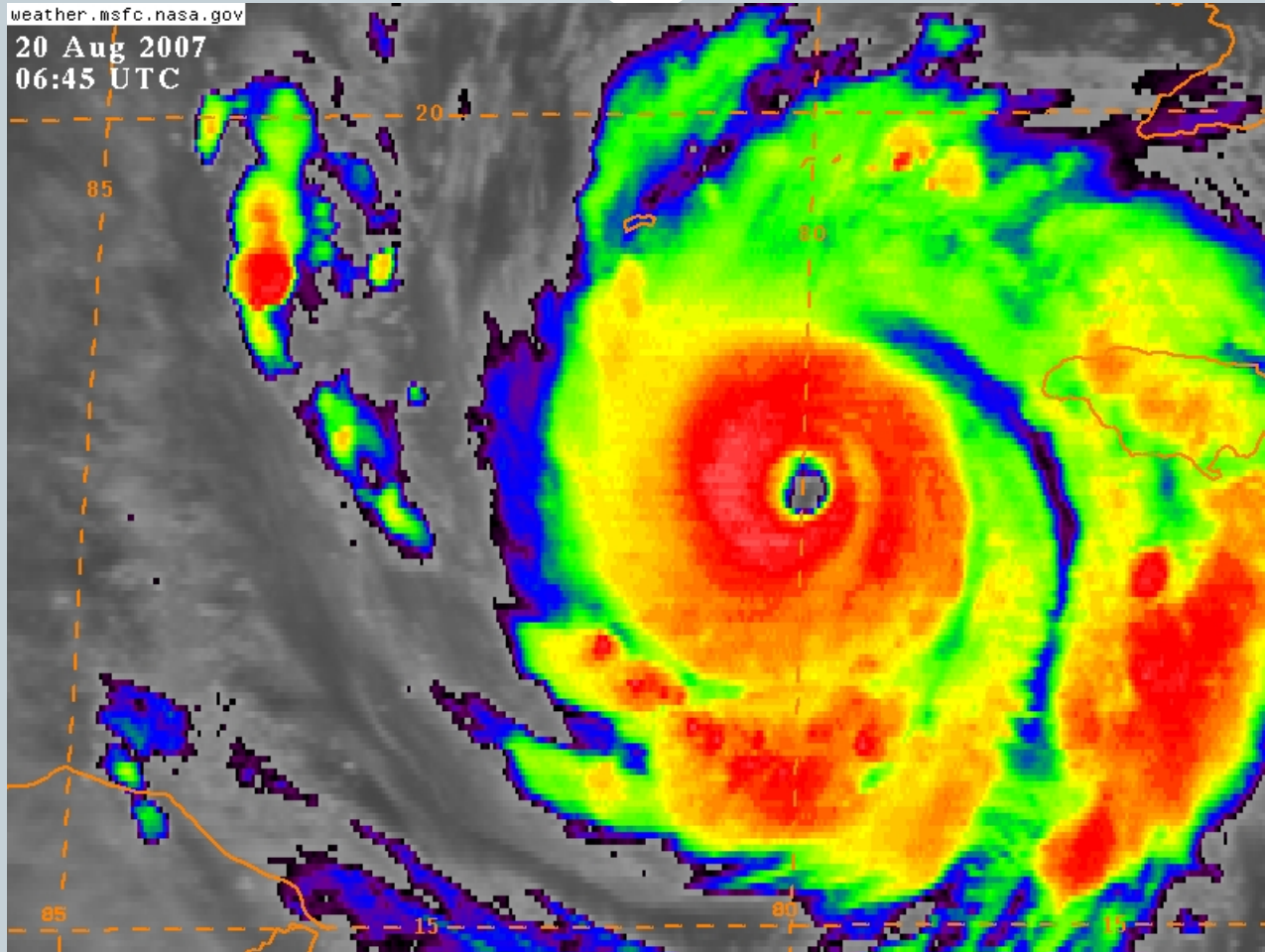
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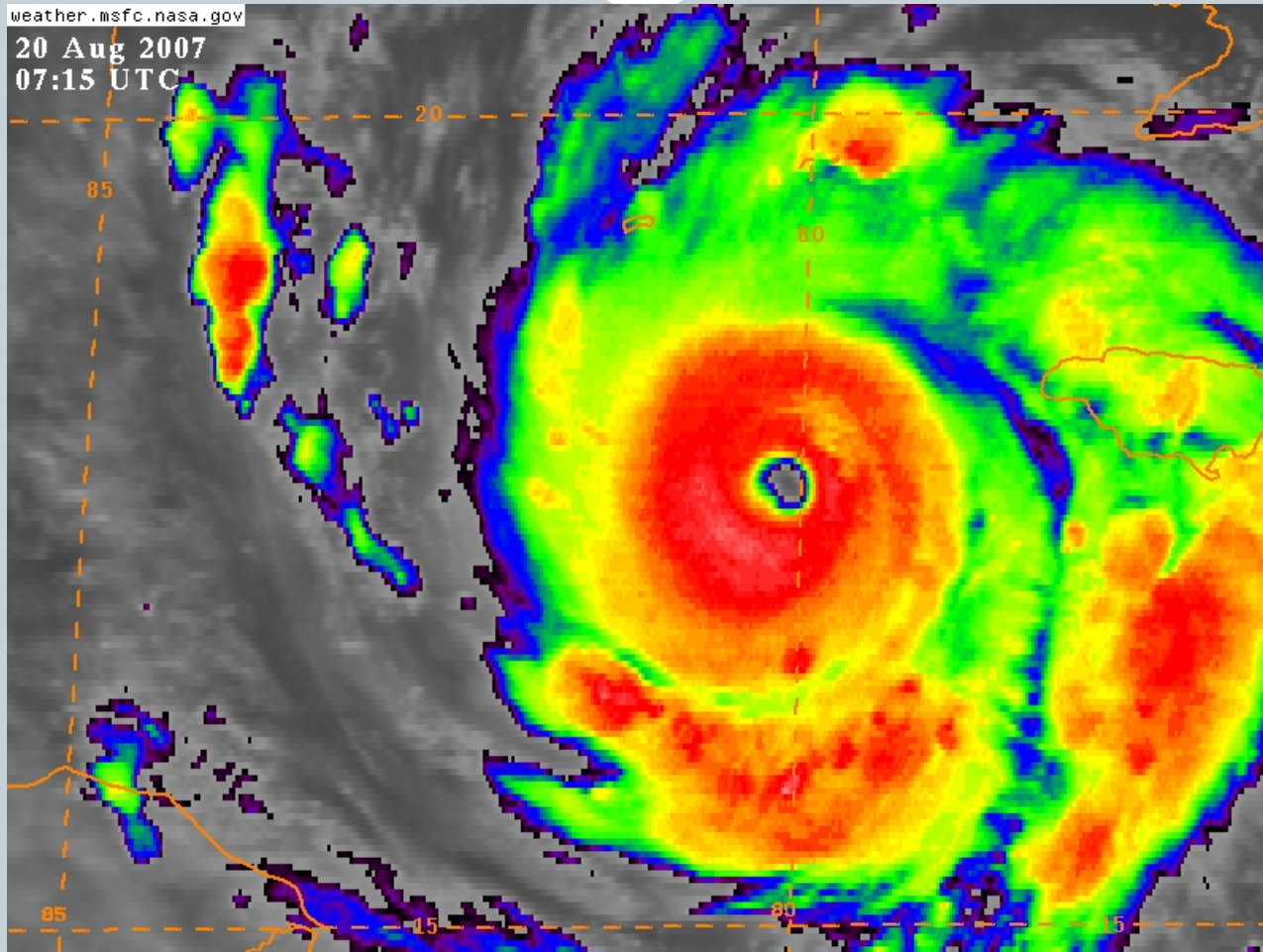
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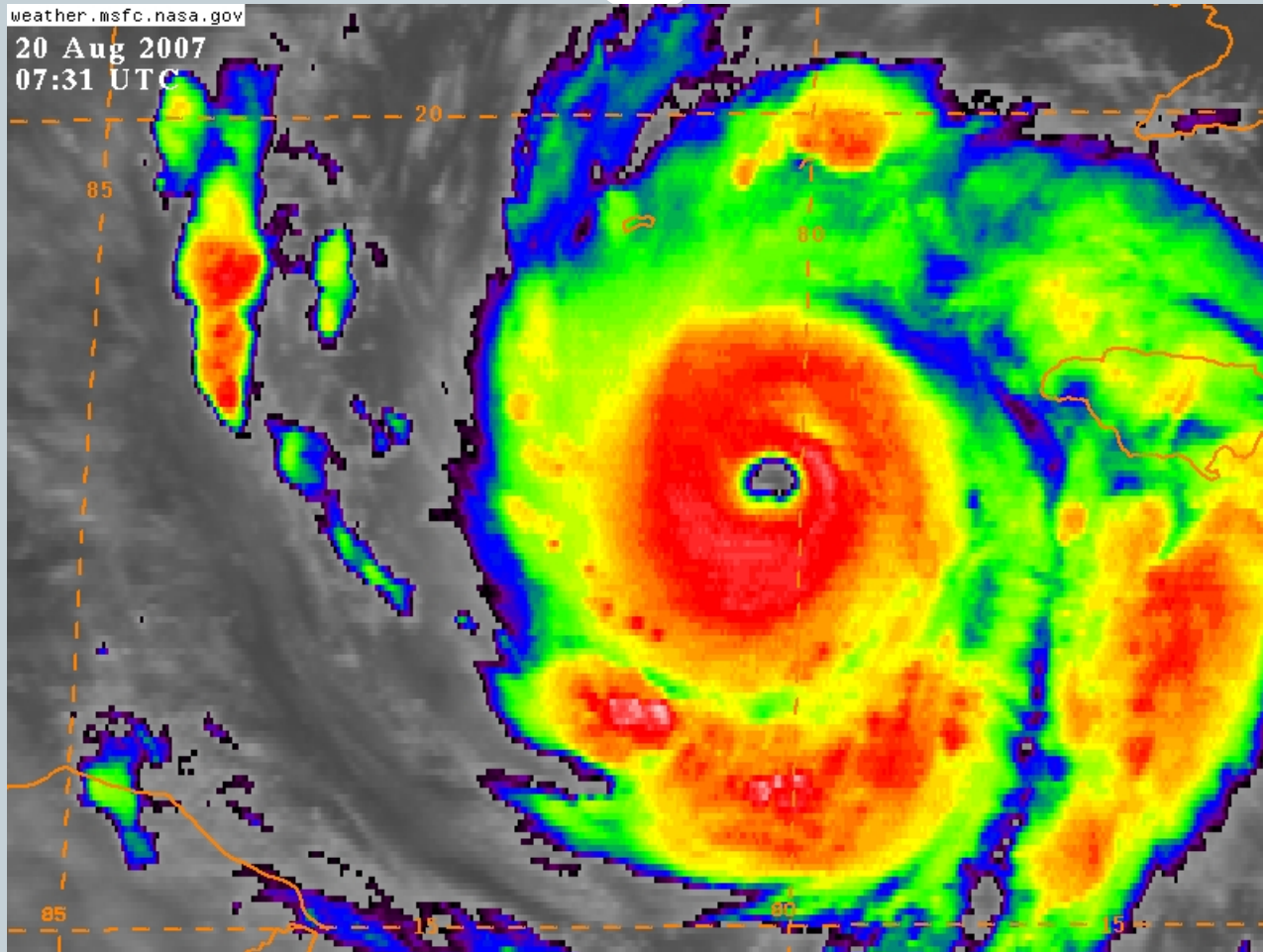
Hurricane Dean 2007



