



Seasonal Climate Prediction Products

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Definitions



“I don’t like definitions”
Mark Knopfler

- *Seasonal outlook:*

Description of averaged weather parameters expressed as a departure from climate values for that season.

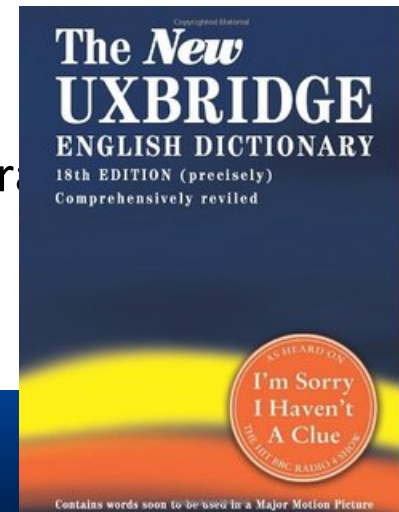
WMO

Definitions

- *Bacteria*: returning more upset than when you left
- *Biased*: having four buttocks
- *Cardiology*: the study of knitwear
- *Climate*: a fellow mountaineer
- *Colonnade*: a fizzy enema
- *Diarrhoea*: an unattractive bottom
- *Forecast*: fishing before anyone else
- *Hailstone*: formal greeting for Mick Jagger
- *Psychiatric*: guessing right three times in a row
- *Satellite*: burnt behind
- *Shingles*: Shaun Connery's definition of bachelors
- *Seasonal outlook*: description of averaged weather patterns as a departure from climate values for that season



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Definitions

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- *Seasonal outlook:*

A description of the statistics of expected weather one to twelve (?) months in advance.

In practice most outlooks are:

- for the next three to four months
- are averages (or totals for rainfall)
- are expressed as relative to what has happened in the past

Stages of a heat wave early warning system

UNITED KINGDOM

Level 0	Long-term planning - All year
Level 1	Heatwave and Summer preparedness programme - 1 June – 15 September
Level 2	Heatwave is forecast – Alert and readiness - 60% risk of heatwave in the next 2 to 3 days
Level 3	Heatwave Action - temperature reached in one or more Met Office National Severe Weather Warning Service regions
Level 4	Major incident – Emergency response - central government will declare a Level 4 alert in the event of severe or prolonged heatwave affecting sectors other than health

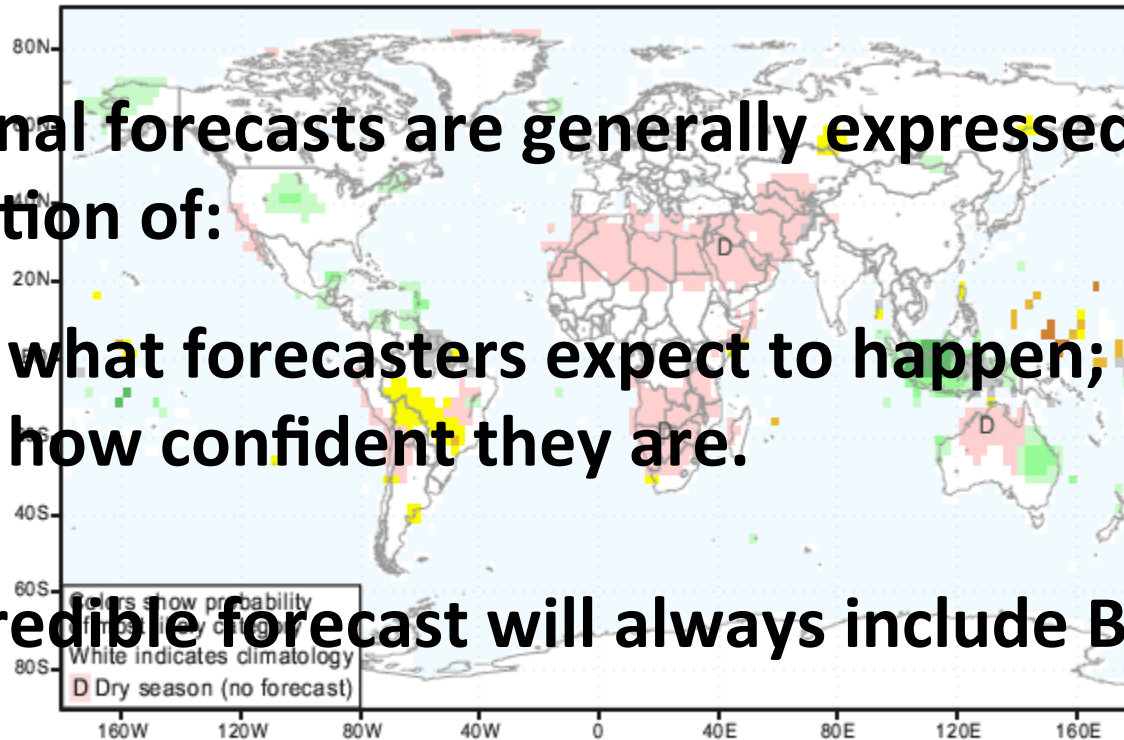
Seasonal forecast example

IRI Multi-Model Probability Forecast for Precipitation
for June-July-August 2016, Issued May 2016

