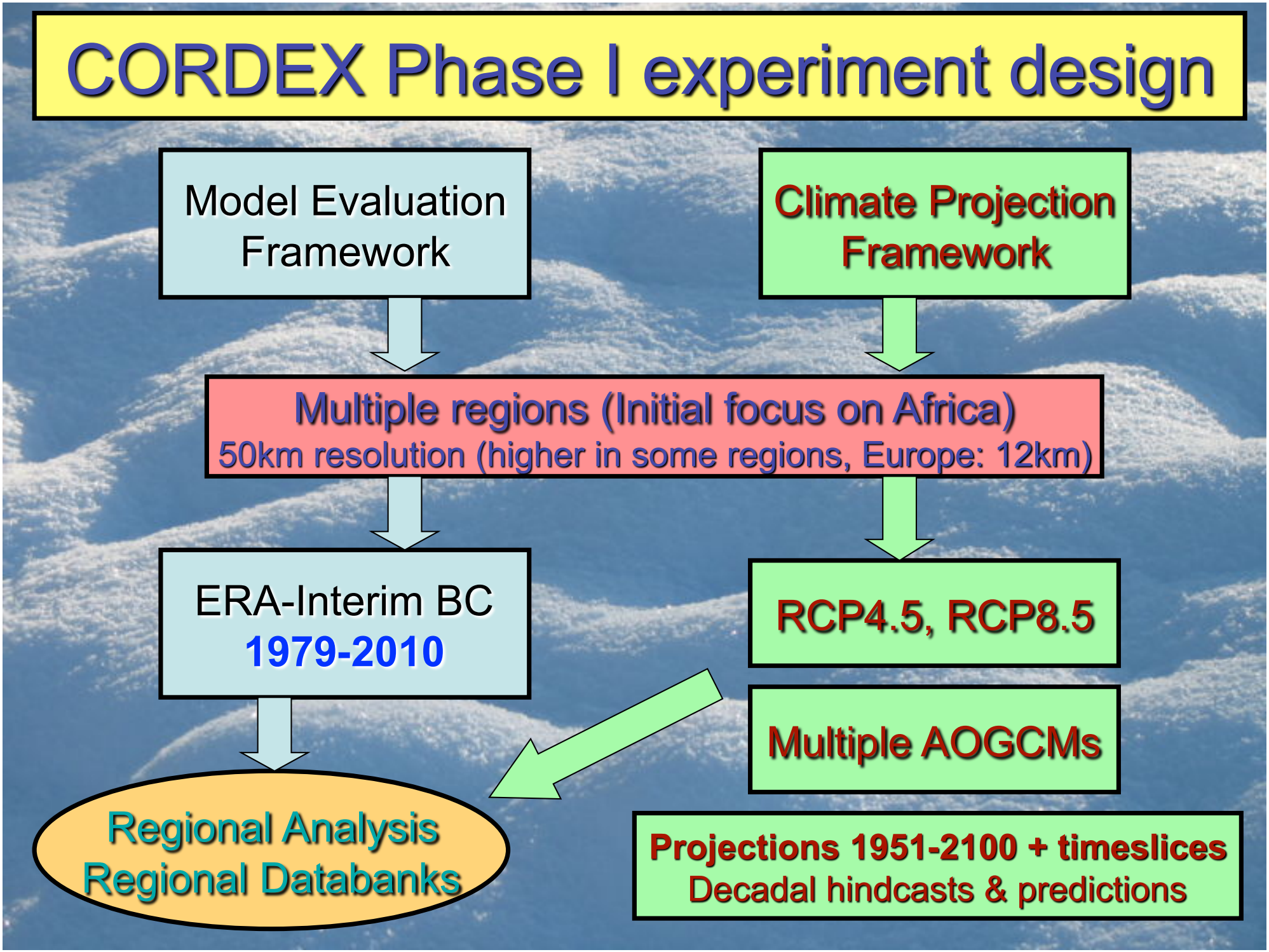
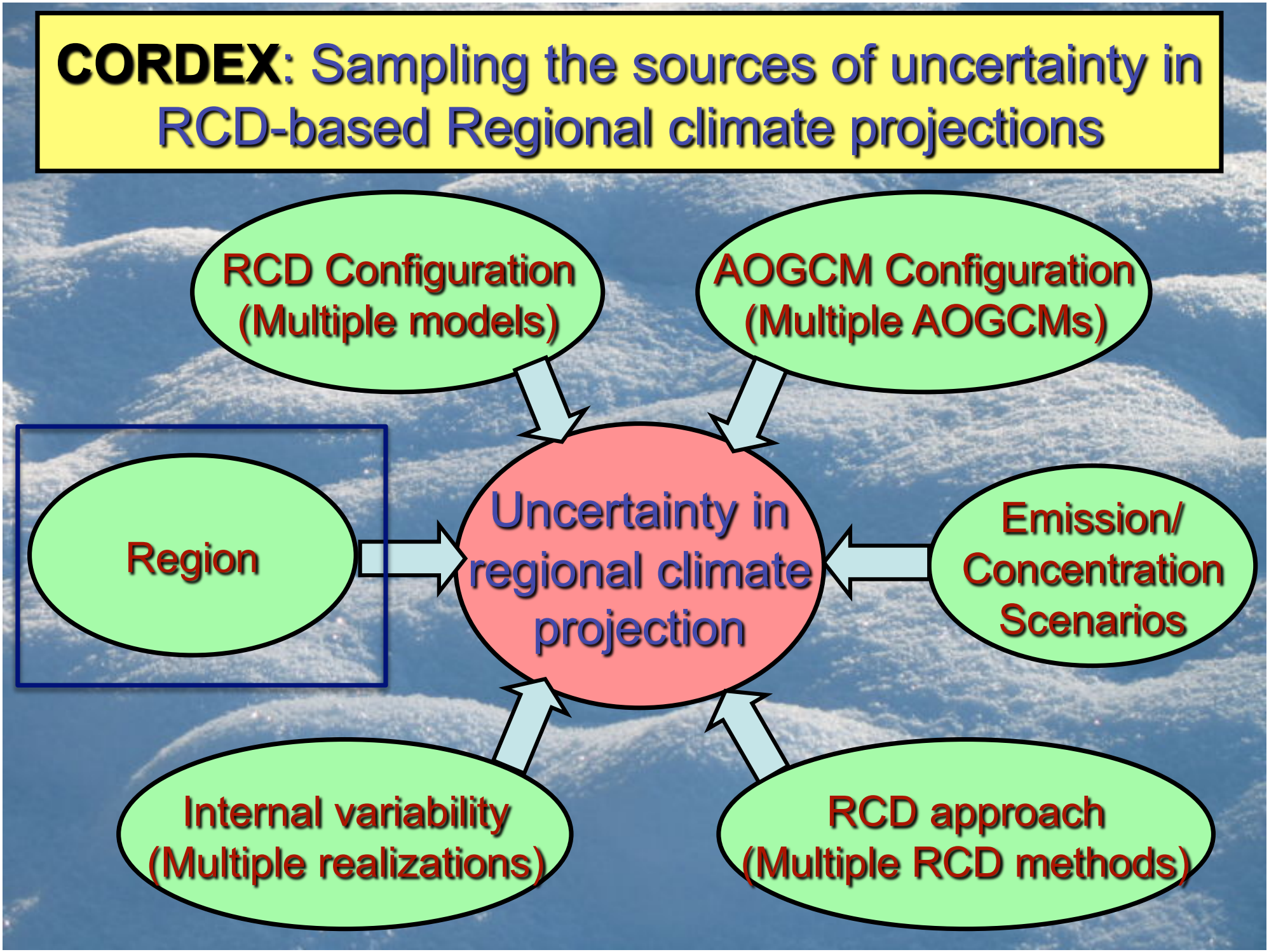

CORDEX Phase I experiment design
Model Evaluation Framework
Climate Projection Framework
Multiple regions (Initial focus on Africa)
50km resolution (higher in some regions, Europe: 12km)
ERA-Interim BC
1979-2010
RCP4.5, RCP8.5
Multiple AOGCMs
Regional Analysis
Regional Databanks
Projections 1951-2100 + timeslices
Decadal hindcasts & predictions


CORDEX: Sampling the sources of uncertainty in RCD-based Regional climate projections
RCD Configuration (Multiple models)
AOGCM Configuration (Multiple AOGCMs)
Region
Uncertainty in regional climate projection
Emission/ Concentration Scenarios
Internal variability (Multiple realizations)
RCD approach (Multiple RCD methods)

General Aims and Plans for CORDEX

Provide a set of Regional Climate Scenarios (1950-2100) for the majority of the populated land-regions of the globe.

Evaluate this data and make it readily available and useable to the climate research and impact-adaptation communities.

Provide a generalized framework for testing, applying and comparing Regional Climate Models and Downscaling techniques for both the recent past and future scenarios.