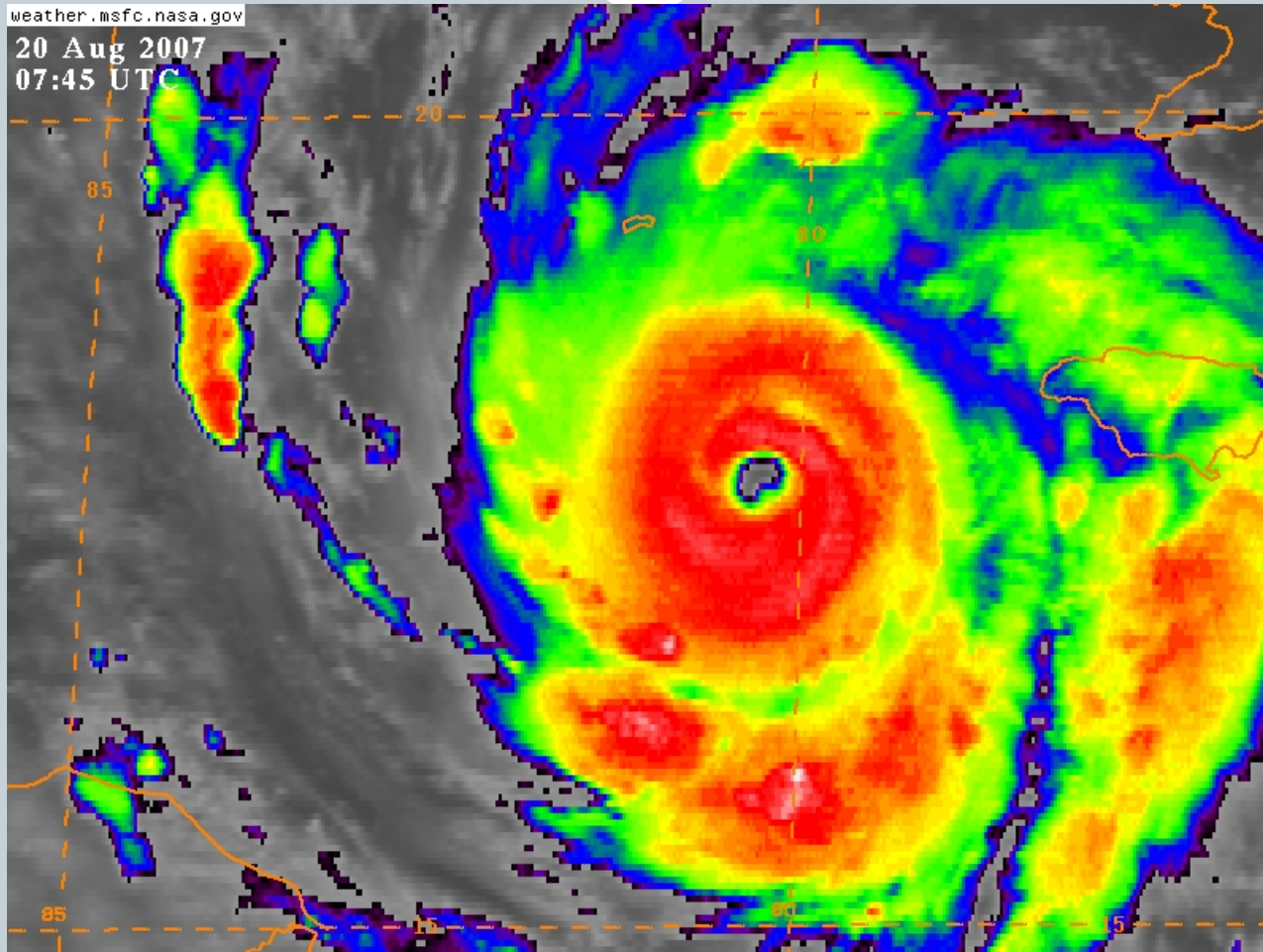
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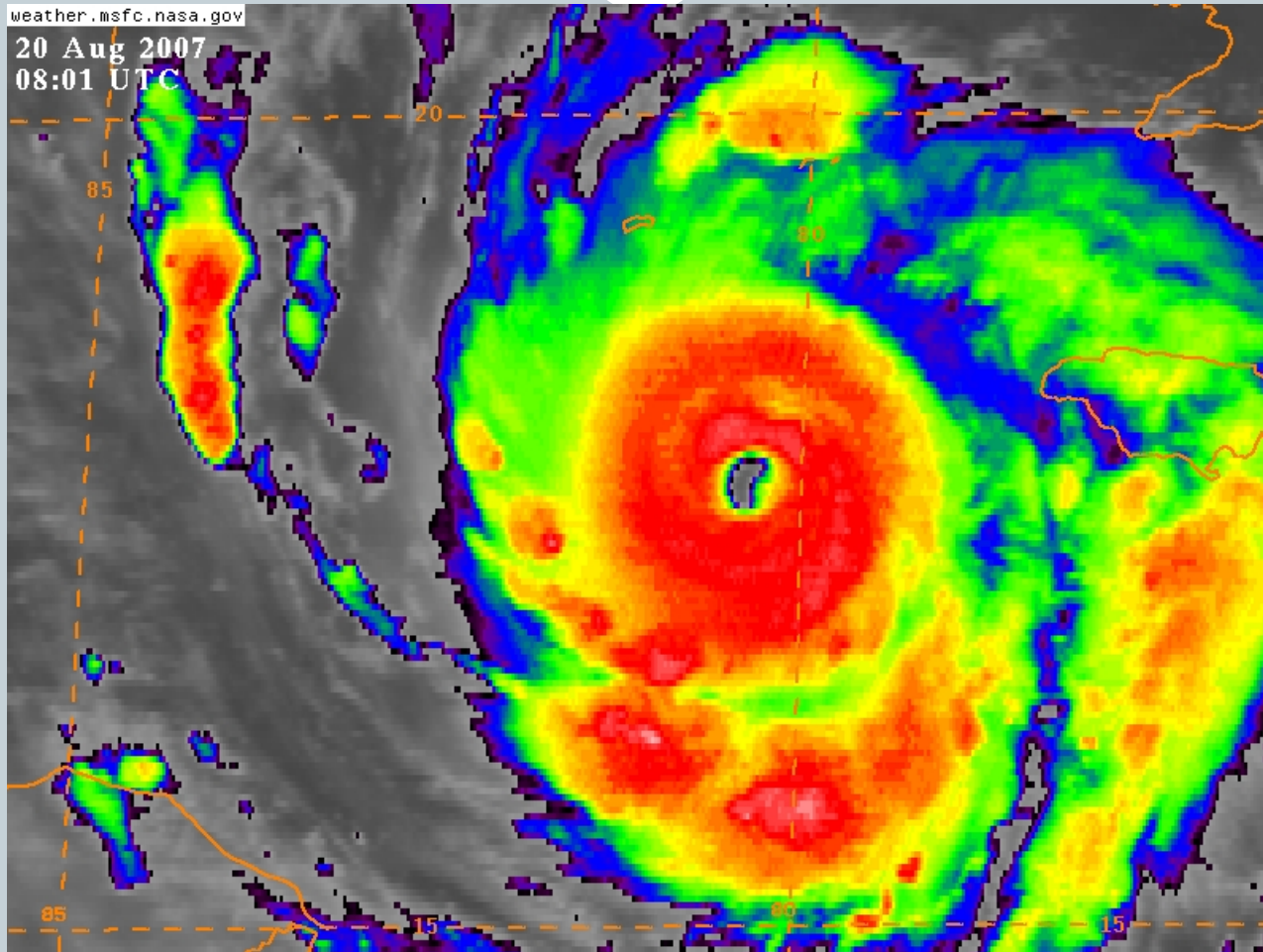
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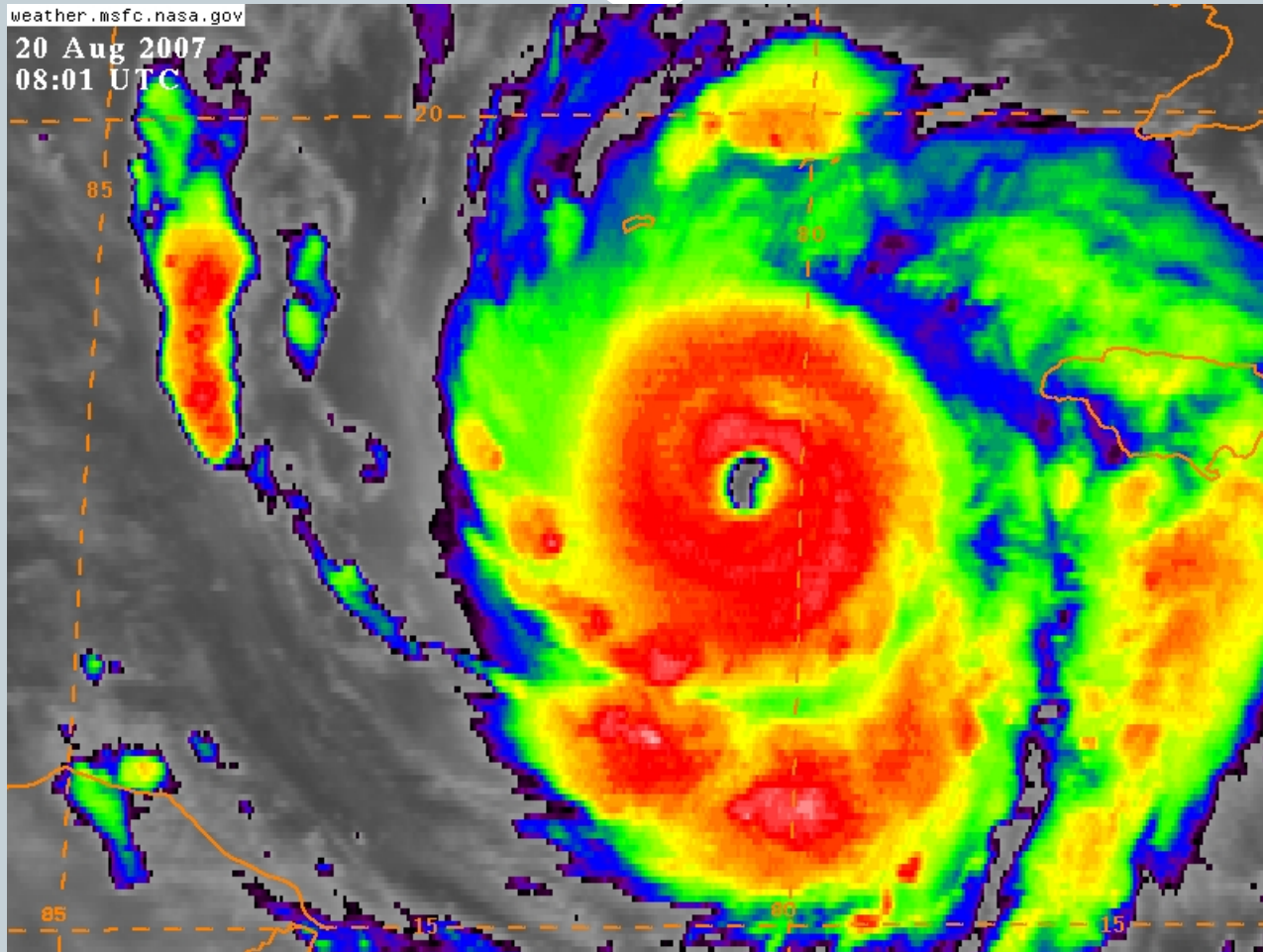