Seasonal forecasts are generally expressed as an indication of:

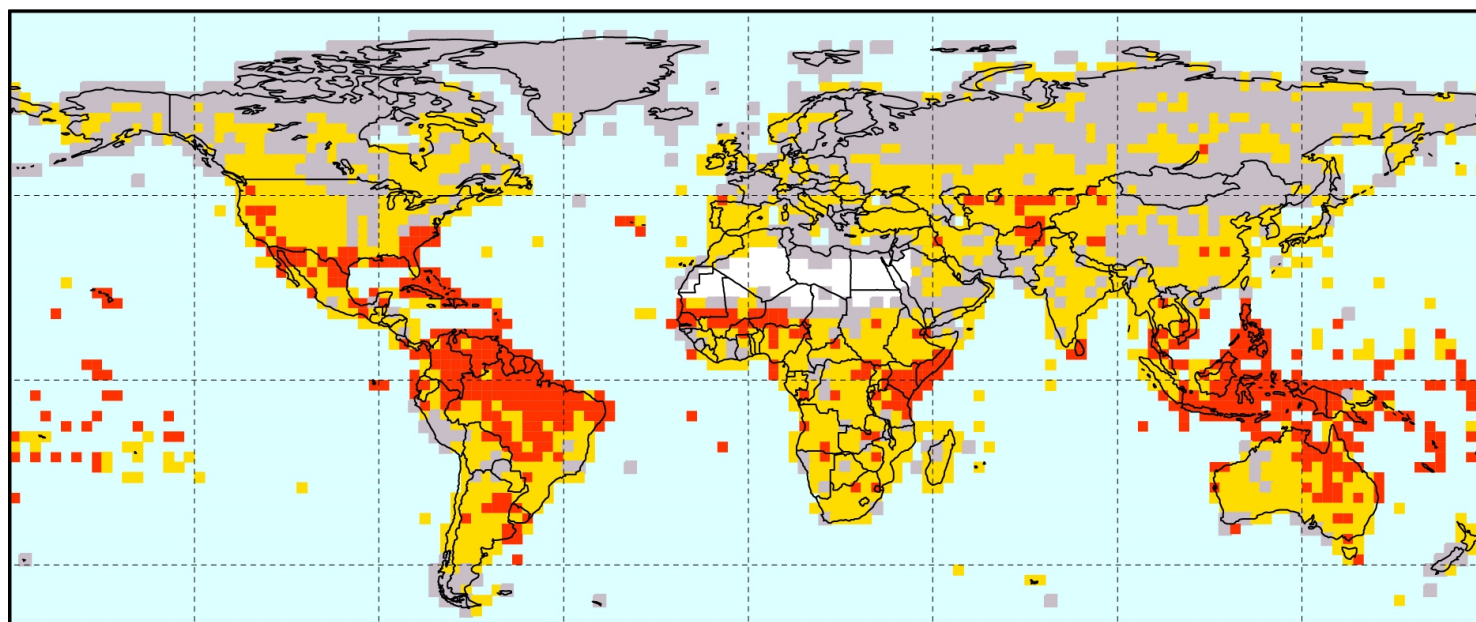
- A. what forecasters expect to happen;
- B. how confident they are.

Any credible forecast will always include B.



Where do seasonal forecasts work?

How well can we predict seasonal rainfall totals?

