US CLIVAR Predictability, Prediction & Applications Interface (PPAI)
Panel Report for the 2006 Summit Meeting

1. Please give a brief summary of the foci and scientific goals of your panel.

Our mission is to foster improved practices in the provision, validation, and uses of climate information through coordinated participation within U.S. and international climate science and applications communities. To fulfill our mission we have identified four priority areas:

- Further fundamental understanding of climate predictability at subseasonal to centennial time scales
- Improve provision of climate forecast information, particularly with respect to drought and other extreme events
- Foster research and development of prediction systems of climate impacts on ecosystems
- Enable use of CLIVAR science for improved decision support

2. Please provide a brief description of the panel's activities during the past year (August 2005-July 2006). Examples of activities may include:

* *Meetings & teleconferences*

- 9 September 2005 : teleconference
- 27 September 2005 : teleconference
- 22 February 2006 : teleconference
- 4 April : Co-chairs meet at IRI (Palisades, NY)
- 26 June 2006 : teleconference

* *Interactions with other US CLIVAR Panels, US CLIVAR WGs, CPTs, as well as non-CLIVAR committees, panels, and groups*

- The PPAI has had little interaction with the other US CLIVAR panels this year, other than through individual contacts, typically at meetings. Our panel did provide feedback during development of the Subseasonal Variability WG, and has also participated in feedback and encouragement of the proposed Drought WG.
- Many of the PPAI members serve on one or more International CLIVAR panels (SSG, VAMOS, WGSIP, WGCM) and the interactions between PPAI interests and the interests of those panels is providing two-way benefit.
- Three of the PPAI members sit on the Climate Science Team of the NOAA Climate Test Bed, and the director of the Climate Test Bed is also on PPAI.
- Co-chair is also a member of NOAA's Office of Climate Observations' Climate Observing Systems Council, providing a link between the growing ocean observing system and the needs of the prediction community.

* *Interactions with program managers from NASA, NOAA, NSF, and DOE; e.g. recommendations or input provided to agency program officials*

- Input on research priorities were made to NOAA's CVP program
- Participated in US CLIVAR briefing to NOAA's CPP Office in January 2006
- Corresponded with NSF and NOAA regarding a potential post-doc program (described below)

- Correspondence occurred with NSF and NOAA (and IAG, in general) regarding potential continuation of a CMEP-like activity, the outcome of which suggests potential for funding a workshop, but probably not a RFP.

3. What science, coordination, and/or planning activities, e.g., scientific workshops; special sessions at AGU/AMS meetings; focused planning workshops; have been catalyzed or organized by your panel? What outcomes of these activities could be promoted to the agencies as noteworthy? to the climate research community?

- **Predictability Review papers** are being organized. The set will consist of at least 3 papers, covering predictability and prediction issues on the (1) subseasonal-to-interannual, (2) decadal, and (3) climate change timescales. The current status of providing information on these timescales, and differences in the outstanding scientific challenges involved in each, leads to the separation of timescales for the purpose of review. The SI paper is drawing on model data provided through the WCRP-COPES Task Force on Seasonal Prediction and WGSIP. The reviews for the other timescales are less developed, but will be mapped out at the Summit. The outcomes of all these papers can be promoted to the agencies as noteworthy in their own right, and could serve to prioritize research necessary to develop/improve predictive capacity. They should also be of interest to the research community, both climate and climate impacts/decision systems, by documenting current skills for the US and serving as a template for similar analyses for other regions, in the case of the SI review, and through documentation of current efforts and challenges of delivering information on longer timescales.
- A special session for the Fall 2006 AGU has been proposed, entitled: **Increasing credibility of climate predictions**. The purpose of this session is to examine the credibility of state-of-the-art climate predictions from subseasonal to centennial timescales, with an eye toward improving them.
- A small workshop was convened (PPAI member on organizing committee) June 1-2, 2006 at GFDL, on **Decadal Predictability of the Atlantic**. The aim of the meeting was to sharpen ideas on Atlantic decadal predictability, which components might be predictable, whether and how to go forward and set up experimental predictability systems and what observations would be required to test, improve and initialize them. Output from the workshop will contribute to the decadal-timescale predictability 'review' paper.

4. What would your Panel consider to be its greatest successes to date?

- Our greatest success in this first year is probably formation of a focused set of goals that we all agree are necessary to improve the quality and provision of climate predictions, across timescales.
- Another important, though not yet realized, success is the development of an Applications Interface post-doc program. This program will join decision makers in local, state, regional, or federal agencies (e.g. FEMA, USDA) with young climate scientists. It will increase the demand of climate information, and hence climate research, grow the pool of qualified individuals to work at this important interface between climate science and its uptake, and to cover 3-5 post-docs will

cost less money per agency than a typical single grant award. At the summit we will discuss ways to pursue funding to initiate this program.

5. How responsive are your Panel's goals and activities to the agencies' priority scientific areas as presented at the 2005 Summit?

PPAI's goals are highly relevant to the agencies' priorities, particularly those related to developing, evaluating and using prediction systems for climate variability and change (all agencies), and linking climate science to decision support (NOAA & NASA).

6. What concerns does your Panel have about its activities and its role in US CLIVAR?

A primary concern is a seemingly limited ability to enact change. An example is the post-doc program described under #4. We acknowledge that money is tight these days, but this idea explicitly addresses the stated priorities from two of the agencies and costs less than a single proposal. So, is it a priority or not? If our approach to initiating this program needs to be modified, then we could use some guidance from the agencies. A similar concern is related to the requests for input on scientific priorities. Our impression was that US CLIVAR should look at the big picture and illuminate and prioritize areas for investment in order to advance climate science in the US, and internationally. This involves long-term investments, and the risk of negative results along the way, but with the large potential upside of genuine scientific breakthroughs. Unfortunately imaginative plans with such distant horizons are increasingly excluded in planning for actual calls for proposals, in favor of guaranteed short-term results that are also less bold, less interesting, and ultimately do less for the advancement of the science. We are unsure how we can change this situation, but a useful starting point might be more dialogue with the IAG, beginning at the summit itself.

As for PPAI's role in US CLIVAR, investigating and developing predictive capability lies at the heart of CLIVAR's goals. Advances in seasonal-to-interannual (SI) prediction – through process studies, model development, and prediction methodologies – have created the potential to provide meaningful climate information. A new perspective brought to CLIVAR by PPAI is increased research effort on the responsible provision, validation and use of climate information across time scales.