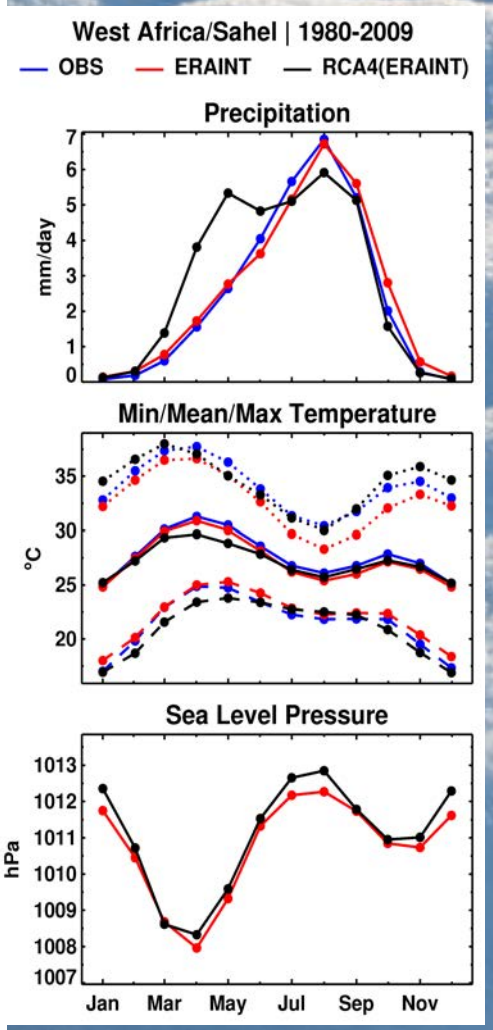
Foster coordination between Regional Downscaling efforts around the world and encourage participation in the regionalization process of local scientists/organizations

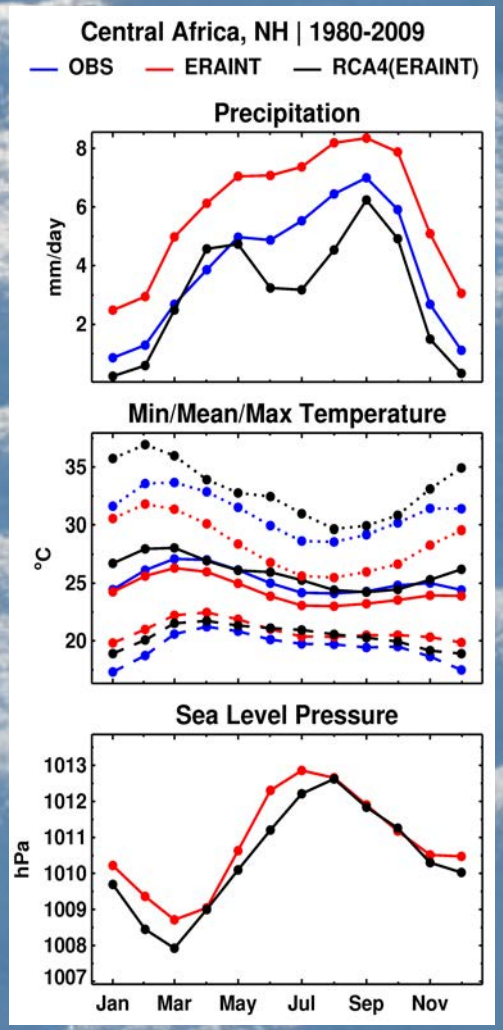
Engage and provide training/support for developing nation scientists

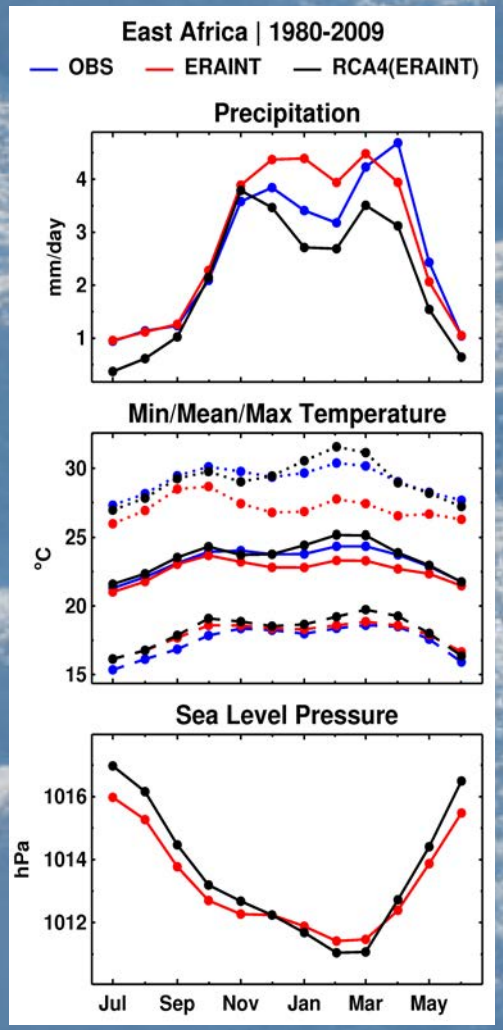

http://www.wcrp-climate.org/index.php/key-deleverables/regional-climat6
http://wcrp-cordex.ipsl.jussieu.fr/
http://cordexesg.dmi.dk/esgf-web-fe/

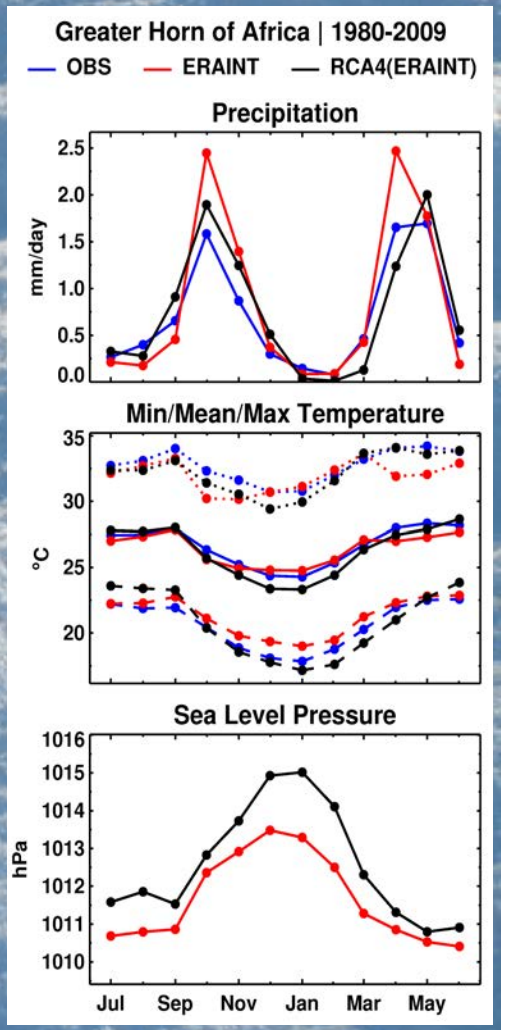
Evaluating ERA-interim forced runs: Africa

