

ACP S&T PROGRAMME

Enhancing Farming through Weather and Climate Information

CARIBBEAN AGRO-METEOROLOGICAL INITIATIVE



- Meteorology → weather & climate
- Current weather
- Grenada's Climate
- 2010 Review



What is Meteorology?

The study of weather and climate

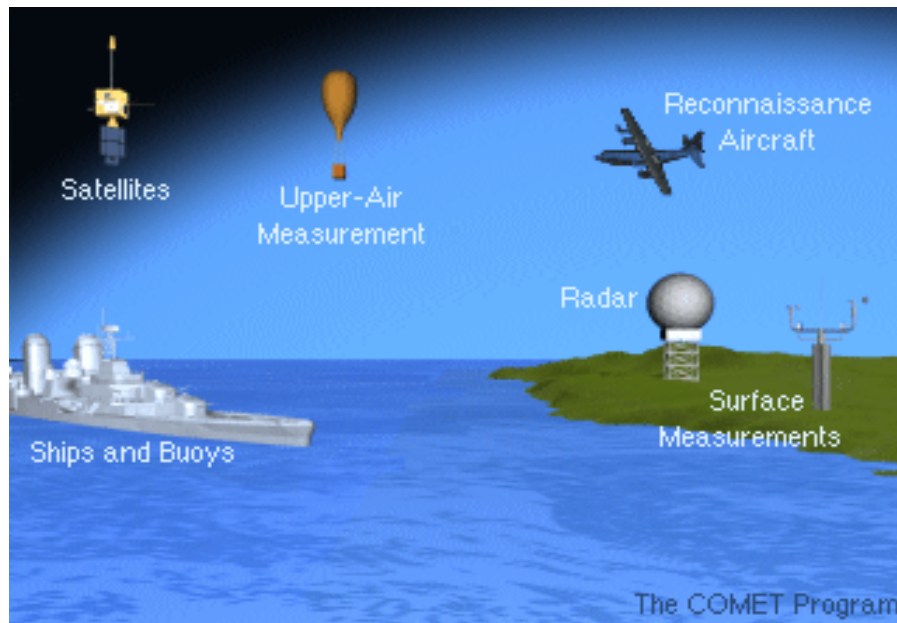


Weather

- **Atmospheric Conditions at a particular area and time.**
- **Described by: **Temperature**, pressure, winds (direction & speed), humidity, sunshine, hydro-meteors (rain) litho-meteors (haze), visibility.**

Observational Basis

- Satellites
- Radar
- Reconnaissance aircraft
- Dropsondes
- Balloons
- Ships
- Buoys
- Ground Stations



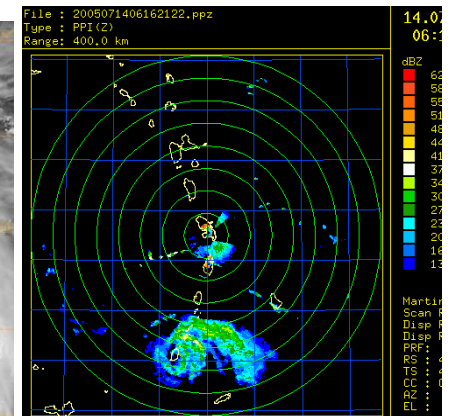
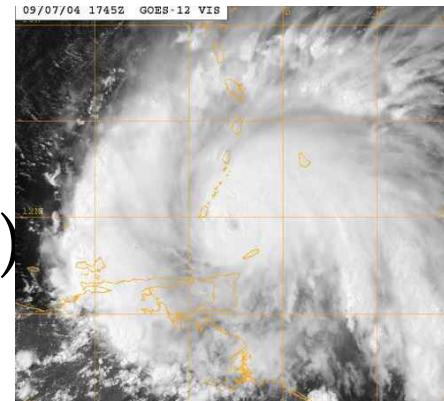


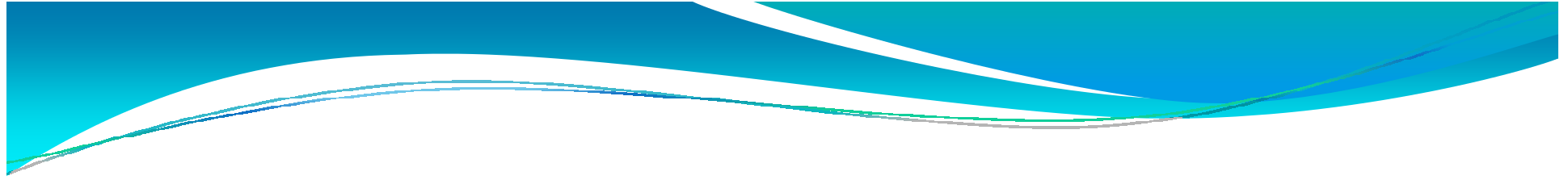
CLIMATE

- **CHARACTERISTICS OF WEATHER
OVER A PERIOD OF TIME**
- **30 YEARS**

Features responsible for Grenada's weather & climate

- Tropical Waves
- Tropical Cyclones (TD; TS; H)
- Inter Tropical Convergence Zone (ITCZ)
- Upper Level Troughs
- Topography
- Land & Sea