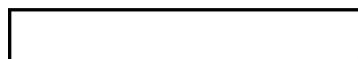


Unknown

Not well

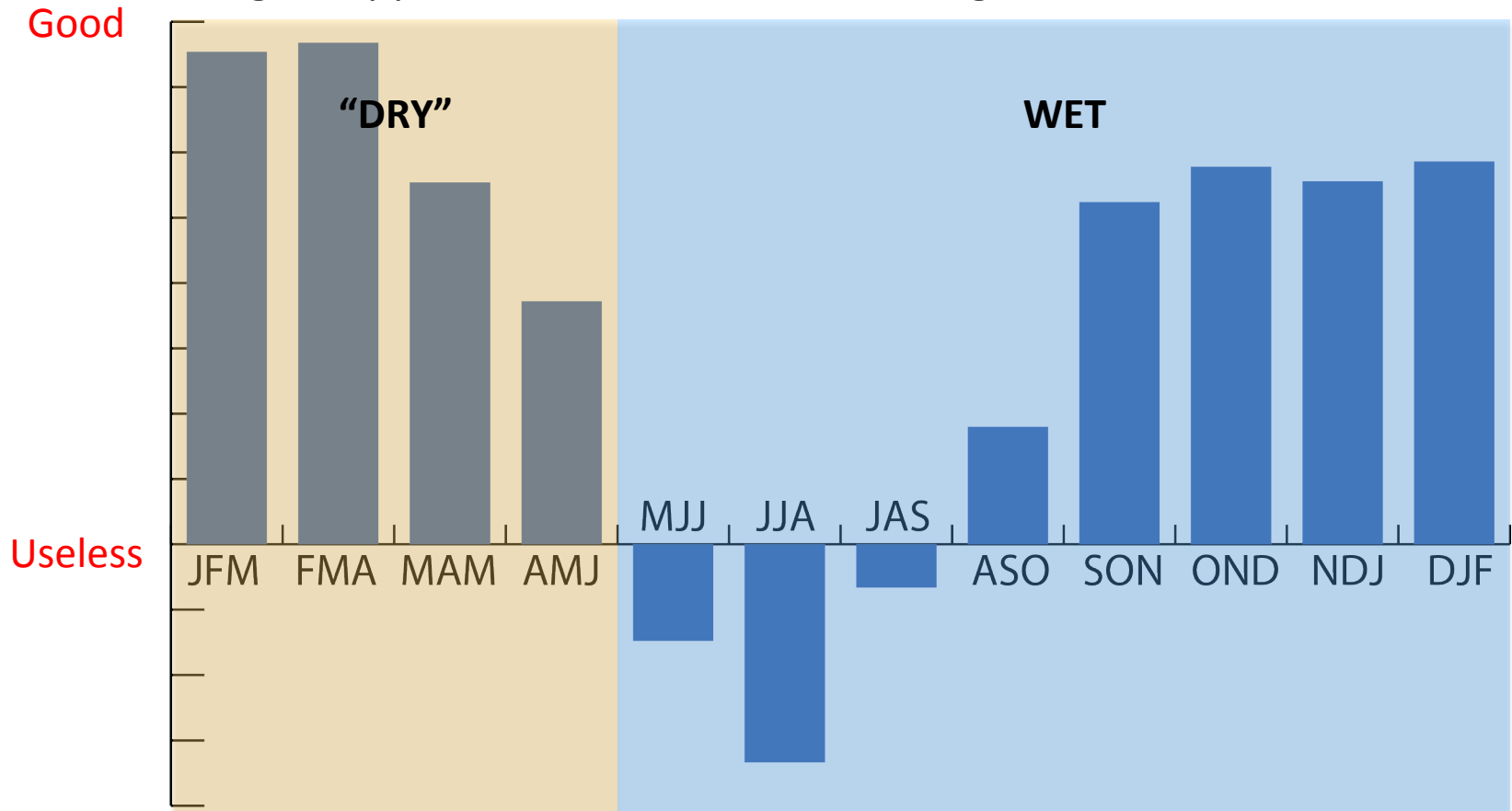
Somewhat well

Well



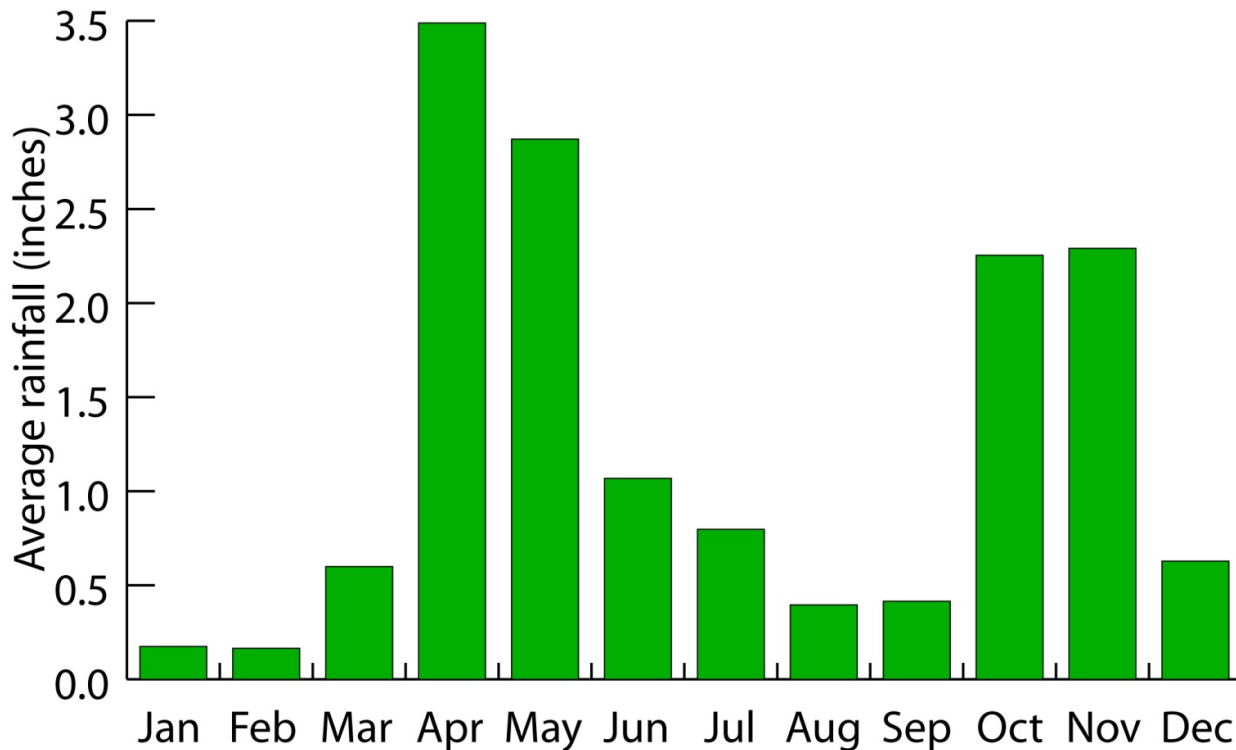
When do seasonal forecasts work?