Area mean climatological Annual Cycles

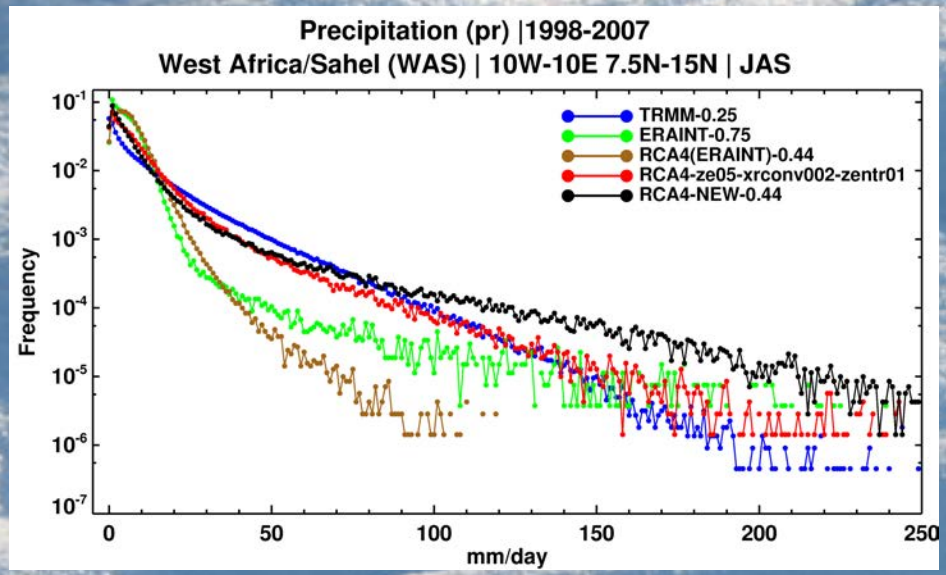


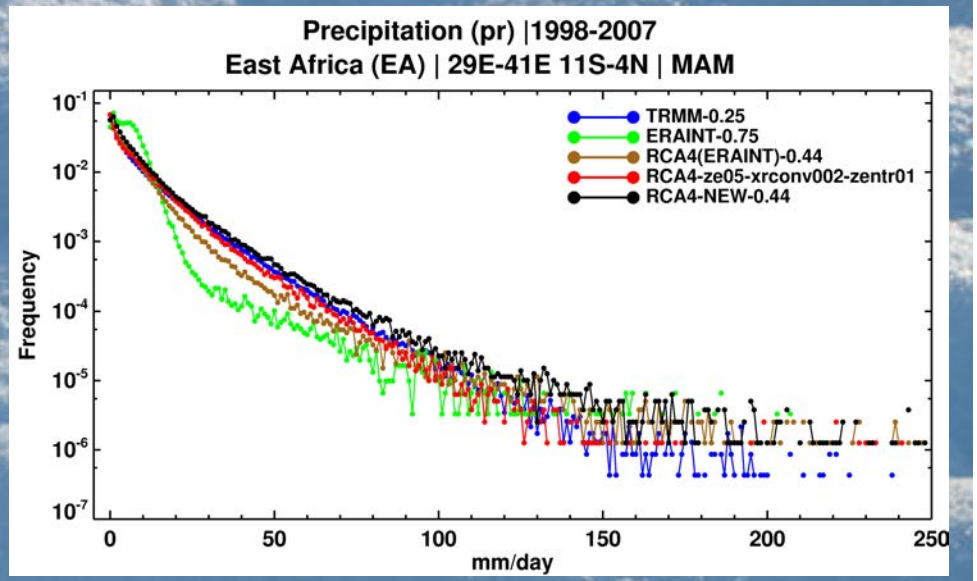


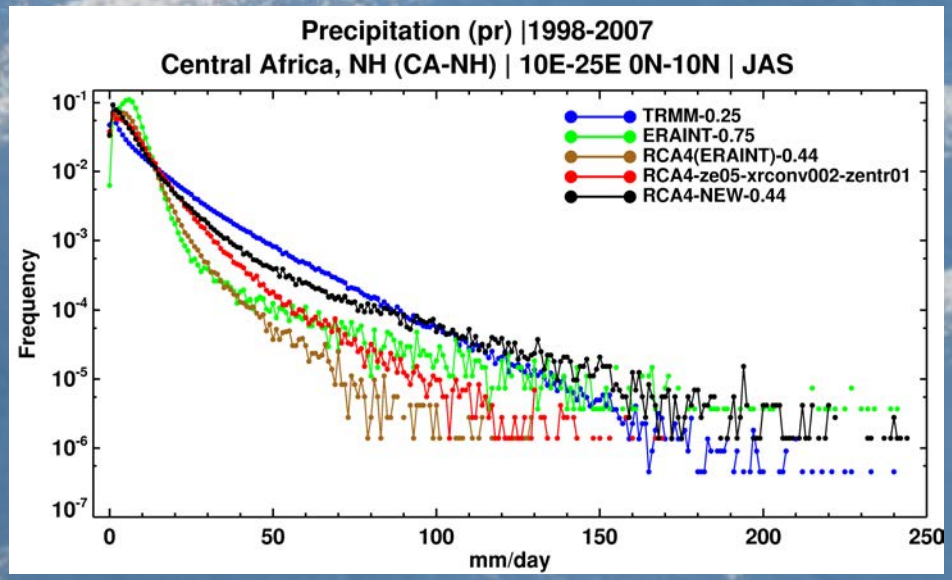


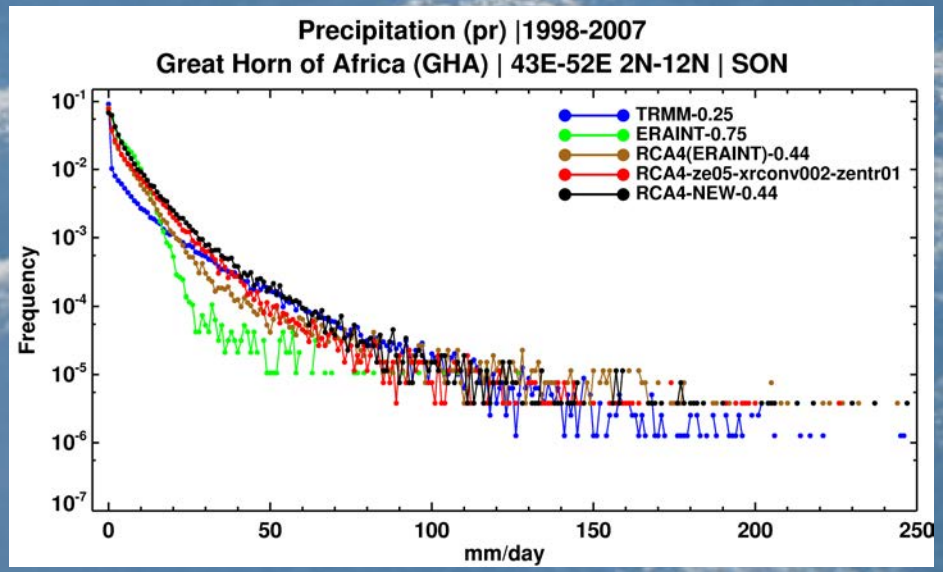


