

Final Stakeholder Conference



Seasonal Forecasting Rainfall and Temperature

Adrian Trotman

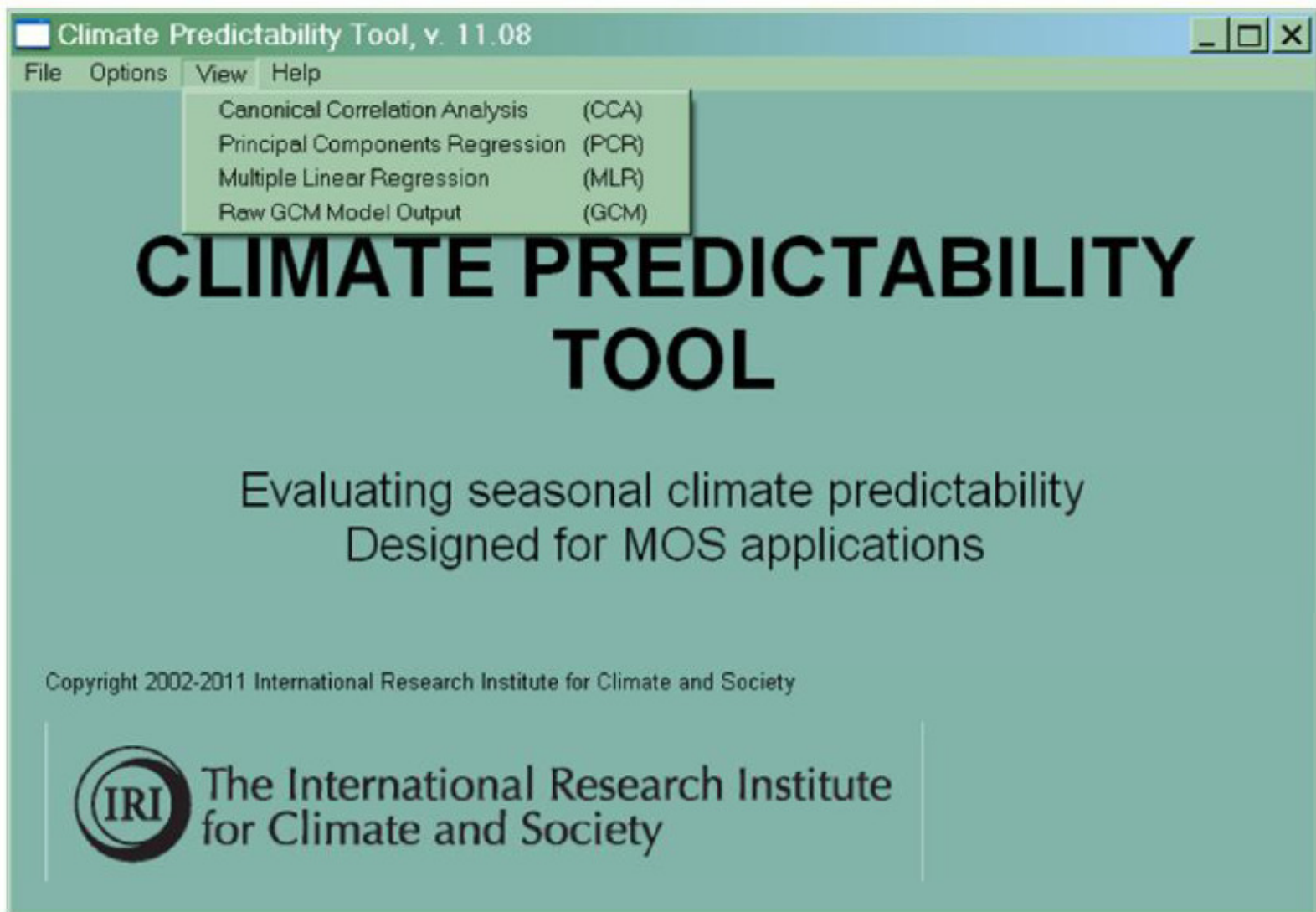
CAMI Project Manager &
Chief, Applied Meteorology and Climatology
Caribbean Institute for Meteorology and Hydrology

CAMI Final Stakeholder Conference
Kingston Jamaica
5-6 November, 2012

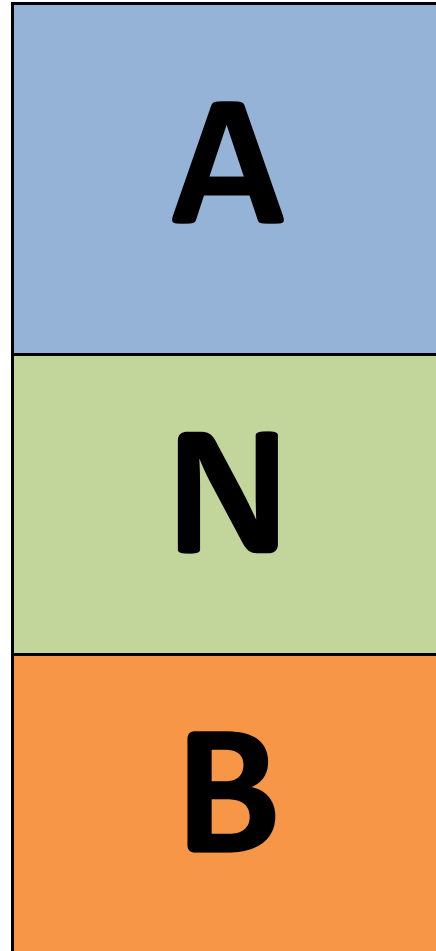
Caribbean Climate Outlook Forum

CariCOF

- A forum of Caribbean Meteorologists and Climatologists, led by CIMH and supported by international scientists from USA and Europe
- Regional scientists run a number of experiments on the Climate Predictability Tool
- Compare with the outputs from the Global models



The Tercile



Above Normal

Normal

Below Normal

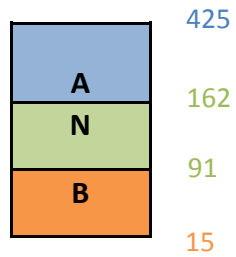
Rainfall Percentiles

Month	CIMH				
	Min	33%	Mean	66%	Max
January	7.9	41.6	61.2	69.4	140.5
February	3.8	24.7	38.5	45.3	146.2
March	3.5	24.8	40.7	47.5	138.0
April	2.0	24.9	51.6	56.3	152.3
May	1.1	23.2	54.8	60.1	352.4
June	17.7	60.4	97.6	108.4	241.8
July	23.7	88.3	125.9	138.9	284.9
August	62.4	141.6	179.5	201.4	348.0
September	46.3	120.3	154.1	173.0	335.7
October	51.5	150.2	210.4	232.0	657.9
November	24.6	108.4	166.9	190.6	470.9
December	16.1	62.1	94.9	109.4	281.8

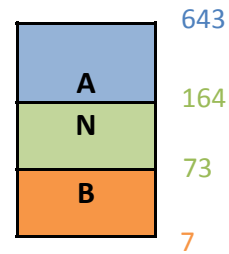
Month	Edgecumbe				
	Min	33%	Mean	66%	Max
January	10.2	0.9	75.6	0.5	211.6
February	3.0	0.7	52.7	0.3	129.1
March	4.3	0.6	47.0	0.2	181.7
April	2.3	0.7	67.4	0.4	240.6
May	3.8	0.7	78.5	0.5	331.5
June	11.2	0.9	114.4	0.7	285.8
July	35.8	1.0	146.8	0.9	348.2
August	45.7	1.0	168.1	1.0	370.1
September	0.0	1.0	178.2	1.0	392.2
October	37.9	1.0	206.2	1.0	439.6
November	55.4	1.0	183.8	0.9	544.4
December	17.3	0.9	124.5	0.8	367.5

Tercile rainfall Values for CIMH

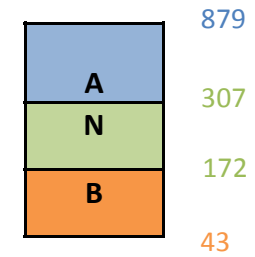
Jan - Mar



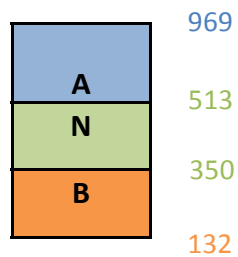
Mar - May



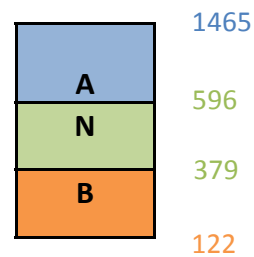
May - July



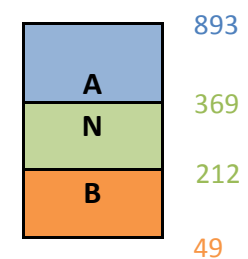
July - Sep



Sep - Nov



Nov - Jan



Irrigation Requirements Tomato, CIMH For Different Planting Dates

Jan			Apr			Jul			Oct		
66	33	Min	66	33	Min	66	33	Min	66	33	Min
7	11.1	78.1	55.9	75.3	90	0	0	67.9	0	0	0
104.3	115.1	133.5	107.5	135.5	154.9	0	11.7	84.1	0	0	86.4
141.6	154.7	177	63.1	102.1	144.8	0	30.3	99.8	5.3	65.7	134.5
68.6	85.2	99.7	15.5	38	77	0	0	40.1	0	81.5	80.8

Irrigation Requirements Maize, CIMH For Different Planting Dates

Jan			Apr			Jul			Oct		
66	33	Min	66	33	Min	66	33	Min	66	33	Min
0	0	0	0	0	0	0	0	0	0	0	0
62	70.7	87.2	64.8	89	103.3	0	0	44.1	0	0	46.6
101.2	114.3	135.9	22.9	62.2	105	0	0	59.7	0	0	95.3
35	52.1	66.7	1.3	8.2	45.8	0	0	11.1	0	32.3	50.5

Irrigation Requirements

Tomatoes, Central Farms

Planting	Jan		Apr		Jul		Oct	
	From	To	From	To	From	To	From	To
	0	0	76.1	2.5	0	0	0	0
	47.1	85.2	102.3	125	0	98	0	56.5
	135.6	158.1	17.8	99.2	0	112	0	97
	88.1	96.4	0	40.2	0	18.1	3.2	52.5

