

A satellite view of the Earth showing the African continent highlighted in shades of green and yellow, set against the blue oceans and white clouds of the rest of the planet. The text is overlaid on the image.

Weather Research in Africa: Science for Society

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Motivation & Research Needs

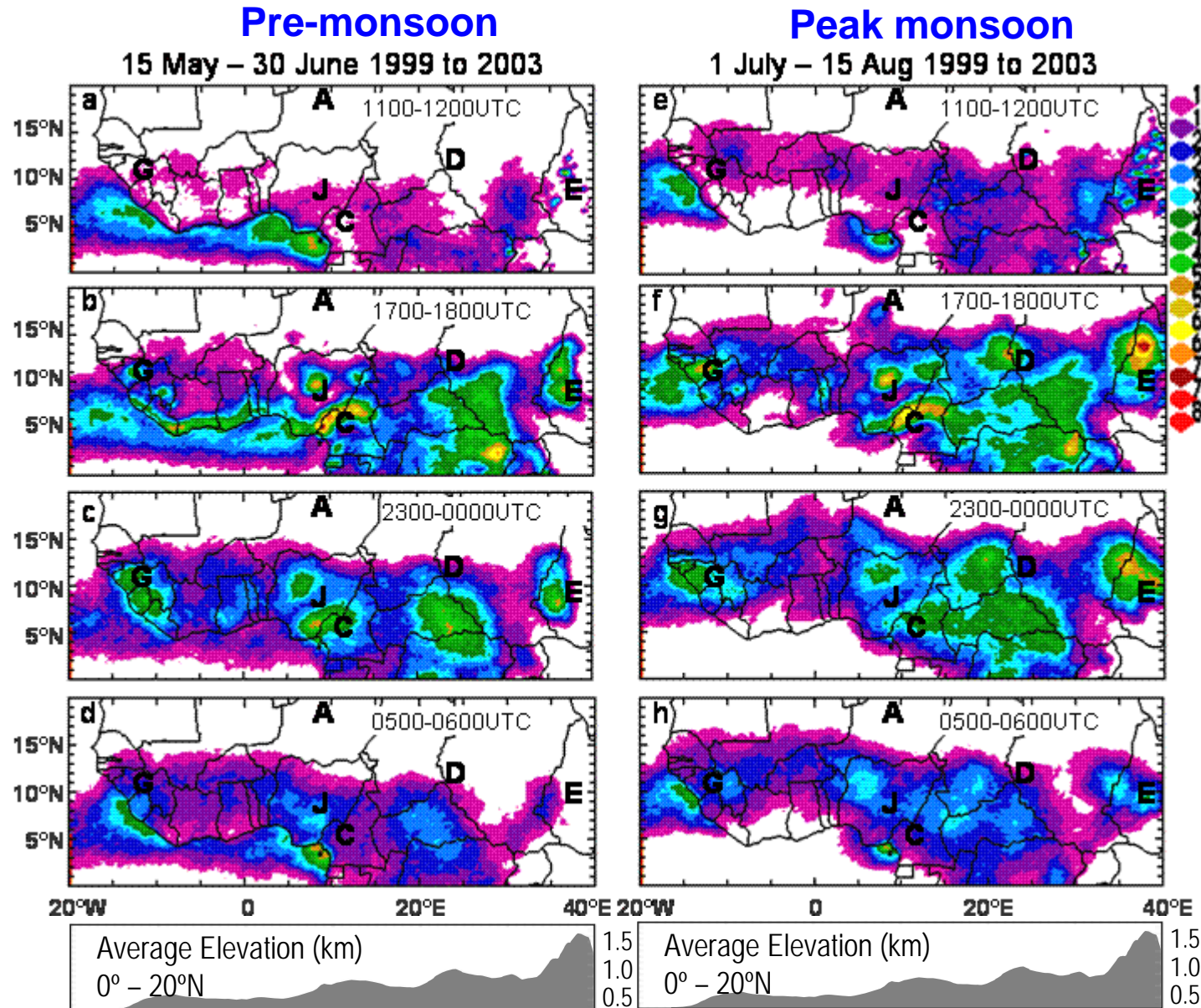
- African societies need better precipitation forecasts (for economy, health, water resource management, ...).
- Seasonal forecasts miss some critical information (e.g., onset and duration of dry periods and heavy precipitation events)
- **Dire need to quantify Africa's convective weather systems and precipitation regimes** (satellite, radar, field observations)
- **Conduct diagnostic studies of different types of extreme weather** (e.g., severe weather, flash floods, dust storms)
- **Improve representation of physical processes in numerical weather prediction models**