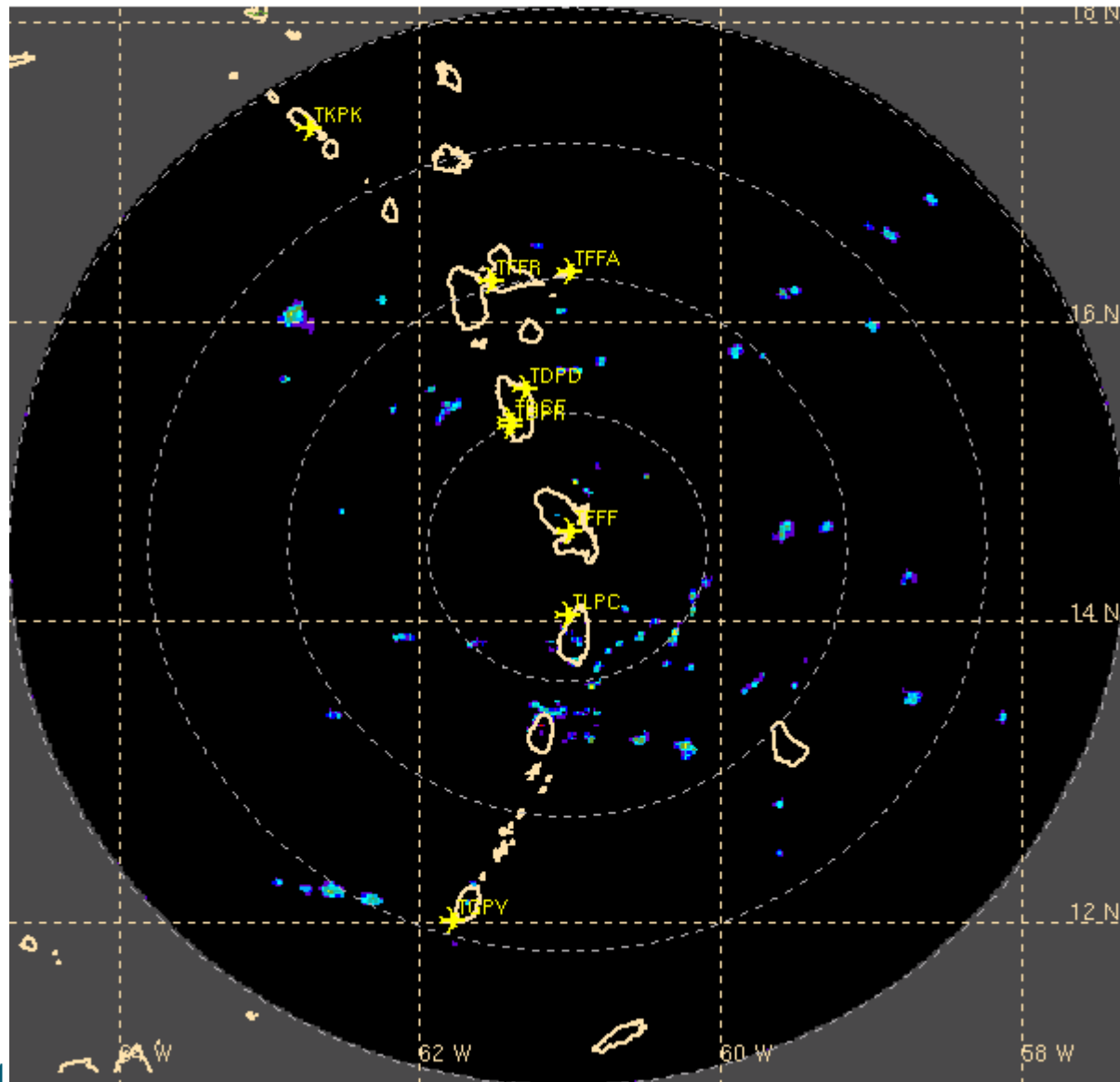


Current Weather

5 October 2011

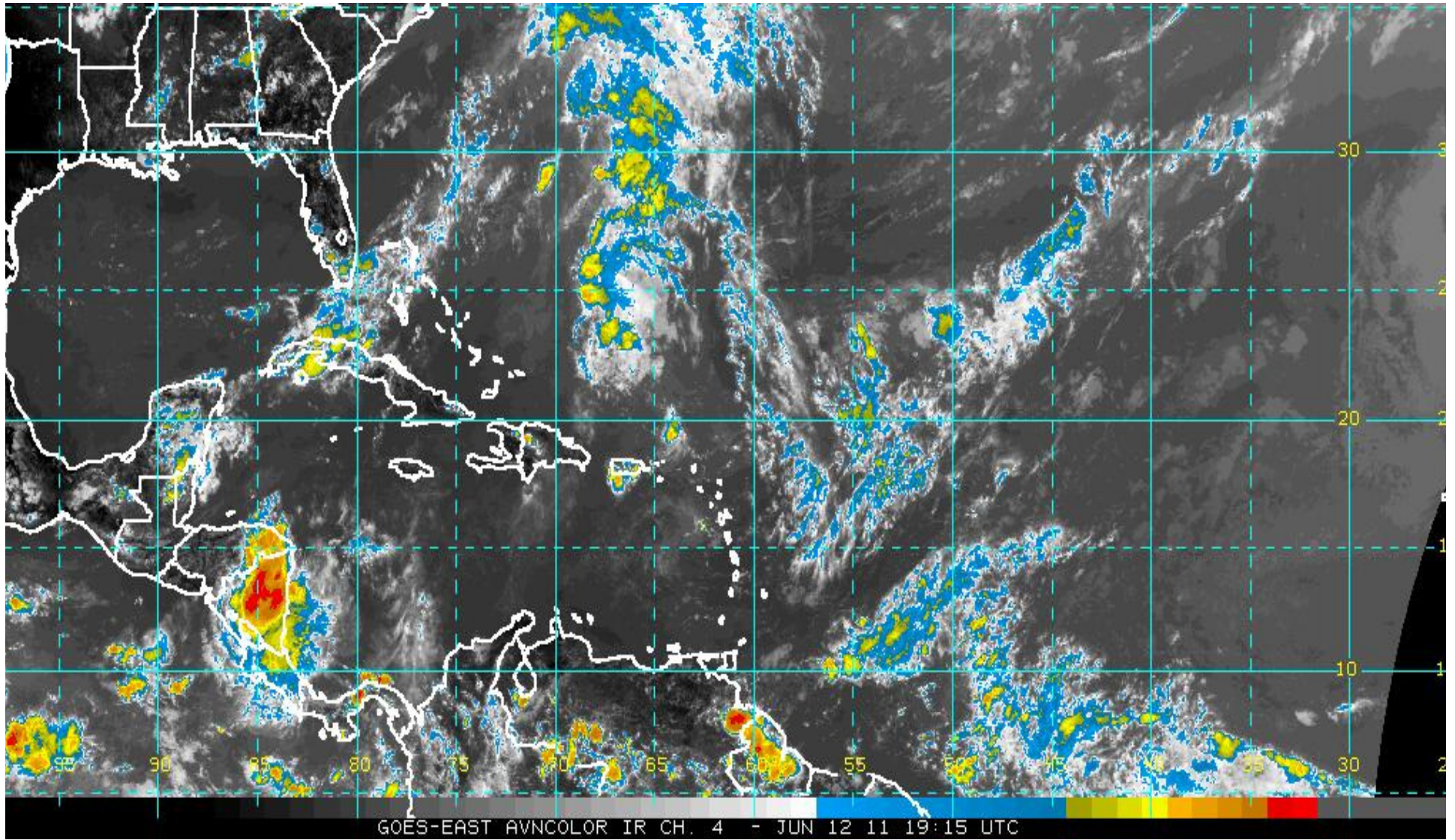
Radar MARTINIQUE (FWI) 12/06/2011 19H50 UTC (Loc+4H)

WMO: 78924 - Latitude: 14.501 N - Longitude: 61.018 W - range 400KM - Resolution 2KM



