2001 Tropical Atlantic Activity Report

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The hurricane season is officially over, so it's time for the annual Hurricane Season Summary. I sent out about 50 updates to this mailing list (which has grown from a small handful of members in 1998 to 240 members in 2001, not to mention the updates being posted on several websites) over the past 6 months; now it's time for the final one. This report is structured in the following manner: 1) the Saffir-Simpson Scale, 2) Lifetimes and Intensities, 3) Climatology, and 4) Landfall.

As usual, my data (which in large part comes from The National Hurricane Center and Unisys Weather) and typing could contain errors, so if you see a mistake, please point it out to me.

1. Saffir-Simpson Scale of Tropical Cyclone Intensity

CATEGORY	WINDS (kts)	PRESSURE (mb)
Depression	< 35	N/A
Tropical Storm	35-63	N/A
1	64-82	> 980
2	83-95	965-979
3	96-113	945-964
4	114-135	920-944
5	> 135	< 919

2. Lifetimes and Intensities

NAME	DATES OF ACTIVITY	MAX WIND (kts)	MIN PRES (mb)
ALLISON	05 JUN - 06 JUN	50	1002 (N)
TD2	12 JUL - 12 JUL	25	1011
BARRY	02 AUG - 06 AUG	60	990 (N)
CHANTAL	15 AUG - 22 AUG	60	994 (N)
DEAN	22 AUG - 28 AUG	60	992 (N)
ERIN	01 SEP - 15 SEP	105	969 (N,H,M)
FELIX	07 SEP - 19 SEP	100	965 (N,H,M)
GABRIELLE	11 SEP - 19 SEP	70	975 (N,H)
TD9	19 SEP - 20 SEP	30	1005
HUMBERTO	21 SEP - 27 SEP	90	970 (N,H)
IRIS	04 OCT - 09 OCT	125	950 (N,H,M)
JERRY	06 OCT - 08 OCT	45	1003 (N)
KAREN	12 OCT - 15 OCT	70	982 (N,H)
LORENZO	27 OCT - 31 OCT	35	1007 (N)
MICHELLE	29 OCT - 06 NOV	120	933 (N,H,M)
NOEL	05 NOV - 06 NOV	65	984 (N,H)
OLGA	24 NOV – 04 DEC	80	973 (N,H)

In the previous chart, the N, H, and M that follows some storms denote what statistic they contributed to; Named storm (TS+), Hurricane (CAT1+), Major hurricane (CAT3+).

The winds and pressures reflect the data as posted in the advisories, NOT the final “best-track” data that will be available from the NHC in the post-season timeframe.

3. Climatology and Statistics

The average annual number of tropical disturbances (over the past 54 years) is:

9.9 named storms
5.9 hurricanes
2.5 major hurricanes

This year, the numbers were once again well above average:

15 named storms (14 in 2000)
9 hurricanes (8 in 2000)
4 major hurricanes (3 in 2000)

A fairly unique aspect of the past season was that there were 4 storms that at some point in their life had degenerated then reformed [Chantal, Dean, Erin, Felix]. The first hurricane of the season [Erin] formed on September 8th, just two days before the climatological peak of the season. Olga formed very late in the season… one of the latest dates for a hurricane to occur in the Atlantic. Of the nine hurricanes, only two of them [Iris , Michelle] formed (i.e., became hurricanes) in the tropics… the remainder formed in the subtropics or mid-latitudes. The last storm of the season extended well beyond the end of hurricane season [Olga]… last time this occurred was 1989 with Karen.

For the third year in a row, the Atlantic Basin has not experienced a CAT5 hurricane (the last one was Mitch in October 1998).

There were a total of 69.25 “named storm days” (days during which a named storm was present). 26.25 of those days were "hurricane days", and 5 of those days were "intense hurricane days". This is 138% of the climatological mean, i.e., this season was over 1/3 more active than the "normal" season. The average numbers (1944-2000) are 46.6 named storm days, 23.9 hurricane days, and 4.7 intense hurricane days.

Here is a summary of highlights (VERY brief):

As far as lifetime of a tropical cyclone goes, Allison did not last very long. She finally became organized just off the Texas coast near Galveston then proceeded to head north and inland. Although not very potent in terms of wind, the real story was rain. The remnants of Allison drifted over the southeast US, producing widespread flooding day after day, state after state. By the end of her visit, 50 people had died and at least $5 billion in damage was inflicted. This was the deadliest and costliest storm of the season.

Barry was as close as a storm gets to being a hurricane without being a hurricane. He formed west of Tampa, FL, then drifted westward, then eastward, then northward, making landfall as a strong Tropical Storm in the central Florida panhandle (then continued up into central Alabama).

Chantal was the first of the easterly waves with African origin to attract attention. However, despite the healthy appearance at 25W (Cape Verde area), she only became a Tropical Depression at 45W, and then had difficulty maintaining organization. In fact, while crossing the Windward Islands, her surface circulation dissipated, only to reform south of Puerto Rico. She continued westward across the Caribbean, making landfall on the Belize/Mexico border… never having achieved hurricane status (much to the surprise of human and computer forecasts).

Dean formed just miles north of Puerto Rico, but then dissipated shortly after. Four days later and much further north, he reformed just in time to get sheared apart and make the extratropical transition. Although he never made landfall, he caused some property damage in Puerto Rico.