Predicting Philippines rainfall for the following 3 months



When do seasonal forecasts work?

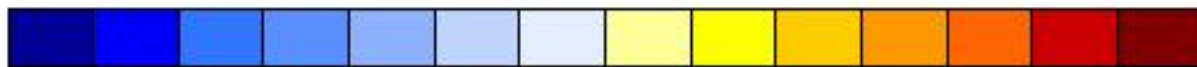
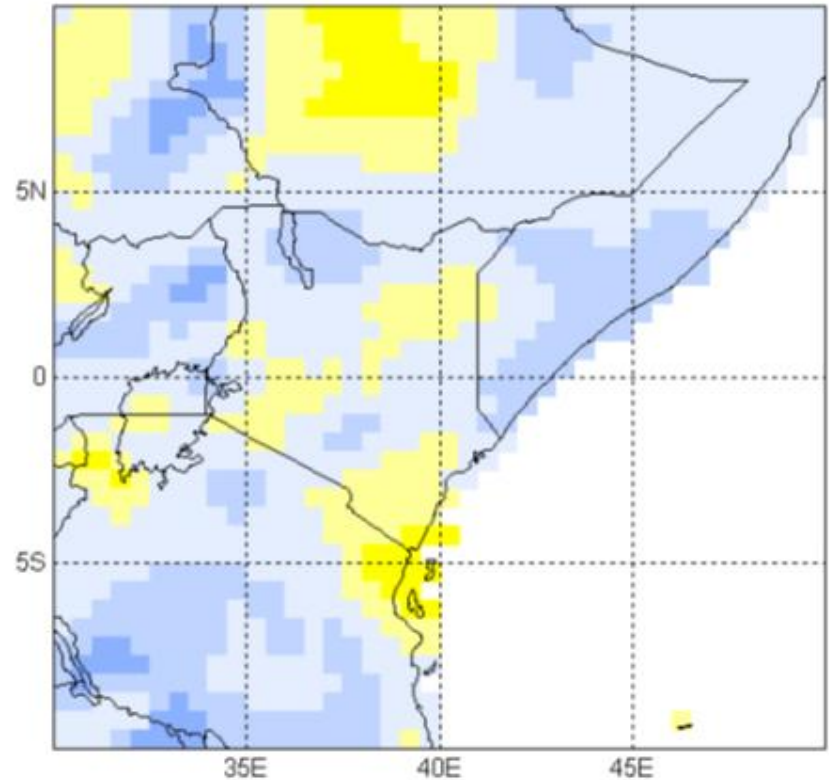
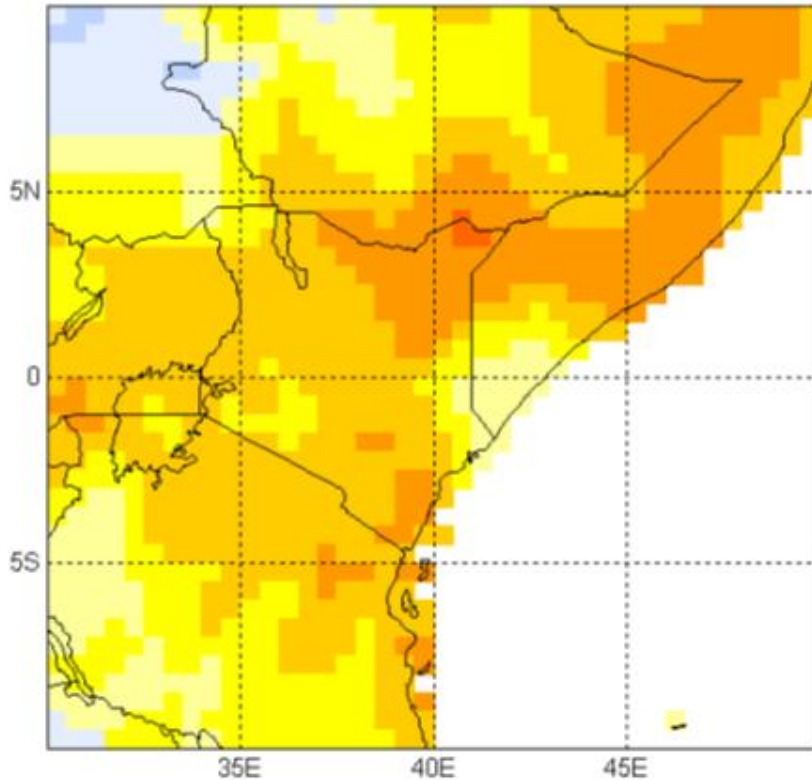
- Southern Somalia has two rainy seasons