Daily Precipitation Intensity Distributions





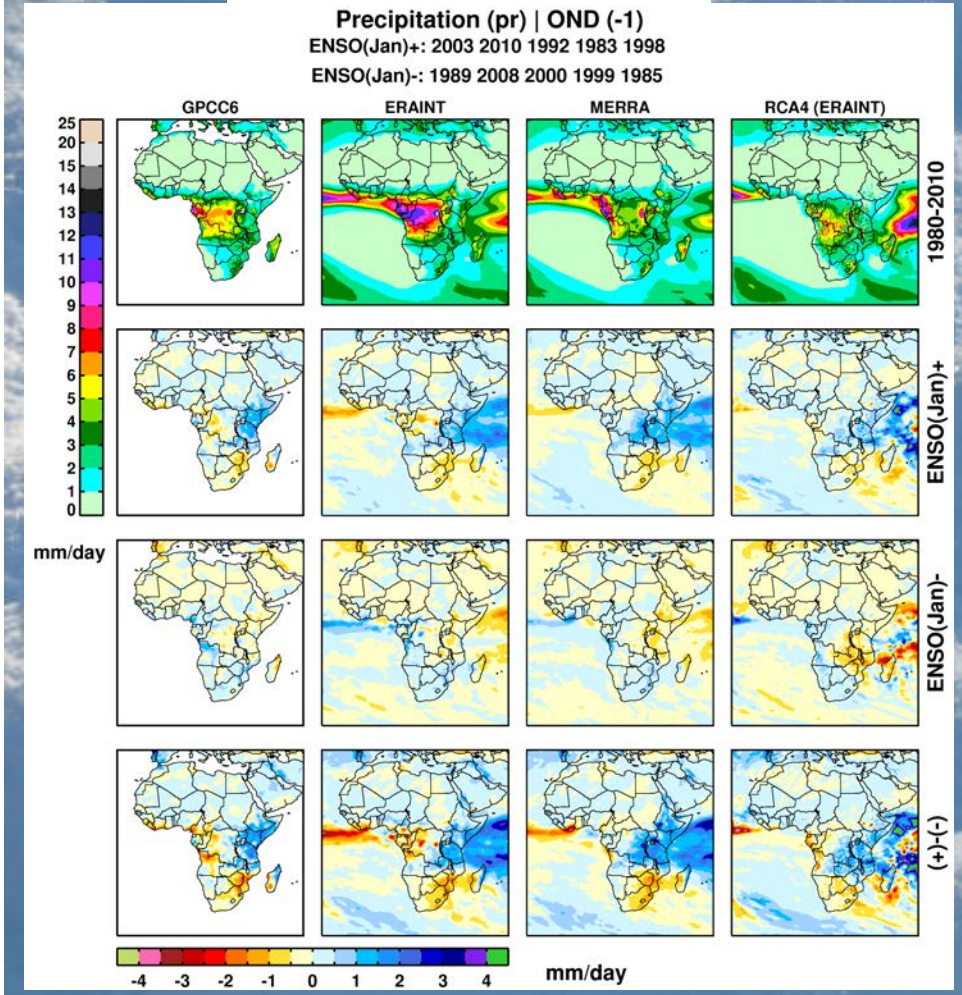




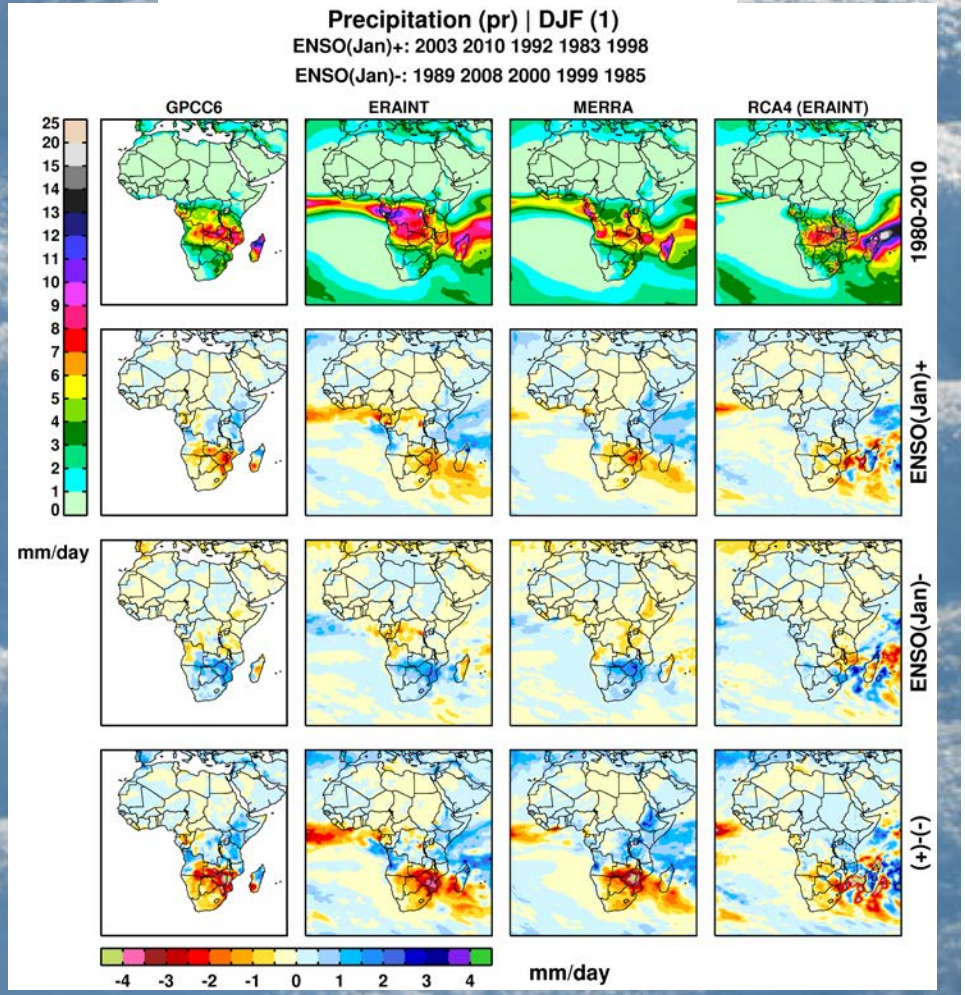
Representing the impact of ENSO forcing on African climate