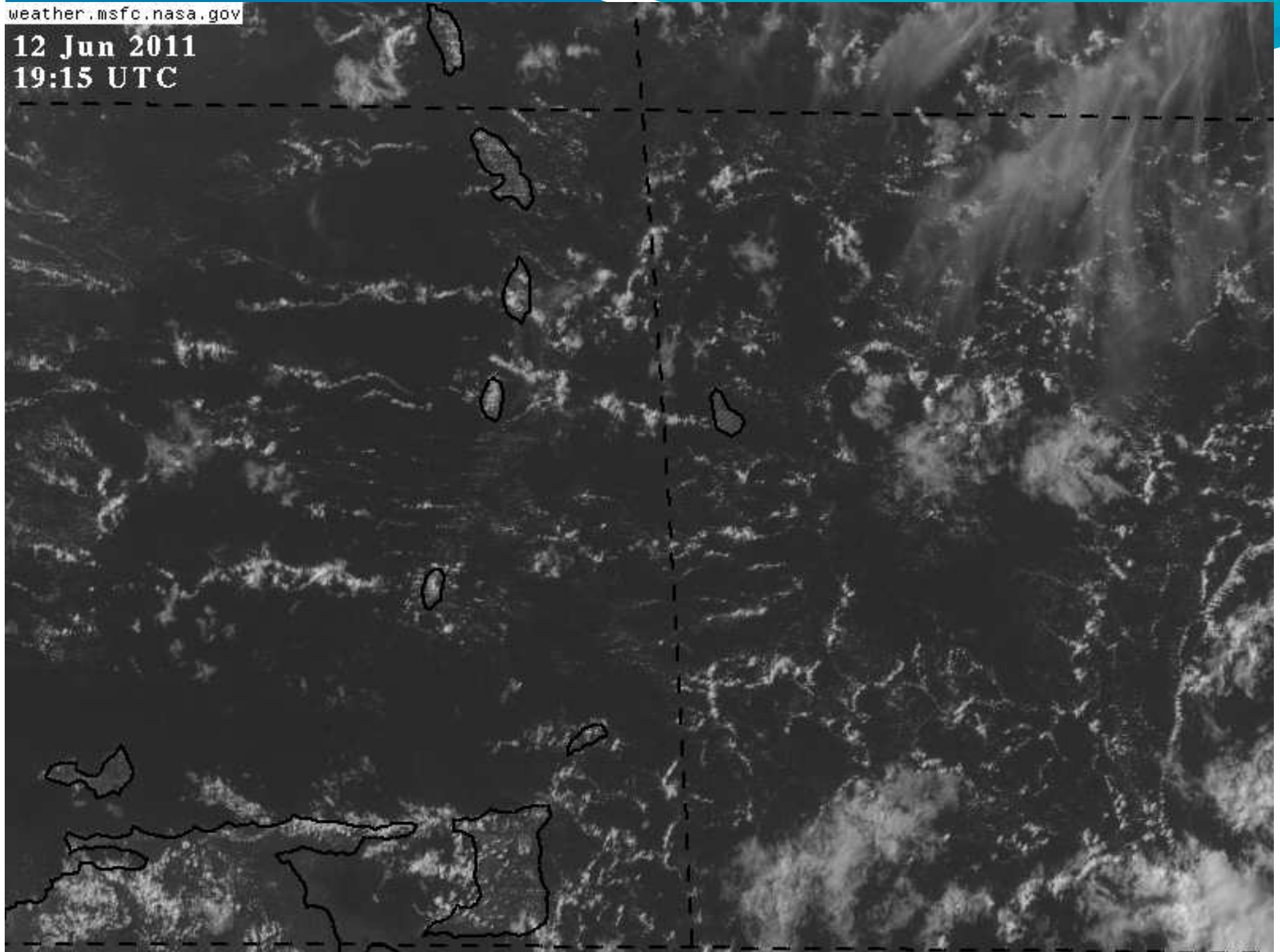
5 October 2011

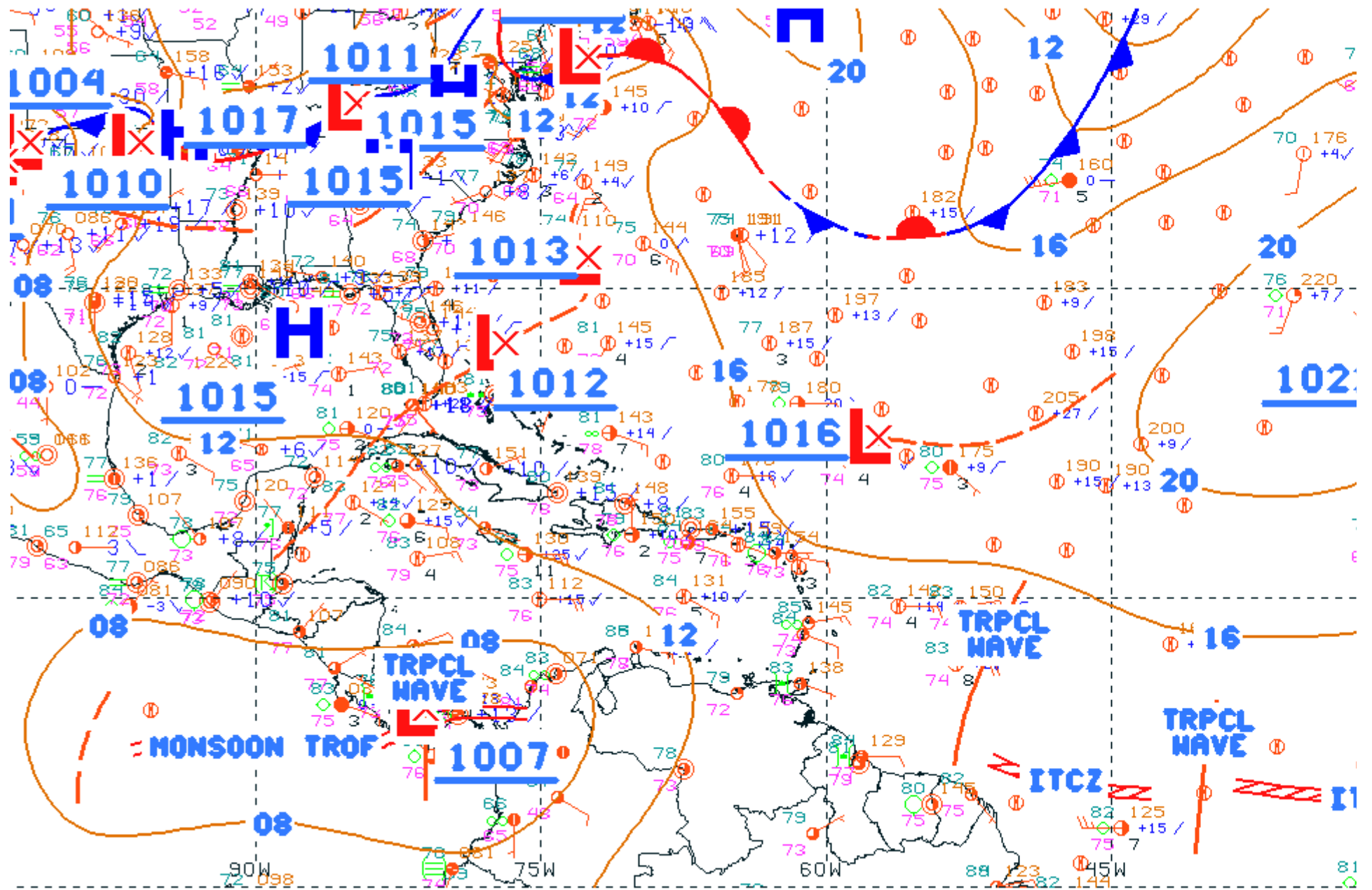




5 October 2011

12 Jun 2011
19:15 UTC





12 UTC JUNE 12 2011 - NATIONAL WEATHER



- **TGPY 121900Z 15015KT 9999 SCT021
30/25 Q1012/NOSIG**

**TTPP 121900Z 07015KT 9999 SCT022
32/24 Q1010 NOSIG**

**TTCP 121900Z 09012KT 9999 FEW018
31/22 Q1012 NOSIG**

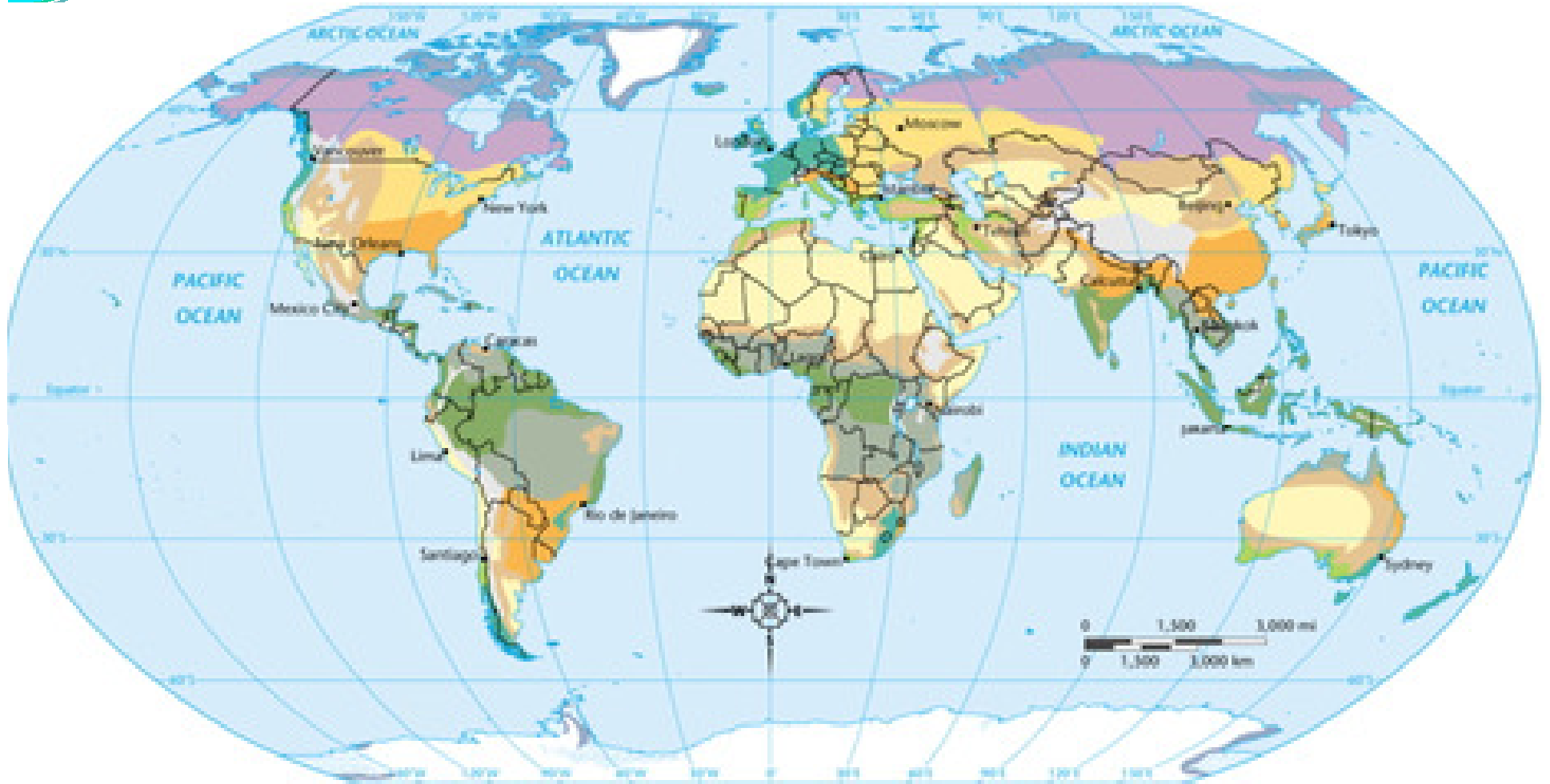
**TBPB 121900Z 09016KT 9999 SCT016
31/25 Q1012 NOSIG**