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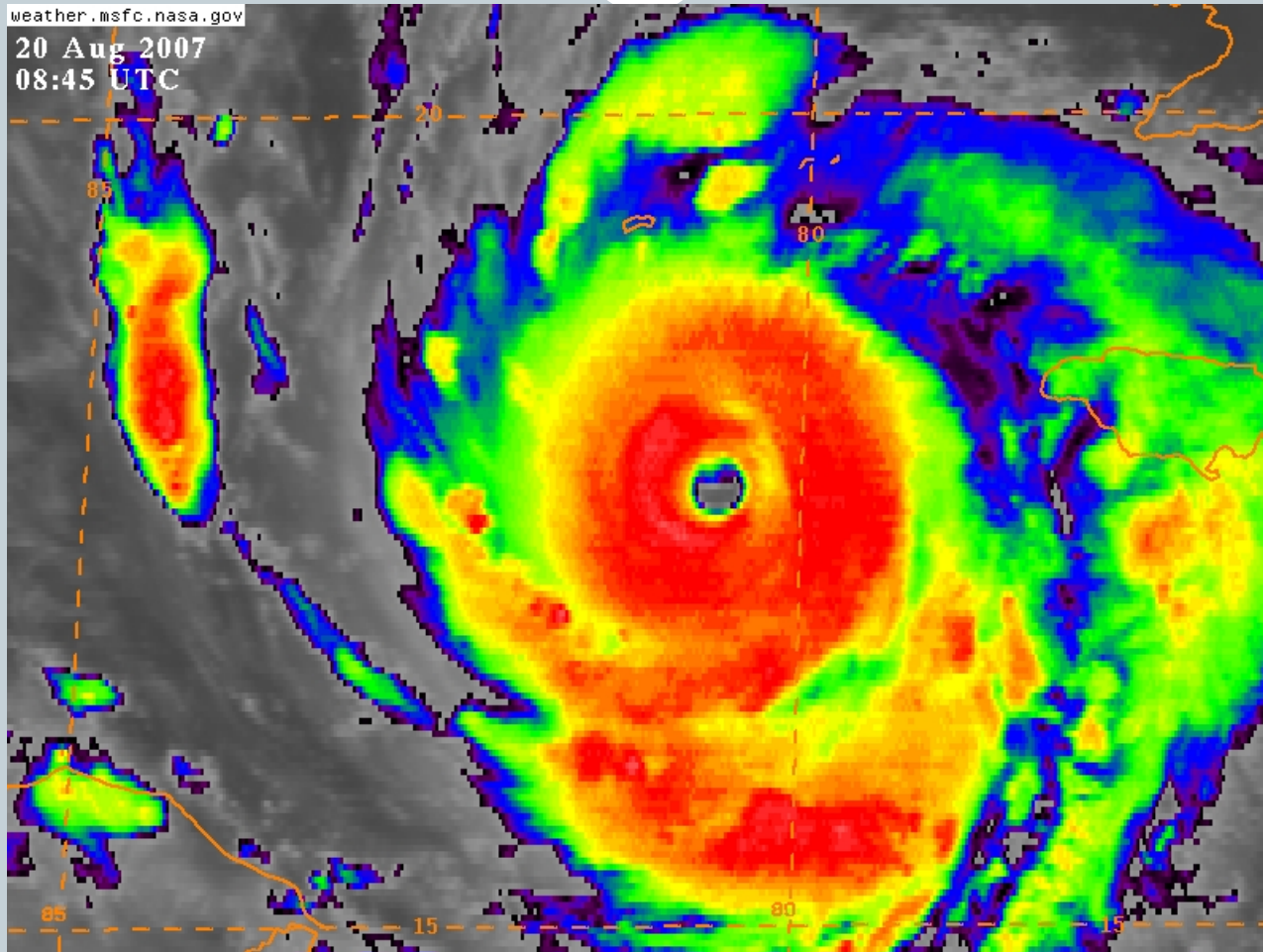
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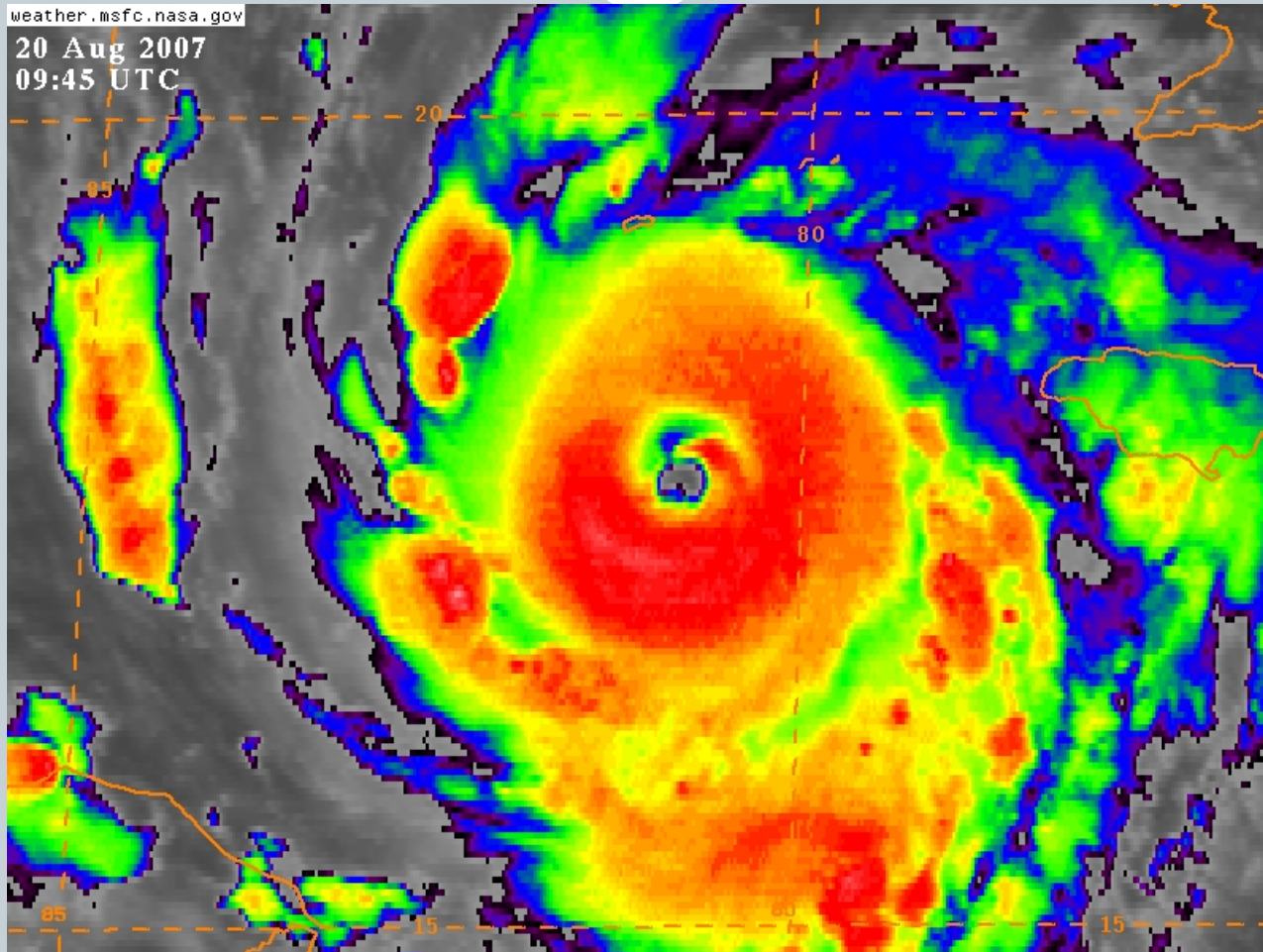
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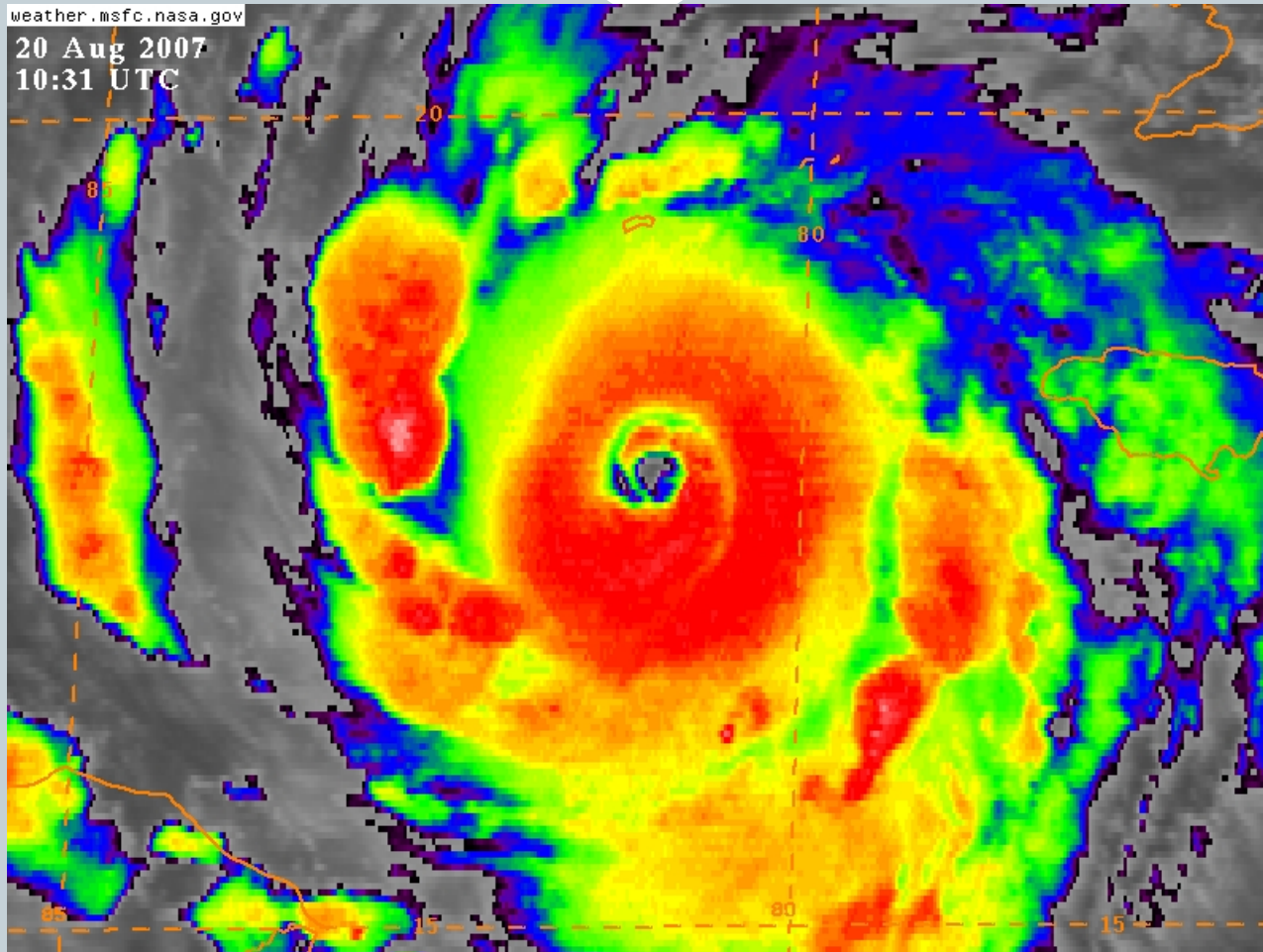
Hurricane Dean 2007