When do seasonal forecasts work?

Oct – Dec

Mar – May



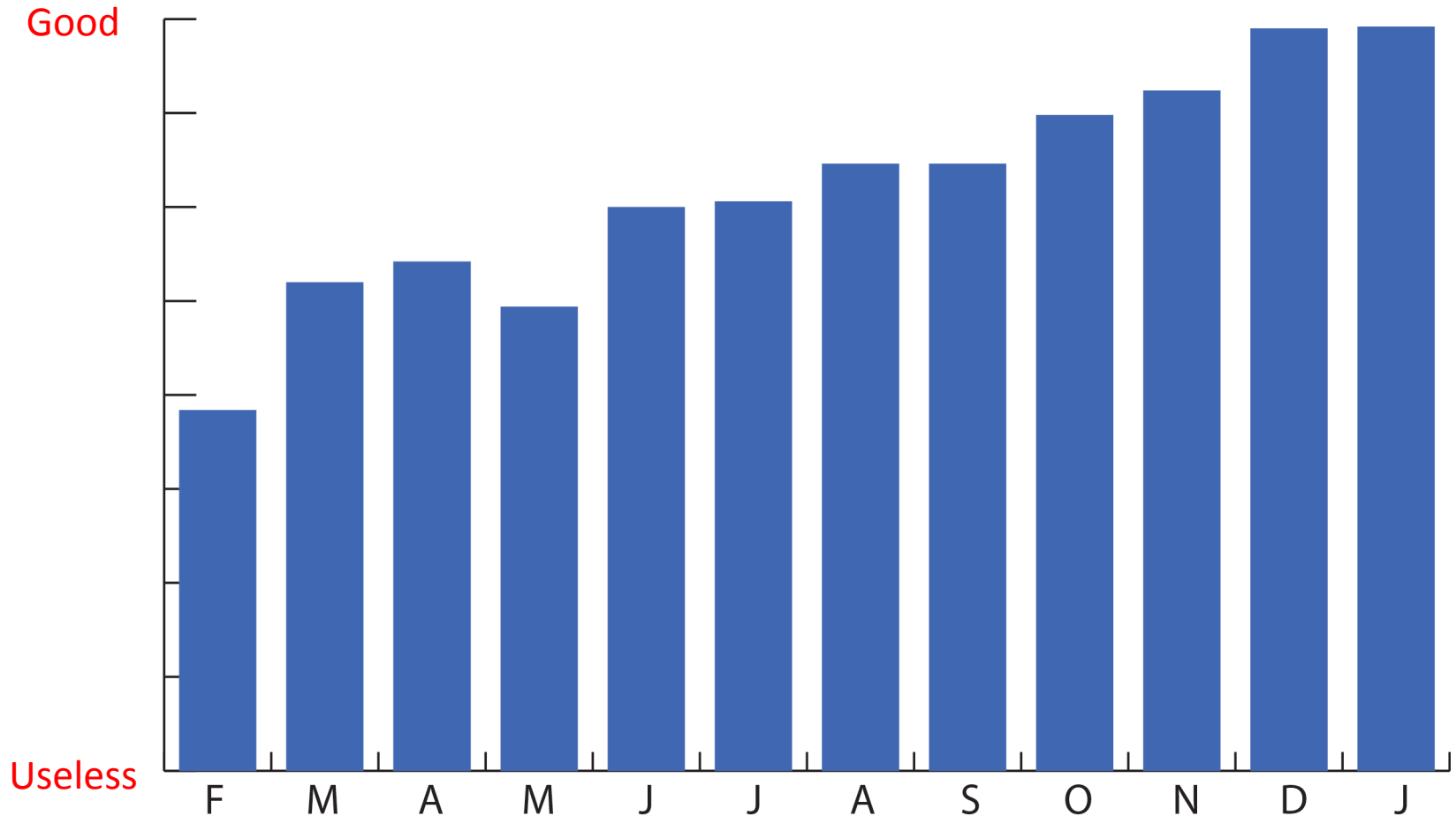
perfectly bad