Grenada's Climate

Dry & Wet Seasons

5 October 2011



Tropical

- Tropical wet
- Tropical wet and dry

Dry

- Semiarid
- Arid

Moderate

- Mediterranean
- Humid subtropical
- Marine west coast

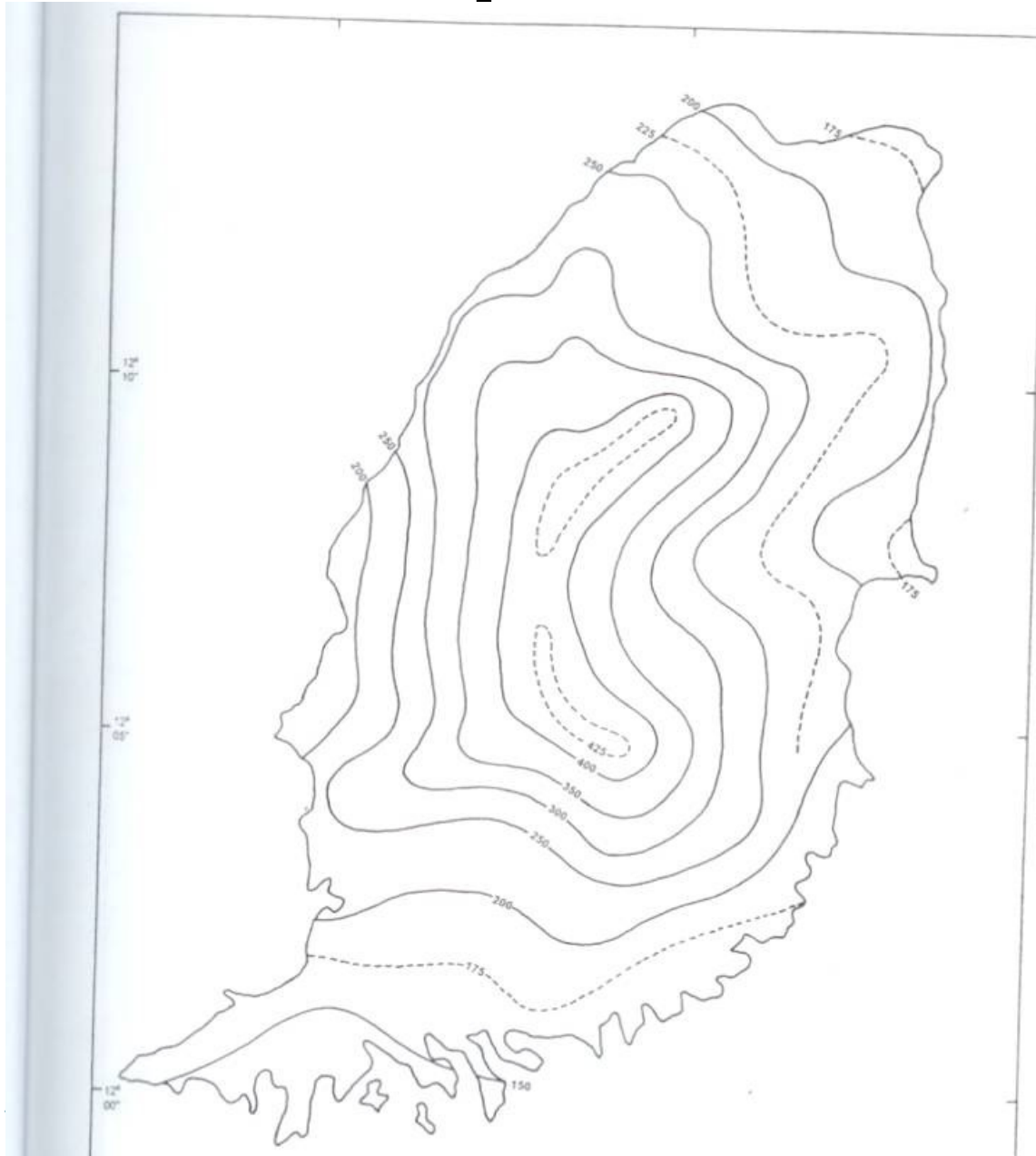
Continental

- Humid continental
- Subarctic

Polar

- Tundra
- Ice cap
- Highlands
- Non-permanent ice

September



5 October 201

March



5 October 2011

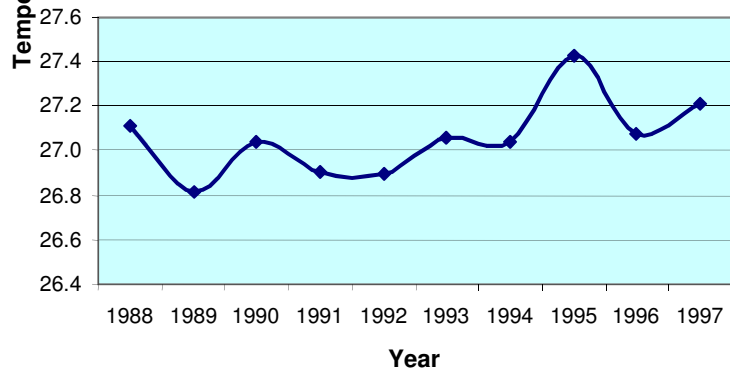
Annual



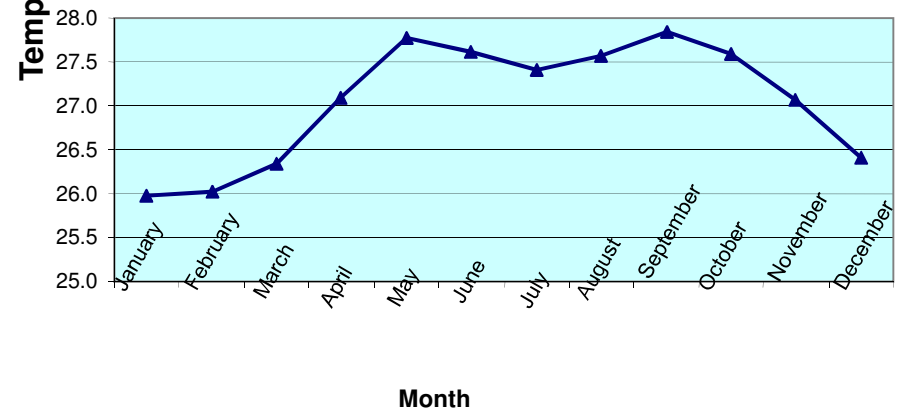
5 October 2011

Air Temperatures

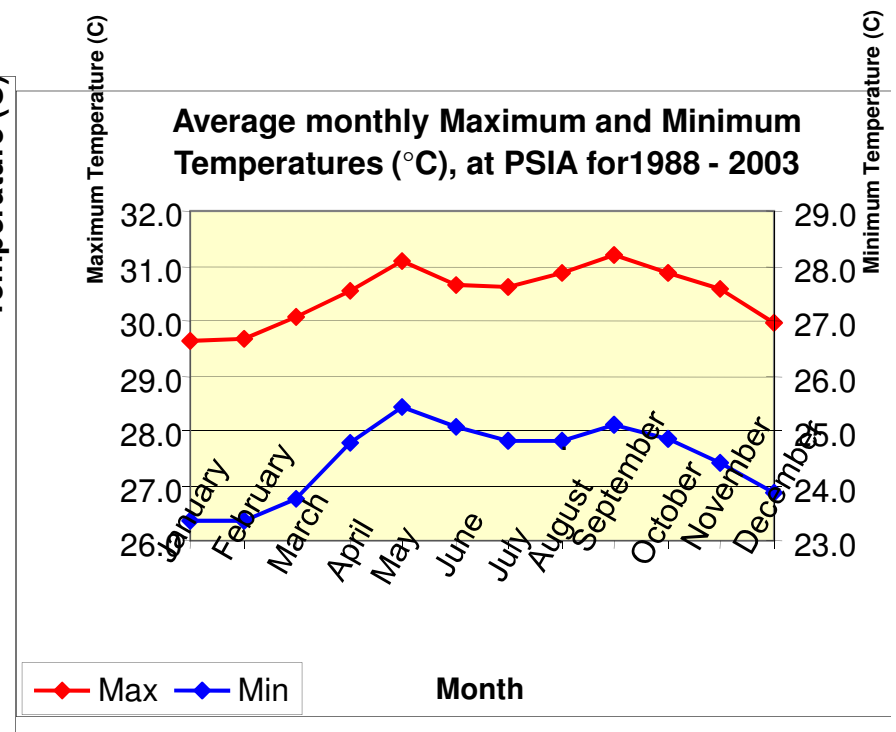
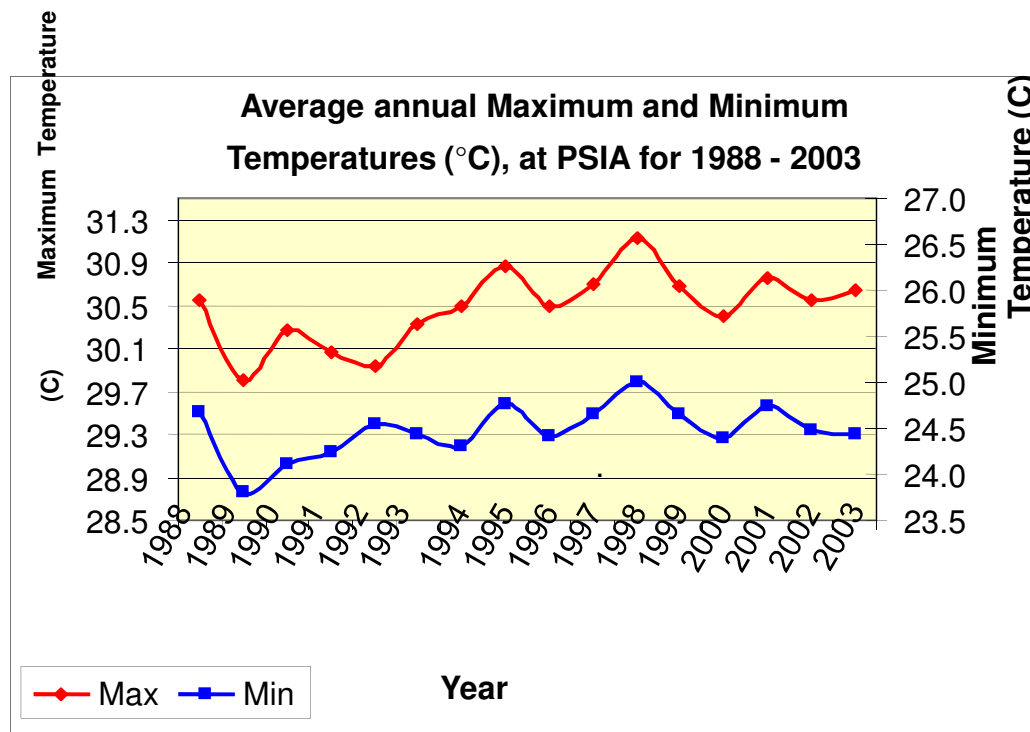
**Average Annual Air temperature (°C)
at PSIA for 1988 - 1997**



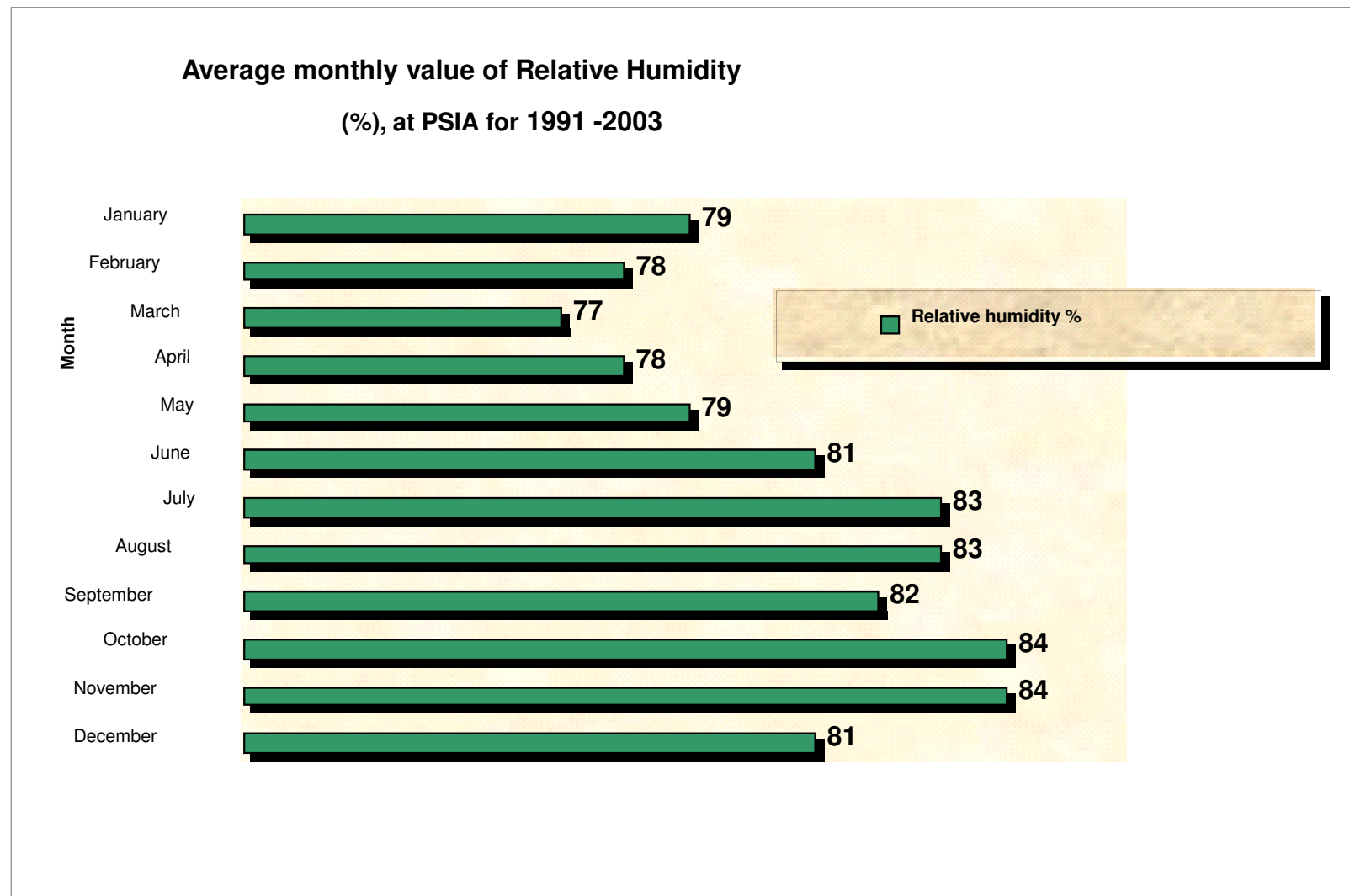
**Average monthly Air Temperature (°C),
at PSIA for 1988 - 1997**