Seasonal mean precipitation anomalies by ENSO phase

East Africa: OND

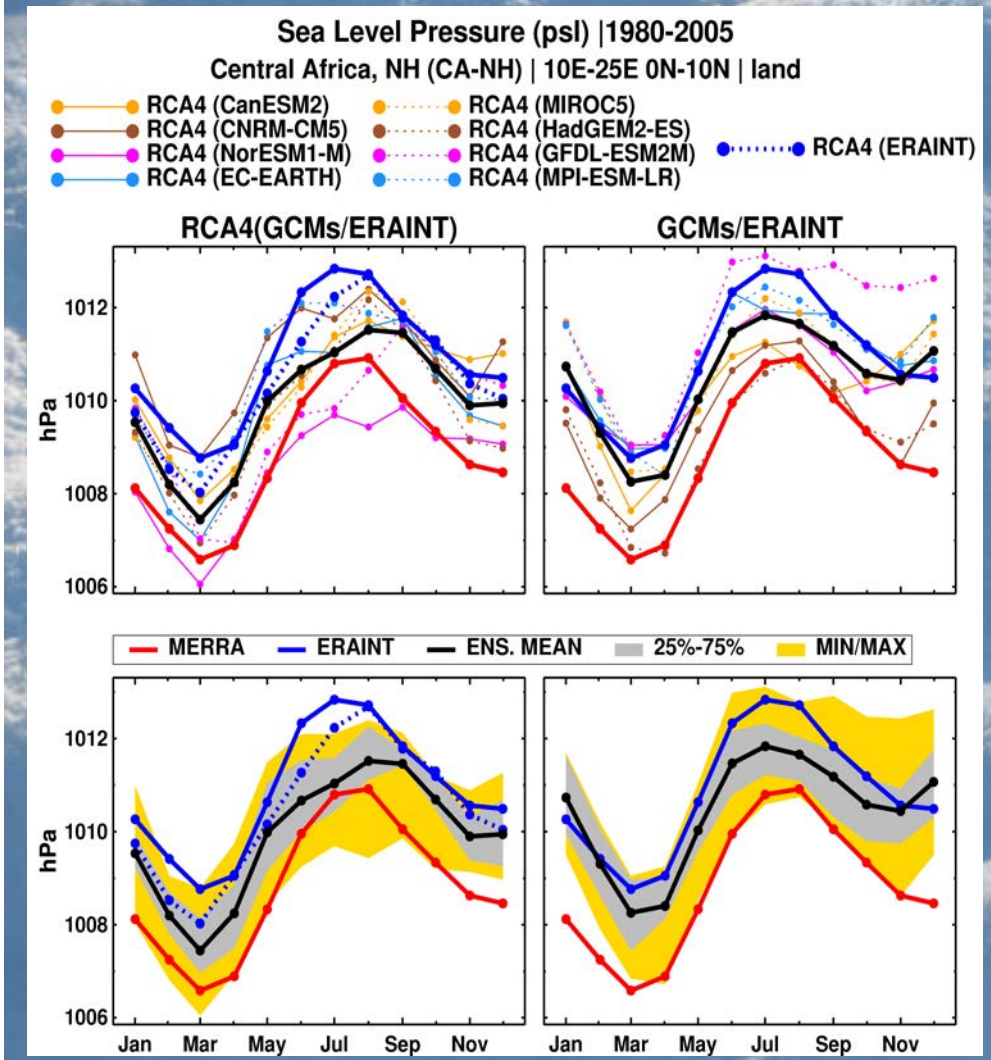


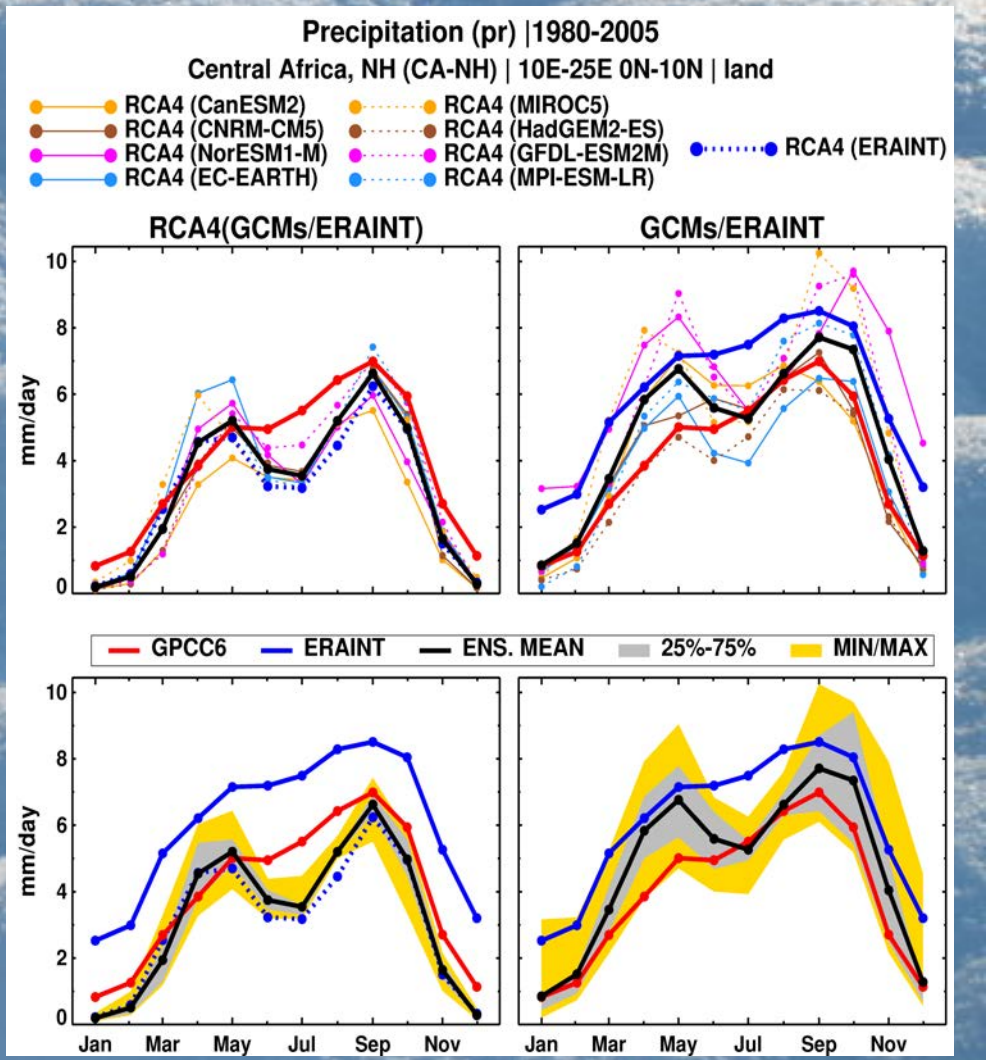
Southern Africa: DJF



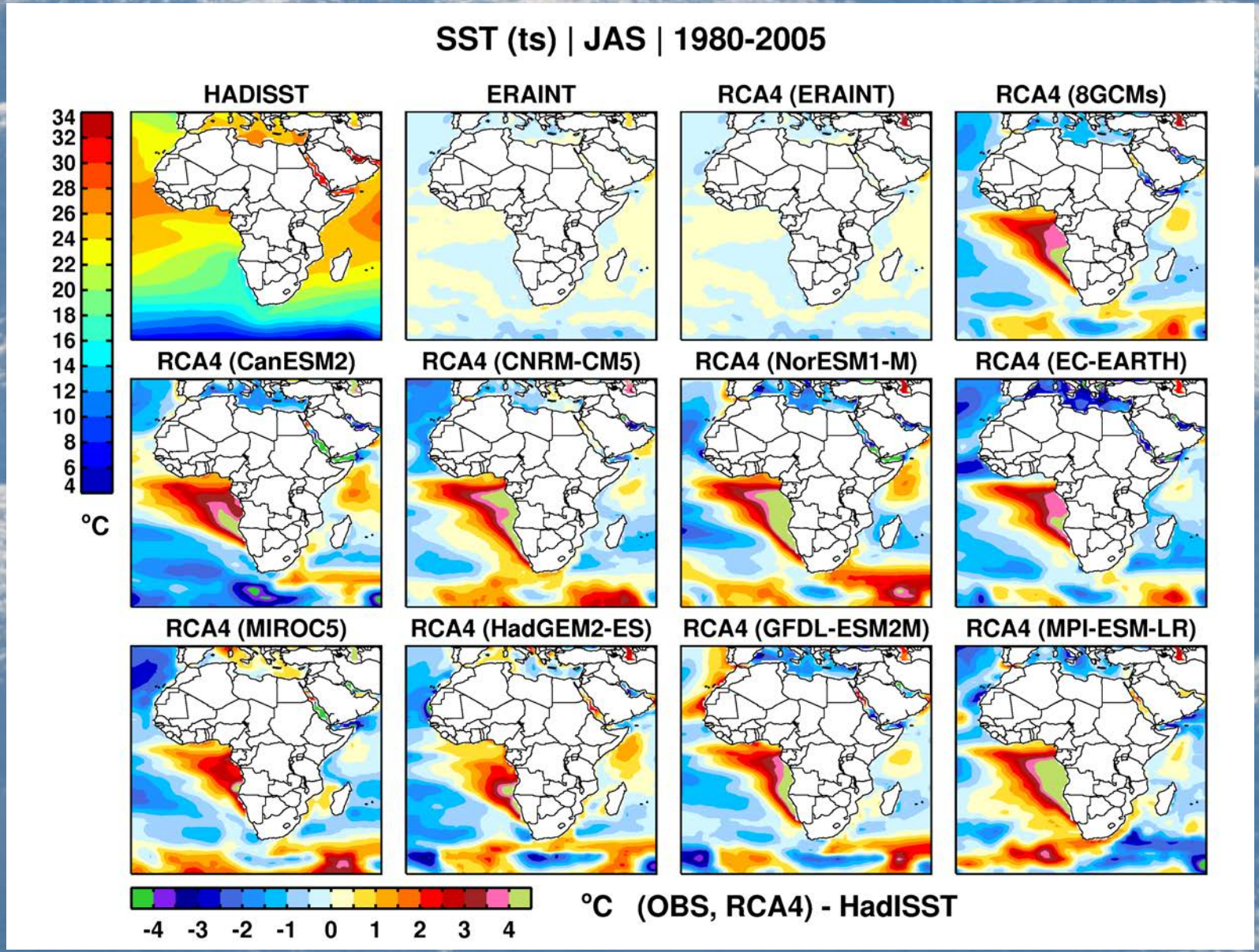
Assessing regional response to external teleconective forcing using 'perfect' ERA-int boundaries a presor to doing se analysis with OAGCMs

