

Ten day Outlook for Belize

Update: Monday

Date: 5/18/2015

ECMWF and NOAA Climate Models are projecting an intensifying El Niño through *autumn*, 2015. Indications are the 2015 El Niño across the tropical eastern Pacific will be stronger than the strong 1997 warm event.

Review of 1997...

No named tropical cyclone or hurricane moved through or developed over the Caribbean during the 1997 North Atlantic Hurricane Season.

Onset of the Rains in 1997 in the Belmopan Area and Spanish Lookout

Belmopan:

The Criteria for the *onset* of the rainy season: ***The first day after 1st May with 25 mm or more of rainfall in two consecutive days, followed by four rain days during the next seven (7) days.***

In 1997 Belmopan accumulated only 16 mm of rainfall in May, but the rains began on 31st May that year.

1997	31May	1June	2June	3June	4June	5June	7June	8June
Bmp Rainfall (mm)	13.1	37.8	9.7	1.0	14.2	0.0	1.6	0.3

Rainfall in Belmopan was just above the historical mean during most months in the rainy season of 1997.

Spanish Lookout:

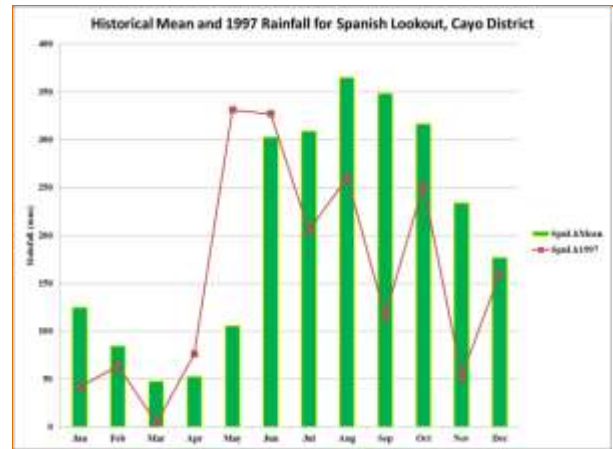
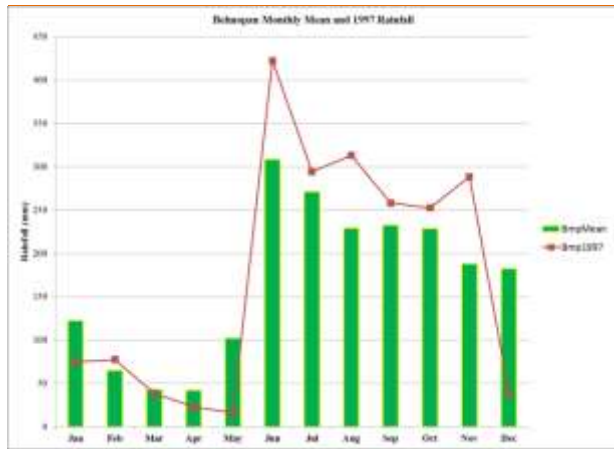
Onset of the rains in 1997 in the Spanish Lookout area was on 25th May, with substantial rainfall to 1st June.

1997	25May	26May	27May	28May	29May	30May	31May	1June
Spanish Lookout Rainfall (mm)	8.4	49.0	52.6	0.0	58.4	21.6	61.0	4.6