Irrigation Requirements

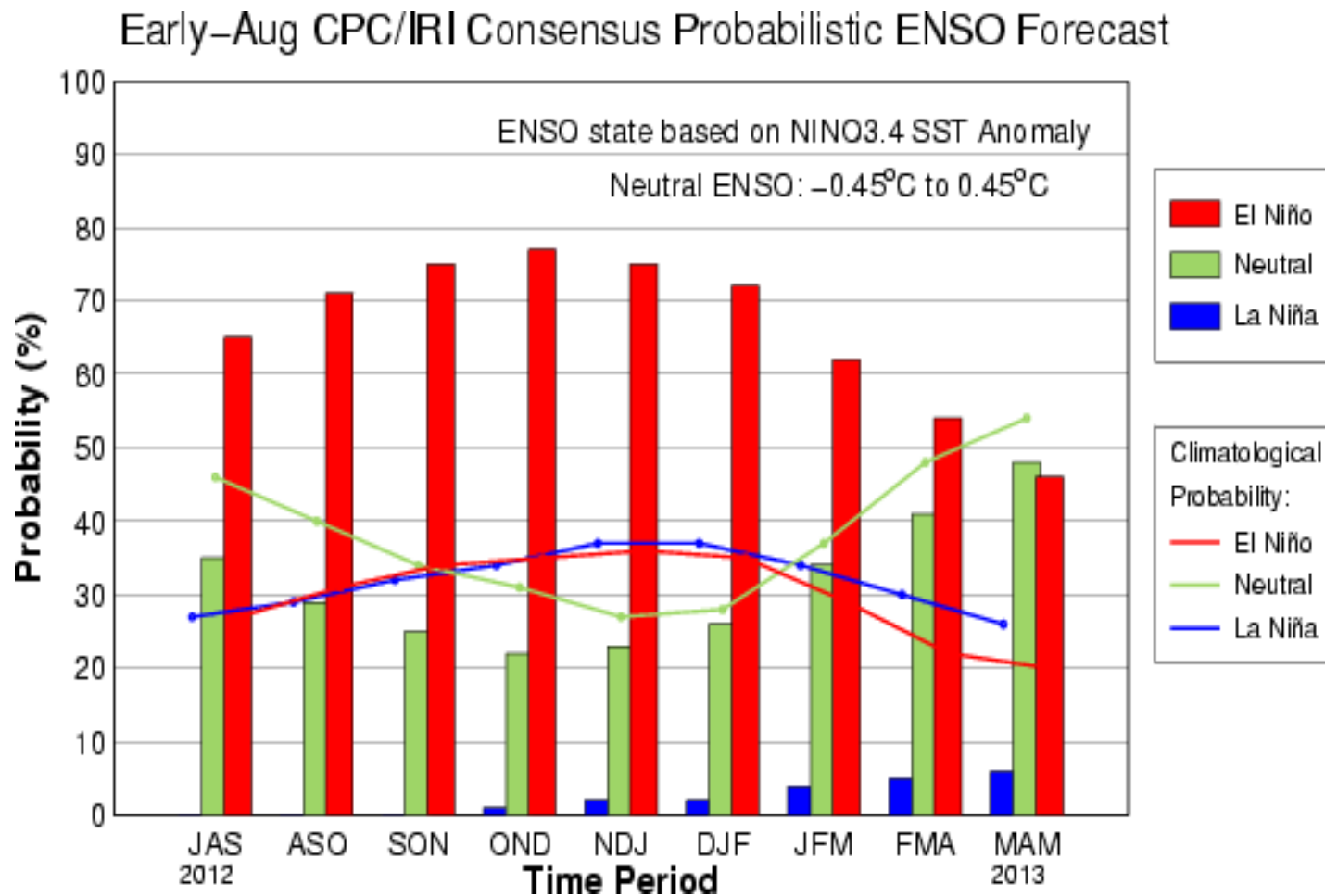
Maize, Central Farms

Planting	Jan		Apr		Jul		Oct	
	From	To	From	To	From	To	From	To
	0	0	0	0	0	0	0	0
	8.2	44.5	56.1	82.6	0	57.8	0	21.1
	96.4	119.1	1.3	60.8	0	73.1	0	58.4
	56.1	63.9	0	11	0	0.2	0	26.9

CPC/IRI Probabilistic ENSO Outlook

(updated 9 Aug 2012)

El Niño is favored beginning in July-September 2012 and continuing through Northern Hemisphere winter 2012-13.



Pacific Niño 3.4 SST Outlook

- Nearly all of the dynamical models predict a transition from ENSO-neutral conditions (Niño-3.4 SST anomalies between -0.5°C and $+0.5^{\circ}\text{C}$) to El Niño during the Northern Hemisphere summer/fall, with El Niño continuing into winter 2012-13.
- The average dynamical model forecast is warmer than the statistical models.

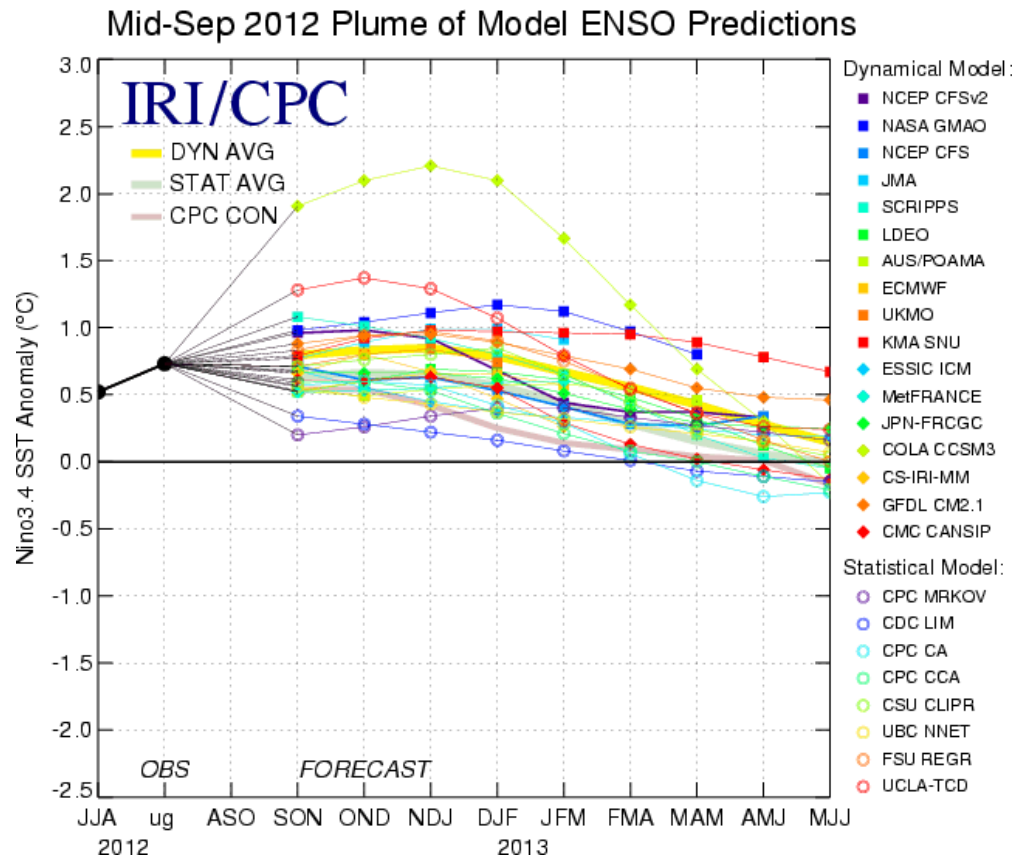
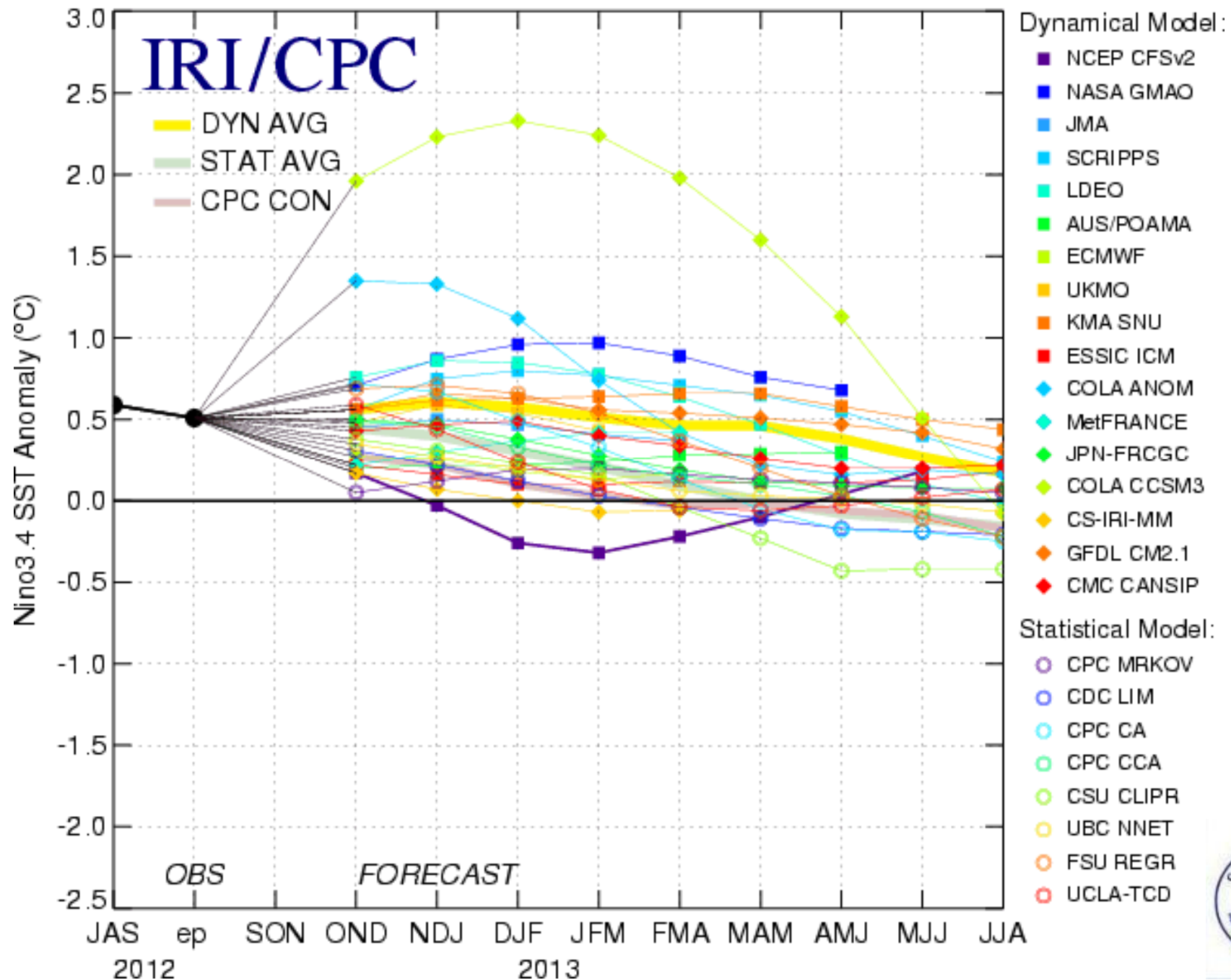


