

Weekly AgroMet Update and Outlook

1 SYNOPSIS: TUESDAY MAY 31 – JUNE 7, 2016

Summary: Model projections and current atmospheric conditions over the Caribbean and northern Central America indicate that the summer (rainy season) circulation pattern are now in place, with a major Upper Level trough over the central and eastern Caribbean, a tropical wave in the SW Caribbean heading towards Nicaragua, and the Inter-tropical Convergence Zone (ITCZ) bulging northward over Central America this morning (See Fig. 1 Surface weather map). However, no major system is expected to drift over the NW Caribbean and Belize during the next three to five days to generate a persistent rainfall event, marking the *onset* of the 2016 Rain Season. Hence, the 2016 Rainy Season will be delayed by almost five to seven days. Significant and persistent rainfall will gradually begin by next Monday and continue through Thursday of next week.

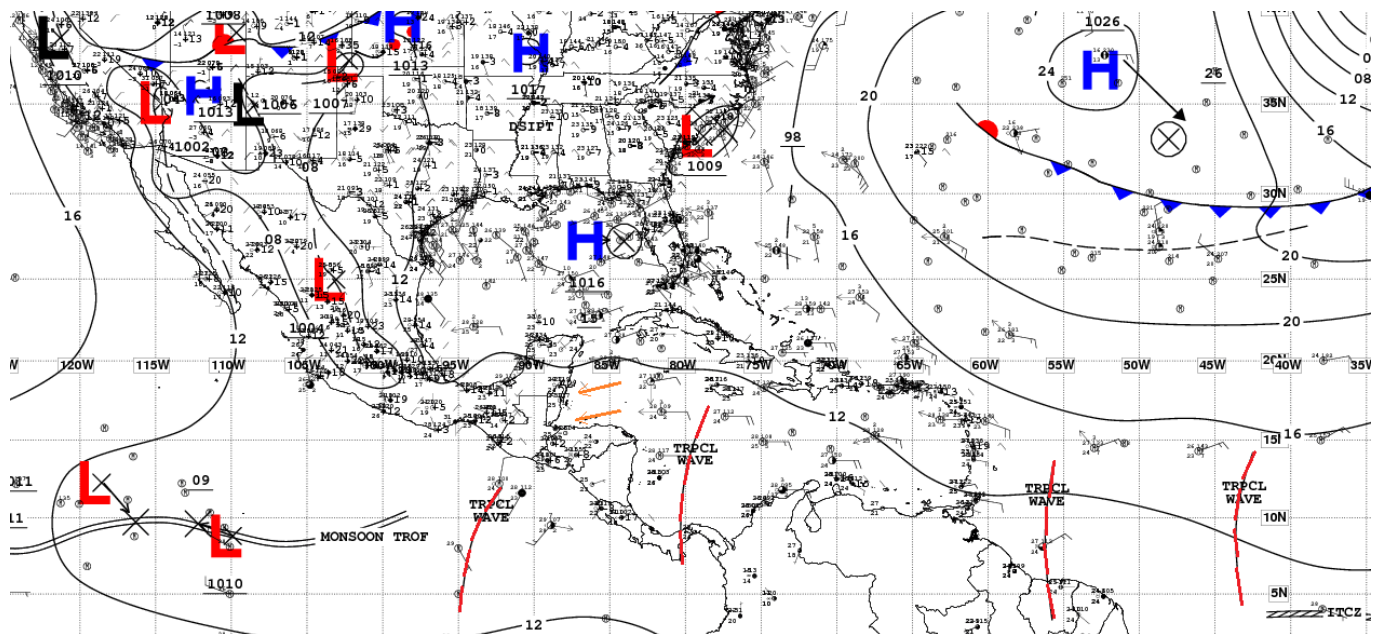


Figure 1: Surface Weather map 3:00 a.m. Tuesday, May. 31, 2016

Figure 2 is the National Hurricane Center (NHC) 72-hr Forecast Surface weather map. It shows heat lows over southern Mexico, Central America and the SW Caribbean, conducive for scattered showers and isolated thunderstorms over land. A tropical wave in the central Caribbean will be heading westwards at 15 mph.