Max & Min Temperatures



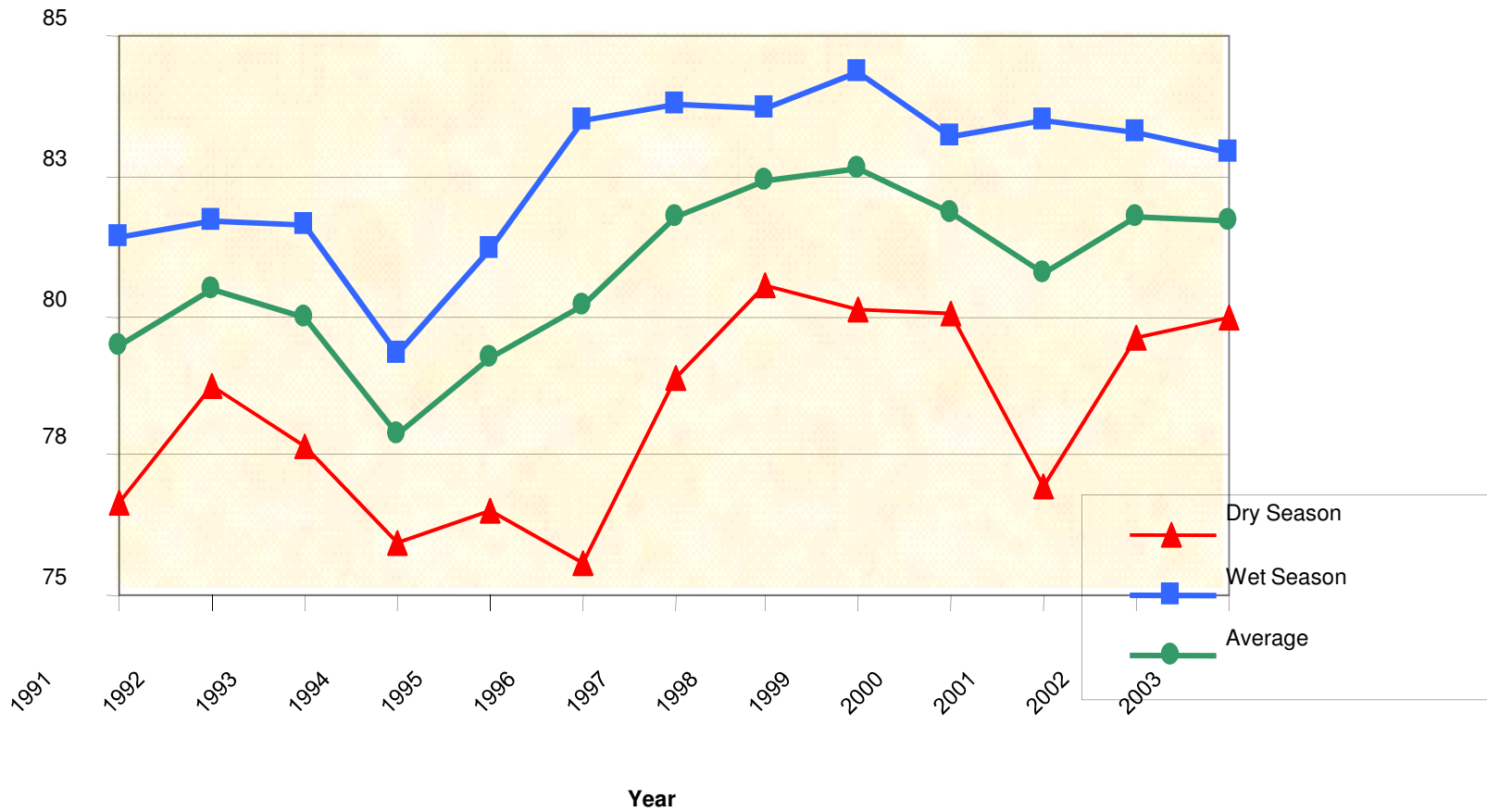
Relative Humidity



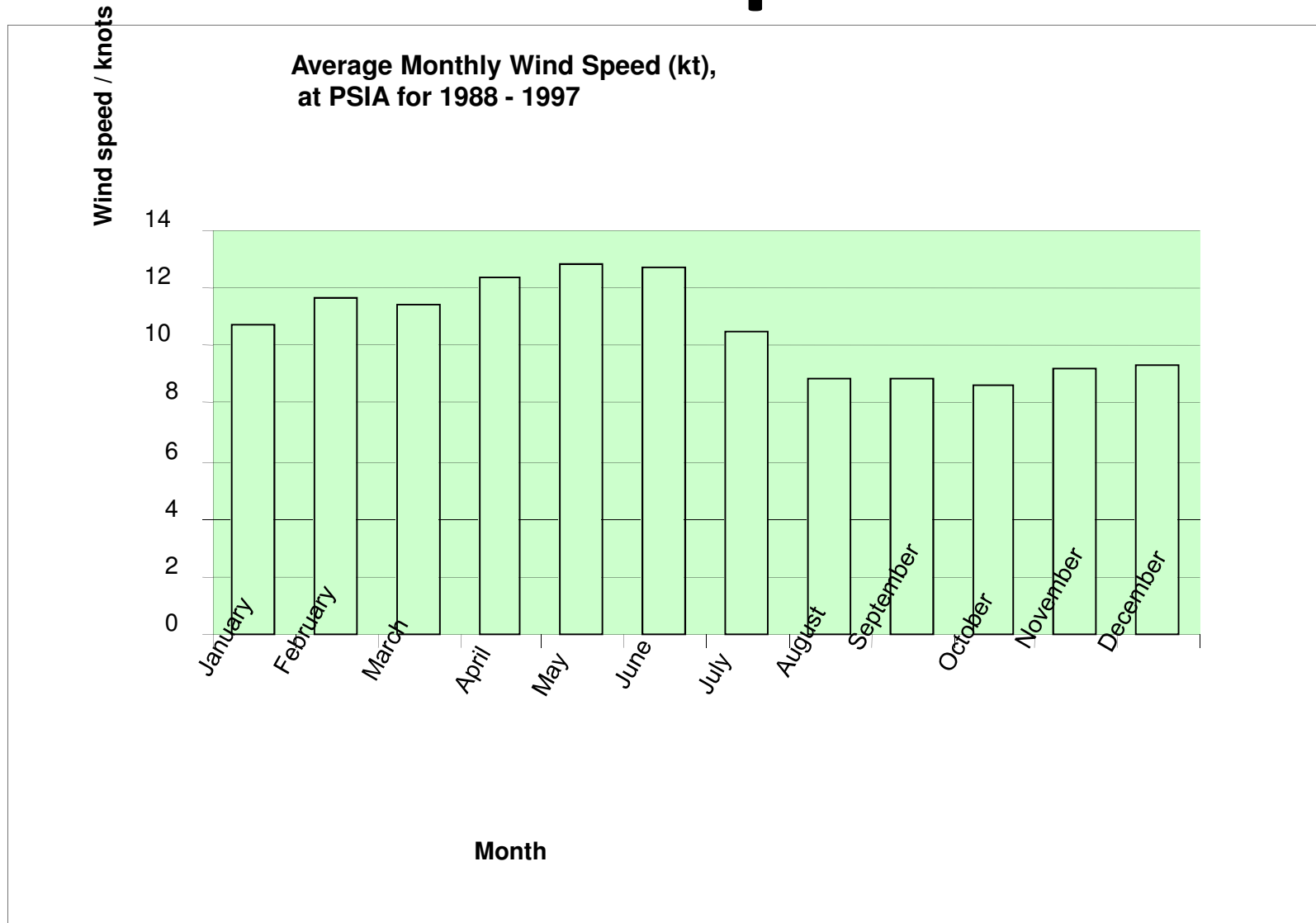
Relative Humidity %

Comparison of the Dry and Wet Season average

Relative Humidity (%), at PSIA for 1991 - 2003

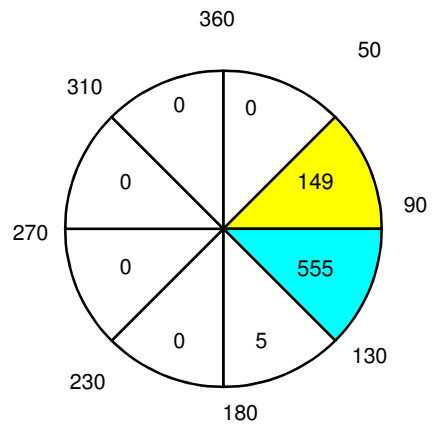


Wind Speed

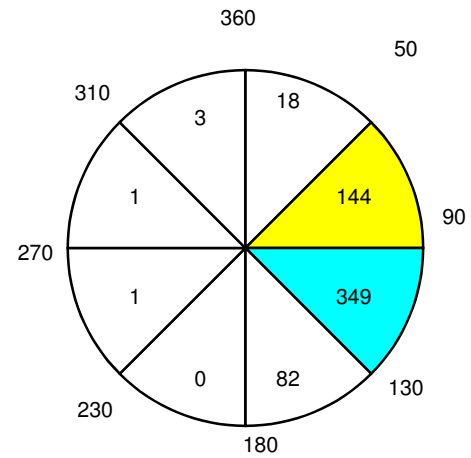


Wind Direction

Wind Frequency
April 2003

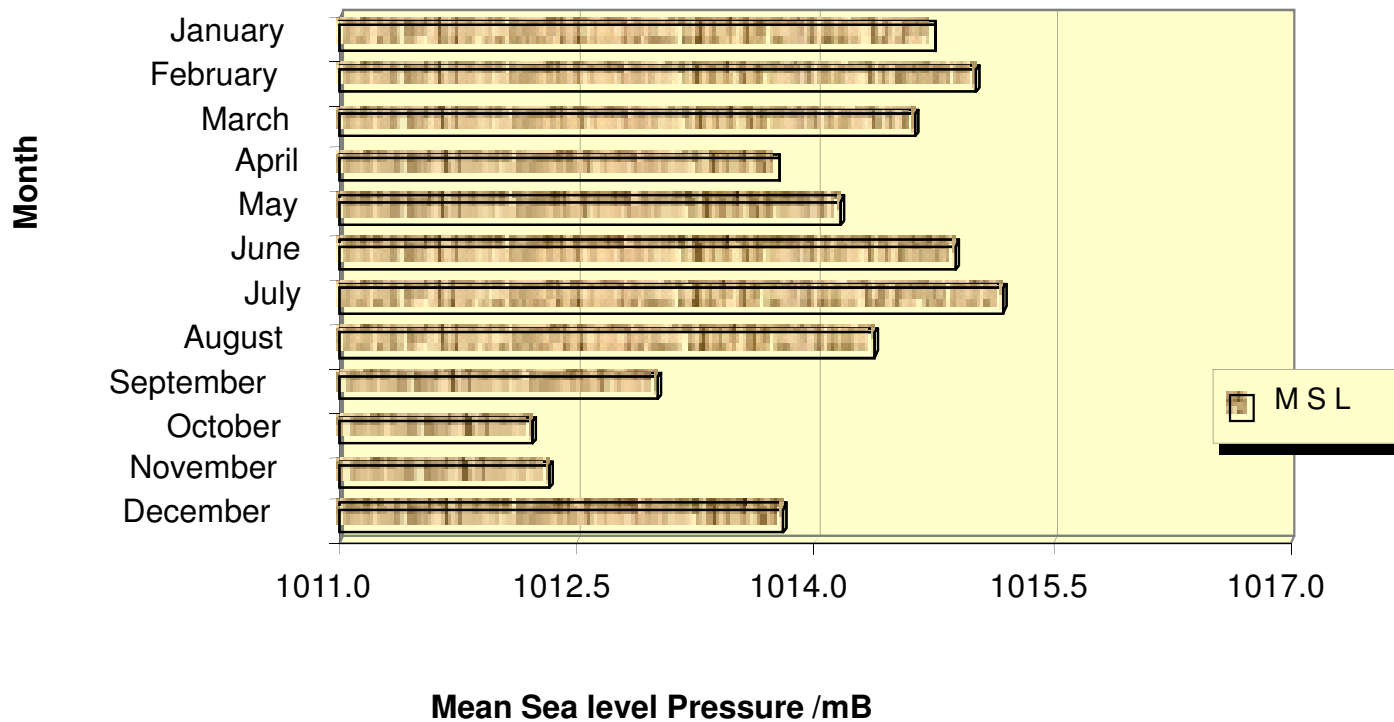


Wind Frequency
October 2003