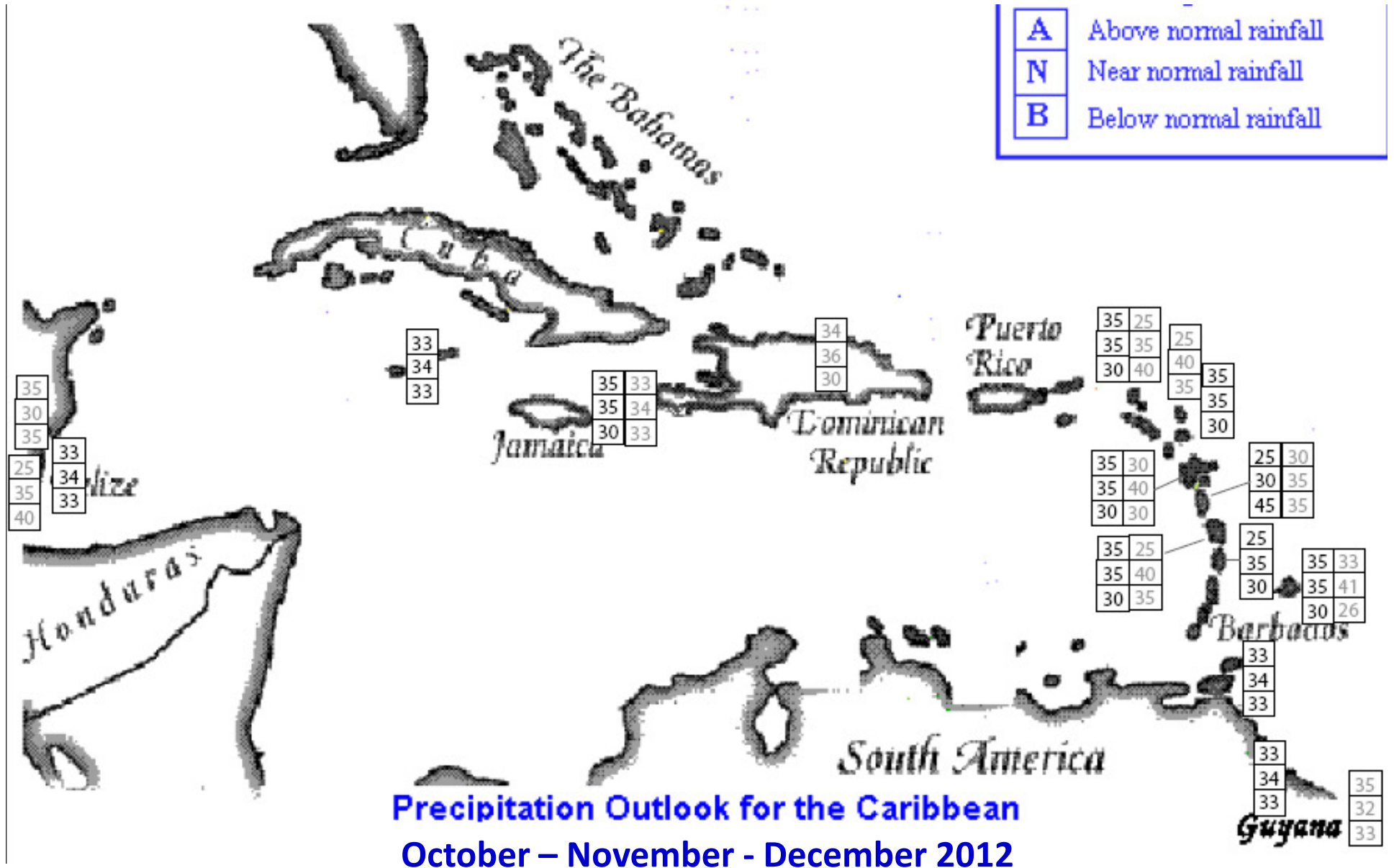
Figure provided by the International Research Institute (IRI) for Climate and Society (updated 16 Aug 2012).

Mid-Oct 2012 Plume of Model ENSO Predictions

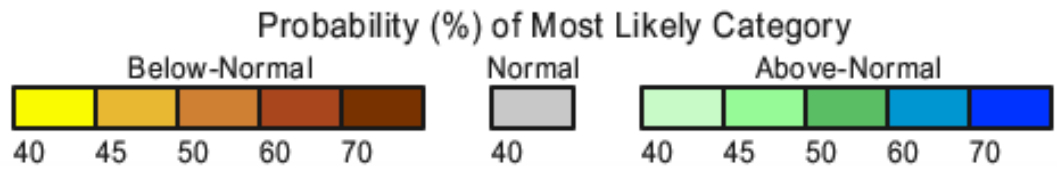
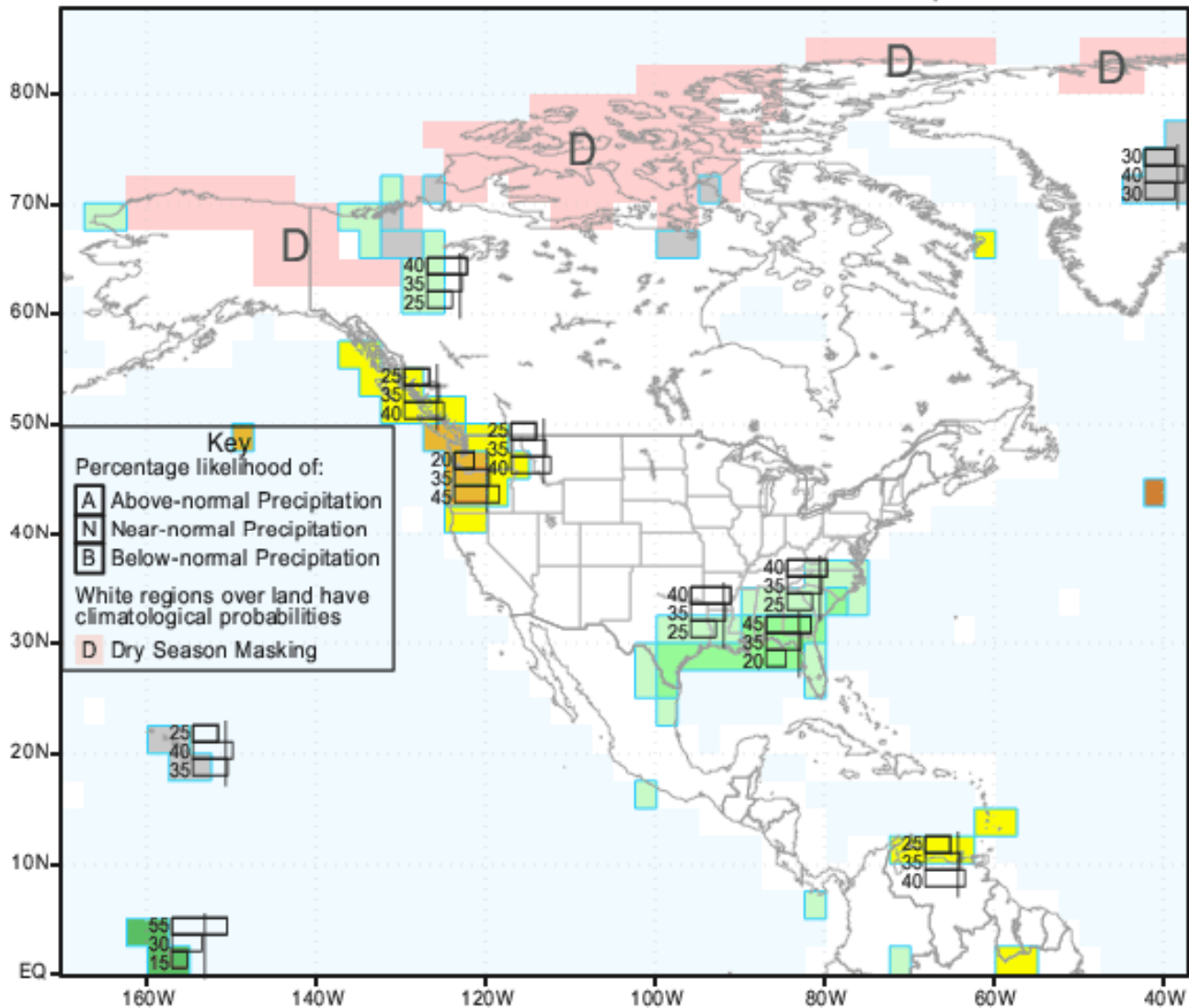


CPT Caribbean OND rainfall outlook map (black)

including national/sub-regional forecasts (gray)