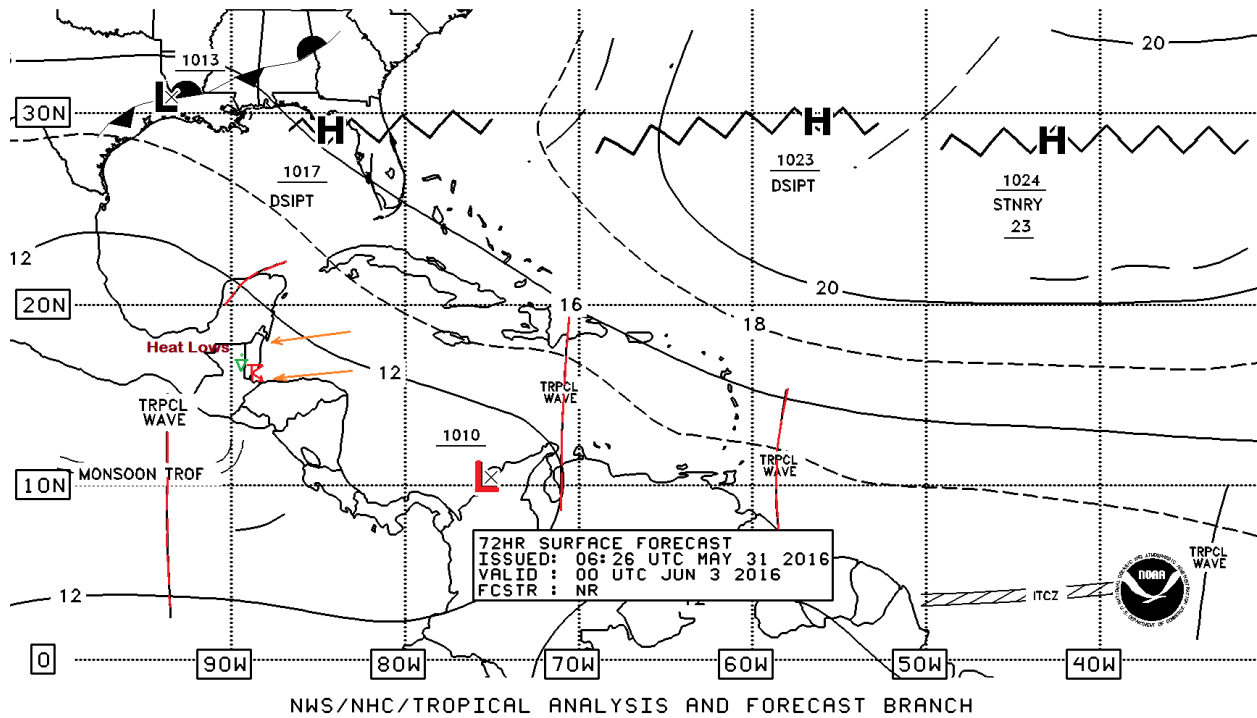























Figure 2: NHC 72-hr Forecast Surface weather map, showing heat lows over southern Mexico and Central America, conducive for scattered showers and isolated thunderstorms. Tropical wave in the central Caribbean heading westwards at 15 mph.

The 2016 intense Dry Season will persist at least for the next seven (days). Scattered outbreaks of showers and afternoon thunderstorms are likely to develop over the South and West on Thursday and Friday, increasing on Saturday then decreasing on Sunday and Monday. An upsurge in showers and thunderstorms is forecast for next Tuesday through Thursday, with daily accumulations in excess of an inch particularly in the South, West and some areas of the coastal zone. This activity will be associated with low pressure disturbance in the NW Caribbean and northern Central America, pulling in moisture from the Pacific. This will likely mark the onset of the 2016 Rainy Season over Belize

2. Weekly Outlook:

Valid for Monday May 30, 2016 through Sunday, June 6, 2016

Northern Region	Monday 5/30/16	Tuesday 5/31/16	Wednesday 6/01/16	Thursday 6/02/16	Friday 6/03/16	Saturday 6/04/16	Sunday 6/05/16
Weather Mx/Mn °F	 98/84	 98/83	 96/82	 96/82	 95/81	 94/80	 94/80
Prob Rainfall ¹	0.40	0.40	0.50	0.55	0.70	0.75	0.80
Rainfall Rate 24hr (inches)	0.01 – 0.10	0.01 – 0.10	0.01 - 0.10	0.01 – 0.10	0.10 – 0.25	0.10 – 0.25	0.10 – 0.25
Central Region							
Weather Mx/Mn °F Hills	 98/82 95/77	 98/82 94/77	 98/81 95/78	 96/80 92/76	 95/80 90/75	 94/79 88/74	 94/79 84/72
Prob Rainfall	0.55	0.55	0.60	0.65	0.75	0.90	0.90
Rainfall Rate 24hr	0.01– 0.10	0.01 – 0.10	0.01 – 0.15	0.10 – 0.25	0.25 – 0.50	0.25 – 0.50	0.25 – 0.50
Southern Region							
Weather Mx/Mn °F	 98/84	 96/82	 92/80	 90/78	 90/78	 89/77	 87/77
Prob Rainfall	0.60	0.65	0.75	0.80	0.85	0.95	0.95
Rainfall Rate 24hr	0.01 – 0.10	0.10 – 0.25	0.25 – 0.50	0.25 – 0.50	0.50 – 0.75	1.00 – 1.25	1.00 – 1.50