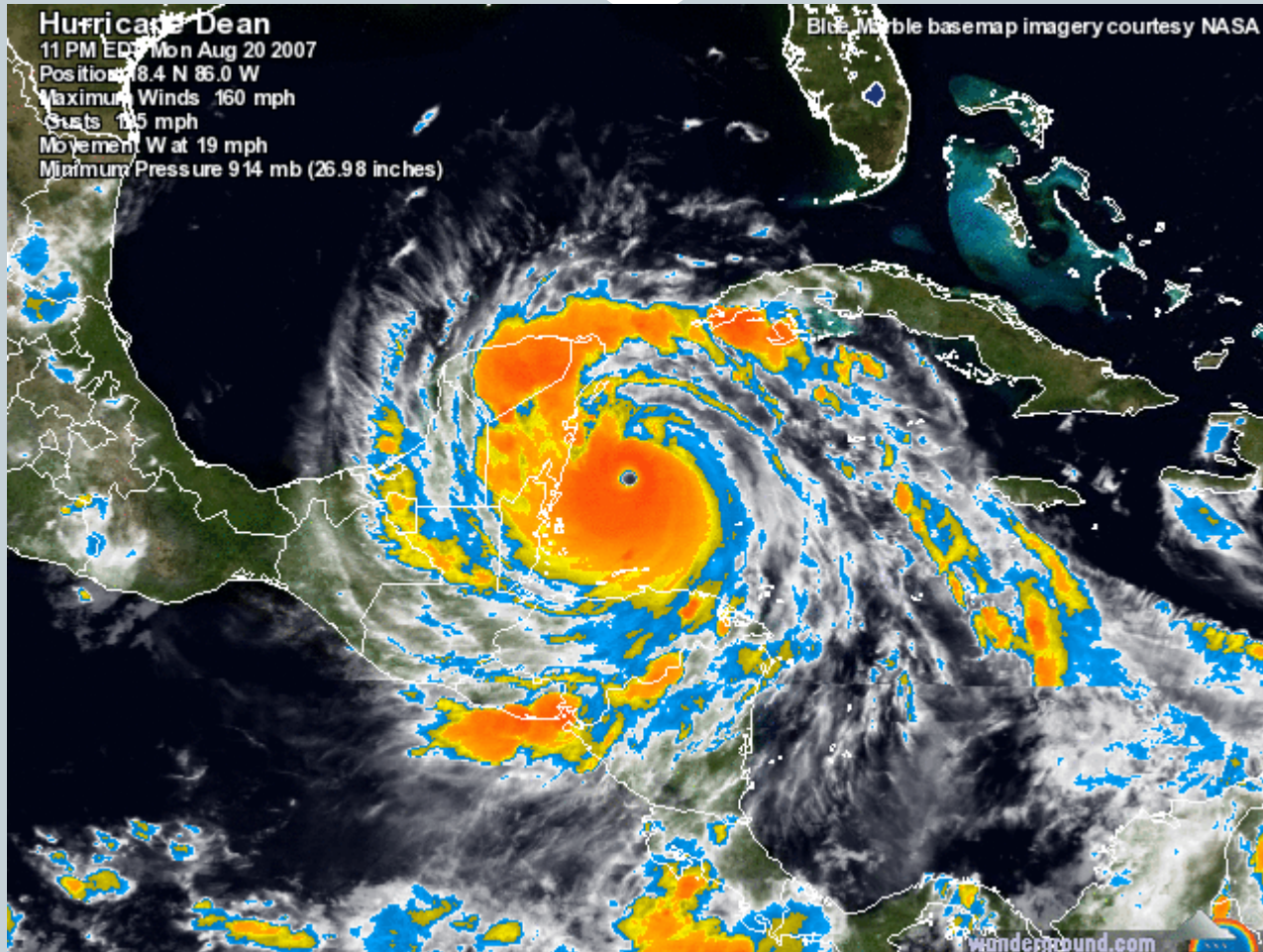
Hurricane Dean 2007



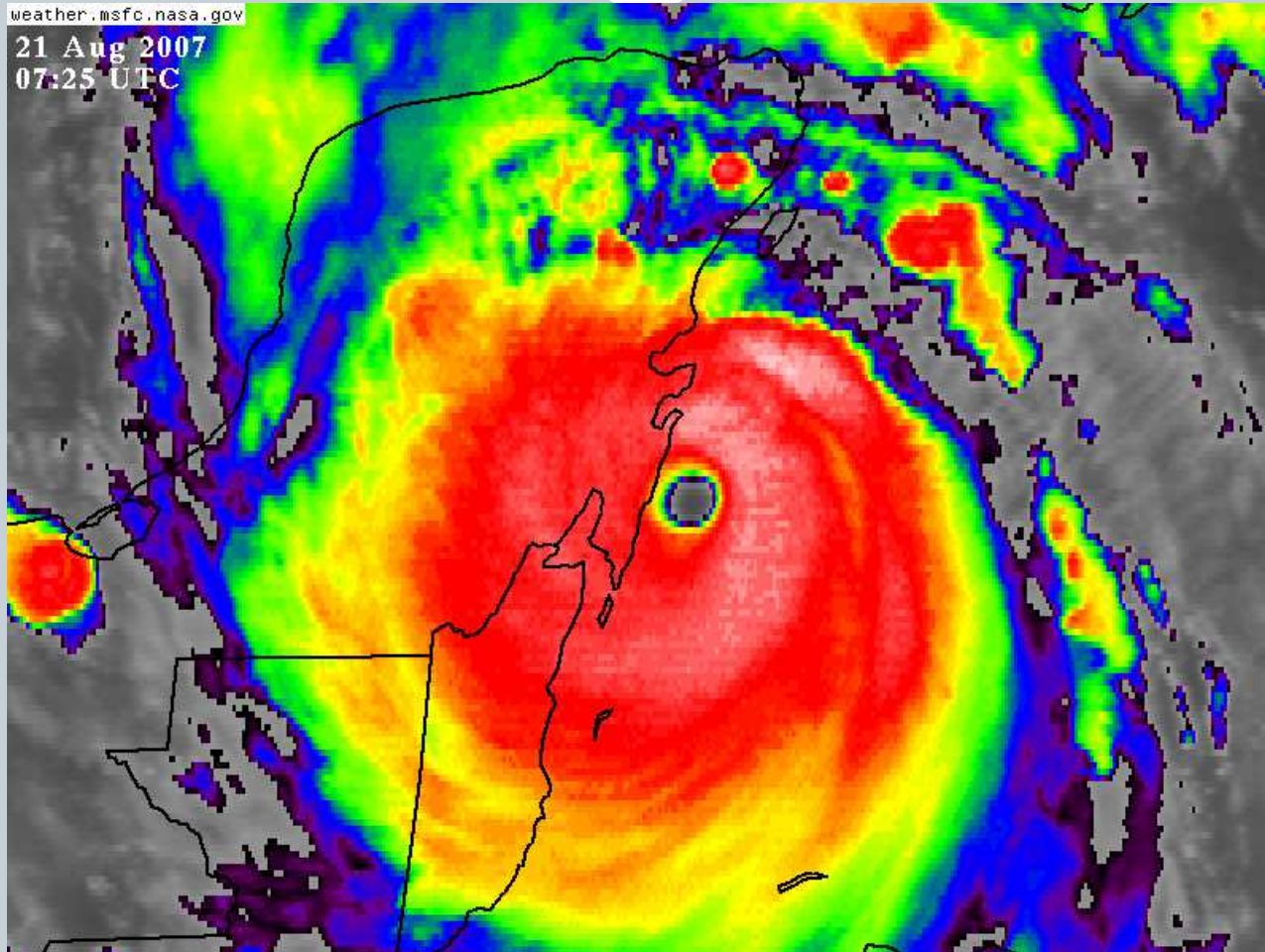
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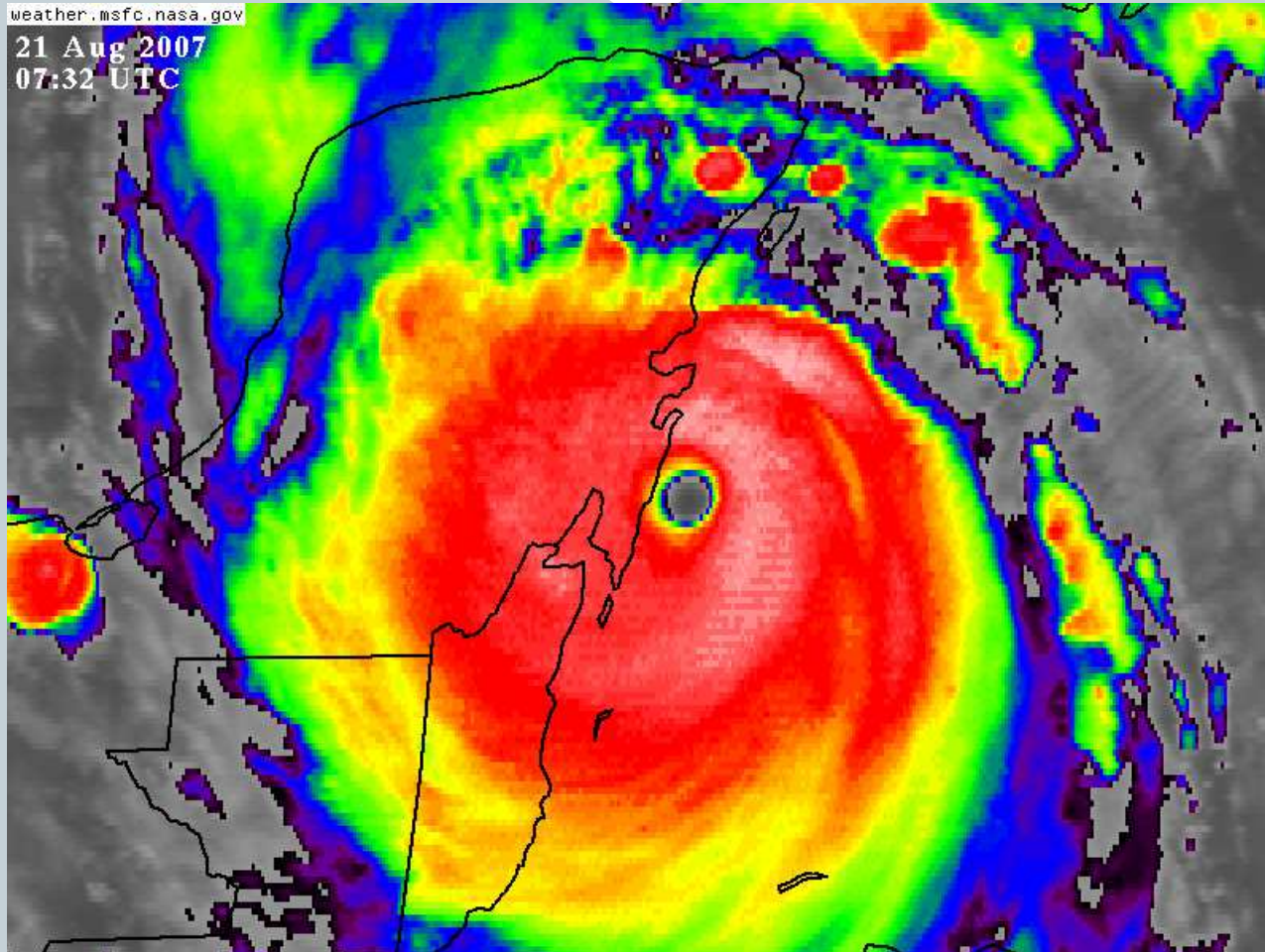
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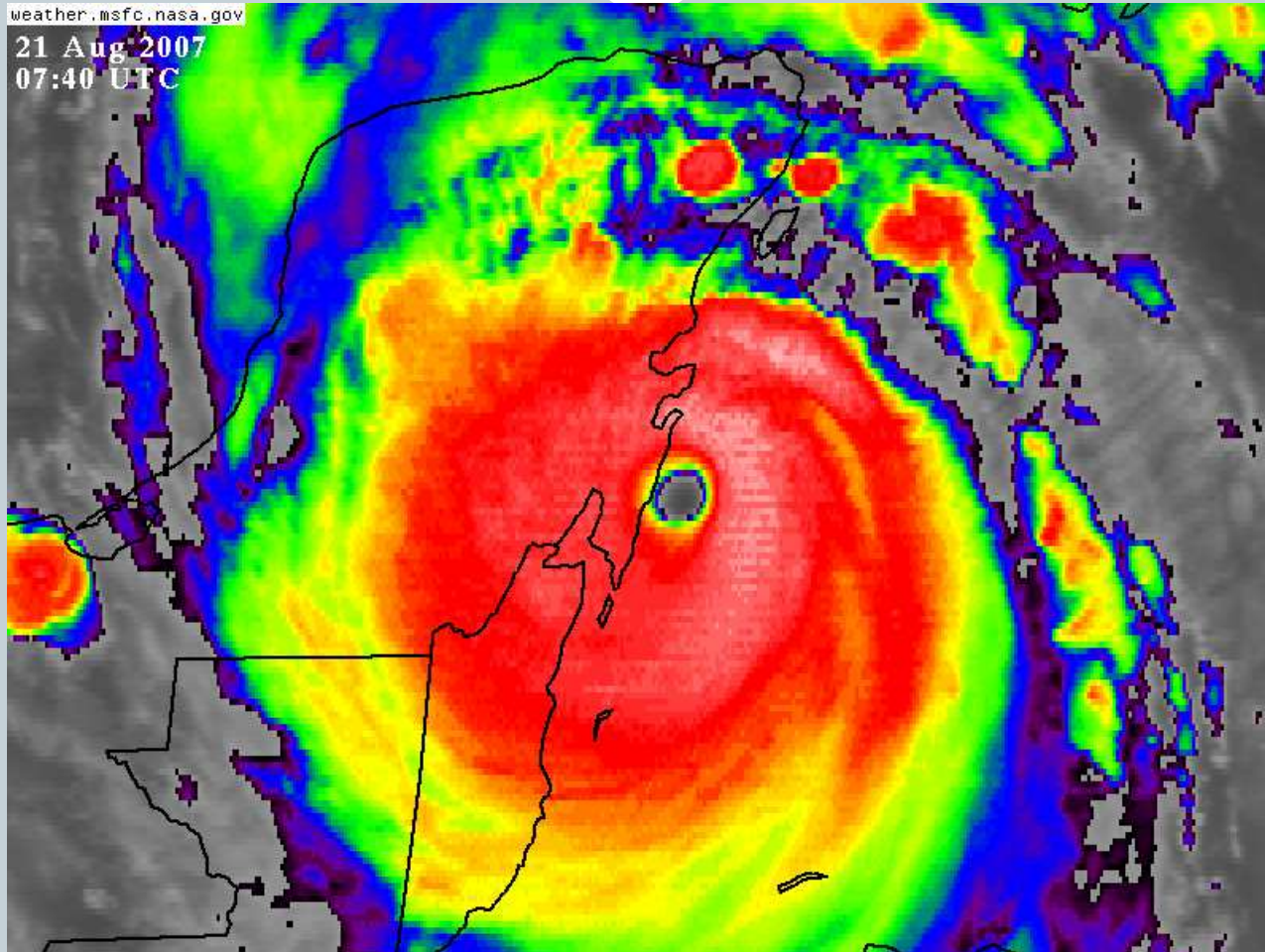