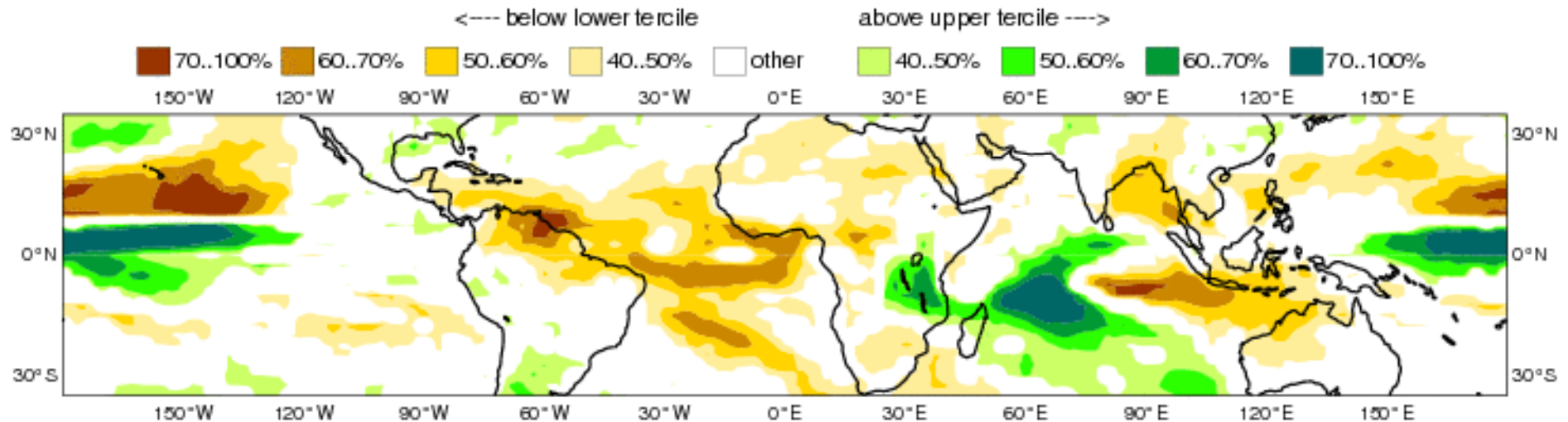
IRI Multi-Model Probability Forecast for Precipitation for October-November-December 2012, Issued September 2012



EUROSIP – multi-model rainfall forecast

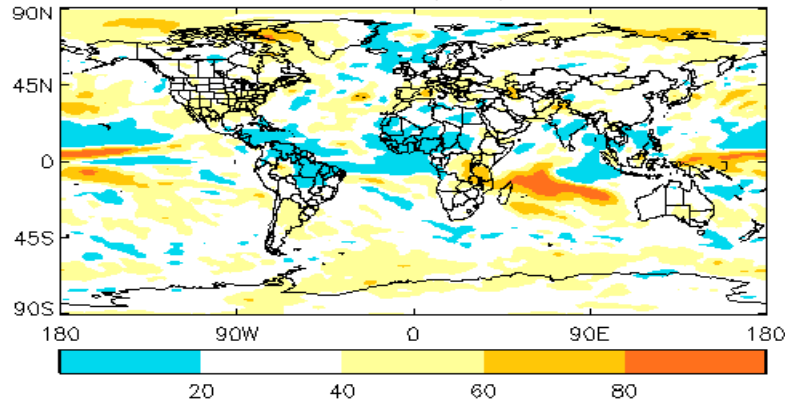
EUROSIP multi-model seasonal forecast
Prob(most likely category of precipitation)
Forecast start reference is 01/09/12
Unweighted mean

ECMWF/Met Office/Meteo-France/NCEP
OND 2012

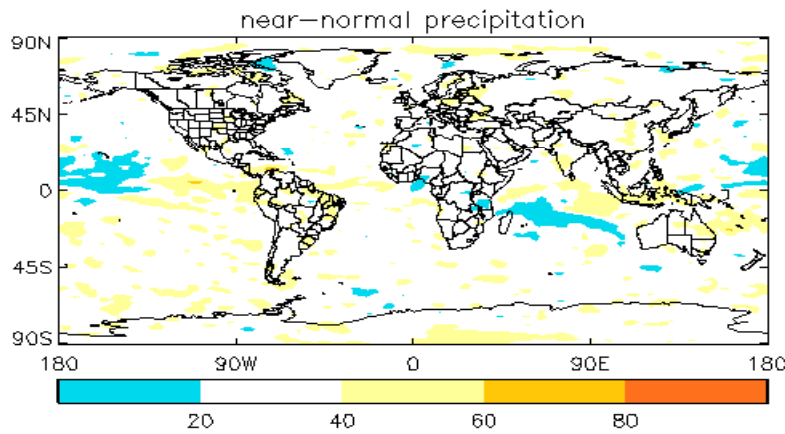
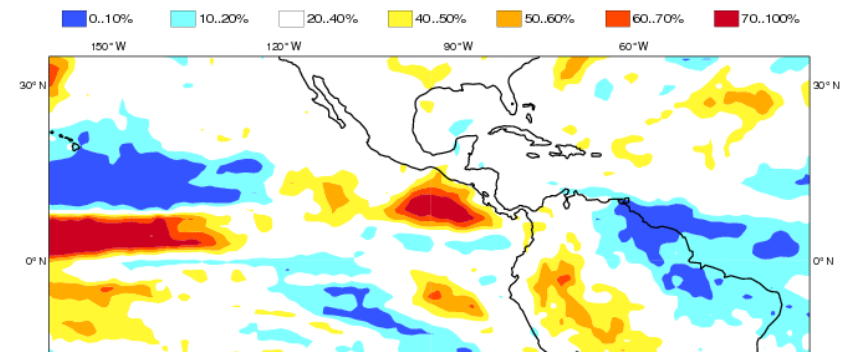


CM probabilistic rainfall forecasts – UKMO (left), ECMWF (right)

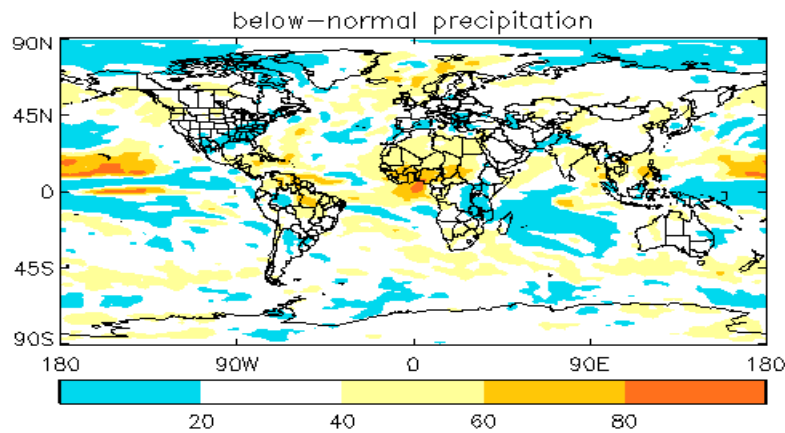
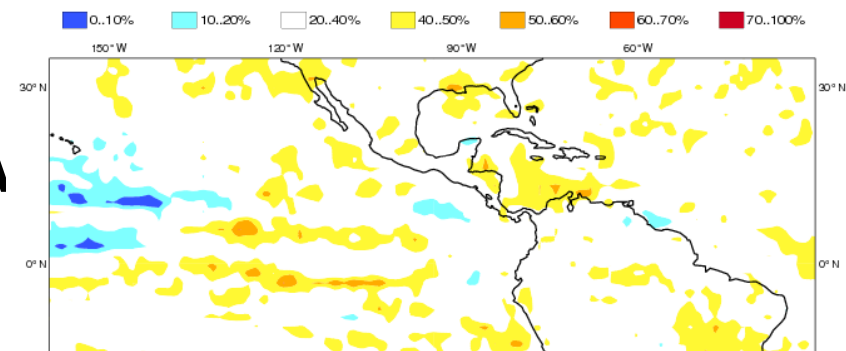
Probability of tercile categories Oct/Nov/Dec Issued Sep 2012
above-normal precipitation