Extended Outlook for Belize through Saturday, June 11, 2016

Date/day	Hours	24-hr Total Rainfall (inches)	Region
31May Tues pm	24	0.01-0.10	Mostly South, Heat Lows
01Jun Wed pm	48	0.01-0.10	Over sea and coast
02Jun Thur pm	72	0.10-0.25	Toledo district, north coast
03Jun Fri pm	96	0.10-0.25	Coast & west, locally 0.50 inch
04Jun Sat pm	120	0.10-0.25, locally 0.50 coast	Locally 0.50 inch coastal waters
05Jun Sun pm	144	0.10-0.25	Low pressure system over Bze
06Jun Mon pm	168	0.25-0.50	Locally scattered South
07Jun Tue pm	192	1.50-2.50	Low over Bze, showers over coast
08Jun Wed pm	216	1.00-1.50	Low, showers North & West
09Jun Thurs pm	240	1.25-1.50	Locally 1.75 Inches South
10Jun Fri pm	264	0.10-0.25	Low, winds variable, Showers coast
11Jun Sat pm	288	0.10-0.25	Showers West central Bze mostly

Source: GFS Model 24-hour rainfall accumulations

Warnings: Hot day time temperatures and high evaporative loss will continue over the next ten days. Chance of moderate or intense thunderstorms will be higher later on Friday through the coming weekend, then becoming more persistent on Tuesday through Thursday of next week.

¹ Probability of rainfall: Analysis of daily historic rainfall using Markov's Chain

3. Atlantic Basin Hurricane Season 2016

Information obtained through March 2016 indicates that the 2016 Atlantic hurricane season will have activity near the median 1981-2010 season.

Klotzbach¹ (CSU, 2016) estimate that 2016 will have an additional 5 hurricanes (median is 6.5), 12 named storms (median is 12.0), 50 named storm days (median is 60.1), 20 hurricane days (median is 21.3), 2 major (Category 3-4-5) hurricane (median is 2.0) and 4 major hurricane days (median is 3.9). The probability of U.S. major hurricane landfall is estimated to be about 90 percent of the long-period average. The CSU Hurricane Forecast team indicate that the Atlantic Basin Accumulated Cyclone Energy (ACE) and Net Tropical Cyclone (NTC) activity in 2016 to be approximately 95 percent of their long-term averages.

This forecast is based on an extended-range early April statistical prediction scheme that was developed utilizing 29 years of past data. Analog predictors are also utilized.

The Team anticipates an average Atlantic basin hurricane season. While shear-enhancing El Niño conditions are likely to dissipate in the next several months, the far North Atlantic is quite cold. These cold anomalies tend to force atmospheric conditions that are less conducive for Atlantic hurricane formation and intensification.

Coastal residents are reminded that it only takes one hurricane making landfall to make it an active season for them, and they need to prepare the same for every season, regardless of how much activity is predicted.

Analogous years to 2016 include 2008 and 2003. After an intense El Niño in 1997-98, catastrophic Hurricane Mitch threatened Belize in October 1998, and devastated Honduras. In 2003, the drought was intense and contributed to the major Southern Bark Beetle infestation that decimated almost 70 % of the pine forest in the MPR and the southern coastal pine forests.