useless

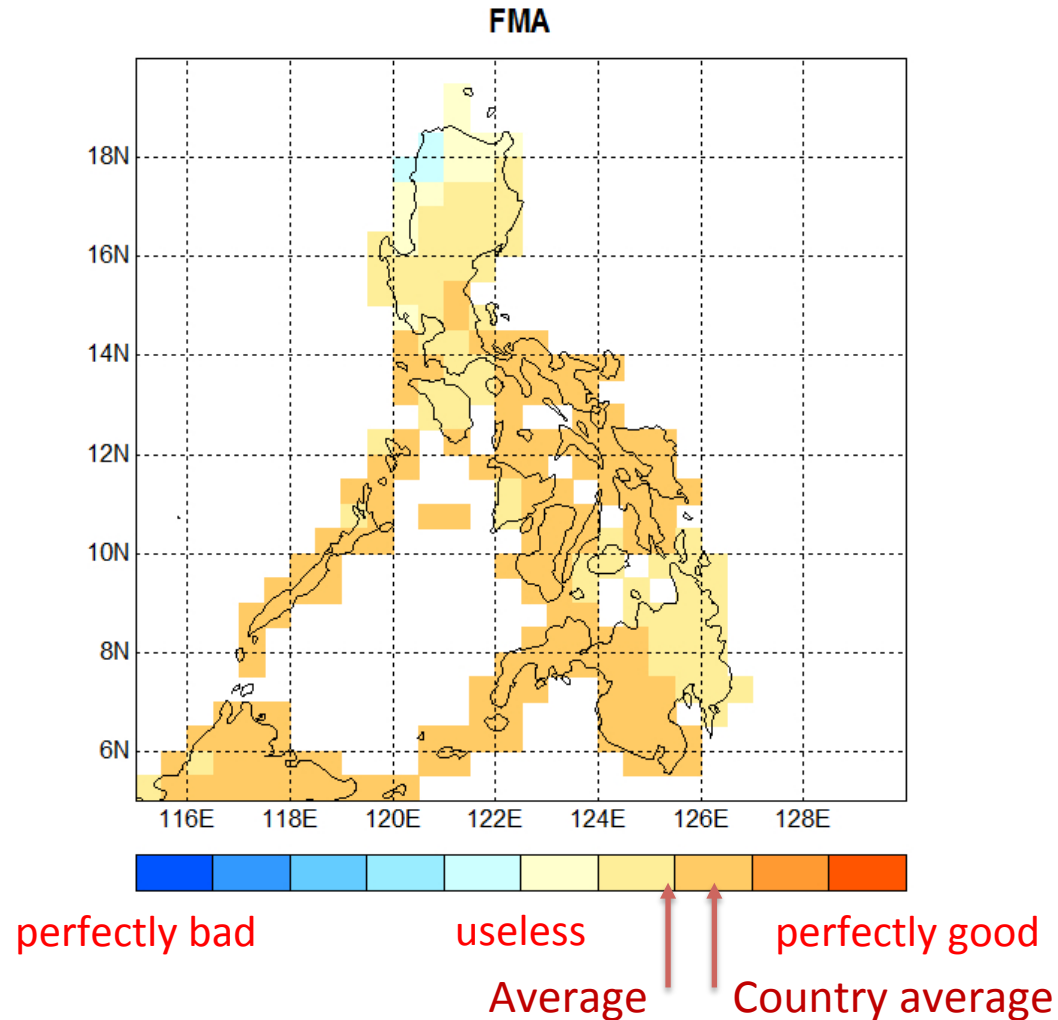
perfectly good

How far in advance can we forecast?

