**Documenting Progress and Developing Plans for Future Research Related to US CLIVAR goals**

Several National Academy Reports were written about a decade ago that summarized the state of knowledge on key climate science issues that are core to today's US CLIVAR goals:

   a) Learning to Predict Climate Variations associated with ENSO (NRC, 1996)
   b) Decade-to-Century-Scale Climate Variability and Change (NRC 1998)
   c) Making Climate Forecasts Matter (NRC 1999)

In order to help formulate goals and strategies for activities within the climate research community, it is important for US CLIVAR to assess and measure progress since these (and related reports) were issued. Specific questions for US CLIVAR and its panels to consider might include:

1    What has been the progress, since TOGA, in understanding predictability of seasonal climate in the extratropics, particularly North America?
   • How do we currently understand limits of S/I predictability?
   • What has been learned about barriers to S/I predictability?
   • What strategies are best applied to removing barriers
       o intellectual
       o technological

2    What has been the progress, since the 1998 NRC report on decadal variability, in understanding processes and mechanisms of decadal variations in climate?
   • What has been learned about the origins for decadal variability?
       o ocean's role
       o atmosphere's role
       o land/ cryosphere surface role?
   • What observational and modeling strategies are required to make progress on understanding decadal variability?

3      What is known about the effects of anthropogenic forcing on the natural patterns of seasonal to decadal climate variability?

- Do the needed current detection and attribution methodologies exist?
- What are the strategies to improve knowledge of the impacts of anthropogenic forcing on natural patterns of climate variability?

4      What has been the impact of climate model evaluation projects (e.g., CMEP)

- In what manner have models been improved as a result of coordinated research activities inter comparing models?
- What has been the impact on predictions/predictability?
- What are strategies for possible future model intercomparison efforts?

5      What has been the progress, since TOGA, in the delivery and use of climate predictions?

- How is the use of climate forecasts measured?
- How is the value of climate forecast measured?
- What do we know about how the use & value of climate forecasts is affected by the skill of forecasts?