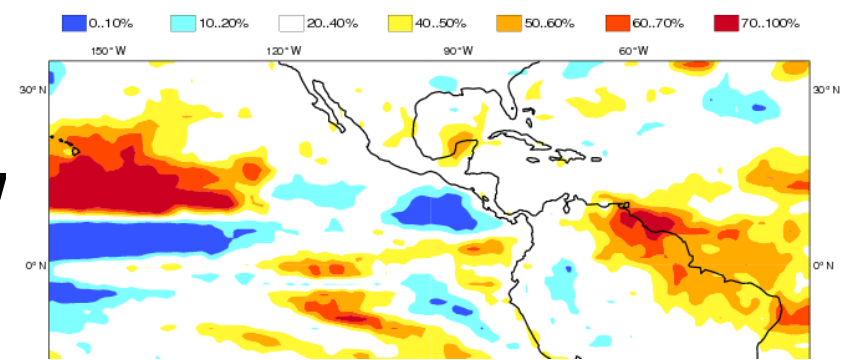
ABOVE



NORMA



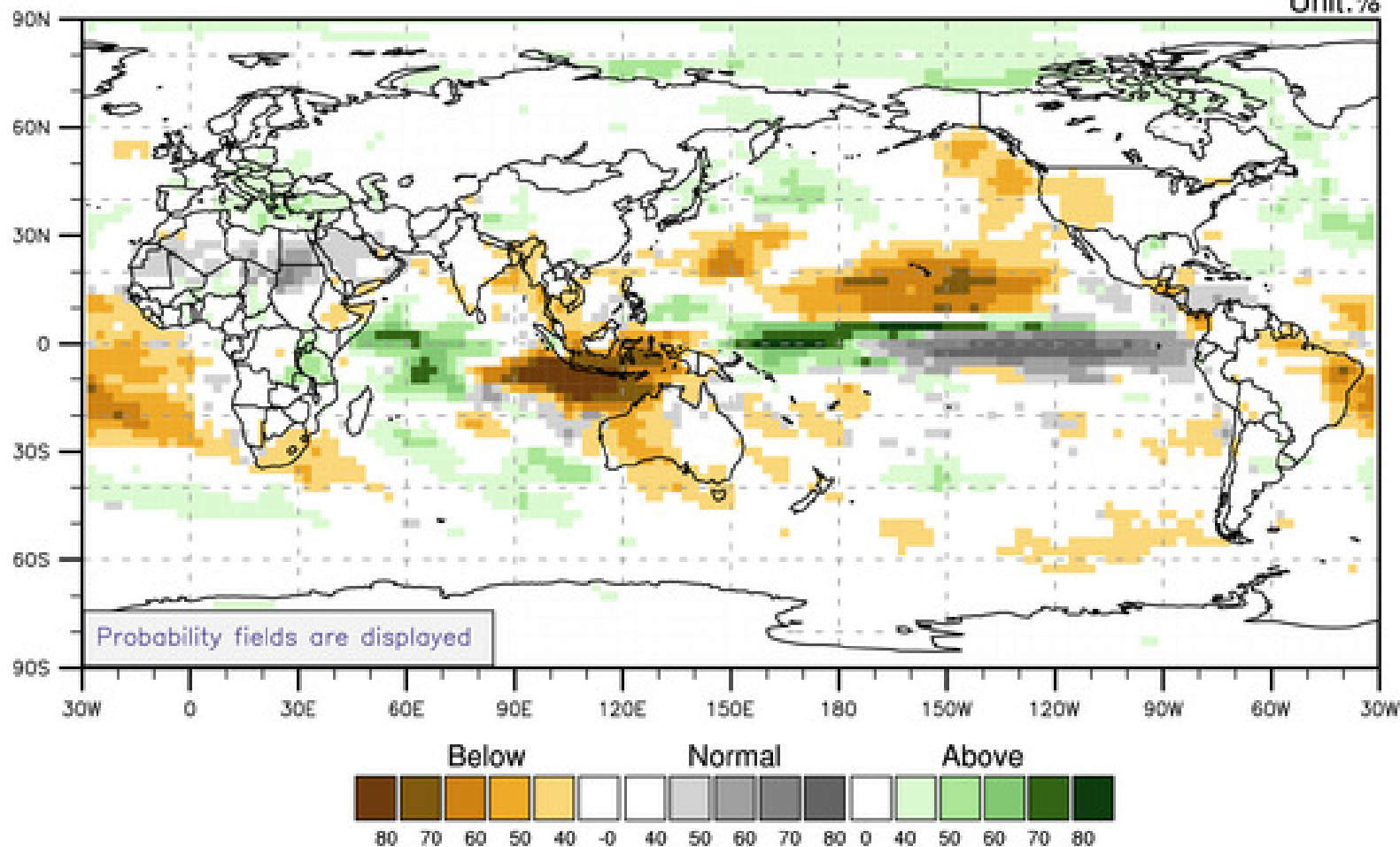
BELOW



APCC – ensemble rainfall forecast

Precipitation for October-December 2012

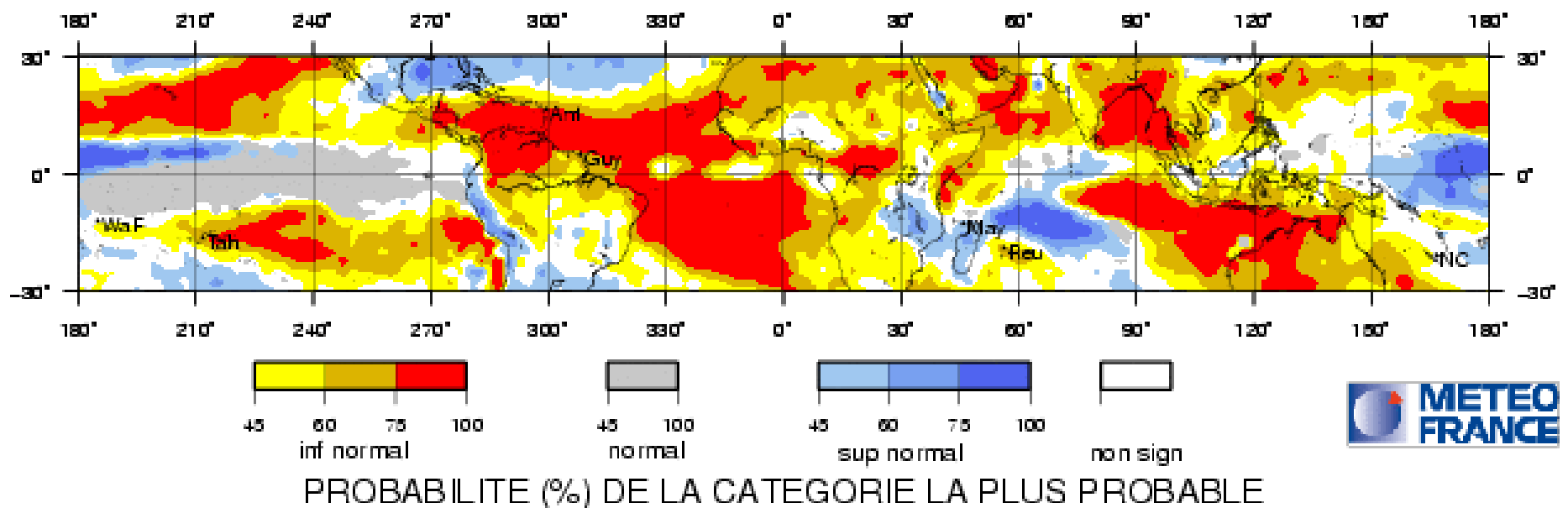
Unit: %

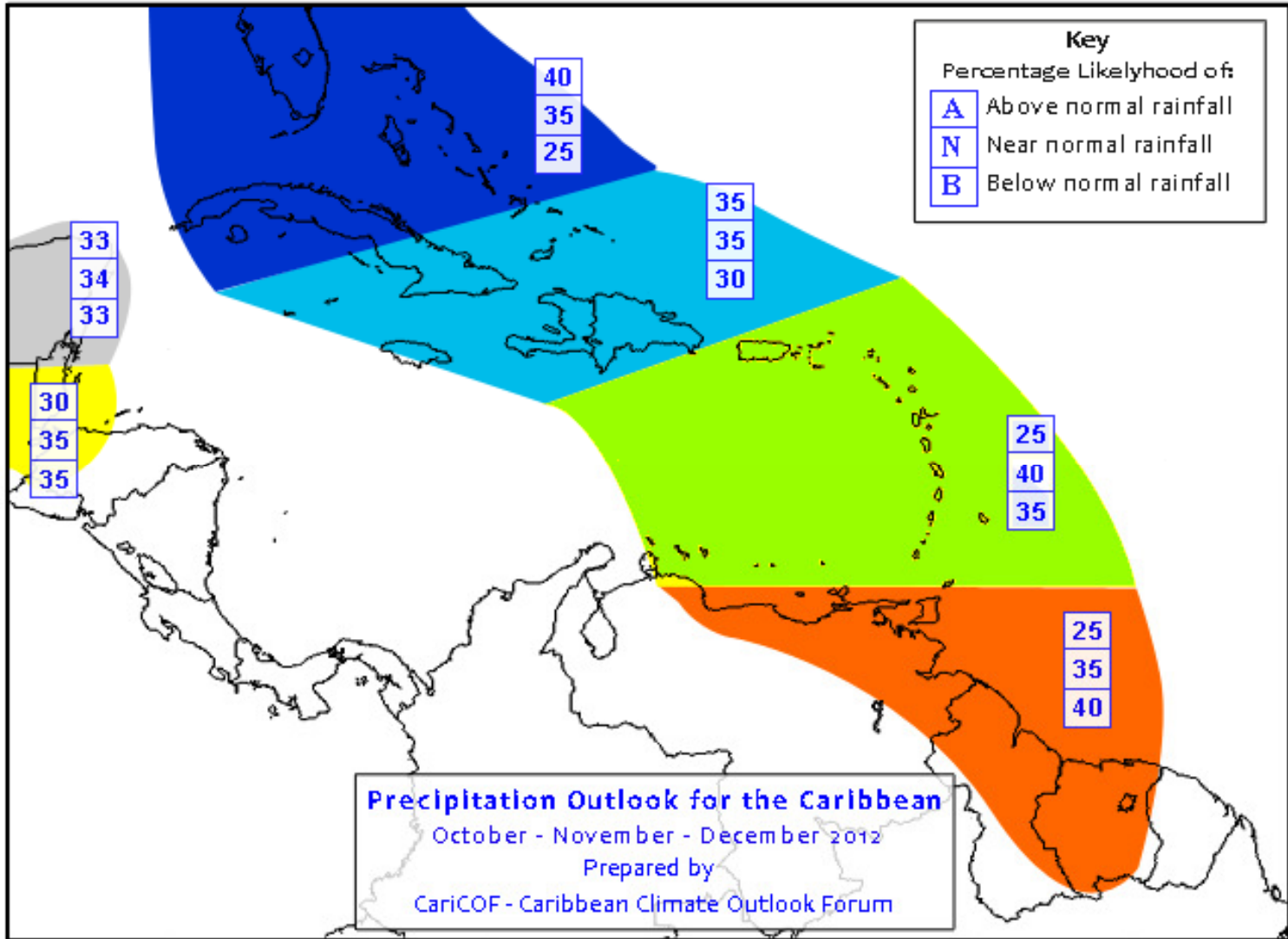


OND rainfall forecast METEOFRANCE

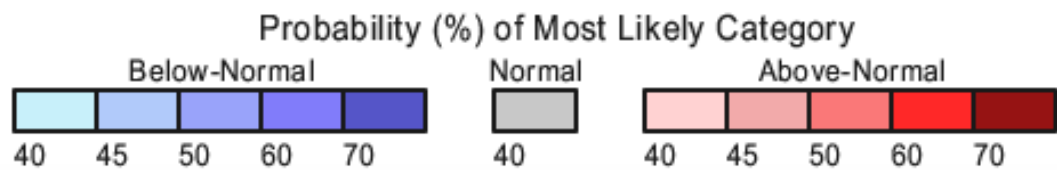
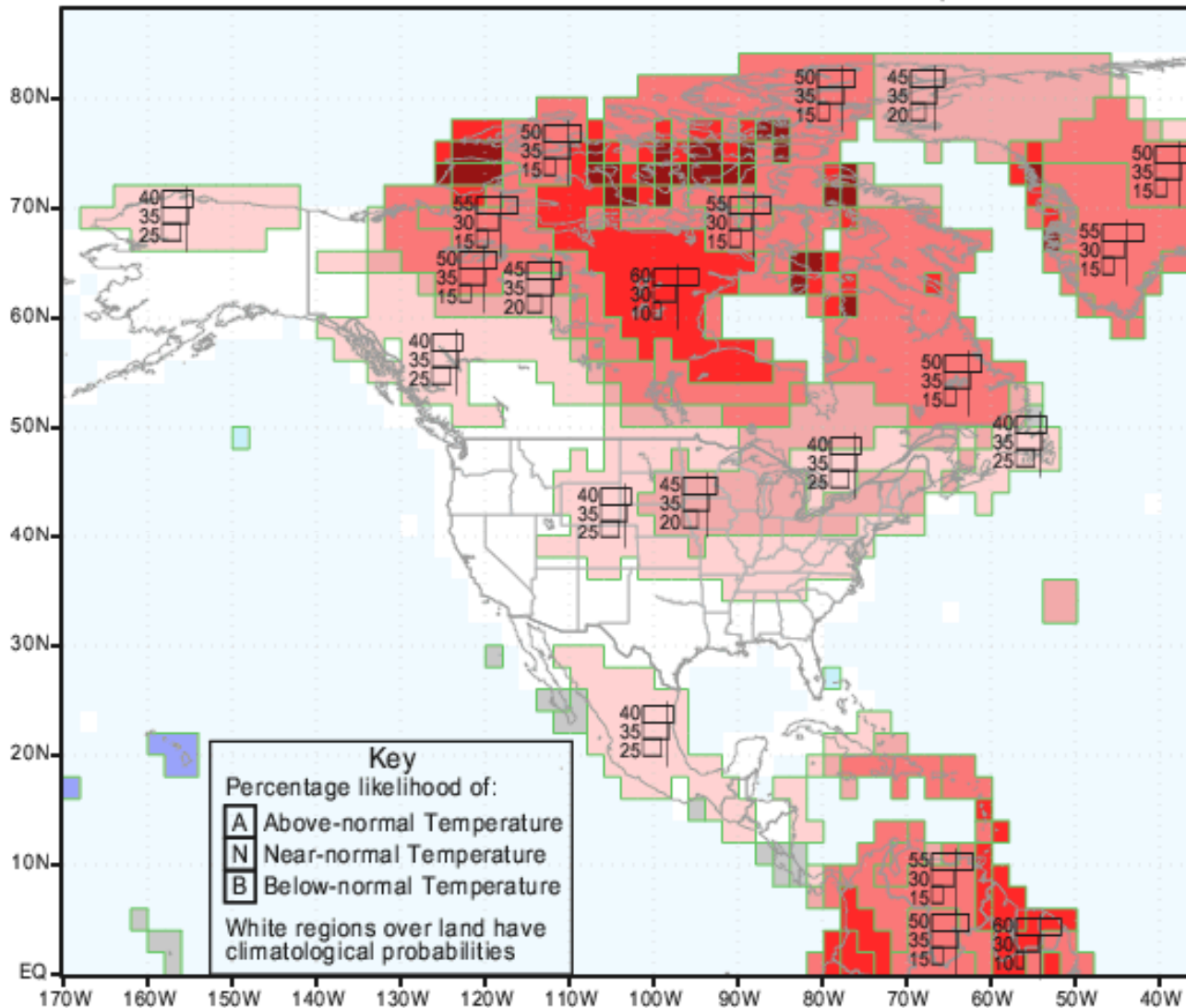
courtesy of Jean-Louis Maridet

PRECIPITATIONS PREVISION OCTOBRE-NOVEMBRE-DECEMBRE RUN DE SEPTEMBRE 2012





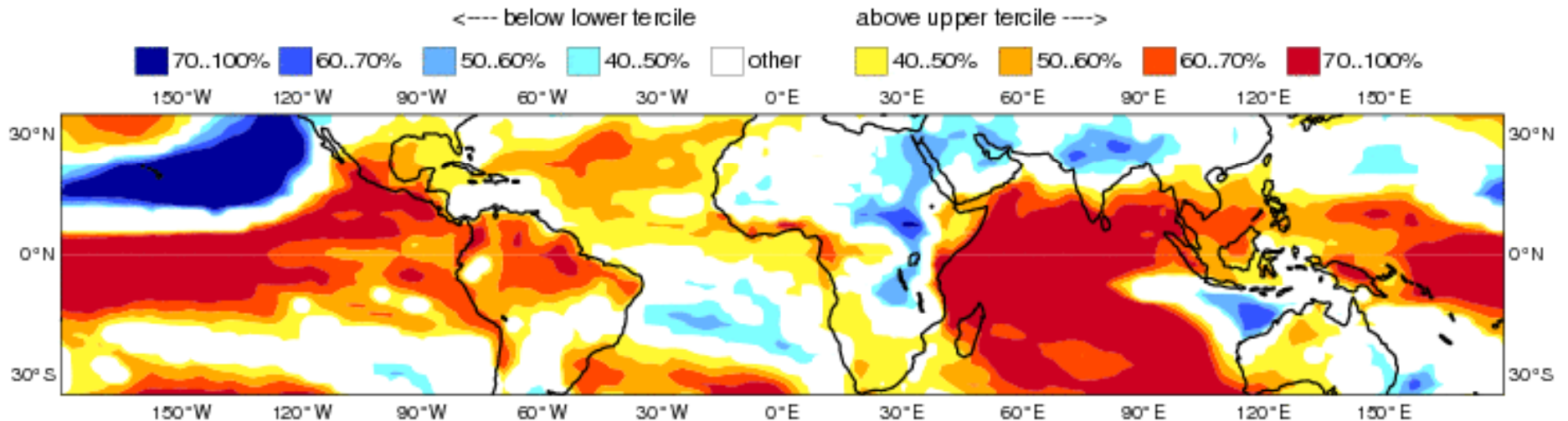