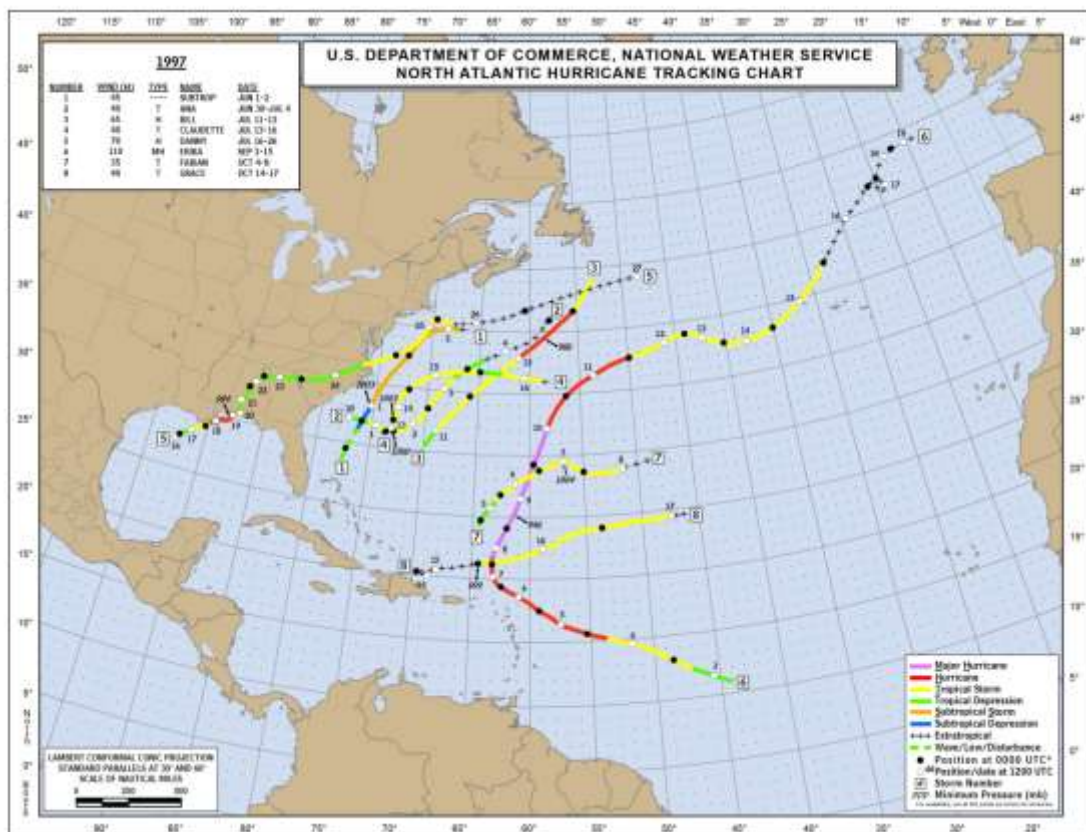
Rainfall in Spanish Lookout during 1997 was below the historical mean during most months of the rainy season, except in June and earlier in May when the cumulative rainfall were above the average for May and June. Substantial rainfall occurred in late May of 1997 in the Spanish Lookout area.

The Climate Models (GFS & GFS-mnsprd) are still resolving a marked increase in showers over Belize around May 25 associated with a disturbance in the area, which will persist to the end of the month, and may well herald the *onset* of the 2015 rainy season in Belize. The climatology is favoring an early start of the rainy this year (2015), similar to the 1997 El Niño year.

Mean and 1997 monthly rainfall for Belmopan and Spanish Look.



North Atlantic Season 1997 Hurricane Tracks



Date: 5/16/2015

Onset of the Rainy Season, 2015

Update prediction models indicated that the El Niño-Southern Oscillation (ENSO, warm event) will persist through the remainder of 2015 and will even intensify to the intensity of the 1987 event. This year 2015, is therefore an El Niño year.

Since 1980 the eastern Pacific has experienced 11 ENSO events. Some have been weak, others have been mild, while a few such as the 1986-87 and the 1997-98 events were intense. ENSO disrupts the normal climatic conditions over many parts of the world, such as inducing drought conditions over Australia and Indonesia, and along the Pacific coast of Central America. It brings rain over the arid Pacific coast of Peru and suppresses hurricane development over the Caribbean. Over Belize ENSO years tend to increase the rainfall variability, producing dry spells in the rainy season.