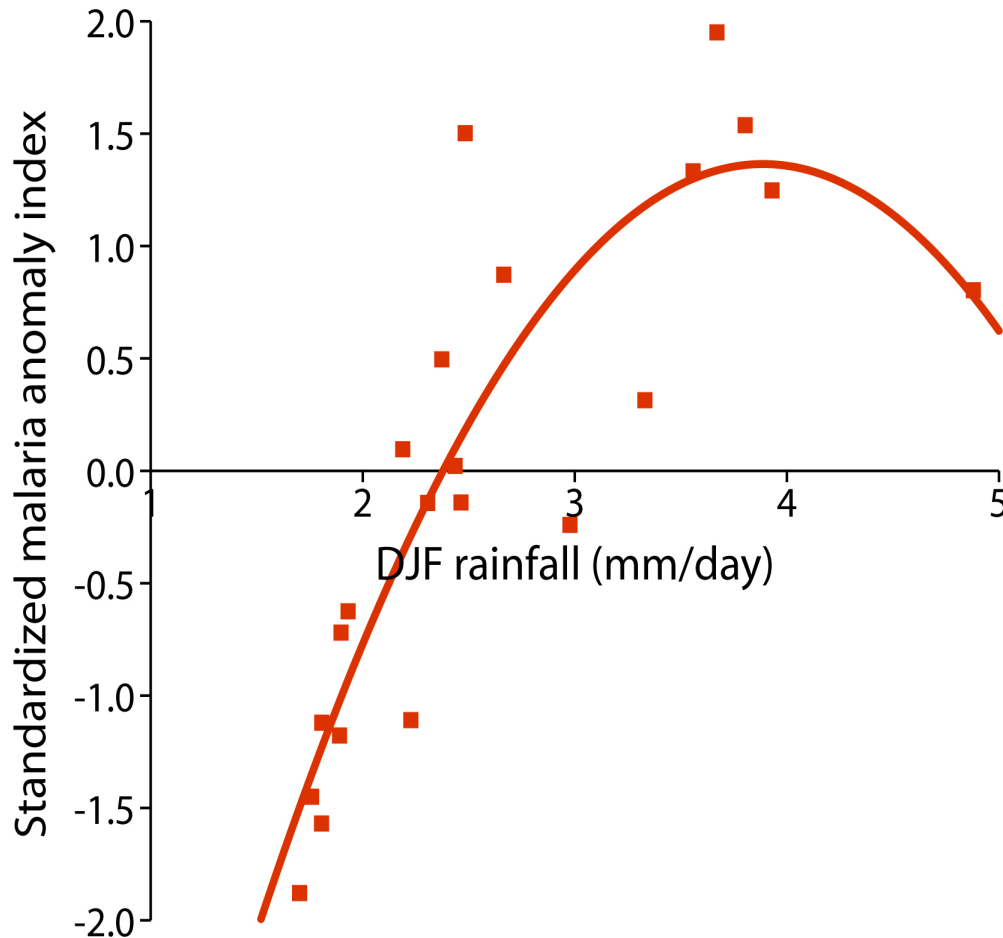
Skill at predicting Philippines rainfall for FMA



At what scale do the forecasts work?



Are gross averages useful?