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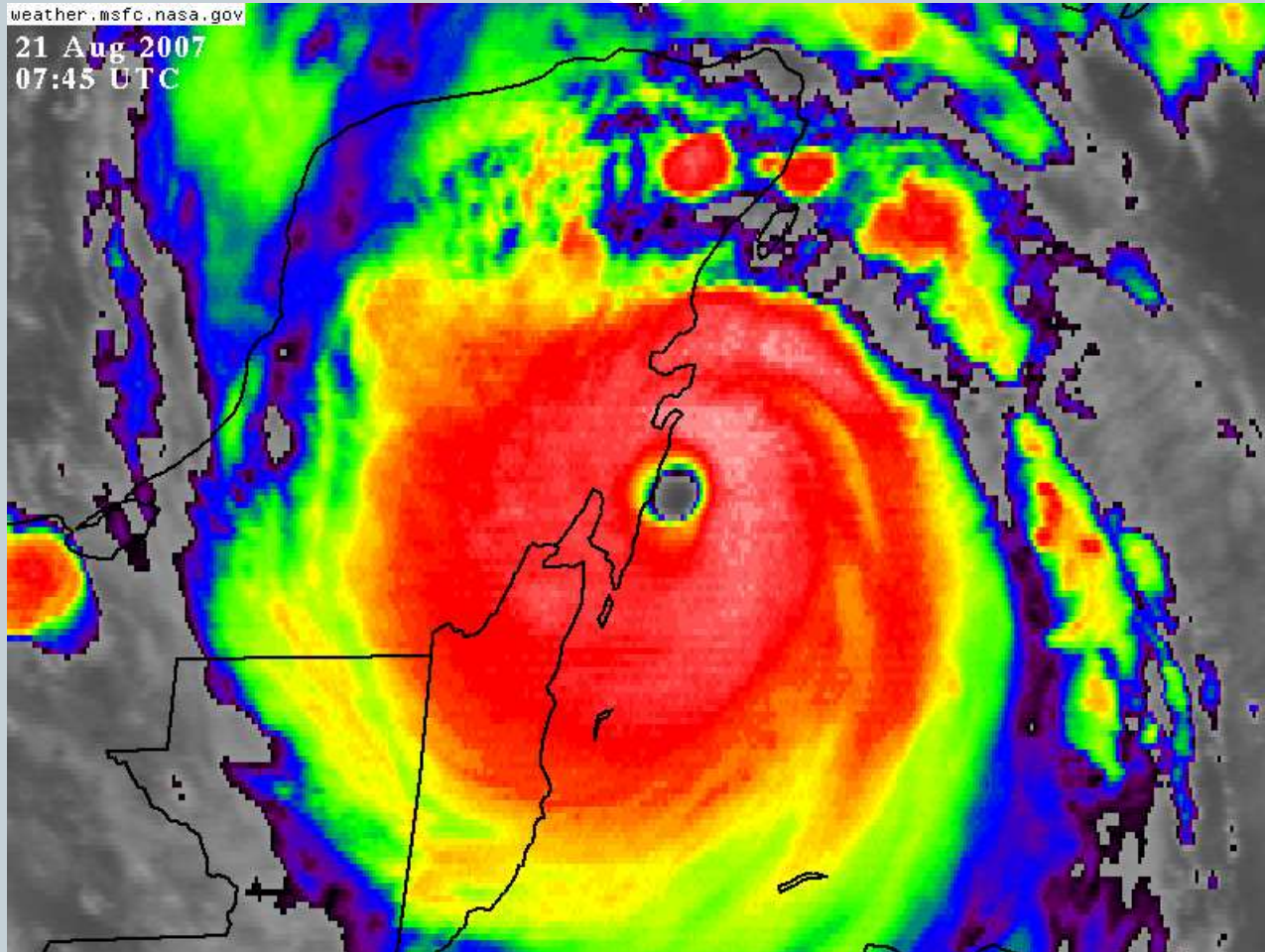
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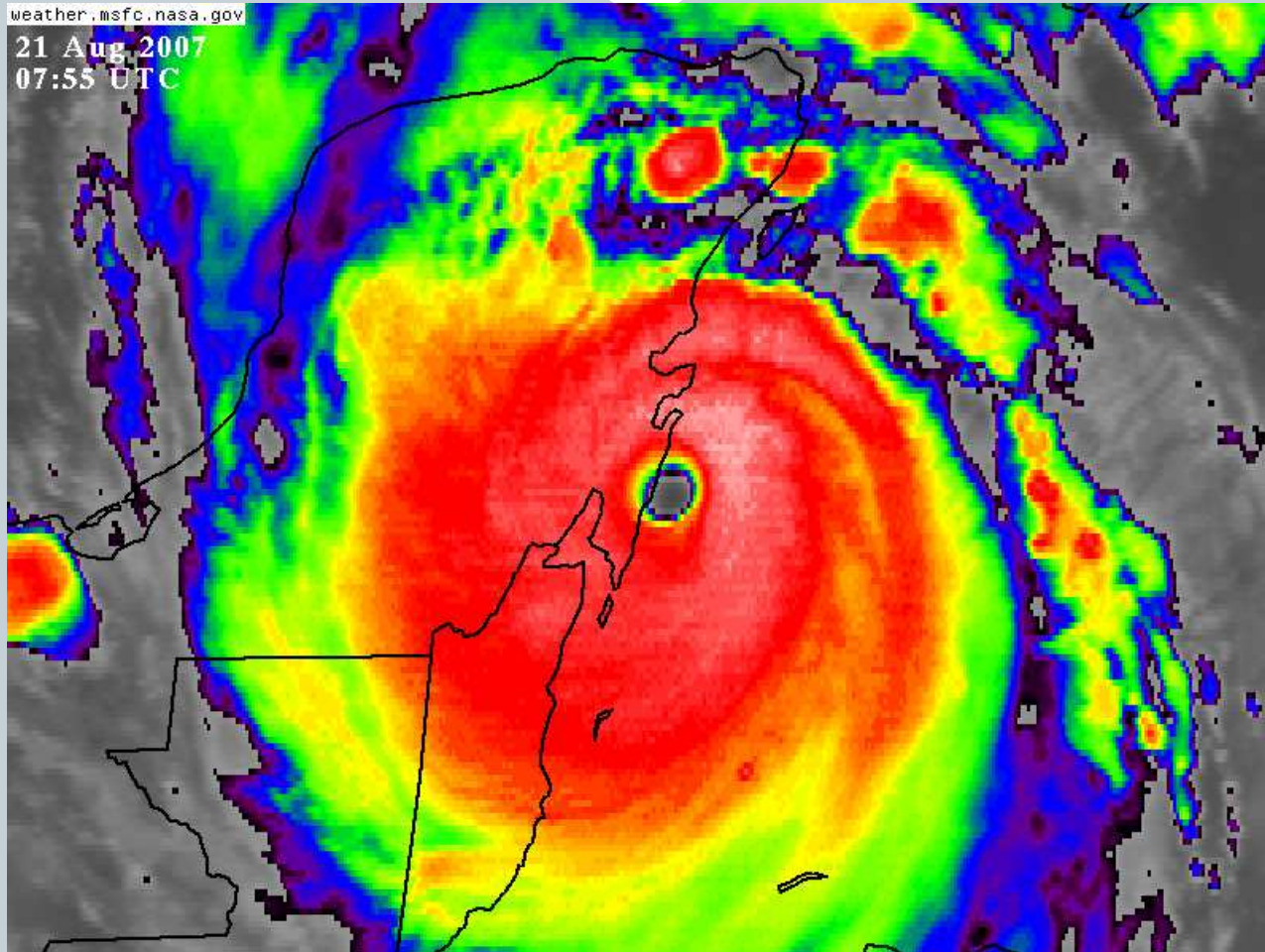
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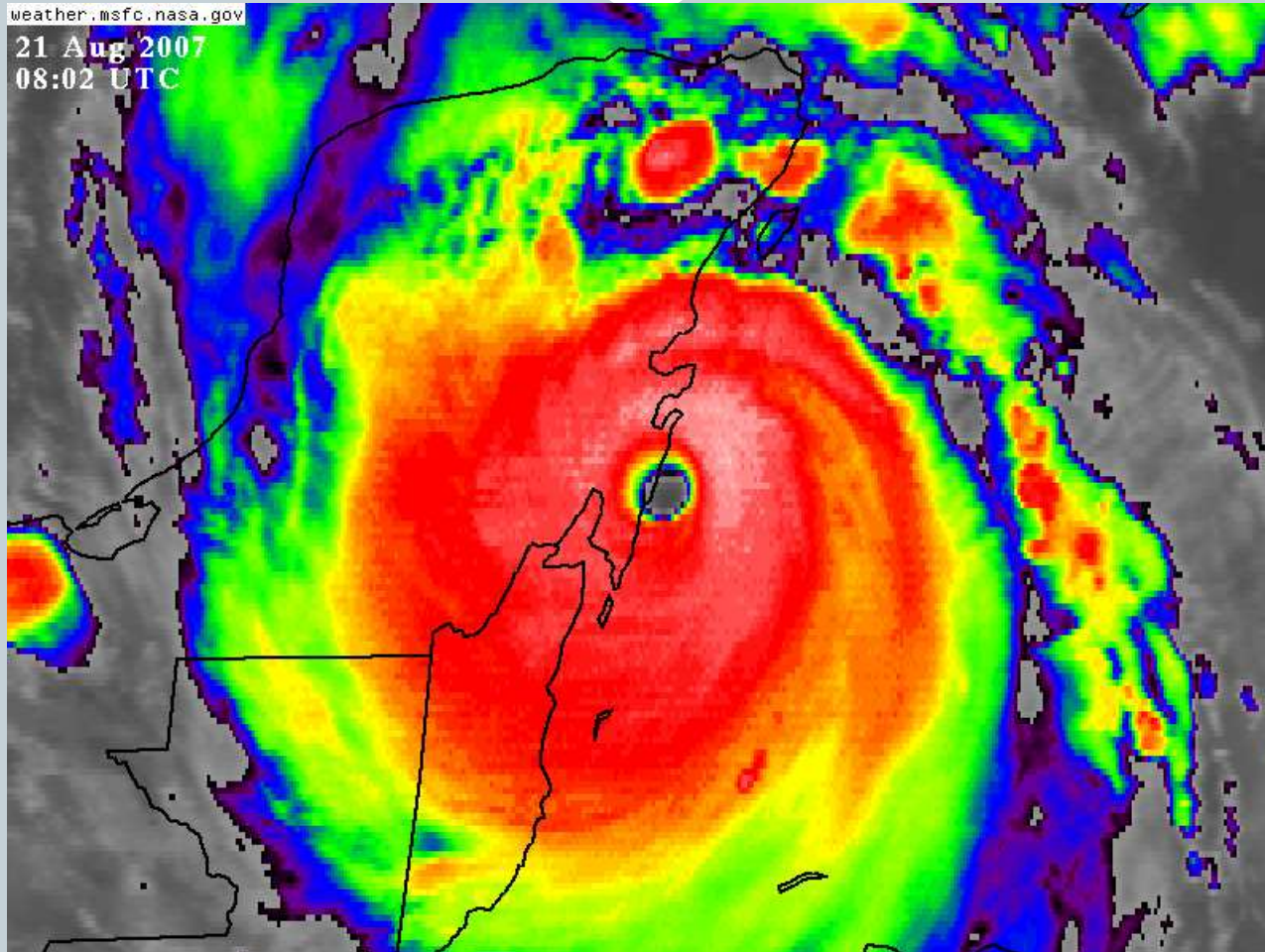