CSU 2016 Atlantic Basin Hurricane Season Outlook			
System	Numbers	Median 1981 - 2010	2015
Named Storms	13	12	11
Hurricanes	6	6.5	4
Major Hurricanes	2	2	2
Accumulated Cyclone Energy (ACE)	93	92	62

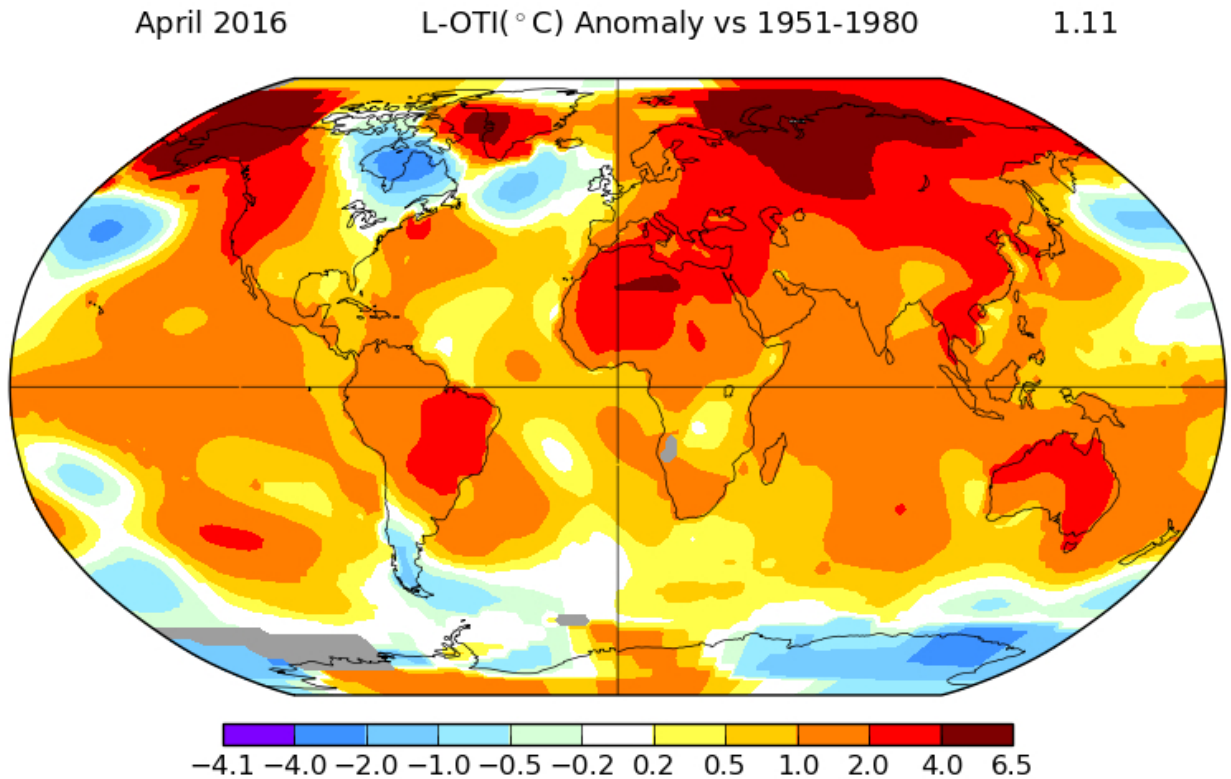
NOAA 2016 Atlantic Basin Hurricane Season Outlook			
System	Numbers	Normal	2015
Named Storms (70% chance of)	10 - 16	10.5	11
Hurricanes	4 - 8	6	4
Major Hurricanes	1 - 8	3	2
Accumulated Cyclone Energy (ACE)	---	92	62

Best analog years for 2016 with the associated hurricane activity listed for each year.

Best Year	NS	NSD	H	HD	MH	MHD	ACE	NTC
1941	6	33.75	4	11.50	3	2.00	52	69
1973	8	37.75	4	10.00	1	0.25	48	53
1983	4	14.50	3	3.50	1	0.25	17	31
1992	7	40.25	4	16.00	1	3.50	76	67
1998	14	88.00	10	48.50	3	9.50	182	169
2003	16	81.50	7	32.75	3	16.75	176	175
Avg	9.2	49.3	5.3	20.4	2.0	5.4	92	94
2016	12	50	5	20	2	4	90	95