Geographic Distribution & Diurnal Cycle

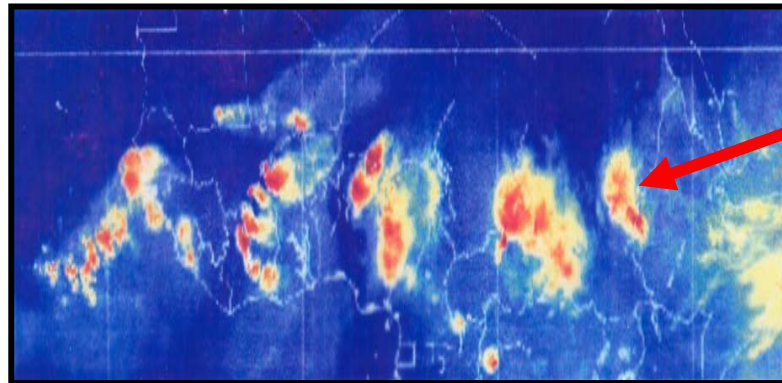
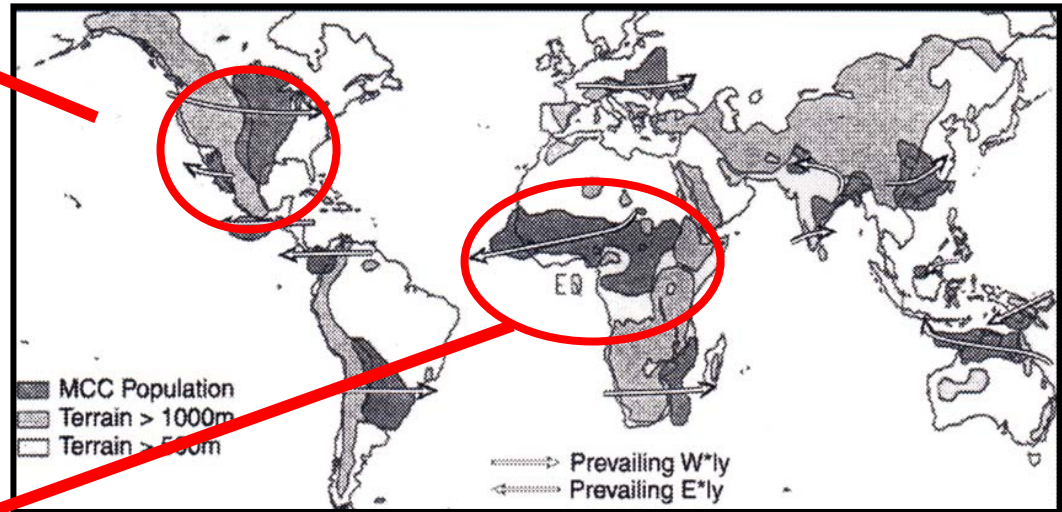
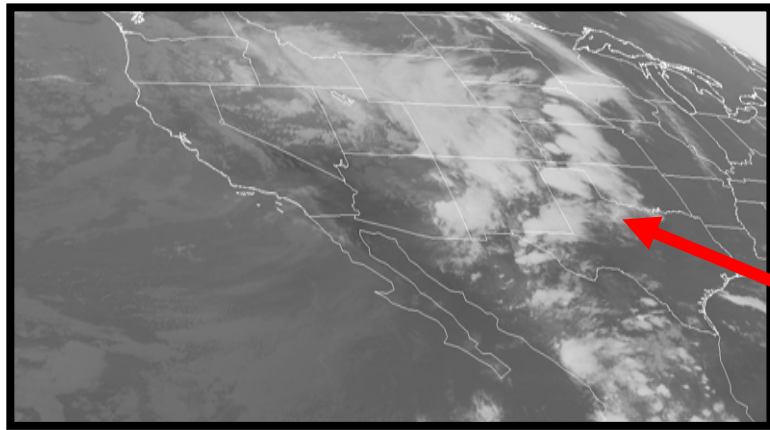
Precipitating convective systems identified by satellite IR

Convection triggered daily in lee of high terrain

Propagation to WSW => delay in time of daily max precipitation



Patterns of convective precipitation over N. Africa resemble those in specific regions around the World



... specifically, environmental shear controls convective organization (c.f., US continent during summer - Moncrieff and Liu, 2006)

What is best way to apply what has been learnt in the US to weather prediction in Africa?