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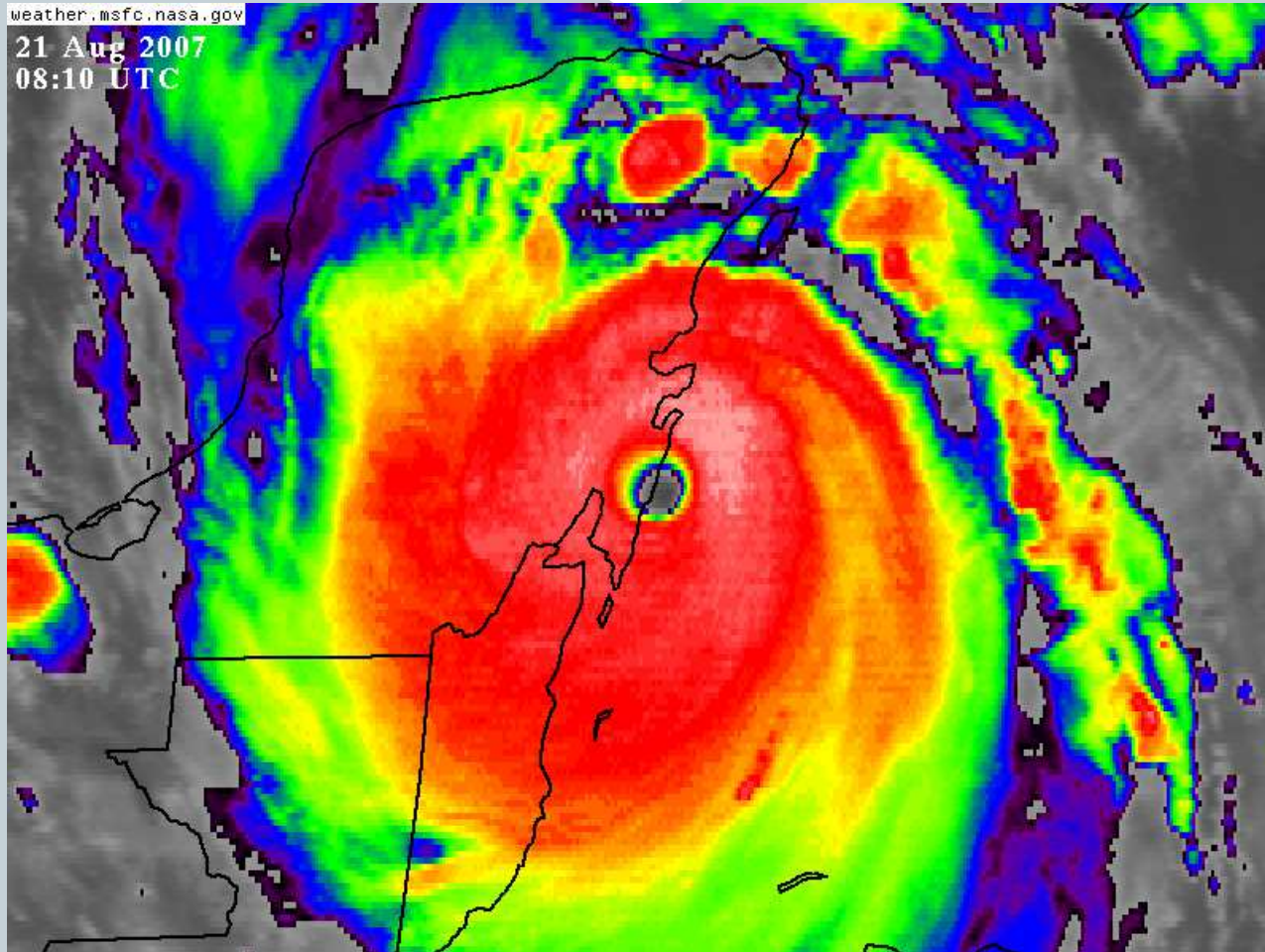
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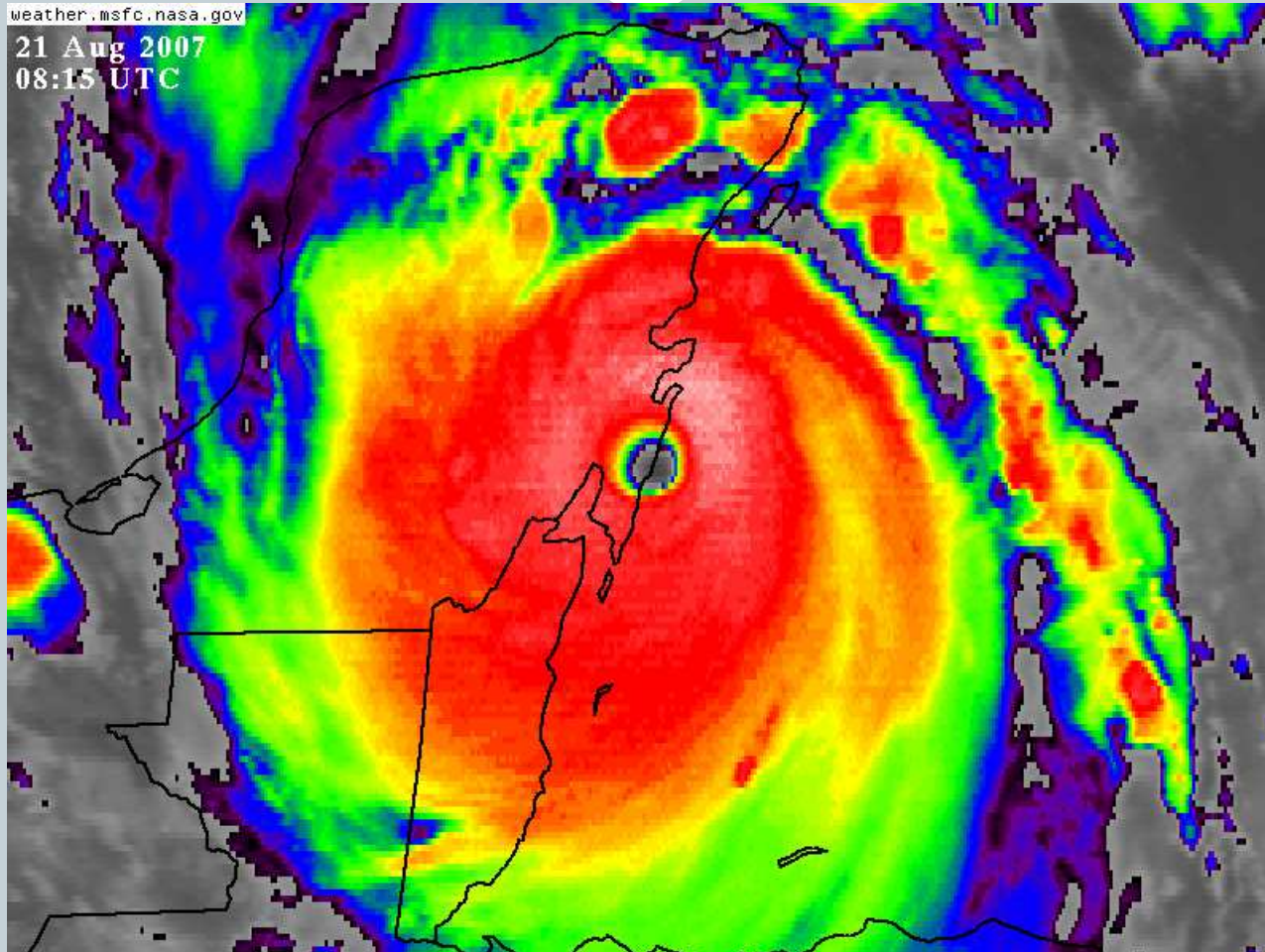
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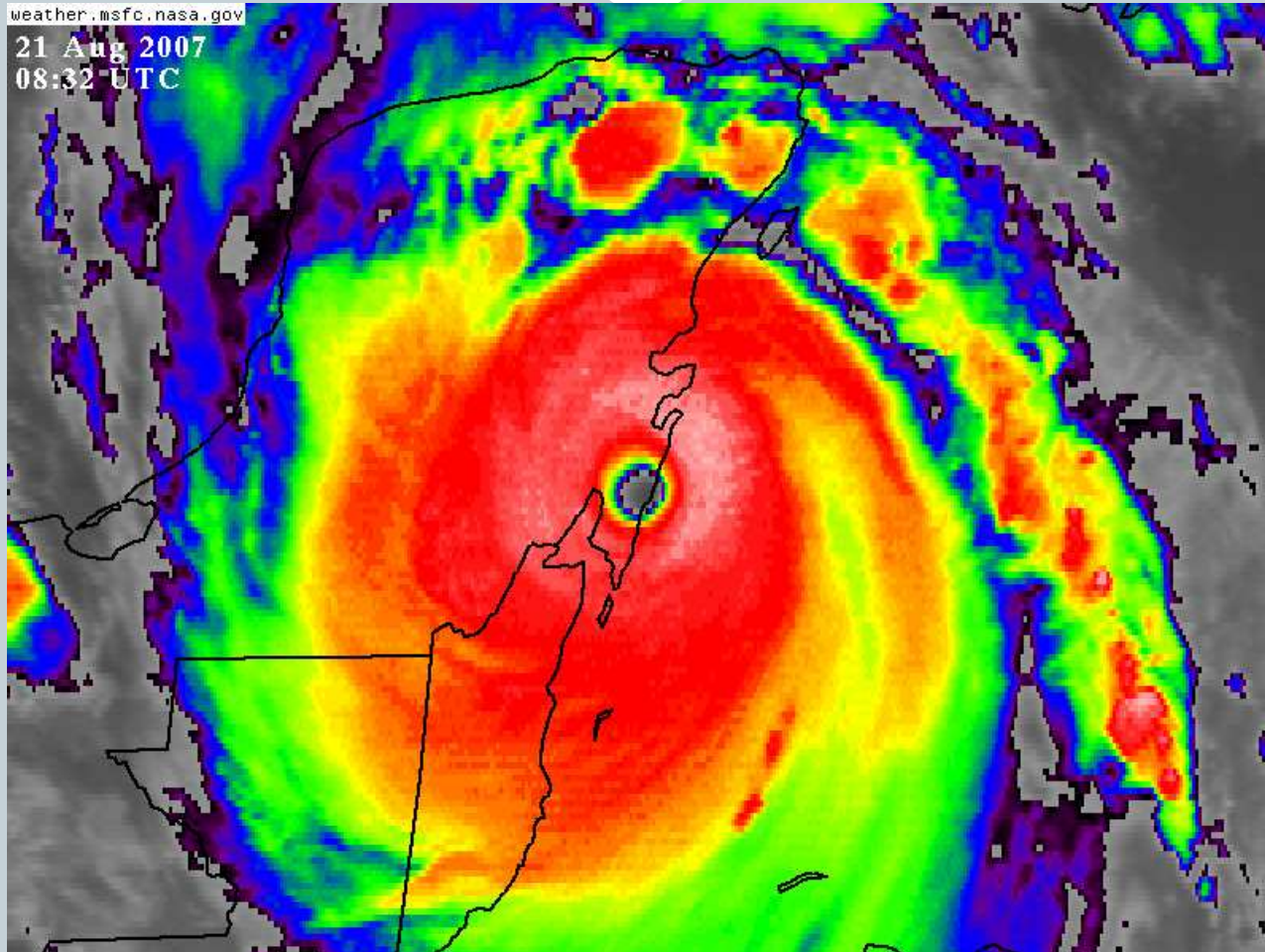
Hurricane Dean 2007