IRI Multi-Model Probability Forecast for Temperature for October-November-December 2012, Issued September 2012



EUROSIP – multi-model T_{2m} forecast

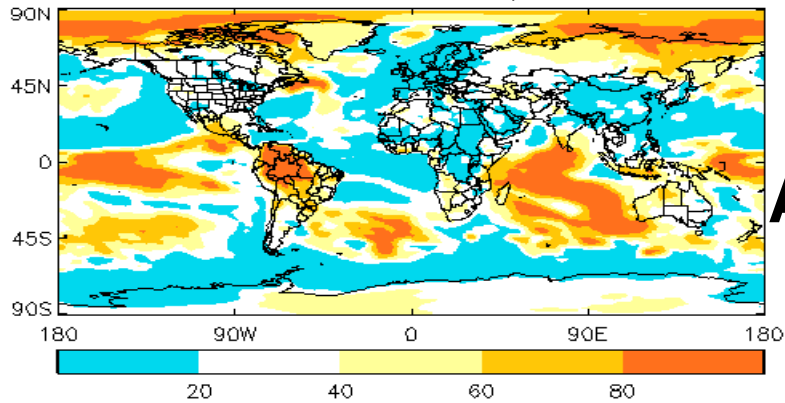
EUROSIP multi-model seasonal forecast
Prob(most likely category of 2m temperature)
Forecast start reference is 01/09/12
Unweighted mean

ECMWF/Met Office/Meteo-France/NCEP
OND 2012

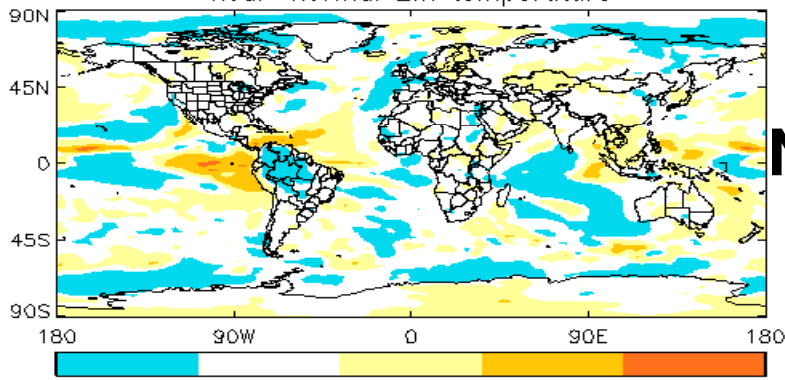


GCM probabilistic T_{2m} forecasts – UKMO (left), ECMWF (right)

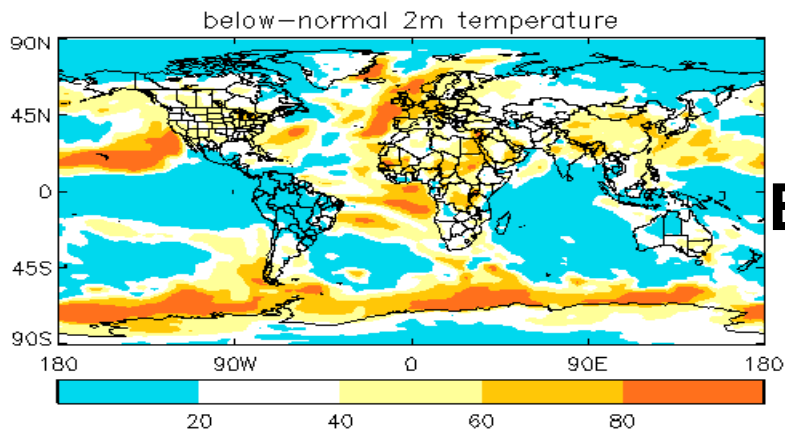
Probability of tercile categories Oct/Nov/Dec Issued Sep 2012
above-normal 2m temperature