MSL Pressure

The Monthly Mean Sea Level Pressure (mb),
at PSIA for 1988-1997

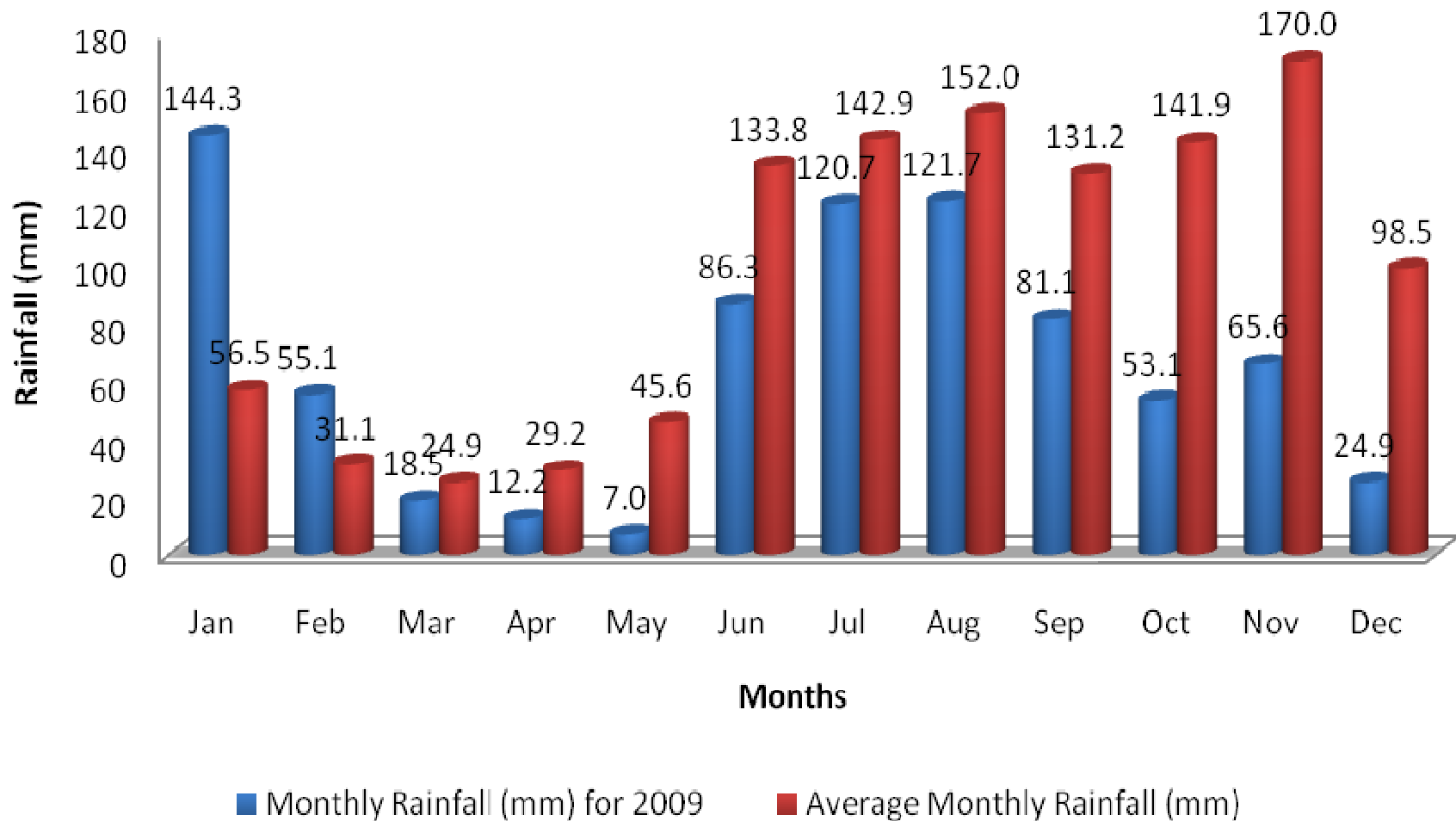




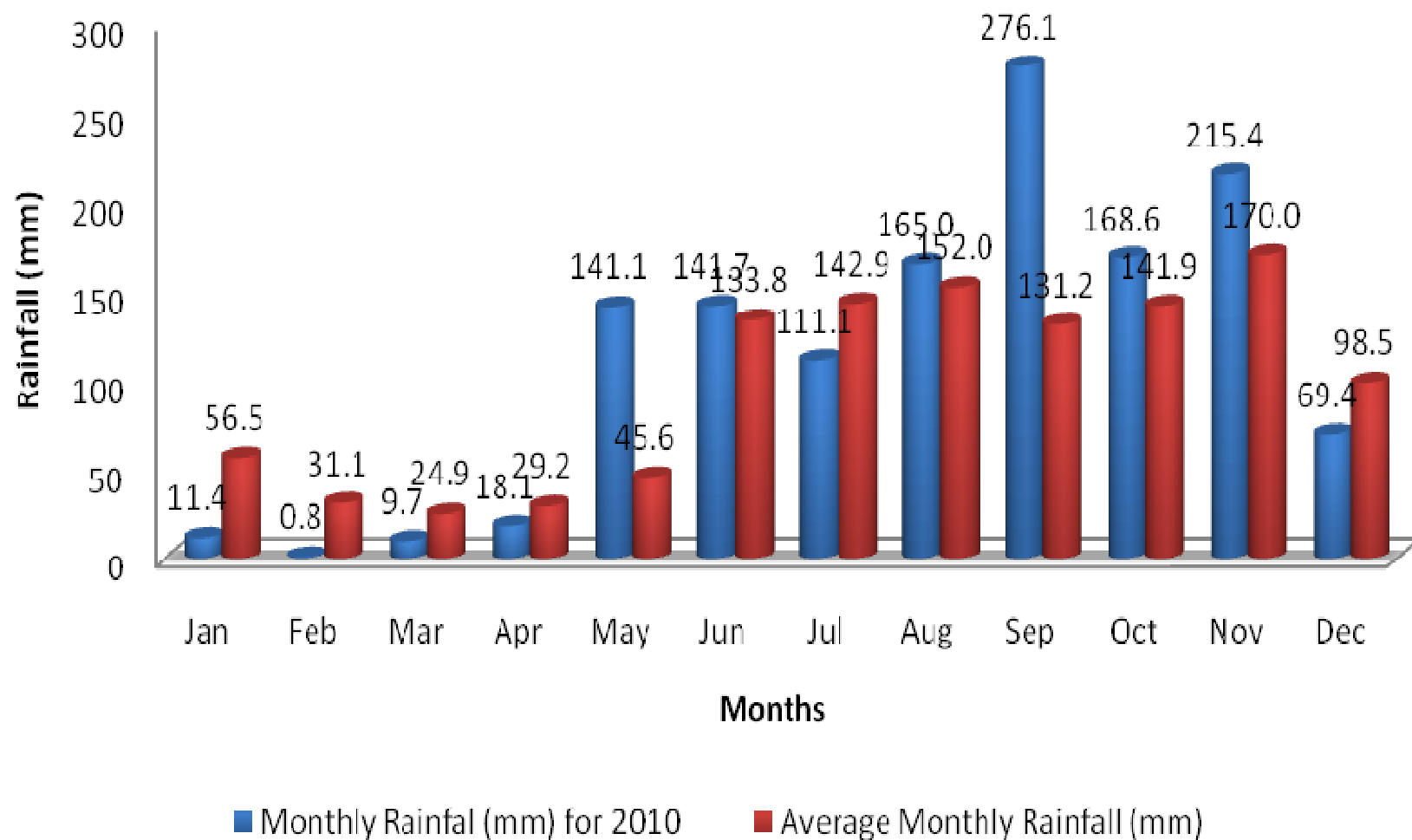
2010 Review

5 October 2011

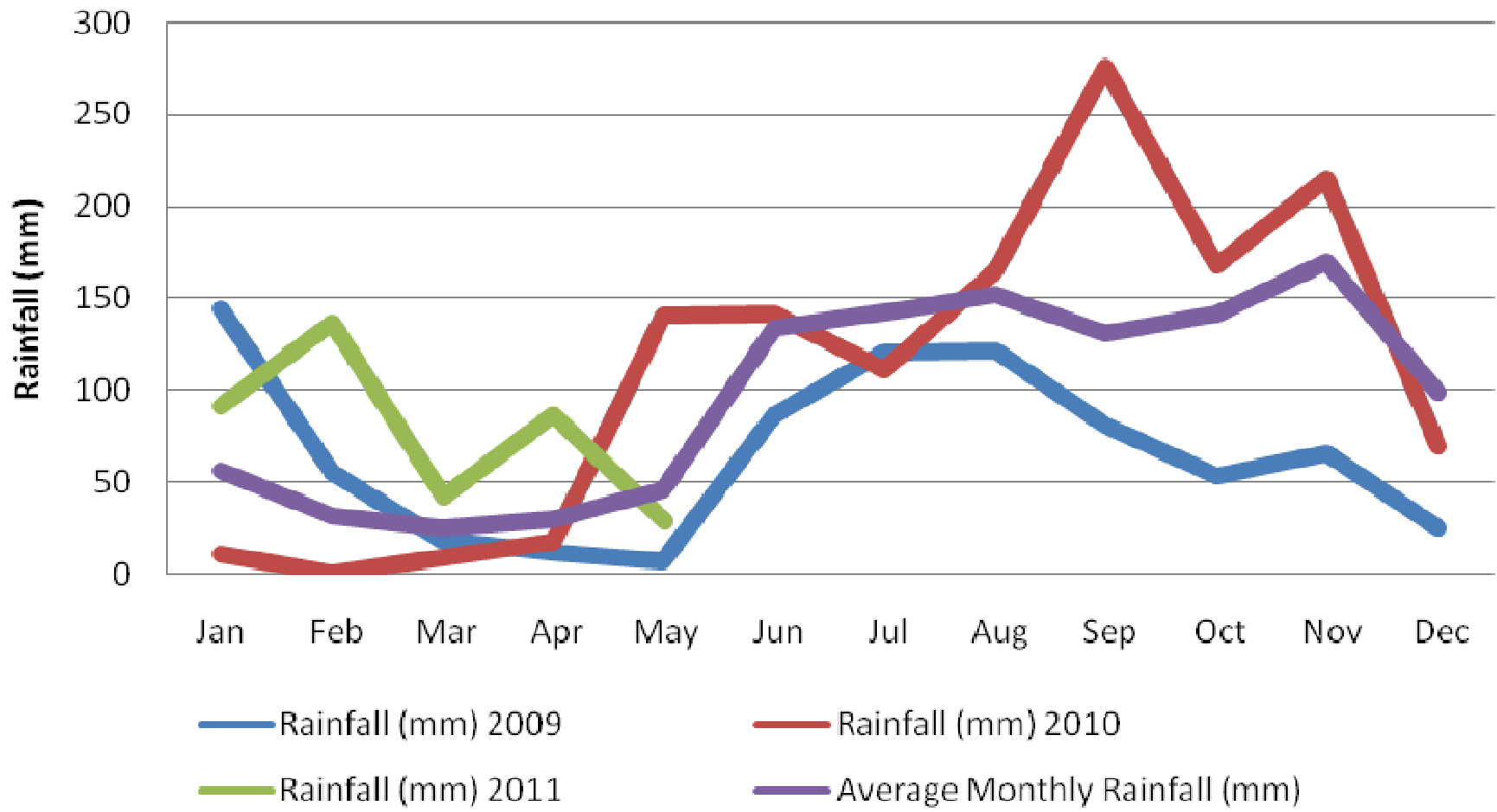
2009 Monthly VS Average Monthly Rainfall (mm) for MBIA, Grenada



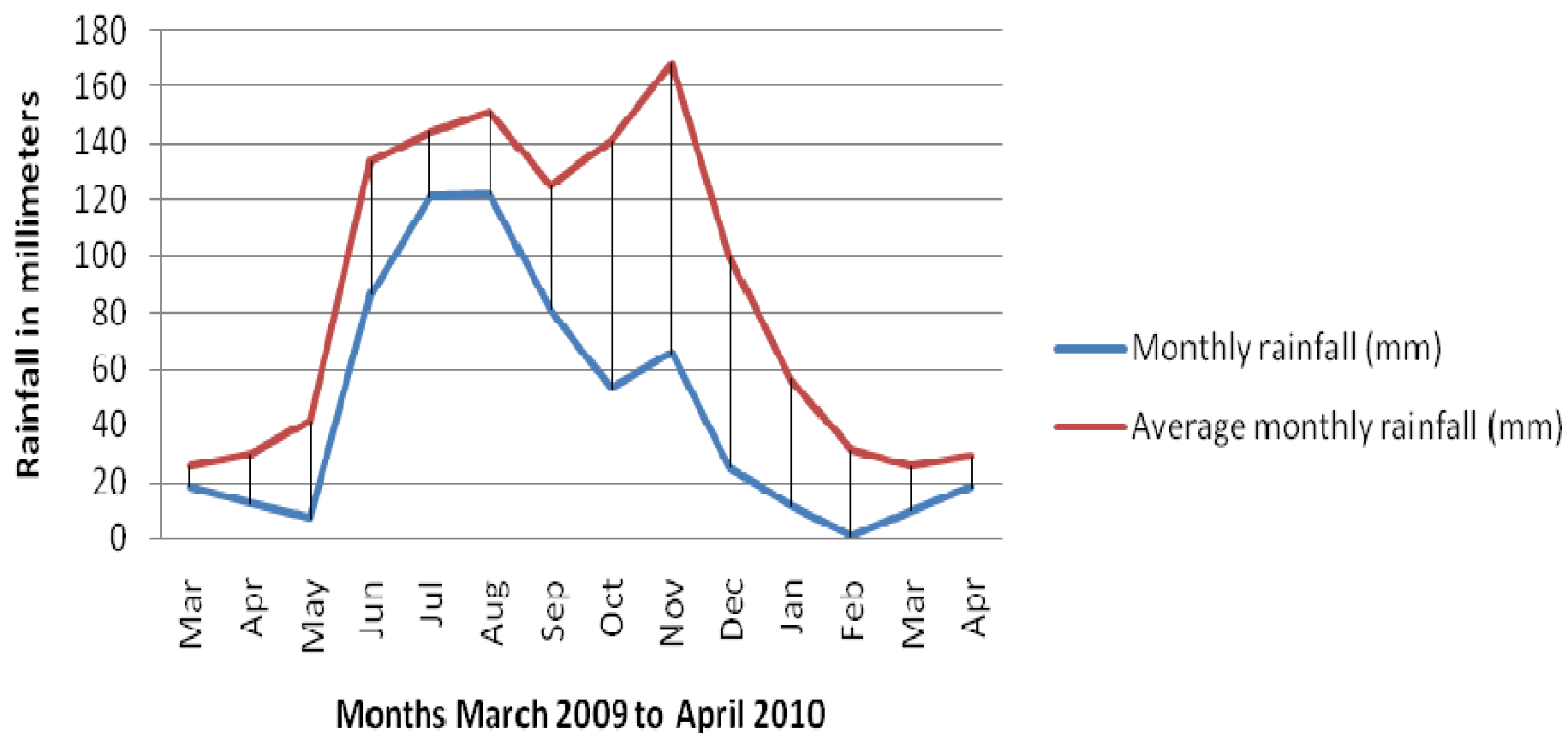
2010 Monthly VS Average Monthly Rainfall (mm) for MBIA, Grenada

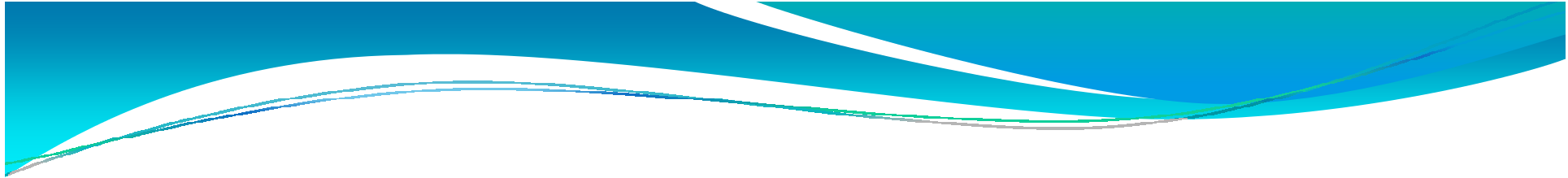