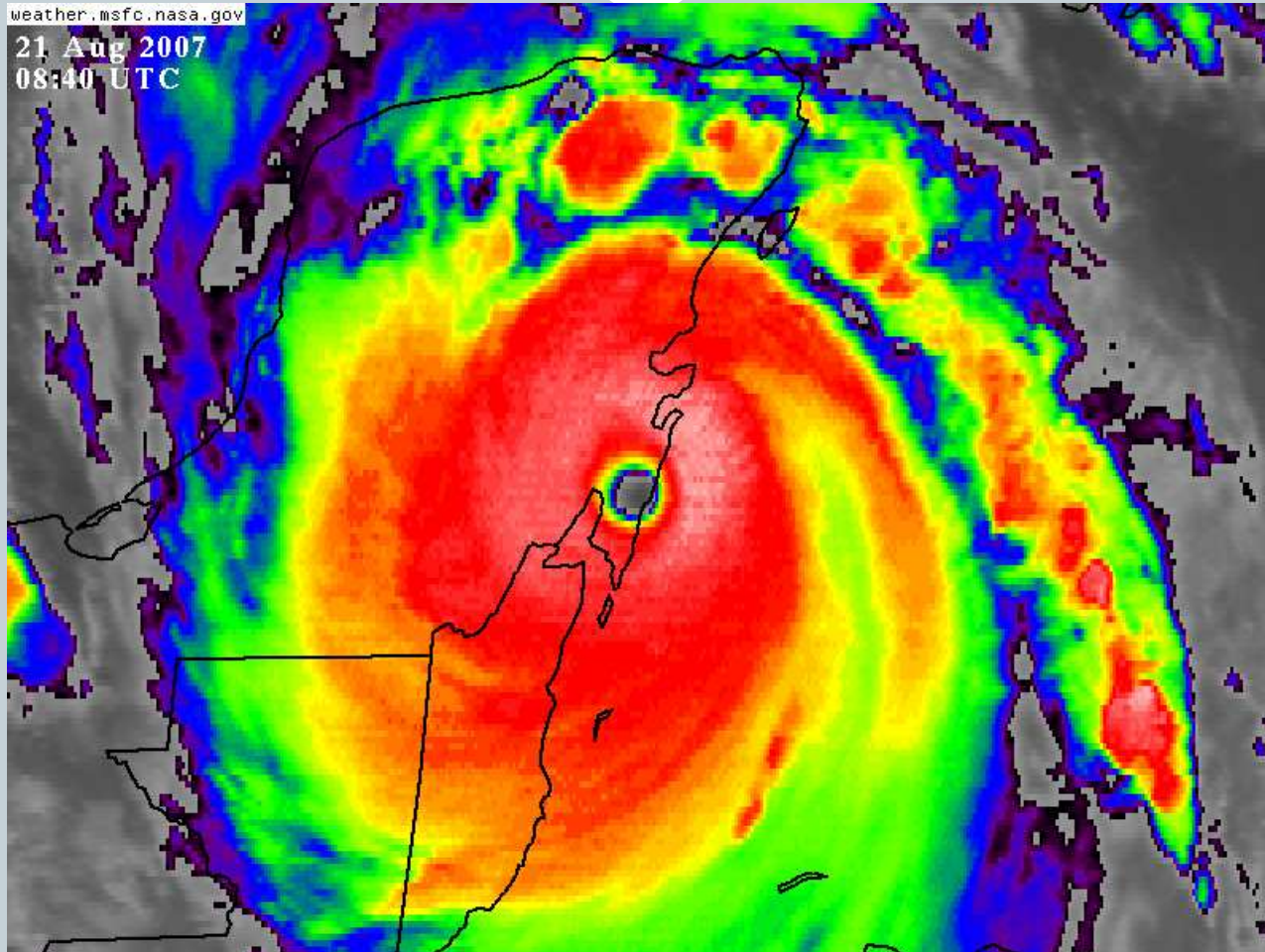
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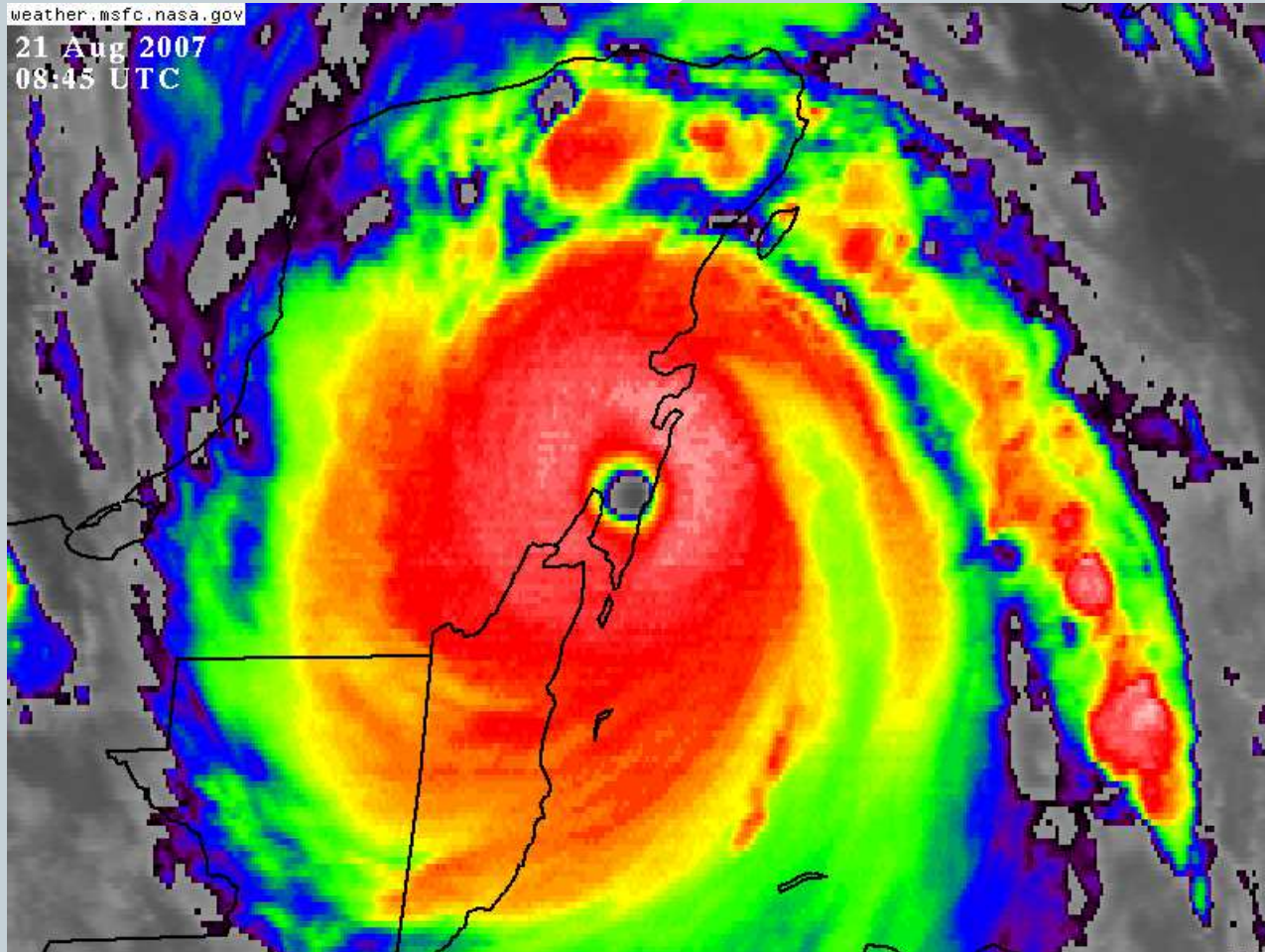
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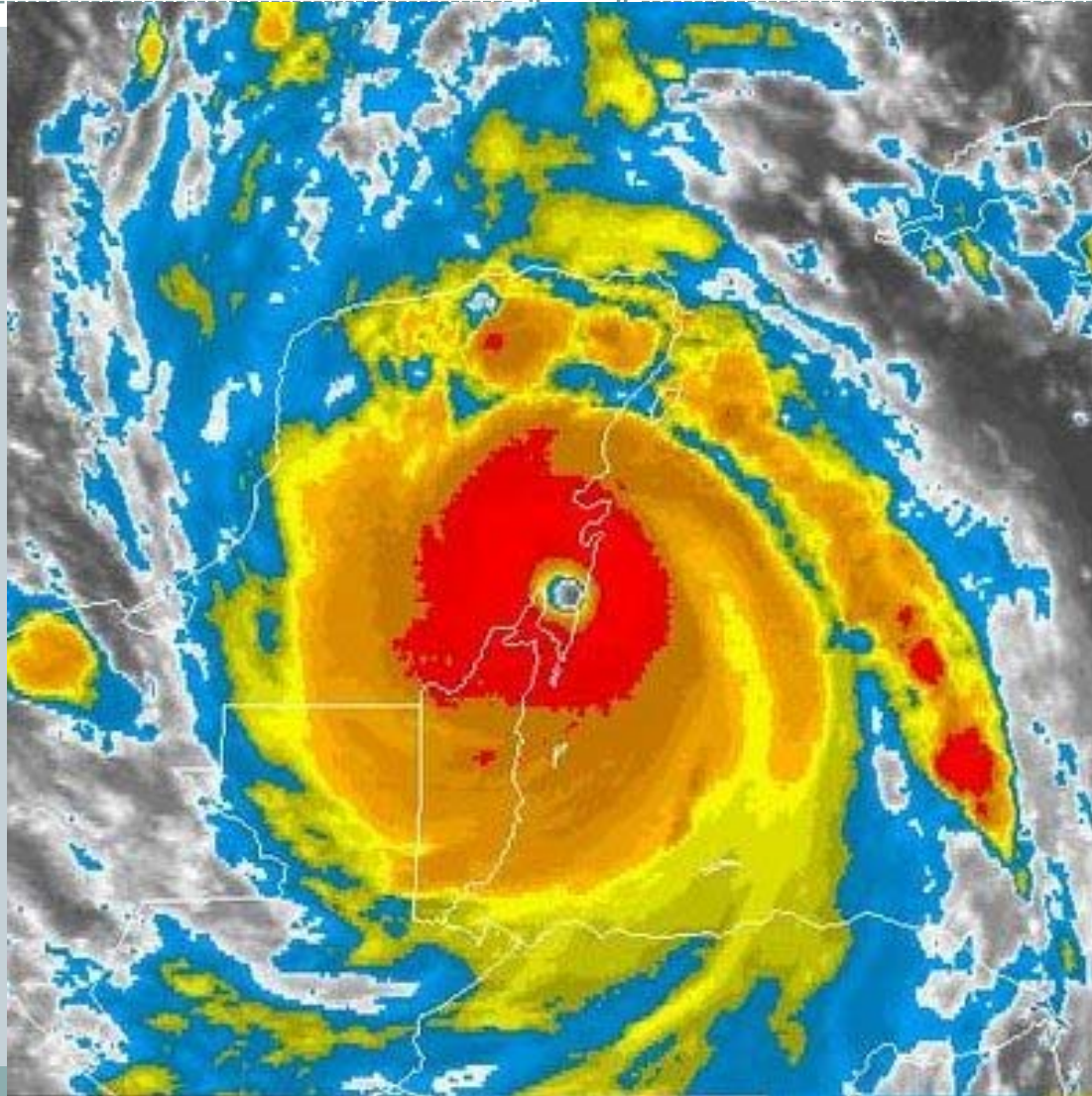
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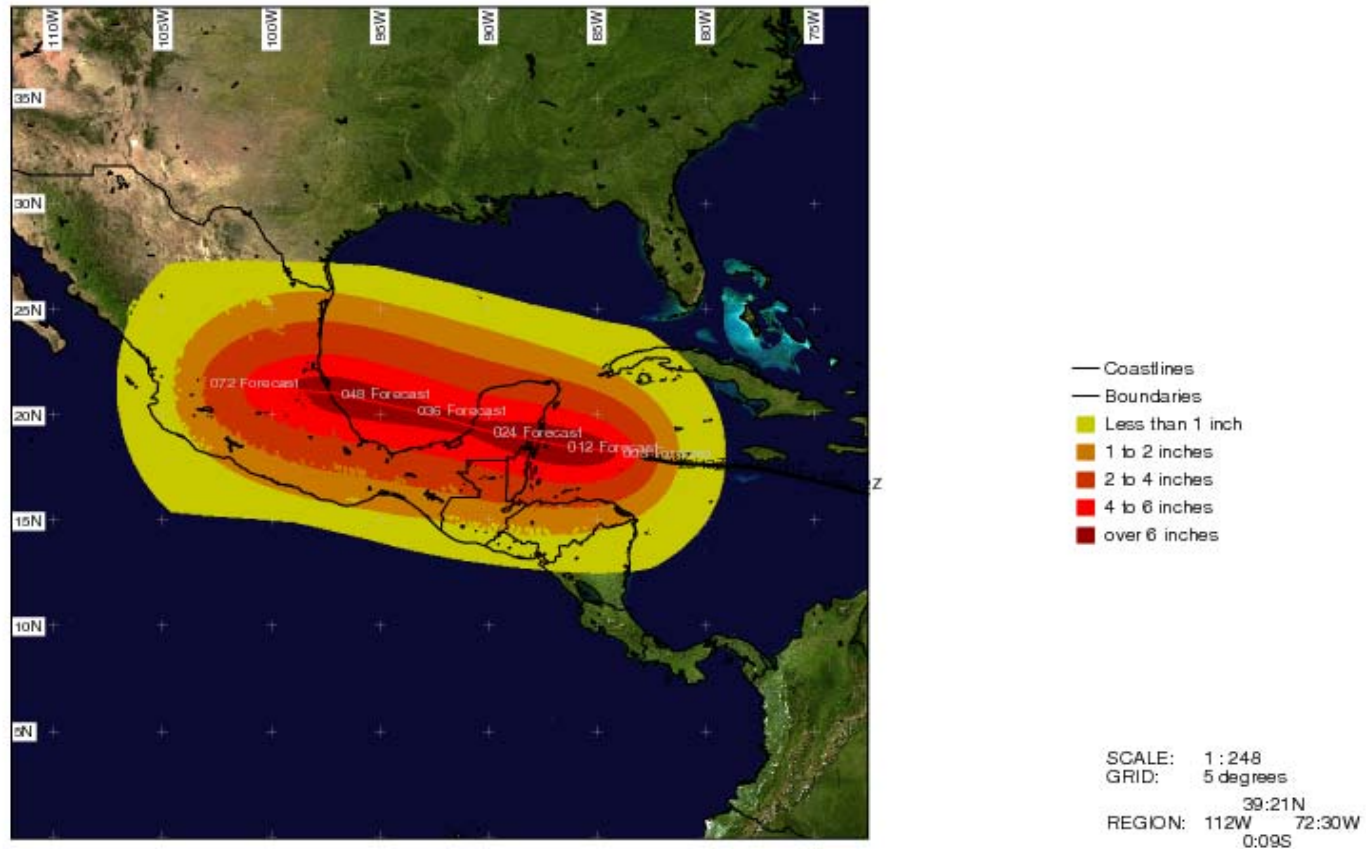


