

US CLIVAR Decadal Predictability Working Group (DPWG) Report

WGSIP , Trieste

Co-Chairs:

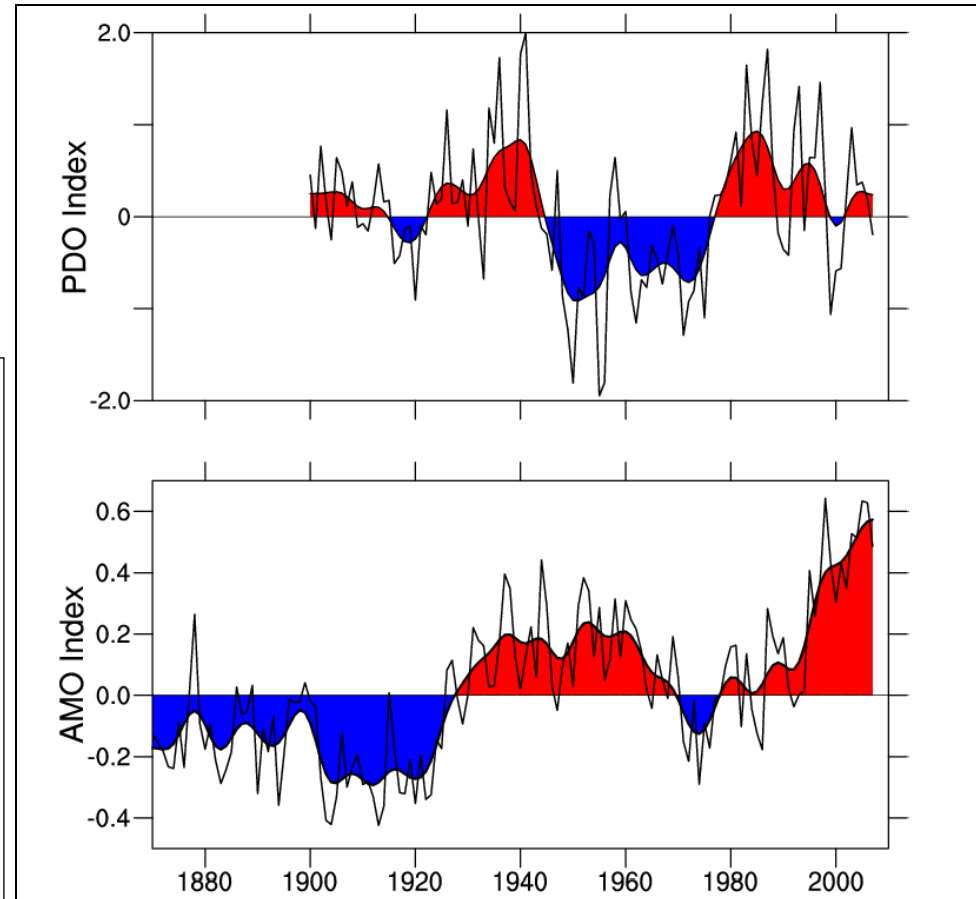
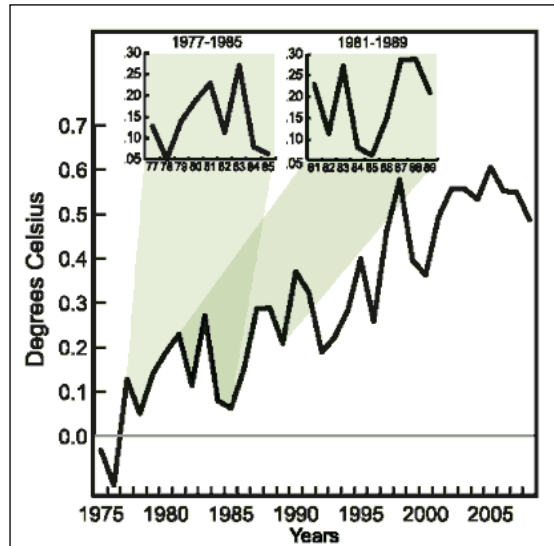
Amy Solomon - CIRES/ University of Colorado & NOAA/ESRL

Lisa Goddard – IRI / Columbia University

Arun Kumar – NOAA / Climate Prediction Center

Background to the DPWG

- There is considerable low-frequency variability (with societal consequences) in the Earth system, and which
- Can temporarily *mask* or *enhance* externally forced variability



Background to the DPWG

- To further the understanding of some of the issues related to the (decadal) prediction of the LF natural variability, e.g.,
 - *what is the decomposition of low-frequency variability into the externally forced and natural components?*
 - *what are the prospects of decadal predictability as an initial value problem?*
 - *how much skill of initialized decadal predictions may improve on other baseline methods? etc.*
- **A Decadal Predictability Working Group (DPWG) was approved in January, 2009, under the US CLIVAR**

Objectives of the DPWG

- **Objective 1:** Define a framework to distinguish natural variability from anthropogenically forced variability on decadal time scale for the purpose of assessing predictability of decadal-scale climate variations
- **Objective 2:** Develop a set of metrics that can be used to assess and validate initialized decadal climate predictions and simulations

DPWG Progress Report

- Operating structure
 - *Monthly telecons that include invited speakers*
 - *Face-to-face meetings*
 - **June 2009** in conjunction with the “Advances in Decadal Climate Predictions” at the CCSM workshop
 - **January 2010** together with the workshop on “Predicting the Climate of the Coming Decades” in Miami
 - **July 2010** together with the CCSM workshop (meeting held in Boulder)

