A Record Smasher: Overview of the 2005 Atlantic Hurricane Season

March 20, 2006

Jack Beven
NATIONAL HURRICANE CENTER
The 2005 Atlantic Hurricane Season
<table>
<thead>
<tr>
<th>NAME</th>
<th>DATES</th>
<th>MIN. PRESS (MB)</th>
<th>MAX. WINDS (MPH)</th>
<th>DIRECT DEATHS</th>
<th>U.S. DAMAGE ($ million)</th>
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</thead>
<tbody>
<tr>
<td>TS ARLENE</td>
<td>8 - 13 JUN</td>
<td>989</td>
<td>70</td>
<td>1</td>
<td>minor</td>
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<tr>
<td>TS BRET</td>
<td>28 - 30 JUN</td>
<td>1002</td>
<td>40</td>
<td>1</td>
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<tr>
<td>H CINDY</td>
<td>3 - 7 JUL</td>
<td>991</td>
<td>75</td>
<td>1</td>
<td>320</td>
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<tr>
<td>H DENNIS</td>
<td>4 - 13 JUL</td>
<td>930</td>
<td>150 (4)</td>
<td>42</td>
<td>2230</td>
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<tr>
<td>H EMILY</td>
<td>11 - 21 JUL</td>
<td>929</td>
<td>160 (5)</td>
<td>6</td>
<td>minor</td>
</tr>
<tr>
<td>TS FRANKLIN</td>
<td>21 - 29 JUL</td>
<td>997</td>
<td>70</td>
<td></td>
<td></td>
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<tr>
<td>TS GERT</td>
<td>23 - 25 JUL</td>
<td>1005</td>
<td>45</td>
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<tr>
<td>TS HARVEY</td>
<td>2 - 8 AUG</td>
<td>994</td>
<td>65</td>
<td></td>
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<tr>
<td>H IRENE</td>
<td>4 - 18 AUG</td>
<td>970</td>
<td>105 (2)</td>
<td></td>
<td></td>
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<tr>
<td>TS JOSE</td>
<td>22 - 23 AUG</td>
<td>998</td>
<td>60</td>
<td>6</td>
<td></td>
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<tr>
<td>H KATRINA</td>
<td>23 - 30 AUG</td>
<td>902</td>
<td>175 (5)</td>
<td>1200</td>
<td>75000</td>
</tr>
<tr>
<td>TS LEE</td>
<td>28 AUG - 2 SEP</td>
<td>1006</td>
<td>40</td>
<td></td>
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<tr>
<td>H MARIA</td>
<td>1 - 10 SEP</td>
<td>962</td>
<td>115 (3)</td>
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<tr>
<td>H NATE</td>
<td>5 - 10 SEP</td>
<td>979</td>
<td>90 (1)</td>
<td></td>
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</tbody>
</table>
## 2005 Atlantic Hurricane Season Statistics

<table>
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</thead>
<tbody>
<tr>
<td>H Ophelia</td>
<td>6 - 17 Sep</td>
<td>976</td>
<td>85 (1)</td>
<td>1</td>
<td>70</td>
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<tr>
<td>H Philippe</td>
<td>17 - 24 Sep</td>
<td>985</td>
<td>80 (1)</td>
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<td>H Rita</td>
<td>18 - 26 Sep</td>
<td>895</td>
<td>180 (5)</td>
<td>7</td>
<td>10000</td>
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<td>1 - 5 Oct</td>
<td>977</td>
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<td>TS Tammy</td>
<td>5 - 6 Oct</td>
<td>1001</td>
<td>50</td>
<td></td>
<td>minor</td>
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<td>H Vince</td>
<td>8 - 11 Oct</td>
<td>988</td>
<td>75 (1)</td>
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<td>H Wilma</td>
<td>15 - 25 Oct</td>
<td>882</td>
<td>185 (5)</td>
<td>22</td>
<td>16800</td>
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<td>TS Alpha</td>
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<td>998</td>
<td>50</td>
<td>26</td>
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<tr>
<td>H Beta</td>
<td>26 - 31 Oct</td>
<td>960</td>
<td>115 (3)</td>
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<td>TS Gamma</td>
<td>14 - 21 Nov</td>
<td>1002</td>
<td>50</td>
<td>37</td>
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<td>TS Delta</td>
<td>22 - 28 Nov</td>
<td>980</td>
<td>70</td>
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<td></td>
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<tr>
<td>H Epsilon</td>
<td>29 Nov - 8 Dec</td>
<td>981</td>
<td>85</td>
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<tr>
<td>TS Zeta</td>
<td>30 Dec - 6 Jan</td>
<td>994</td>
<td>65</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
SEASON HIGHLIGHTS

- Most active Atlantic hurricane season of record - 27 tropical storms developed, breaking the old record of 21 set in 1933.
- Fifteen tropical storms became hurricanes, breaking the record of 12 set in 1969.
- Seven of the hurricanes became major hurricanes. This included the first time that four Category 5 hurricanes had been observed in a single Atlantic season and the first time that four major hurricanes hit the United States in one season.
- Hurricane Wilma had the lowest minimum central pressure ever observed in an Atlantic hurricane - 882 mb. The central pressure of Wilma fell 88 mb in 12 hours.
- The “Accumulated Cyclone Energy” (ACE) for the season was 285% of median – the highest value of record for an Atlantic hurricane season.
SEASON HIGHLIGHTS

