

CLIVAR RF on Decadal Climate Variability and Predictability

CLIVAR Research Foci discussion
Pan-CLIVAR Meeting, July 16-18, 2014

Decadal Climate Variability and Predictability

THE CORE ISSUE:

The global and regional expression of the interplay/interaction between natural variability and anthropogenic climate change:

- Sahel droughts [AMOC/AMV+ENSO+IO SST trend]
- Atlantic TC activity [AMOC/AMV+ENSO+GW]
- 1960's-1990's Mediterranean drying trend [NAO trend+GW]
- Southwest US multi-year droughts [PDV+AMOC/AMV/TAV]
- East Africa drought [PDV]
- *"Global warming hiatus"*

Characterize, understand, attribute, and predict global and regional multi-year to decade-long climate anomalies

Decadal Climate Variability and Predictability

RF selection criteria:

- Topic is relevant, tractable, requires international collaboration, broad (cross panel/programs), is already already in consideration/implementation.
- Leads to widely appealing, actionable research activity resolvable within a finite time (2-5 years) and yielding broad scientific and social benefit.

The proposed RF:

1. The “Global Warming hiatus”
2. Influence of volcanic eruptions on decadal prediction

“Global Warming Hiatus”

- Decadal intervals where the observed global mean surface air temperatures deviates significantly from a smooth monotonic rise (including “accelerated” warming)
- Attributable to either internal decadal mechanisms (e.g., changes in ocean heat storage due to regional decadal ocean-atmosphere modes of variability) or natural (volcanoes, solar) and anthropogenic (industrial aerosols) forcing.
- Societal significance + global and regional implication
- Broad scientific relevance: Broad appeal across WCRP: CLIVAR (panels and other RF), SPARC, WGCM, WGSIP/DCPP, CMIP and also GOOS & PAGES.
- Already driving research within WGSIP/DCPP and the broader community (e.g., NCAR/GFDL and other modeling centers Pacemaker experiments).

Volcanic impact on decadal prediction

- How do volcanic eruptions affect decadal predictions
- Seasonal and state dependent response.
- Disagreement between models & forcing specification issues.
- Societal significance + global and regional implication
- Broad scientific relevance: Broad appeal across WCRP: CLIVAR (panels and other RF), GEWEX, SPARC, WGCM, WGSIP/DCPP, CMIP and also PAGES.
- Already driving research within WGSIP/DCPP and the broader community (e.g., SPECS).

Implementation activities

- Establish link to regional panels, other RF, & other non-CLIVAR WG/panels to identify ongoing activities (*btwn this meeting and fall 2014 & continue after*)
- Identify coordinated efforts & leaders, and funding opportunities (*fall 2014 as part of prospectus phase I*)
- Prepare DCVP prospectus - Strategic and Implementation Statement (*phase I - fall 2014; phase II - spring 2015*)
- Monitor and communicate progress (*next ~5 years*): work with CLIVAR regional panels; maintain website; sponsor workshop(s); organize sessions in international meetings (CLIVAR, AMS, AGU, EGU)