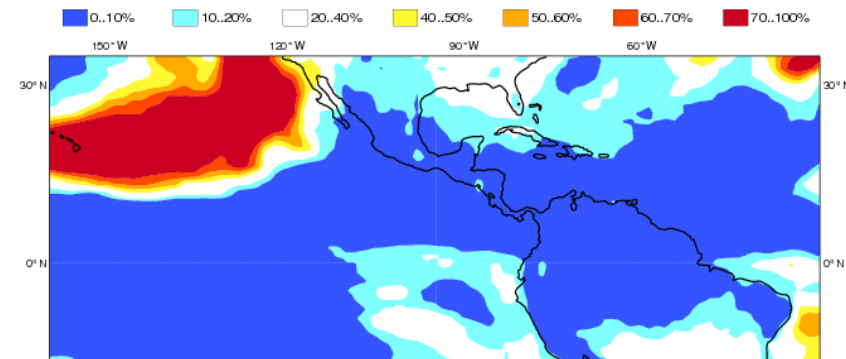
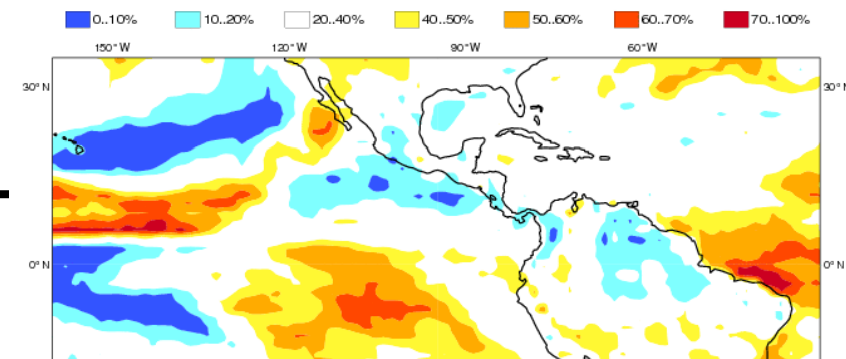
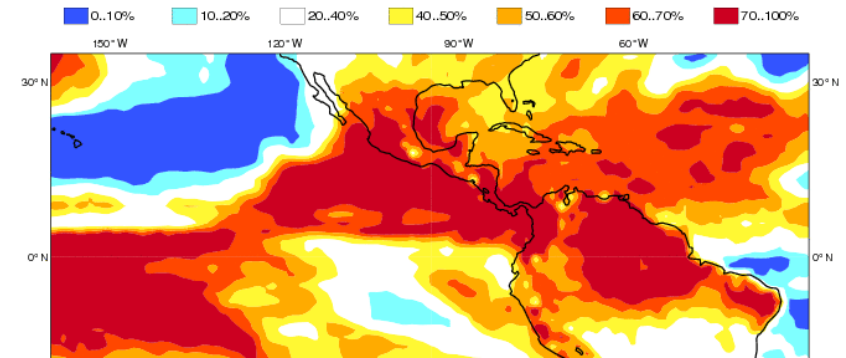
ABOVE



NORMAL

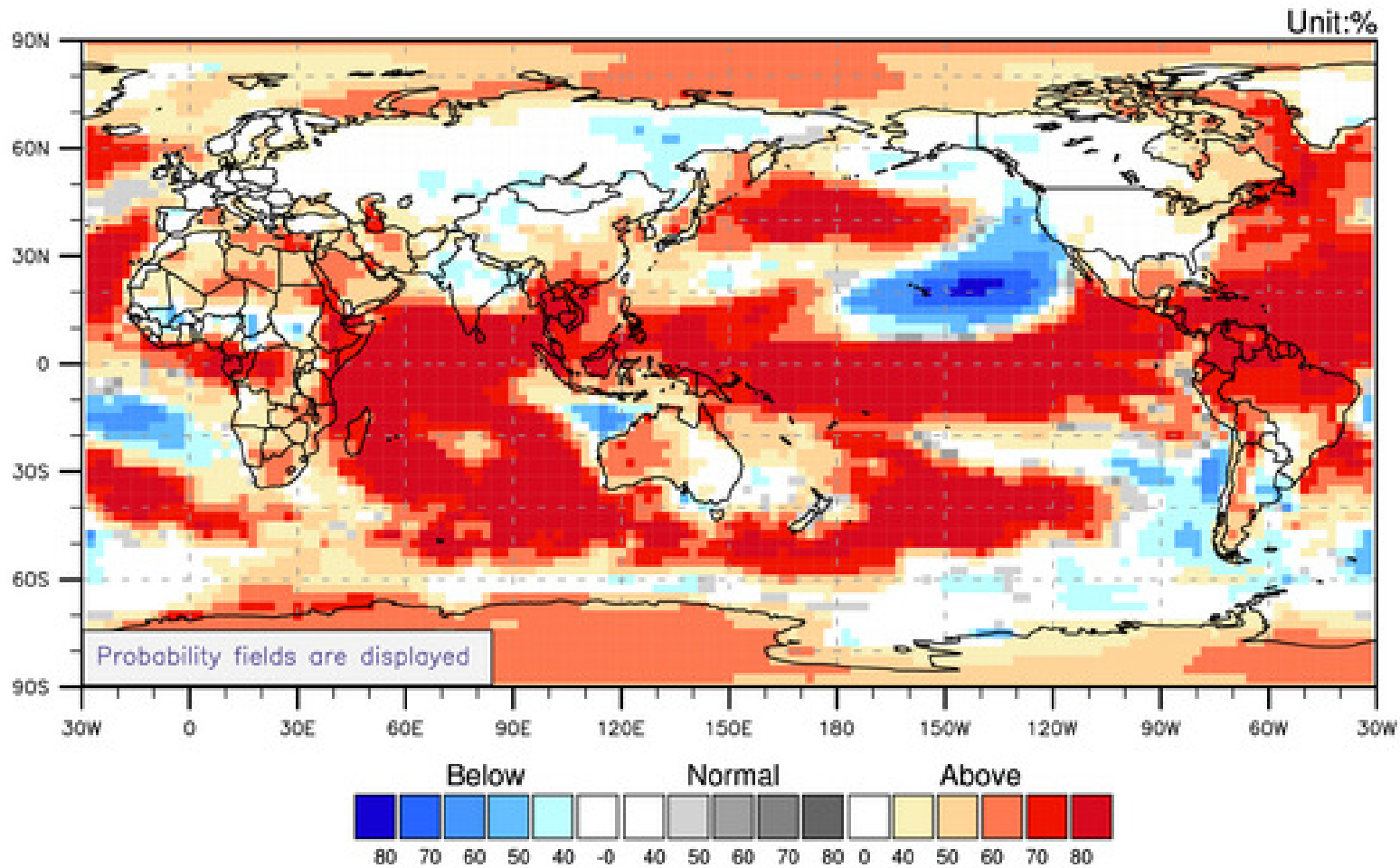


BELOW

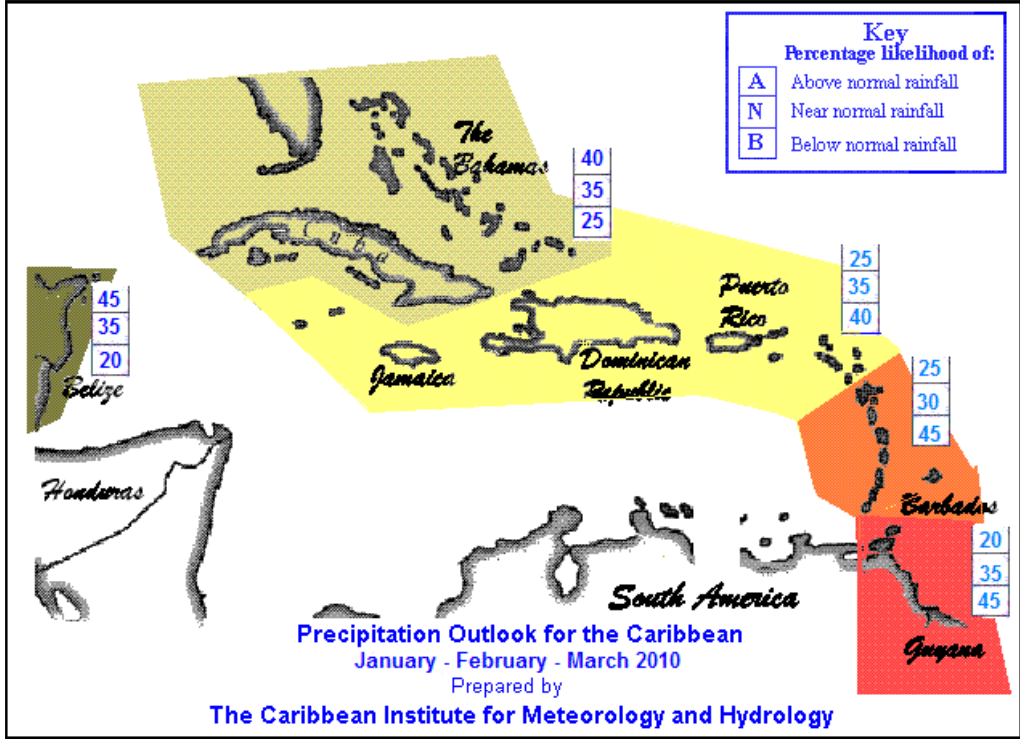


APCC – ensemble temperature forecast

Temperature at 2m for October-December 2012



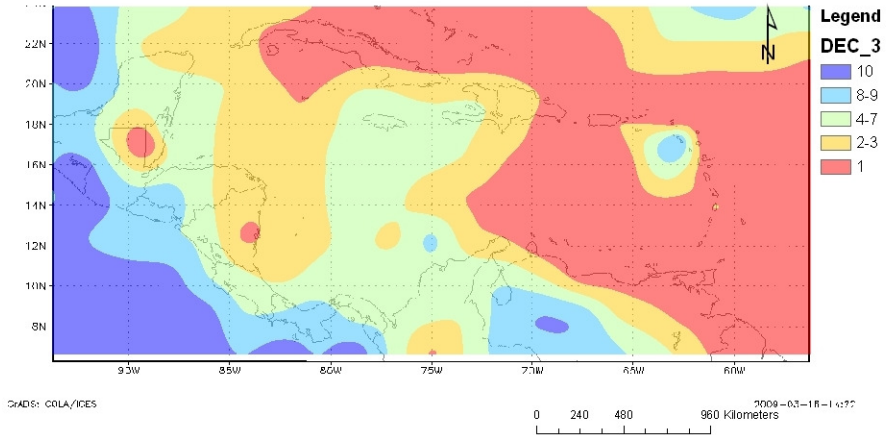
Caribbean probabilistic rainfall forecasts