Rainfall (mm) Comparisons 2009:2010:2011:Average



Rainfall (mm) compare: Monthly totals VS Monthly Averages



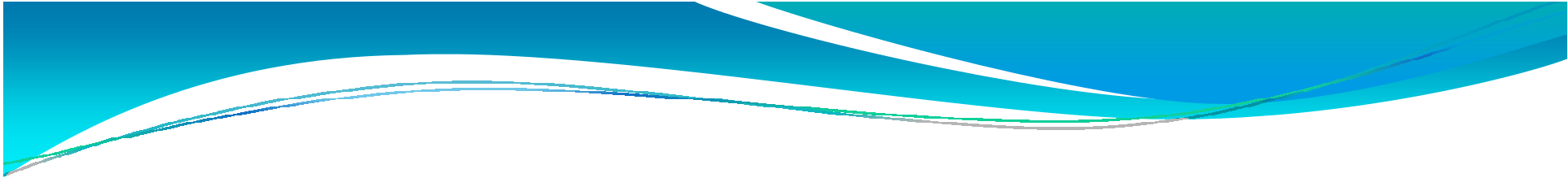


		Mth's total	Ave		
2009	Mar	18.5	25.5	73%	
	Apr	12.2	29.7	41%	
	May	7.0	41.6	17%	
	Jun	86.3	133.5	65%	
	Jul	120.7	144.2	84%	
	Aug	121.7	151.5	80%	
	Sep	81.1	125.2	65%	
	Oct	53.1	140.8	38%	
	Nov	65.6	168.1	39%	
	Dec	24.9	99.7	25%	
	2010	Jan	11.4	56.5	20%
		Feb	0.8	31.1	0.03%
Mar		9.7	25.5	38%	
Apr		18.1	28.9	62%	