Another large African tropical wave is responsible for Erin. She formed at about 35W, curved far enough north to miss the Lesser Antilles, then was stripped apart by shear. Shortly afterward, she reformed and headed north, eventually becoming not only the first hurricane of the season, but also the first major hurricane (just east of Bermuda). She later zipped by the eastern end of Newfoundland before becoming extratropical.

Felix, the third of the big African wave storms, formed at 31W, tracked westward for a couple of days, then dissipated. Not much later, he reformed and headed north into the central Atlantic basin. At his furthest point west, he became a hurricane, and then a major hurricane shortly afterward. He ten headed northeast toward the Azores, but stalled before reaching there. He dissipated while drifting erratically… nearly stationary.

Gabrielle was born of a trailing cold front. As the front pulled away, a large area of storminess was left behind, which over time got better organized and acquired a circulation. She formed east of the Florida panhandle, drifted west, then drifted back east, making landfall as a very strong Tropical Storm just south of Tampa (killing two people in a flood). She re-emerged over the Atlantic near Daytona Beach and headed northeast. She passed to the north of Bermuda by a safe margin, then dissipated south of Newfoundland.

Humberto formed about 700 nautical miles south of Bermuda, tracked northward, but curved around to the west side of the island (during which time he reached hurricane strength), then got forced eastward by a mid-latitude trough.

Iris formed near Barbados and tracked westward across the Caribbean. She became a hurricane south of Haiti, then reached CAT3, then CAT4 strength as she approached Belize. This storm was very compact, with an eye sometimes 3-5 miles in diameter. She reached peak intensity just before making landfall on southern Belize, causing 31 deaths before she fell apart over the mountainous terrain in Guatemala.

Jerry formed 650 nautical miles east of Grenada, passed over the Windward Islands, then dissipated in the central Caribbean.

Like Gabrielle, Karen was created by a trailing cold front. She formed close to Bermuda then headed north into Nova Scotia, causing the worst flooding St. Johns has seen in over one hundred years.

Lorenzo was a weak, inconspicuous storm in the far eastern Atlantic… never making it past 46W, and never threatening land. Lorenzo was a new name this season, replacing Luis (1995).

Michelle formed on the central Nicaraguan coast and slowly drifted northward. She exited land at the far eastern tip of Honduras, gradually accelerating northward. She quickly reached CAT4 status and has the honor of the lowest pressure in the Atlantic this year at 933mb. She went on to hit southern Cuba as a CAT4 storm causing at least three deaths and widespread destruction (flooding, power outages, etc). After weakening substantially, she passed over the western Bahamas as a CAT1 hurricane. Michelle was a new name this season, replacing Marilyn (1995).

Finally, Noel and Olga formed in the north-central part of the basin. They started as large subtropical Lows, then intensified and acquired tropical characteristics, only to dissipate over the cold waters. Noel lasted only one day, while Olga meandered and looped around for nearly two weeks… and was the first storm in many years to persist beyond the official end of hurricane season. Olga was a new name this season, replacing Opal (1995).

On September 13-15, there were three active named storms... Erin, Felix, and Gabrielle. There were many examples of two named storms being present at the same time.

4. Landfall

There were eight landfalling storms this year... only three of which made landfall on the US (all three were only Tropical Storm strength at landfall). It is also interesting to note that only TX and FL were hit, leaving the other 16 coastal (Gulf, Atlantic) US states unscathed. Also, there were no landfalls on the east coast of the US for the second consecutive year.

The first column is the storm name, second column is the date of landfall, third column is the approximate universal time (UTC) of landfall, fourth column is maximum sustained winds (kts) at landfall, and the fifth column is the nearest location to landfall (storm-related deaths and damages are shown in parentheses).

ALLISON	6/6	0300	40	Galveston, TX, USA (50 deaths, $5 billion)
BARRY	8/6	0500	60	Seagrove Beach, FL, USA ($30 million)
CHANTAL	8/21	0300	60	Chetumal, Quintana Roo, Mexico ($15 million)
GABRIELLE	9/14	1200	60	Venice, FL, USA (1 death, $230 million)
TD9	9/20	0000	30	Puerto Cabezas, Nicaragua
IRIS	10/9	0300	120	Monkey River, Belize (31 deaths)
KAREN	10/15	1200	45	Brooklyn, Newfoundland, Canada
MICHELLE	11/4	2100	115	Zapata Peninsula, Cuba (17 deaths, $0.1 million)
	11/5	1200	70	Andros Island, Bahamas
	11/5	1800	70	Eleuthera Island, Bahamas

Hurricane Season 2002 begins June 1, the first names in the lineup are Arthur, Bertha, and Cristobal. New names in the upcoming season are Cristobal (replacing Cesar '96), Fay (replacing Fran '96), and Hanna (replacing Hortense '96).

A ZIP file of tracking data for each storm (10 kb):
http://www.mcwar.org/gallery/tropics/stormtracks01.zip

A PostScript image of 2001 Atlantic storm tracks (2561 kb):
http://www.mcwar.org/gallery/tropics/atl_storm_plot_2001.ps

This Season Summary in PDF format (21 kb):
http://www.mcwar.org/gallery/tropics/01_atltrop.pdf

All of the above files (and others) can be found and downloaded from:
http://www.mcwar.org/gallery/tropics/tropics.html

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