- Seven landfalls in the United States, including Hurricane Cindy, Dennis, Katrina, Rita, and Wilma along with Tropical Storms Arlene and Tammy. Hurricane Ophelia also struck the North Carolina coast, although the center stayed just offshore.
- Death toll near 1400, including around 1200 from Katrina in the United States - the deadliest U. S. hurricane since the Palm Beach-Lake Okeechobee hurricane of 1928. Additionally, a large area of disturbed weather affecting Central America at the time of Hurricane Stan may have caused 1000-2000 deaths.
- Total damage to property in the United States estimated near $104 billion - the costliest U. S. hurricane season of record. Katrina caused estimated damage of $75 billion, making it the costliest single hurricane in U. S. history.
- Preliminary track forecast verification indicates that the average forecast errors for 12-72 hr were at or near record low levels.
2005 Preliminary Direct Hurricane Fatalities

Updated 6 Mar 06

Total Direct: 1225

approximately

Arlene: 1 (FL)
Cindy: 1 (GA)
Dennis: 1 (GA), 2 (FL)
Katrina: 1000 (LA), 200 (MS), 6 (FL), 1 (GA)
Ophelia: 1 (FL)
Rita: 1 (LA), 4 (TX), 1(MS), 1 (FL)
Wilma: 5 (FL)
Tropical Storm Arlene
8 - 13 June 2005
70 mph  989 mb

Tropical Storm Bret
28 - 30 June 2005
40 mph  1002 mb
Hurricane Cindy
3 - 7 July 2005
75 mph  991 mb
WSR-88D Shows Cindy Was A Hurricane Near Landfall

70-74 kt winds at 8000 ft suggests 65 kt at the surface
Hurricane Dennis
4 - 13 July 2005

150 mph  930 mb
Radar Animations of Dennis

Central Cuba

Mobile WSR-88D
Start of shelf trapped wave up the Florida Coast
Dennis Track Forecasts
1200 UTC 6 July

Tropical Storm Dennis
July 6, 2005
11 AM EDT Wednesday
NWS TPC/National Hurricane Center
Advisory 7
Current Center Location 15.4 N 71.5 W
Max Sustained Wind 70 mph
Current Movement WNW at 15 mph

Potential Track Areas:
- Current Center Location
- Forecast Center Positions
- High Sustained Wind (> 73 mph)
- Potential Day 1-3 Track Area
- Potential Day 4-5 Track Area

Symbols:
- Hurricane Warning
- Hurricane Watch
- Tropical Storm Warning

Map showing current and forecast track positions over the eastern United States and Caribbean area.
Hurricane Emily
11 - 21 July 2005
160 mph  929 mb
Tropical Storm Franklin
21 - 29 July 2005
70 mph  997 mb

Tropical Storm Gert
23 - 25 July 2005
45 mph  1005 mb
Tropical Storm Harvey
2 - 8 August 2005

Hurricane Irene
4 - 18 August 2005

65 mph  994 mb

105 mph  970 mb
Tropical Storm Jose
22 - 23 August 2005
60 mph  998 mb
Hurricane Katrina
22 - 30 August 2005

175 mph  902 mb
Images of Katrina

August 23
August 24
August 25
August 26
August 27
August 28
August 29
WSR-88D Animation of Katrina

Reflectivity

Velocity
Katrina Storm Surge
Katrina Track Forecasts
0000 UTC 27 August
Tropical Storm Lee
28 August - 2 September 2005

Hurricane Maria
1 - 10 September 2005

Hurricane Nate
5 - 10 September 2005
Hurricane Ophelia
6 - 17 September 2005
85 mph  976 mb
Images of Ophelia

September 6

September 9

September 11

September 12

September 14

September 15

September 16

September 17
Hurricane Philippe
17 - 24 September 2005

80 mph  985 mb
Hurricane Rita
18 - 26 September 2005

180 mph  895 mb
Hurricane Rita Passing the Florida Keys

Radar Image from National Weather Service: KBYX 12:01 UTC 09/20/2005
Rita’s Damage
Rita Track Forecasts
1200 UTC 19 September
Hurricane Stan
1 - 5 October 2005

80 mph  977 mb
Tropical Storm Tammy
5 - 6 October 2005

50 mph  1001 mb

Hurricane Vince
8 - 11 October 2005

75 mph  988 mb
Hurricane Wilma
15 - 25 October 2005
185 mph  882 mb
Images of Wilma

October 17

October 19

October 21

October 23

October 24

October 25
Wilma’s Damage
Wilma Track Forecasts
1200 UTC 19 October
Tropical Storm Alpha
22 - 24 October 2005

50 mph  998 mb
Hurricane Beta
26 - 31 October 2005
115 mph  960 mb
Images of Beta

October 27

October 29

October 30
Tropical Storm Gamma
14 - 21 November 2005
50 mph  1002 mb

Tropical Storm Delta
22 - 28 November 2005

70 mph  980 mb

Tropical Storm Gamma
14 - 21 November 2005
50 mph  1002 mb
Hurricane Epsilon  
29 November - 8 December 2005

Tropical Storm Zeta  
30 December 2005 - 6 January 2006