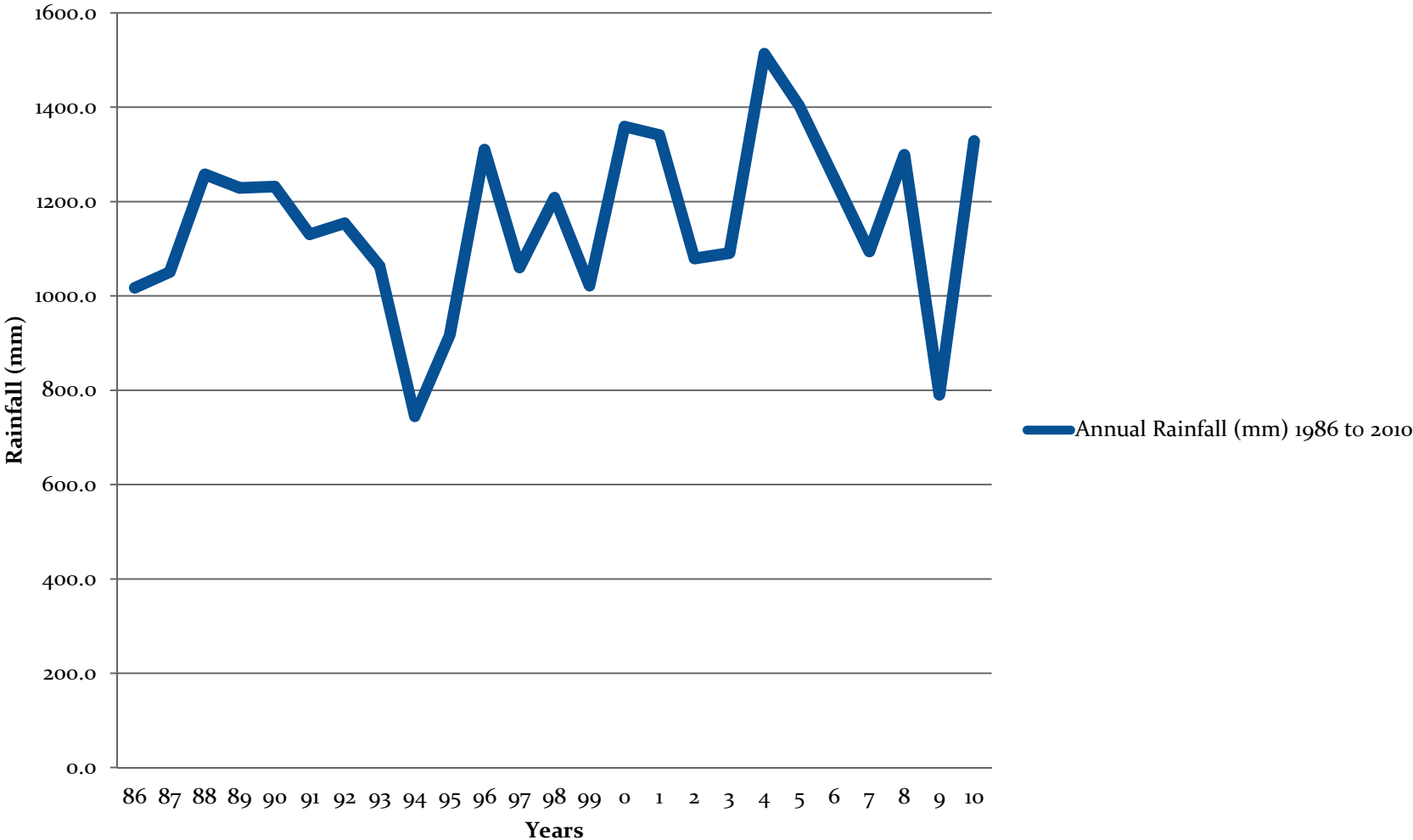


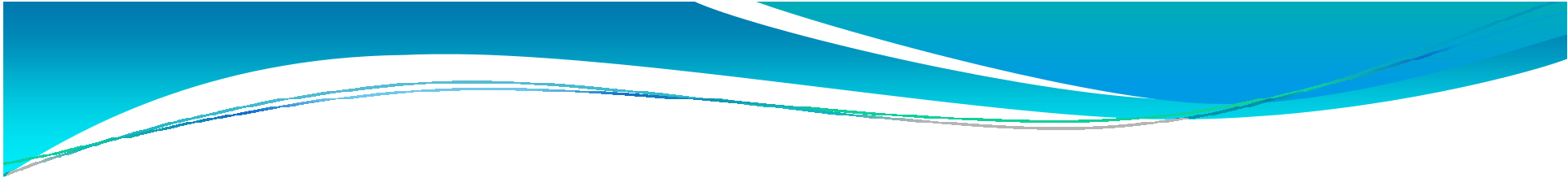
2009 Notables

- Only January and February rainfall amounts above the 24-year average.
- Most significant were the months October, November and December rainfall amounts less than 50% to that of the average.
- These months are usually noted for large amounts of rainfall before the onset of "dry season".
- Total rainfall for 2009 at MBIA was 790.5 mm (the second lowest on record) compared to annual average of 1158.4 mm.
- Only on two occasions 1994 (744.9 mm) and 1995 (917.1 mm) annual rainfall amounts were less than 1000 mm.



Annual Rainfall (mm) at MBIA 1986 to 2010





- Press Release 28th January 2010
-
- SEVERE DROUGHT CONDITIONS TO CONTINUE OVER GRENADA FOR
- THE NEXT THREE MONTHS
-
- Severe drought conditions currently being experienced over Grenada are expected to
- persist over the next 3 months. This is the view of scientists from the Caribbean
- Drought and Precipitation Monitoring Network (CDPMN) based at the Caribbean
- Institute for Meteorology and Hydrology, Husbands St. James, Barbados, who have
- been analysing rainfall trends in the Caribbean since January 2009.
-
- Analyses show that severe drought conditions were experienced in Grenada for the
- year 2009, with particularly, the last 3 to 6 months being extremely dry. This is
- believed to be responsible for an increased demand for irrigation water, a reduction in
- stream flow and a general depletion in water resources.
-
- Forecast models currently indicate that for the period January to March 2009, below
- normal conditions will persist over the southern portion of the eastern Caribbean
- exacerbating the environmental impacts, and in particular extending drought
- conditions for a further 3 months.



Drought Impact on Grenada

- **75% increase in the demand for irrigation services by farmers, as early as January.**
- **Stream/river flows were notably reduced.**
- **Early Carriacou water crisis – NAWASA implemented water use restrictions throughout Grenada.**
- **Vegetation colour in January was what one would expect at the middle to end of the "dry season" and not at the beginning.**
- **Several bush fires – No burn policy was implemented.**



Regional effect

- **Dominica southward to Trinidad experienced moderately to extremely dry conditions. St. Lucia, Barbados, St. Vincent and the Grenadines and Grenada in particular were extremely dry**
- **Many farmers in the south eastern Caribbean have been heavily impacted by this dry spell, either due to limited rainfall (for rainfed farmers) and reduction of irrigation water.**

Blame it on ??????

EL Nino/....La Nina

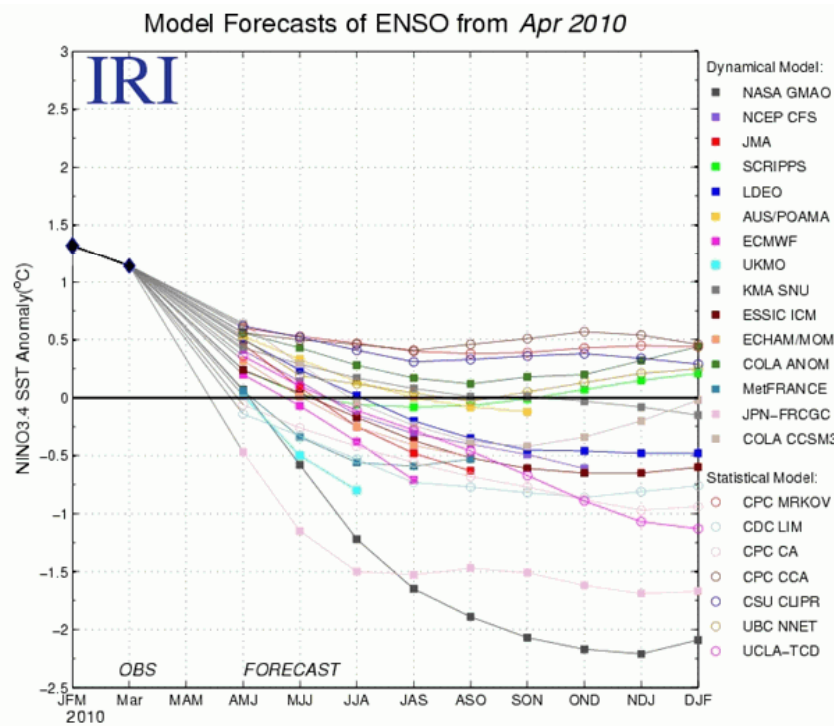
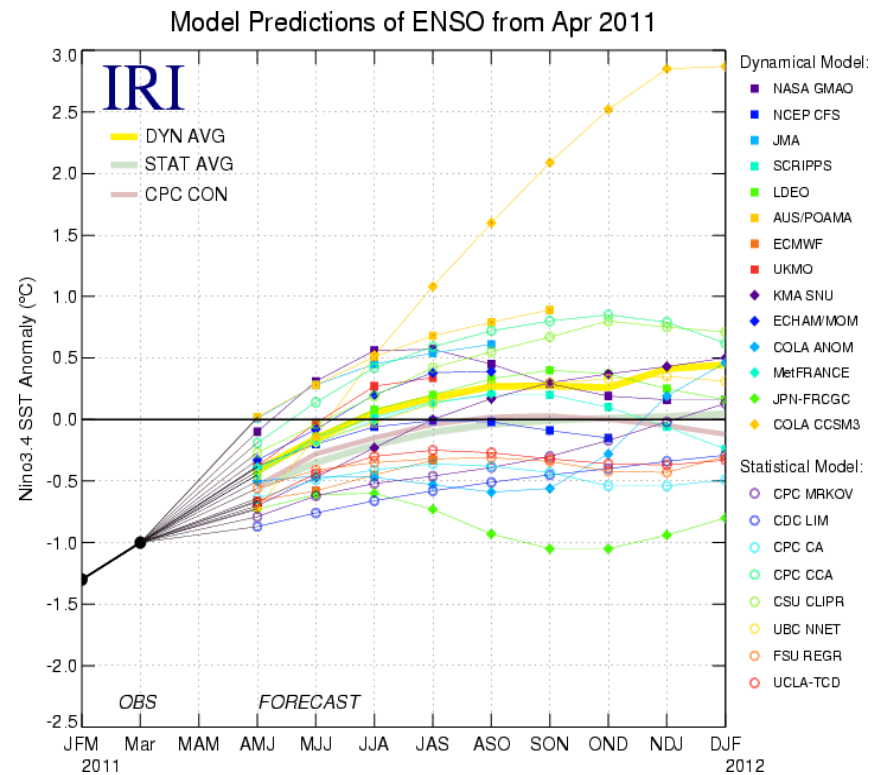


Figure 6. Forecasts of sea surface temperature (SST) anomalies for the Niño 3.4 region (5°N-5°S, 120°W-170°W). Figure courtesy of the International Research Institute (IRI) for Climate and Society. Figure updated 15 April 2010.



Dry Vegetation at the MBIA



02.03.2010 11:35



Grand Etang Lake....

Water level about 5 feet below its normal level, due to NAWASA's extraction



2011 “Dry Season”

5 October 2011



5 October 2011



5 October 2011



Drought



Sprout





THE END