A review of the *onset* of the rainy season during 10 ENSO years for the Spanish Lookout and Belmopan areas of the Cayo District, and using a criteria for the onset of the rains as: *'the first day from 1 May with cumulative rainfall of 25 mm in two days, followed by four (4) rain-days during the preceding 7 days'*; indicated the following:

- 1) Five (5) out of ten years the rainy season started during the last *dekad* (ten day) of May and the first *dekad* of June at Spanish Lookout. Two out of ten years the rains started during the second *dekad* of May (early onset), and two years out of ten the rains started during the second *dekad* in June. Only one (1) year in ten did the rains start during the first *dekad* of July (very late start) at Spanish Lookout in El Niño years.
- 2) Three years in ten there was no rain in May at Spanish Lookout during ENSO years.
- 3) Five (5) years in ten the rains started during mid-end of May (early *onset*) at Spanish Lookout.
- 4) There is a tendency of one or two day heavy rains in May that do not last, only to be followed by several consecutive dry days.

In the Belmopan area the scenarios related to the *onset* of the rains during El Niño years are as follows:

- 1) Three (3) out of ten years the rainy season began during the last *dekad* in May and the first *dekad* of June around Belmopan during El Niño years. One (1) out of ten years the rains started during second *dekad* of May (early onset), and five (5) out of ten years the rains started during the second *dekad* of June in the Belmopan area during ENSO years. There were **no years** when the rains started in July (very later *onset*) at Belmopan during El Niño years.

- 2) When 1994 is included, the review indicates that nine (9) out of 11 years there were false start in the rains. Heavy shower events develop during the second or third *dekad* of May for two or three days, but soon diminished; only to be followed by seven to twelve (12) consecutive dry days.
- 3) The *onset* of the rains during ENSO years in the Belmopan area is generally during the second *dekad* in June, but may occur also during late May or early June. There is a higher tendency for **false starts** in the rains, characterized by sudden one to two days downpour that soon died away, then followed by short to medium periods of dry spell. There has been more than one false start of the rains during an ENSO year

The brief review of the onset of the rainy season at Spanish Lookout and Belmopan during El Niño years shows that rainfall behavior is variable, with a high tendency for false starts. There is a higher probability for the start of the rains to occur during the last *dekad* in May and the first *dekad* in June in the Spanish Lookout area, while around Belmopan, the onset of the rains is more probable during the second *dekad* in June in El Niño years.

Probability of *Onset* of the rains at Spanish Lookout and Belmopan during ENSO years

Spanish Lookout Onset Rain during ENSO Years									
Criteria...	First day with 25 mm cumulative rainfall, with at least 4 -raindays in the next seven (7) days.								
Spanish Lookout	Onset of Rains in May, June and July								
	May			June			July		
Dekad (ten-days)	1	2	3	1	2	3	1	2	3
1983									
1987									
1991									
1995									
1998									
2003									
2005									
2007									
2010									
2013									
		2	3	2	2		1		
	0%	20%	30%	20%	20%	0%	10%	0%	0%

Belmopan: Onset Rain during ENSO Years									
Criteria...	First day with 25 mm cumulative rainfall, with at least 4 -raindays in the next seven (7) days.								
Belmopan	Onset of Rains in May, June and July								
	May			June			July		
Dekad (ten-days)	1	2	3	1	2	3	1	2	3
1983									
1987									
1991									
1994									
1995									
1998									
2003									
2005									
2007									
2010									
2013									
		1	2	1	6	1			
	0%	9%	18%	9%	55%	9%	0%	0%	0%

Model Outlook, May 2015

The GFS-mnsprd and GFS Climate Model Outlooks initiated at noon on Friday, May 15, 2015 for the western Caribbean and Belize were favoring the seasonal dry conditions to persist for the next eight to nine days.

Both models resolve a disturbed area of moisture and instability (low pressure) to move off the coast of Panama and Costa Rica after the next 48 to 72 hours. This instability center will intensify and increase in coverage as it drifts NNE towards eastern Jamaica. By the weekend of 23-24 May, this feature will weaken, but the broad area of moisture and instability will drift westwards towards the coast of Belize. The instability will reach Belize by late 24 May, resulting in moderate to heavy outbreaks of showers especially over the northern half of the country at first; then spreading over the rest of the country by 25 May. This could mark the start of the

rains as the models have the instability and a low pressure system persisting over the region for several days.