Comparing RCM downscaling of parent GCMs: Africa

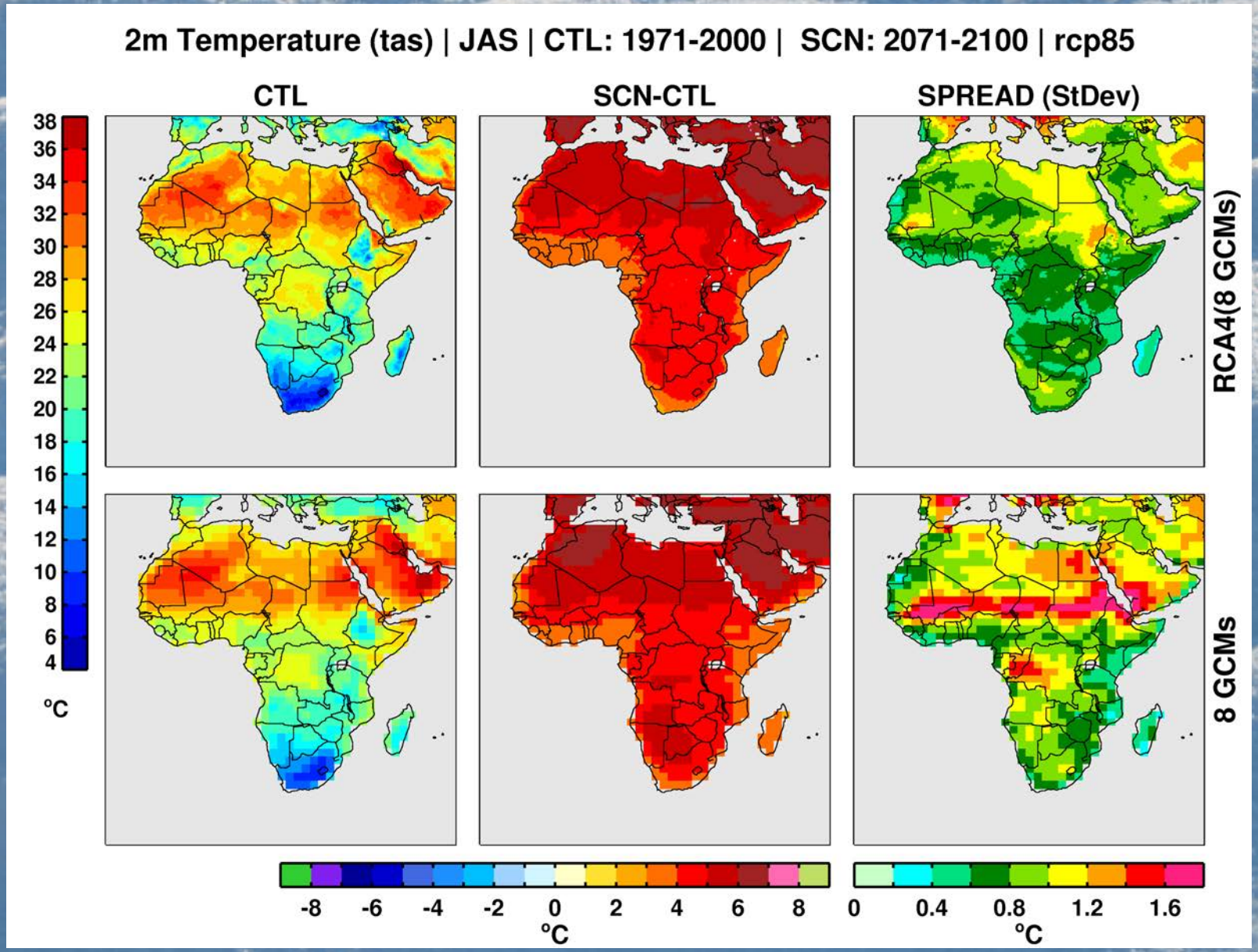




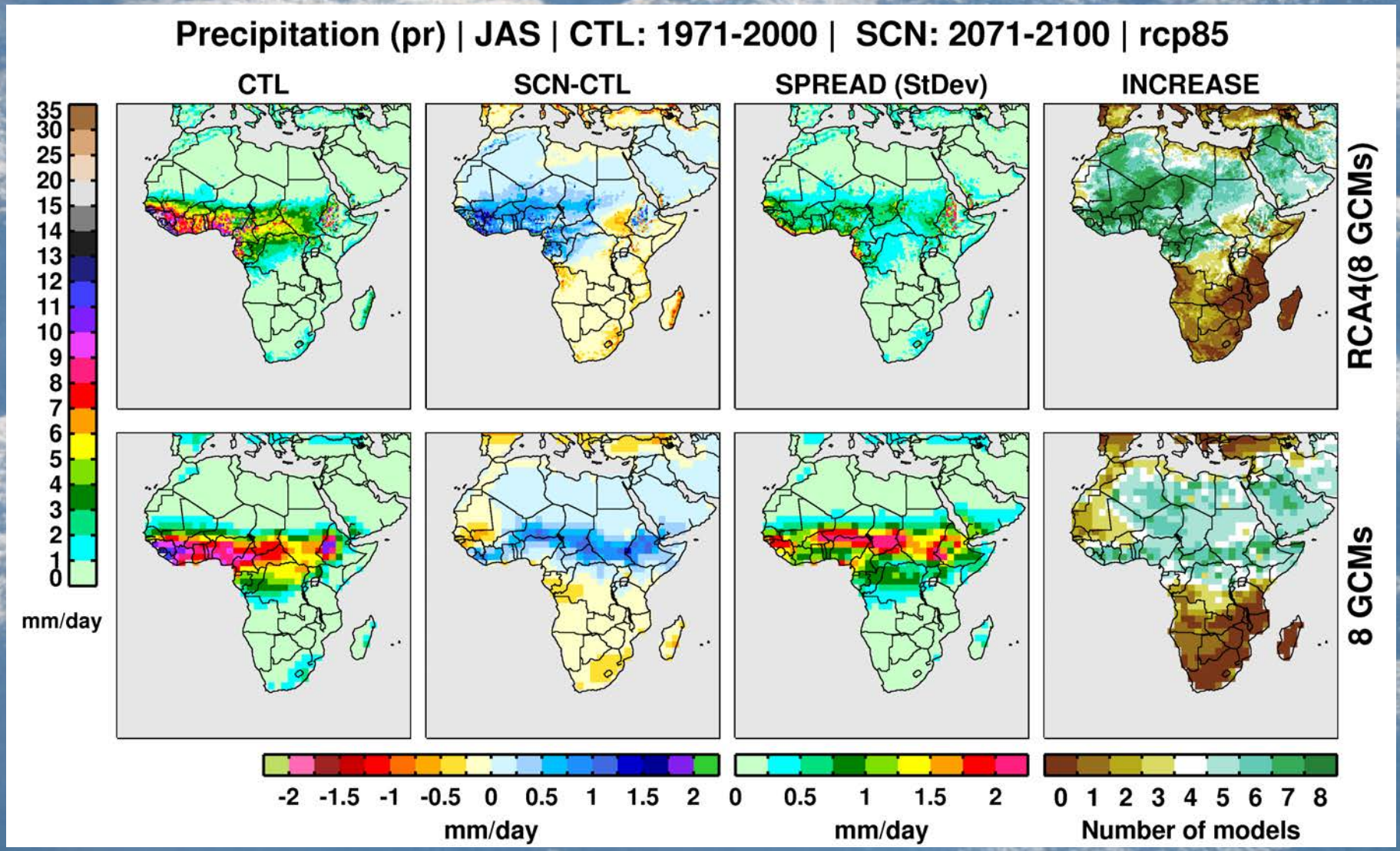
The role of OAGCM (systematic) biases in downscaling West African Monsoon



Assessing climate change signals in GCMs and downscaled data



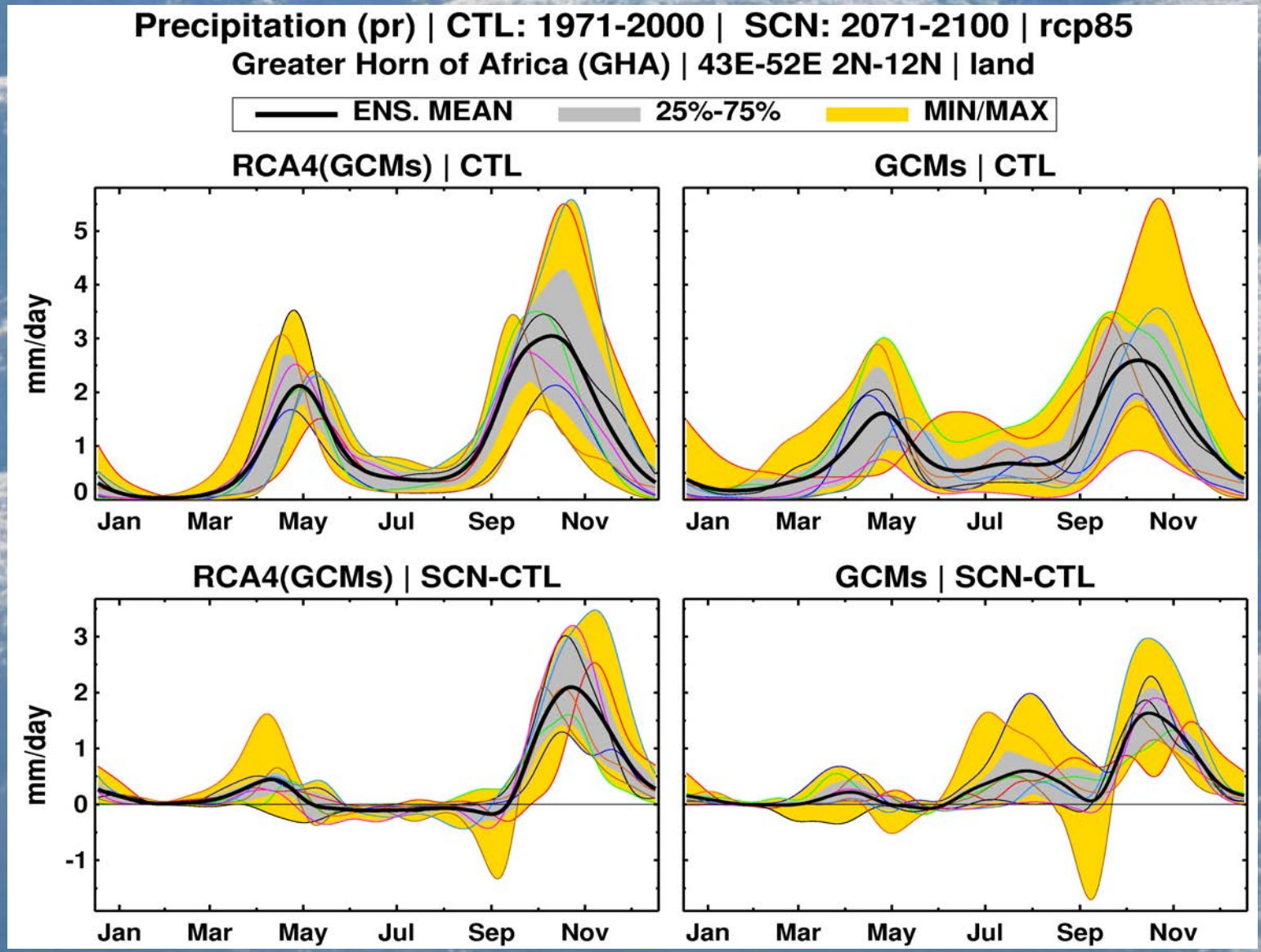
Assessing climate change signals in GCMs and downscaled data