DPWG Progress Report

- First paper related to “objective 1” of the DPWG **has been published** in BAMS

DISTINGUISHING THE ROLES OF NATURAL AND ANTHROPOGENICALLY FORCED DECADAL CLIMATE VARIABILITY

Implications for Prediction

BY U.S. CLIVAR DECADAL PREDICTABILITY WORKING GROUP: AMY SOLOMON, LISA GODDARD, ARUN KUMAR,
JAMES CARTON, CLARA DESER, ICHIRO FUKUMORI, ARTHUR M. GREENE, GABRIELE HEGERL, BEN KIRTMAN,
YOCHANAN KUSHNIR, MATTHEW NEWMAN, DOUG SMITH, DAN VIMONT, TOM DELWORTH,
GERALD A. MEEHL, AND TIMOTHY STOCKDALE

DPWG Progress Report

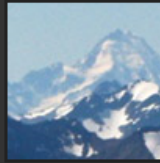
- *Manuscript on synthesizing the framework for “objective 2” of the DPWG, i.e., development of metrics for the assessment of the initialized decadal prediction efforts is on the way*
- *Establishment of the IRI data library and hindcast skill assessment*
- *CMIP5 data sets are beginning to come in*
- *Active participation in various workshops related to decadal variability*
- *Call for the small grants program on the analysis of CMIP5 simulations*
- *Participation in the AR5 chapter on short-term prediction of climate*

Making Sense of the multi-model decadal prediction experiments from CMIP5

26 June - 1 July 2011

Workshop Chair(s):

Lisa Goddard
Ben Kirtman
Gerald Meehl



[ABOUT THE WORKSHOP](#)

[ROSTER](#)

[AGENDA & PRESENTATIONS](#)

[DOCUMENTS](#)

About the Workshop

Decadal prediction, defined as initialized climate statistics of climate over the next 10 to 30 years, is of interest to both climate scientists and policy communities. However, decadal prediction has been a topic of discussion for this fact a seminal 2008 AGU session formulated a number of issues involved with decadal prediction that have been addressed in the Project phase 5 (CMIP5). Modeling groups from around the world are conducting decadal prediction experiments, with the intention that




CLI
CLIMATE VARIABILITY AND PREDICTION

[CLIVAR Working Group on Ocean Model Development](#)

[News](#) | [Terms of reference](#) | [Members](#) | [CORE](#) | [REOS](#) | [Decadal Climate Prediction](#) | [Meetings](#) | [Publications](#)

WGOMD-GSOP Workshop on Decadal Variability, Predictability, and Prediction: Understanding the Role of the Ocean

Center Green Campus, NCAR, Boulder, Colorado, USA
20-23 September 2010



[Workshop Proposal](#)
[Flyer](#)

[Overview](#) | [Talks](#) | [Abstracts](#) | [Posters](#) | [Motivation](#) | [Key Topics](#) | [Organizing Committee](#)

[Next](#) [Previous](#) [Highlight all](#) [Match case](#) [Reached end of page, continued from top](#)



Framework for the Assessment of Initialized Hindcasts

Question 1: Do the initial conditions in the hindcasts lead to more accurate predictions of the climate?

Question 2: Is the model's ensemble spread an appropriate representation of forecast uncertainty on average?

Question 3: In the case that the forecast ensemble does offer information on overall forecast uncertainty, does the forecast-to-forecast variability of the ensemble spread carry meaningful information?

Time scale: Year 1, Years 2-5, Years 2-9

Spatial scale: Grid scale, spatially-smoothed

DPWG Progress Report

- **Next steps**

- *Finalize the 2nd paper on the framework of assessment of decadal predictions*
- *Participation in the “WCRP Open Science Conference, 24-28 October, 2011”*
- *Initiate the work on the third and the final paper on the assessment of modes of climate variability (that provide basis for decadal prediction) in climate models*
- *CMIP5 assessment workshop (April 2012)*

- **Some other information**

- *Follow up of the Meehl's BAMS paper (an outcome of Aspen Workshop)*
- *CMIP5 workshop (April 2012?)*
- *Doug Smith's effort to collect decadal predictions once a year (~ November)*

Membership:

Jim Carton	(University of Maryland)
Tom Delworth	(NOAA/GFDL)
Rim Msadek	(NOAA/GFDL)
Clara Deser	(NCAR)
Ichiro Fukumori	(JPL/NASA)
Lisa Goddard	(IRI/Columbia University)
Ben Kirtman	(University of Miami)
Arun Kumar	(NOAA/CPC)
Yochanan Kushnir	(Columbia University)
Matt Newman	(CIRES/NOAA)
Amy Solomon	(CIRES/NOAA)
Dan Vimont	(University of Wisconsin)
Ex-officio Members	
Arthur Greene	(IRI/Columbia University)
Gabi Hegerl	(University of Edinburgh)
Jerry Meehl	representing WGCM (NCAR)
Doug Smith	(UK Met Office)
Tim Stockdale	representing WGSIP (ECMWF)
George Boer	(CCC)
Rowen Sutton	(U. of Reading)
Ed Hawkins	(U. of Reading)
Ton Fricker	(U. of Exeter)