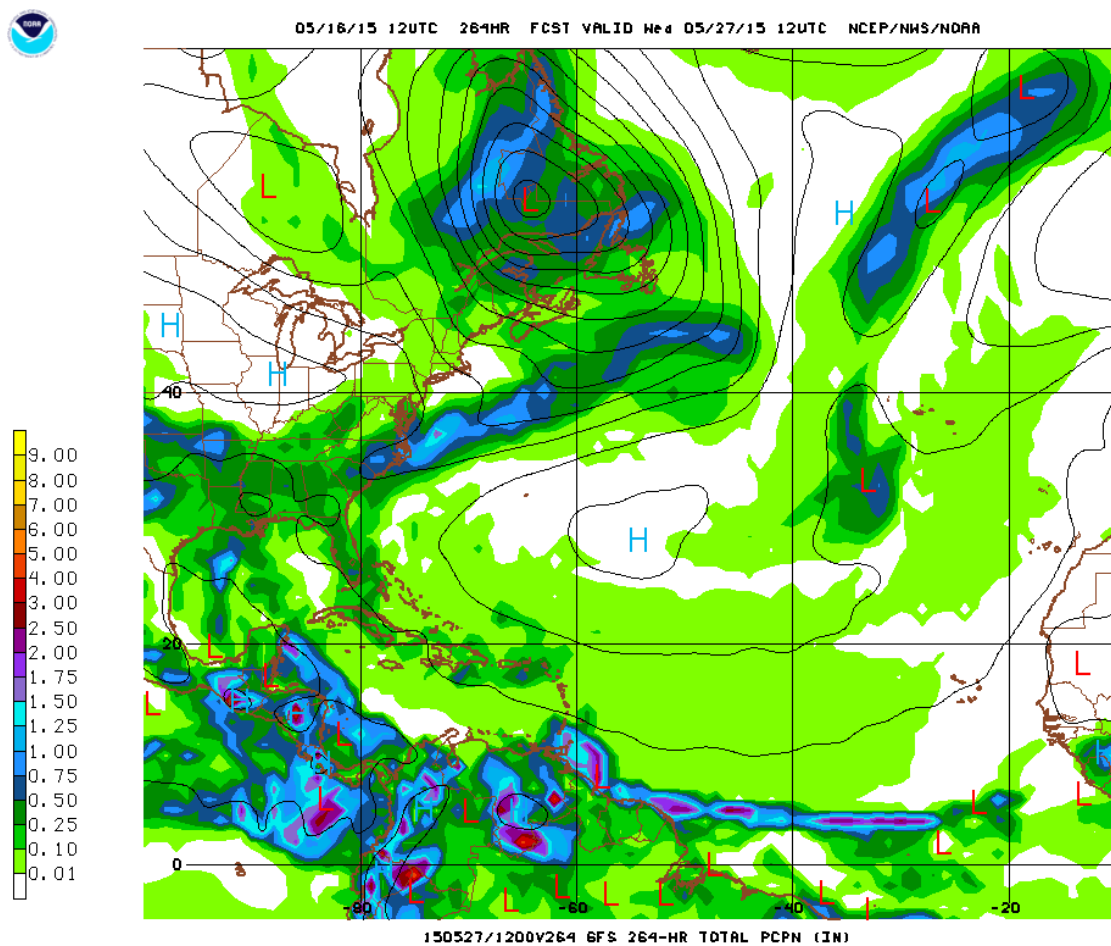


Figure 1: GFS 264 hr Model projections valid for 6:00 am, Wednesday, May 27, 2015, showing low pressure over Belize, and rain (0.5 – 1.00 inch/24 hrs) spreading over northern Belize.

Onset of the Rainy Season during El Nino years

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