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Graphic Generated: Mon Aug 20, 17:13 EDT 2007

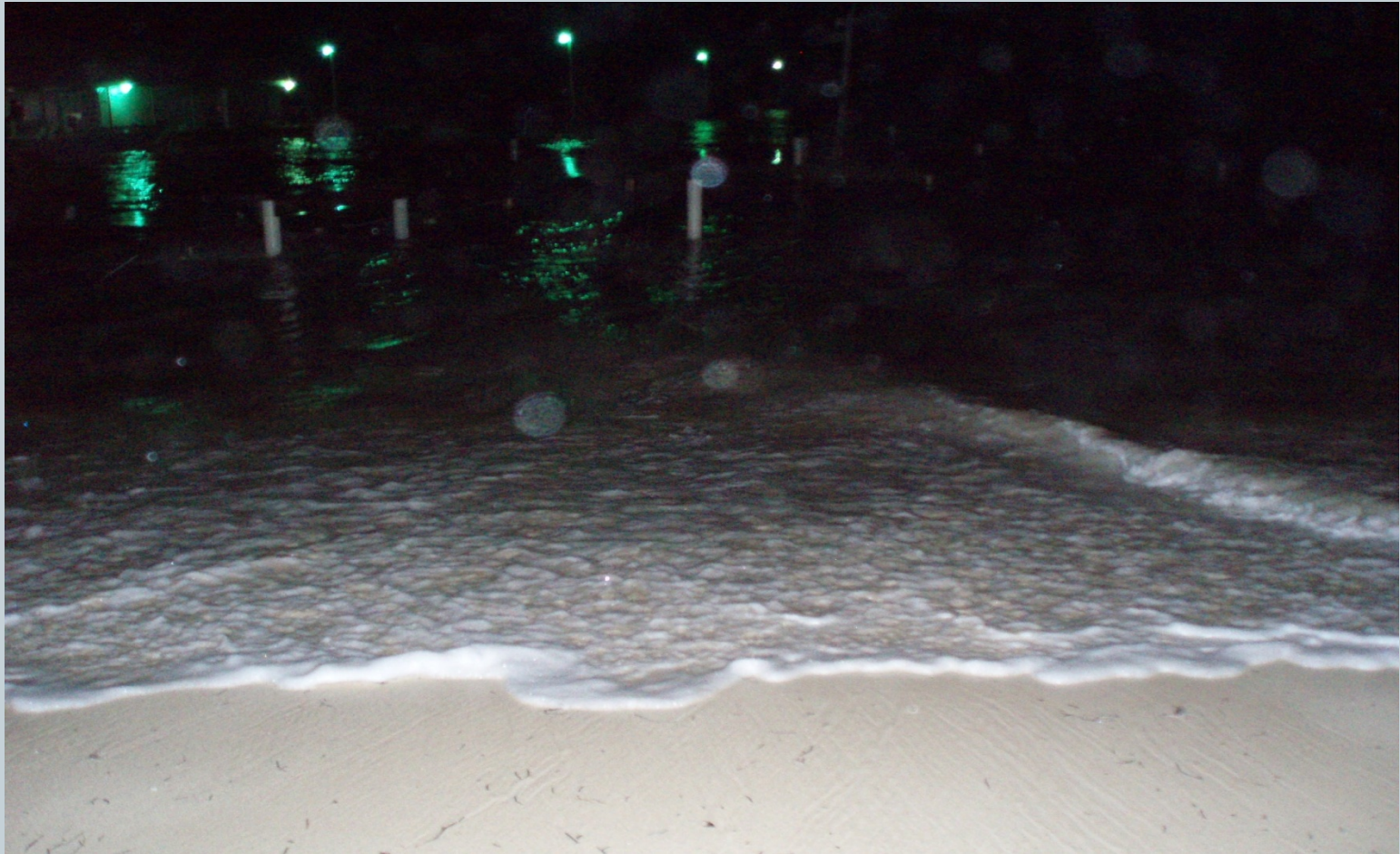
120 Hour Rainfall FOR AL042007.OFCL (DEAN) ADVISORY 031



Hurricane Dean 2007



Hurricane Dean 2007



Hurricane Dean 2007



Hurricane Dean 2007



Hurricane Dean 2007



Hurricane Dean 2007



Hurricane Dean 2007



Hurricane Dean 2007



Hurricane Dean 2007



Hurricane Dean 2007



Hurricane Dean 2007



Hurricane Dean 2007



Hurricane Dean 2007



Hurricane Dean 2007



- The lowest surface pressure recorded at the Meteorological Office at the Airport was 998.0 mb around 2:30 am on Tuesday, August 21, 2007. The 3:00 am pressure reading at the Airport was 999.8 mb. The maximum gust recorded was about 35 mph at the Airport. Estimated wind gusts of 70 mph were recorded at San Pedro, Ambergris Caye and 100 mph in Corozal town.
- Due to the fast westward motion of H. Dean as it crossed the coast of the southern Yucatan Peninsula, the accumulated rainfall over northern Belize was not as large as was anticipated. However, wind damage was significant in the Corozal and Orange Walk districts.
- The all clear was declared by the government of Belize at 1:00 pm on Tuesday, 21st August, 2007.

Hurricane Dean 2007



Damages

- Close to 2,000 persons were left homeless, mostly in the Corozal district.
- 275 houses completely destroyed, and 451 received partial damage.
- The village of Chunox (Corozal District) received the greatest impact.
- Estimated losses and damage to northern Belize totaled **US \$96.68 million**.
- There was no report of loss of life in Belize. Twelve (12) deaths were attributed to Hurricane Dean during its odyssey through the Caribbean.
- NEMO activated its search and rescue operations shortly after hurricane Dean made landfall.

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Damages

- Hurricane force and tropical storm force winds inflicted severe damage to the papaya plantation and sugar plantation in northern Belize.
- Some 750 acres of papaya out of 1,400 acres were destroyed, while 6, 000 acres of sugarcane were flattened.
- The estimated cost to these industries amounted to around US\$ 65.50 million.
- The estimated damage to Housing was US \$10.18 million.
- Losses to Utilities...US \$5.00 million.
- Fishing ...US \$ 4.60 million.
- Tourism ...US \$ 2.90 million.
- Infrastructure ...US \$ 8.5 million. *(Source..DA Report NEMO, Reporter Press Newspaper: Sep. 7, 2007).*

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• **Thank you for your Attention!**

Ramón Frutos, Acting Chief Meteorologist