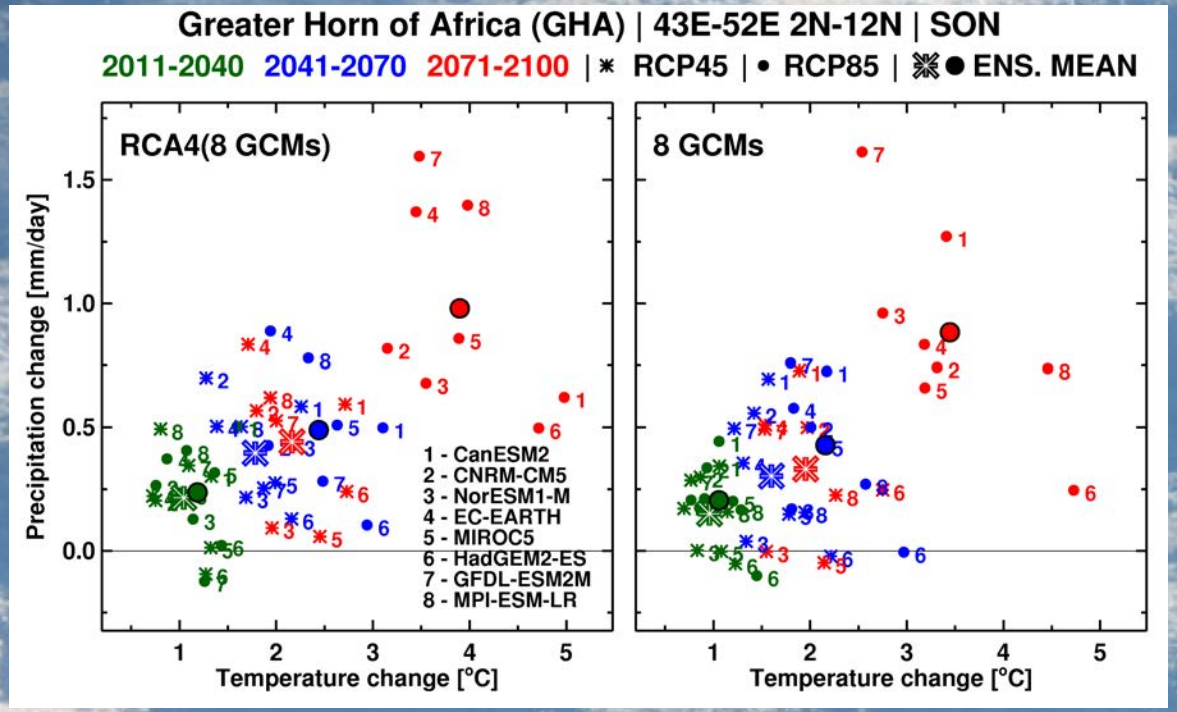


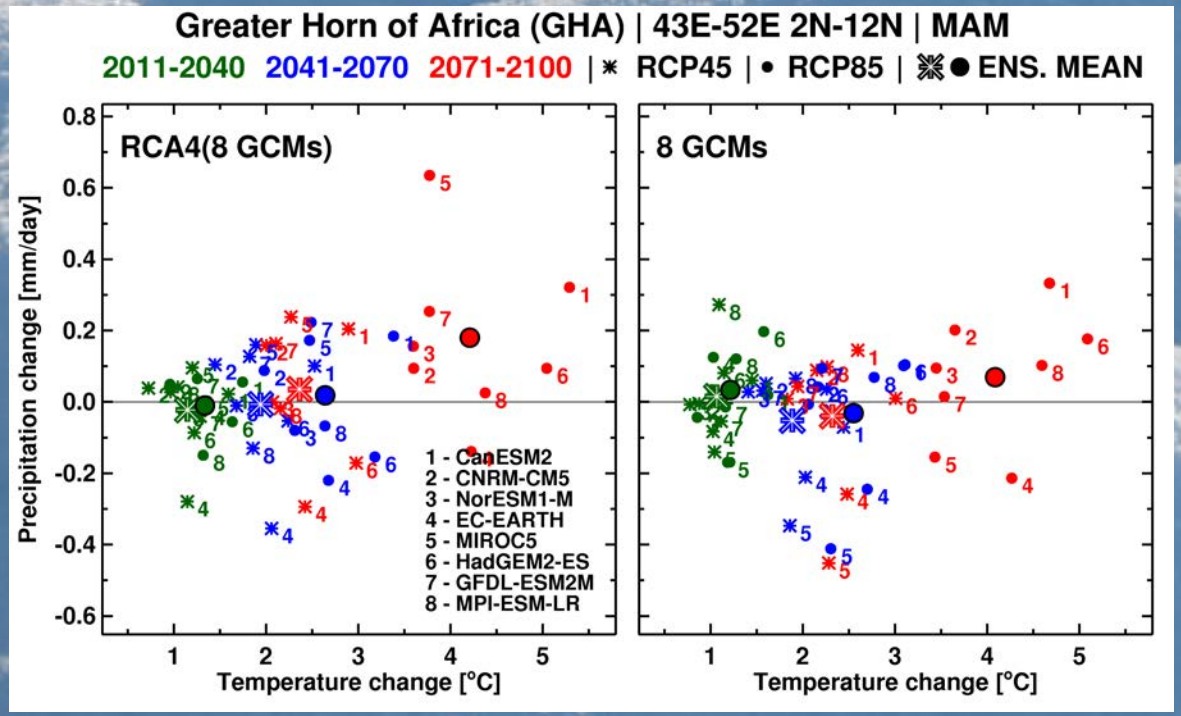
Reduced spread in RCA4 ensemble shows RCA4 physics coming through strongly. This needs to be presented carefully combined with a wider RCM(GCM) ensemble

Assessing climate change signals in GCMs and downscaled data

Changes across the annual cycle e.g. Greater Horn of Africa

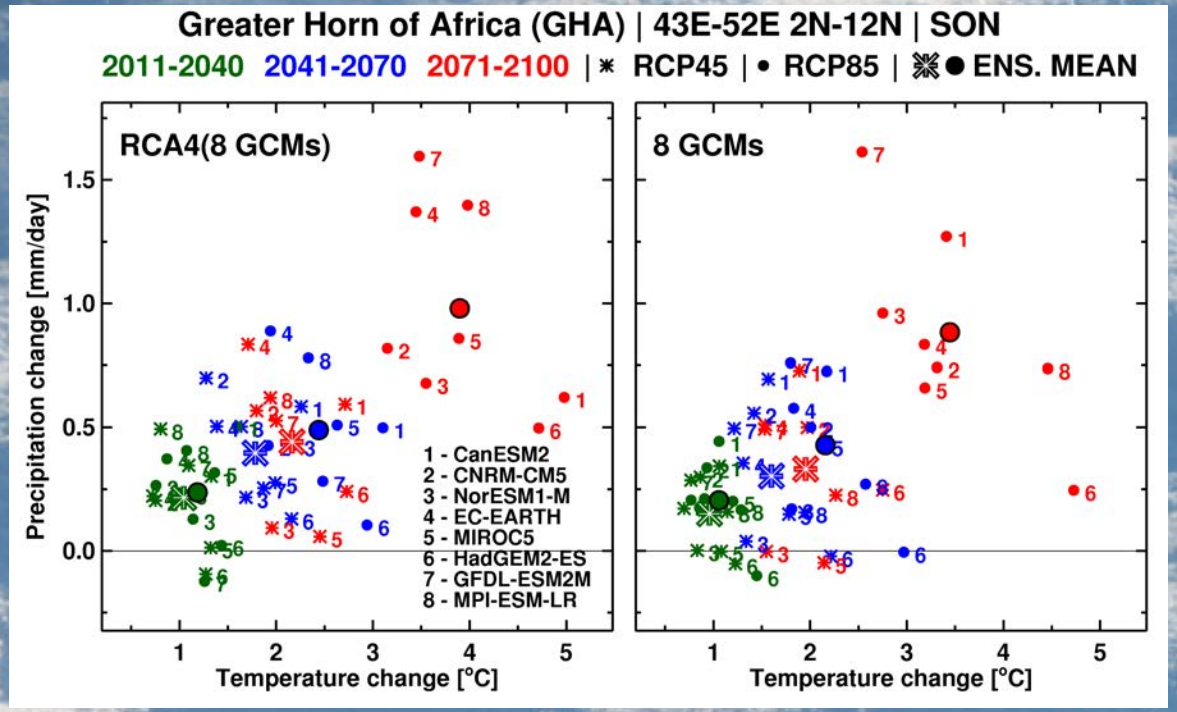


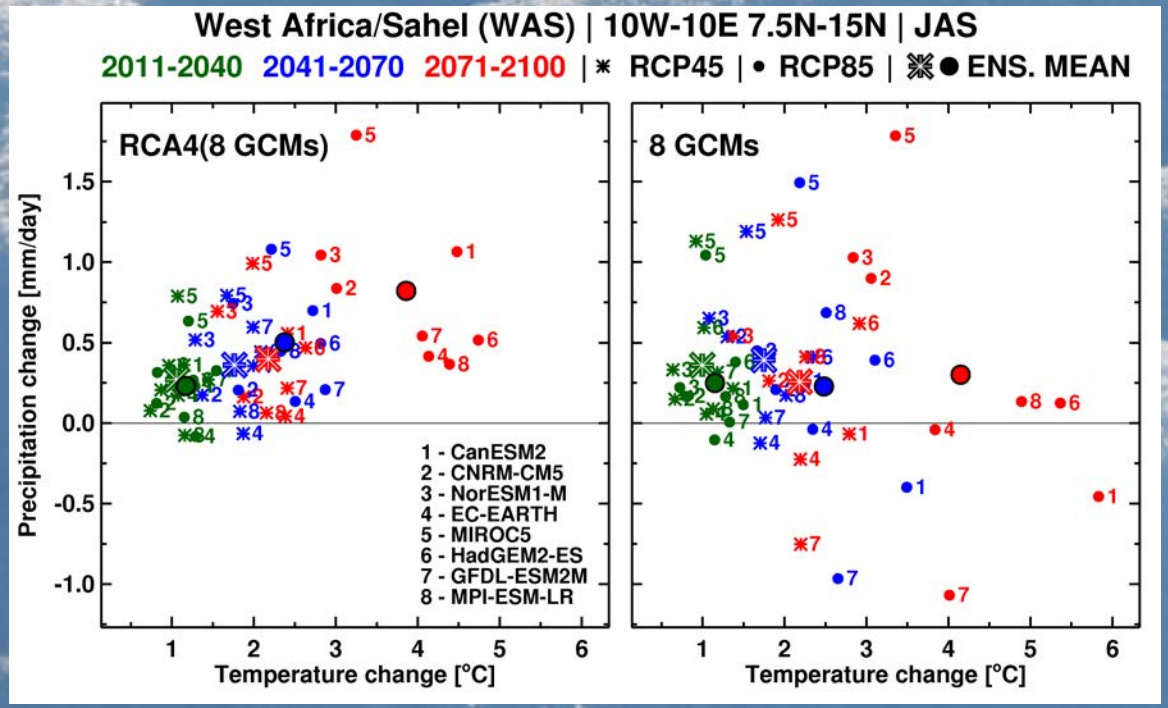




Area-mean, seasonal change in precipitation versus 2m temp change For three 30-year mean periods and 3 RCPs