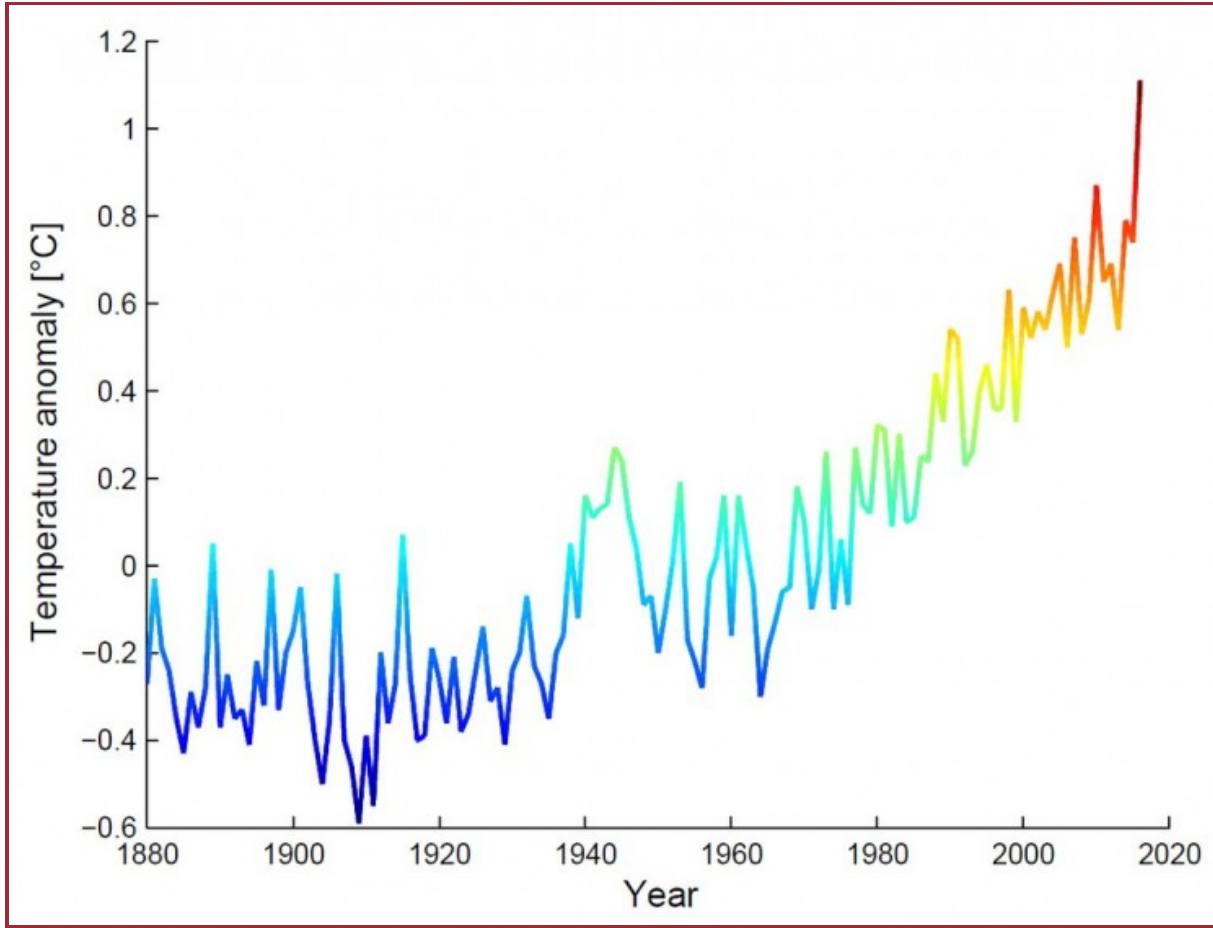
Forecast

4. Climate Change:



Published on May 16, 2016

On Saturday, NASA released figures showing that we just had the hottest April on record. This is the 12th consecutive month to set a monthly temperature record. Until this past October, we'd never seen global average temperatures pass the 20th-century average by more than 1°C — but every single month since has exceeded that margin.



Global mean temperature anomaly (vs 1951-1980 mean), month of April only. CREDIT: NASA

How big a jump was April 2016 compared to the historical record? In an email, Stefan Rahmstorf, Head of Earth System Analysis at the Potsdam Institute for Climate Impact Research, notes that “The margin by which April beats the previous record April is three times larger (0.24 °C) than the margin of any previous record April (biggest was 0.08 °C).”

Also, this has easily been the hottest January-April on record, which isn’t a surprise given that last month’s record was hot on the heels of the hottest March on record by far, which followed the hottest February on record by far, and hottest January on record by far.

Dr. Gavin Schmidt, the head of NASA’s Goddard Institute of Space Studies, points out on twitter that there is a pattern between how hot Jan-April is and how hot the full year is. He notes that if this pattern holds, then there is a greater than 99% chance that 2016 will be the hottest year on record. (Note: The chart below uses a different temperature scale than the previous chart: It compares recent temperatures to the preindustrial average rather than 1950 to 1981).

ⁱ Research Scientist Colorado State University