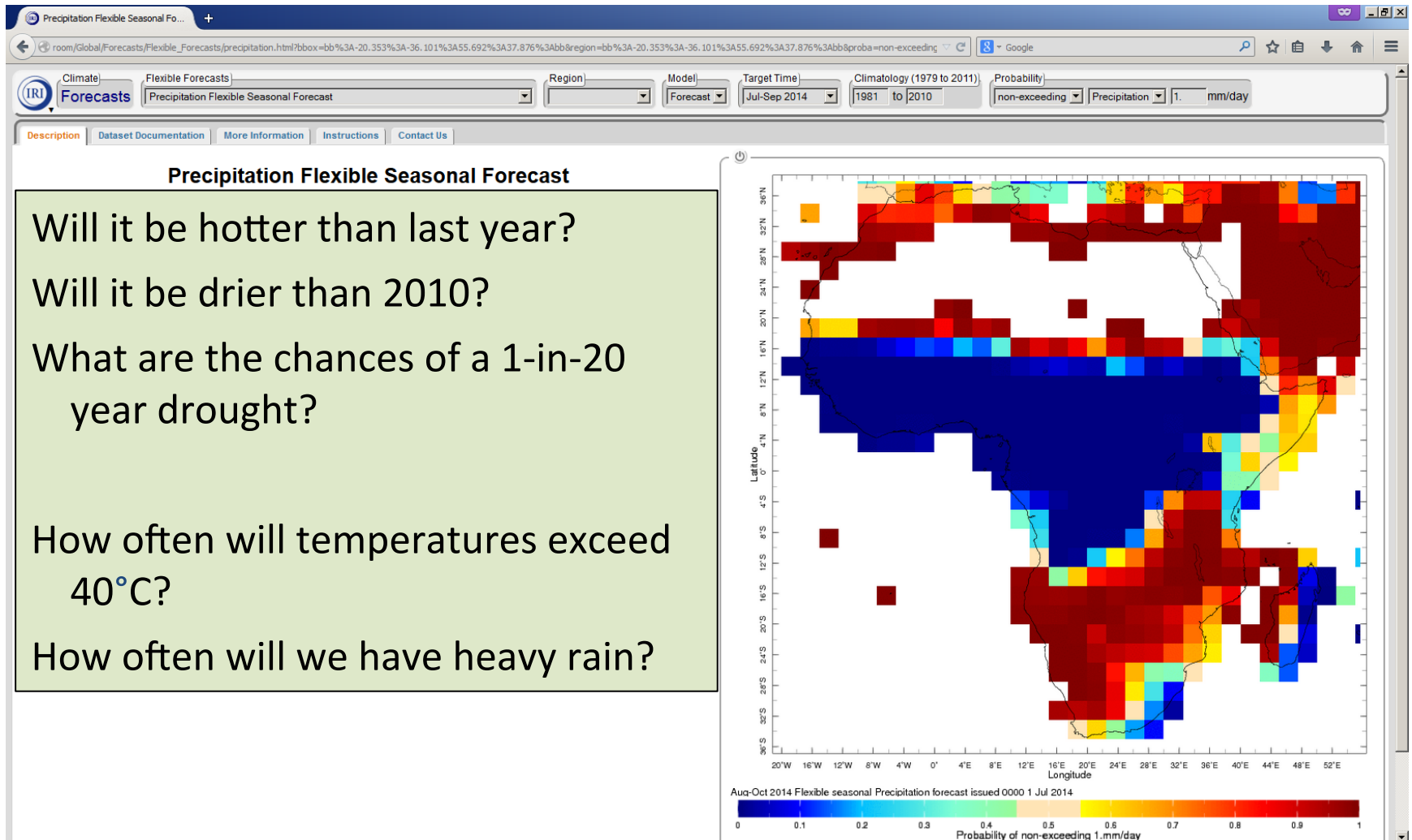
Malaria incidence in Botswana is strongly related to country-wide rainfall during the wet season (Dec – Feb).

There is a strong effect of ENSO:

El Niño: dry; low incidence

La Niña: wet; high incidence

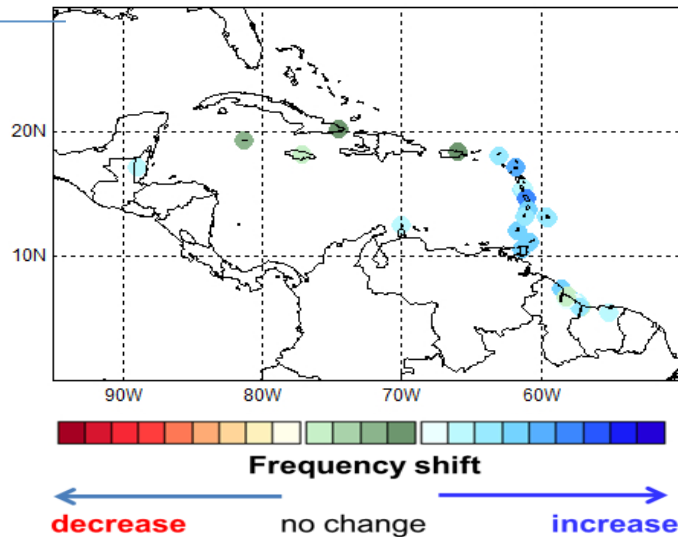
Flexible forecasts



Extreme wet spells frequency forecast

Forecast for: June to August 2016

JJA 2016 frequency of *extreme (top 1%)*
3-day wet spells



USUALLY: Up to 1 extreme wet spell occurs between June & August.

FORECAST:

There is an increased chance of extreme wet spells in the Lesser Antilles (*medium to high confidence*), whereas no frequency shifts are forecast elsewhere.

IMPLICATION: Flash flood potential developing.

Summary

Seasonal forecasts indicate expected weather statistics for the next few months.

Where do they work best?

- In the tropics

When do they work best?

- That depends!

What can we forecast?

- Most commonly rainfall for the next few months, but temperature forecasts are better

How far in advance?

- Not much more than 6 months, but there are exceptions

Summary

How much detail can we forecast?

- Forecasts are best when they are averaged over large areas, but can be made for specific locations (using stations or e.g., ENACTS data).
- It is valuable to think broadly about how forecasts could be used at different scales.

Can the forecasts be made more useful?

- That depends on regional and national capacity
- In principle it may be possible to forecast:
 - ✓ extreme events
 - ✓ wet and dry or hot and cold spells
 - ✓ derived parameters e.g., apparent temperatures