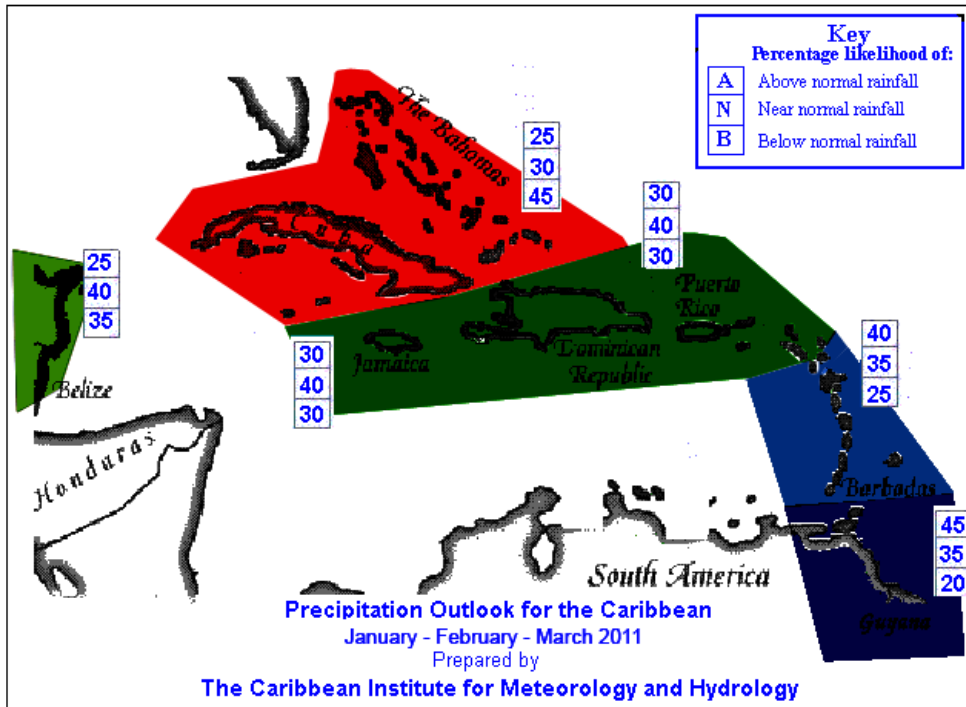
Deciles for January to March 2010

Drought and rainfall monitoring

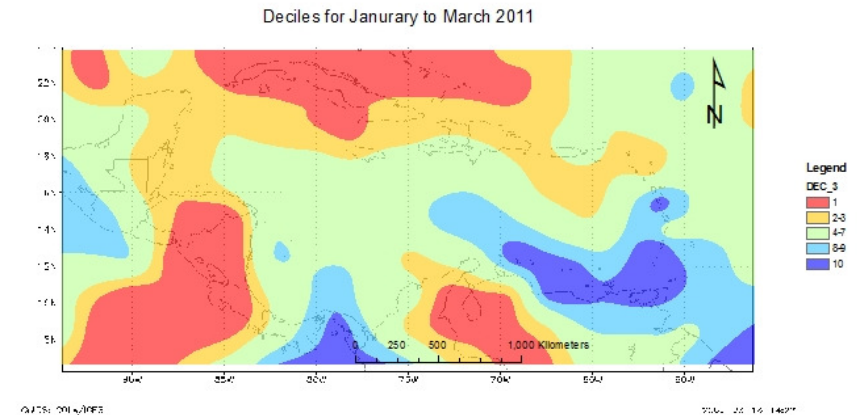
Irrigation efficiency necessary



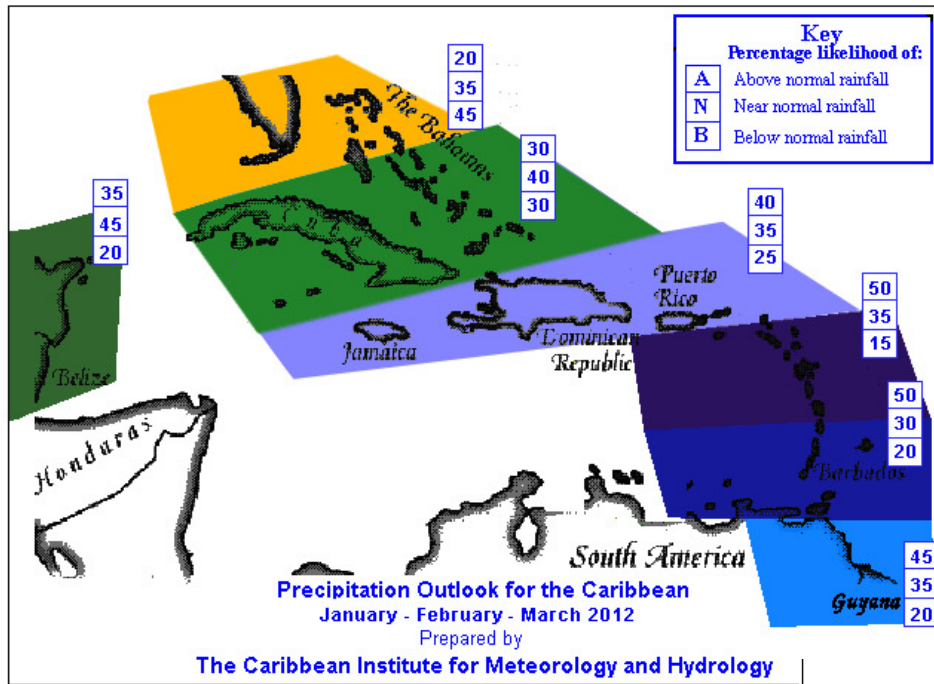
Caribbean probabilistic rainfall forecasts



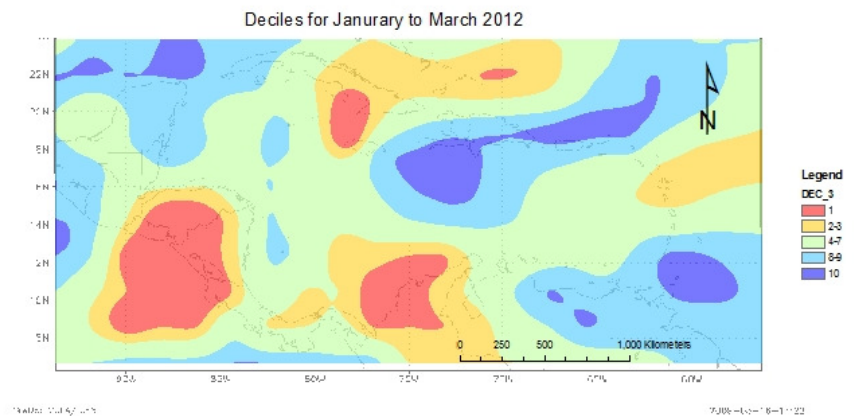
Drought and rainfall monitoring



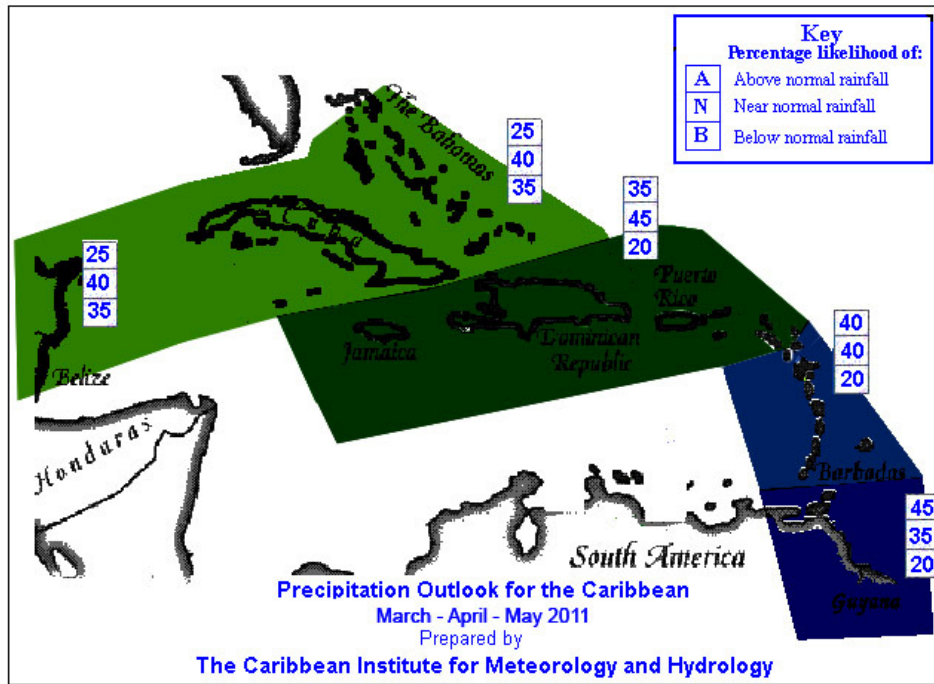
Caribbean probabilistic rainfall forecasts



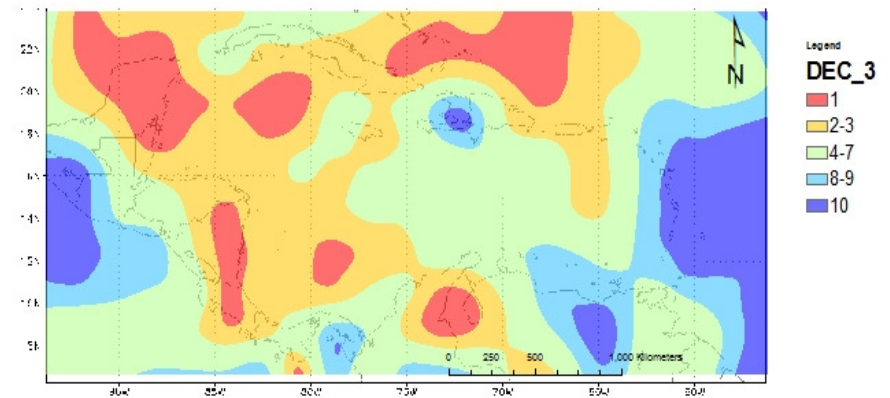
Drought and rainfall monitoring



Caribbean probabilistic rainfall forecasts



Deciles for March to May 2011



Drought and rainfall monitoring