8 RCA4 projections and 8 driving GCM changes

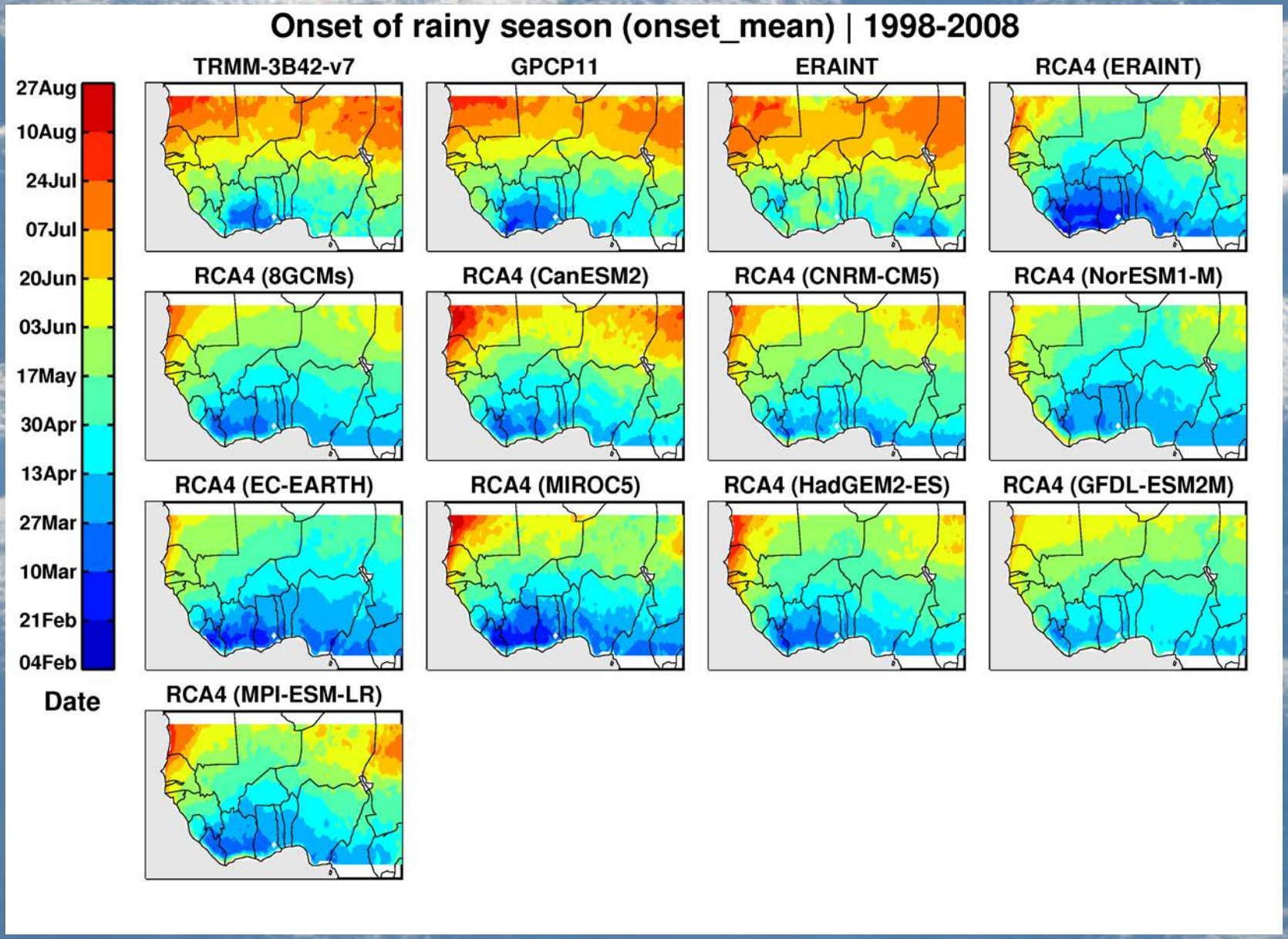




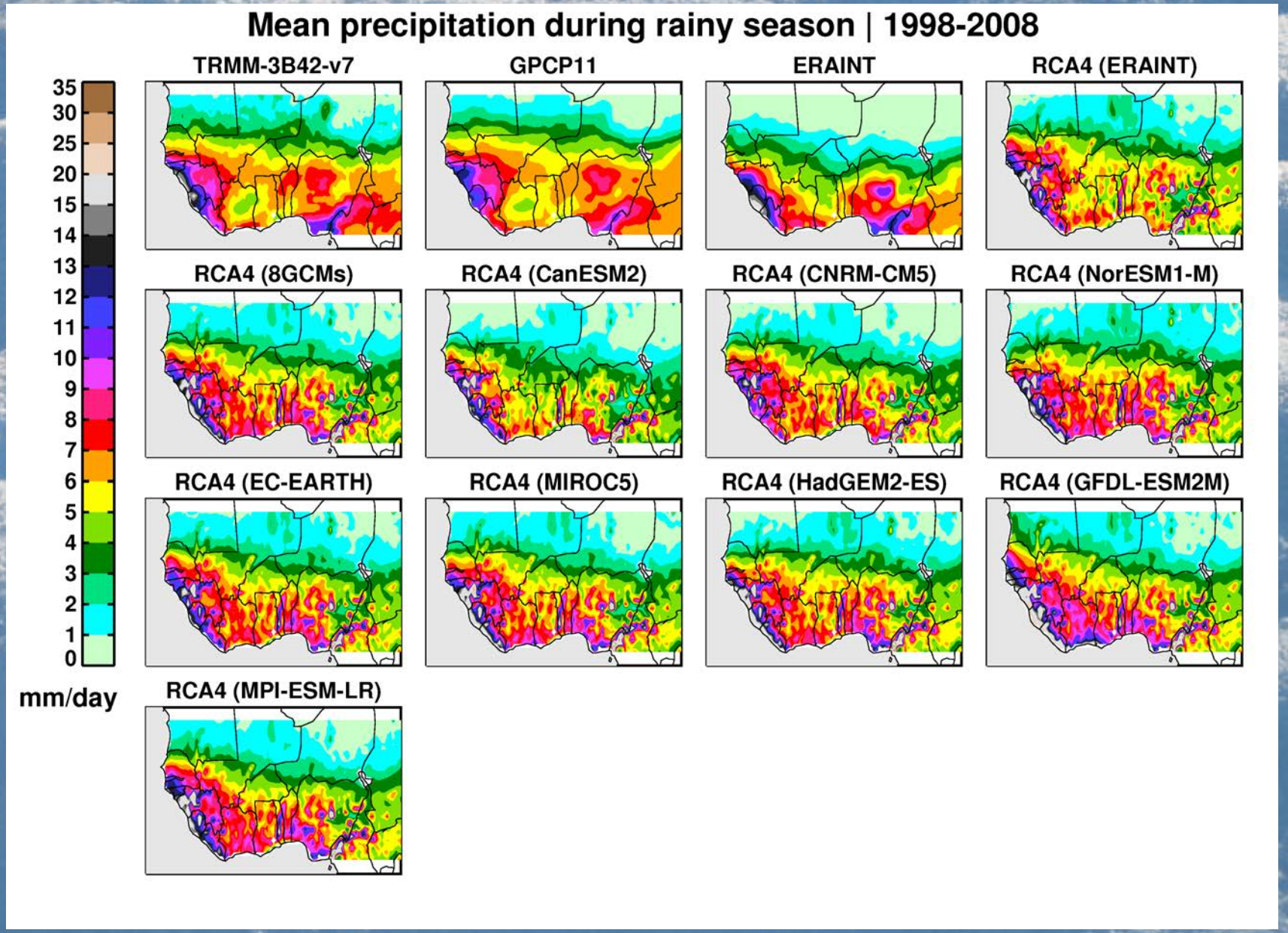
Area-mean, seasonal change in precipitation versus 2m temp change For three 30-year mean periods and 3 RCPs

8 RCA4 projections and 8 driving GCM changes

User oriented evaluation: Onset date of West African Monsoon



User oriented evaluation: Mean intensity of West African monsoon



CMIP6

CORDEX now a core project under WGRC this is the main point of contact for CORDEX and user/IAV needs. WGRC Developing a questionnaire for IAV community to be ready or ICCS3 Dec 2013.

For dynamical downscaling 6 hourly surface and model level variables are required.

Interesting to get updated LBCs from an ensemble of high resolution GCMs for near term CC (e.g. increased synoptic energy in LBCs)

DEC/core CMIP6 historical and RCP-like future simulations
Interesting to get LBCs.

Decadal hindcasts: (Statistical) Downscaling for climate services ?

User oriented evaluation: Length of West African rainy season