

Workshop on  
**Decadal Arctic Climate Projections for Adaption and Mitigation**

Held at the NOAA/Pacific Marine Environmental Laboratory,  
Seattle, WA  
16-18 Oct. 2012

Multiple Groups such as the Arctic Monitoring and Assessment Program (AMAP) and various national programs are interested in having Arctic climate projections as one source of information towards an Arctic Change Assessment. Loss of sea ice and global change, marine access, species impacts, impacts on coastal communities, and governance are all drivers for the need for increased information. The Atmospheric Working Group of IASC and the World Climate Research Program (WCRP) are interested in the science of Arctic climate change and polar prediction. A group of 27 researchers representing eight countries came together in the fall of 2012 in Seattle to discuss the state of the science, what might be possible give current data and model results, and to provide guidance on a way forward.

### **Workshop Recommendations**

- Regardless of scientific difficulties, Arctic climate change predictions with uncertainties are necessary. IASC and WCRP should support AMAP by developing and reviewing Arctic climate predictions based currently available information sources.
- For **decadal time scale (2020-2040) predictions**, it is justifiable to use a single emission scenario because on this time scale the differences between scenarios are small. Approaches for combining CMIP5 model projections with observed data and expert judgment should be explored.
- Develop **two centennial time scale (2080-2100) predictions** based on existing multiple model ensemble results for two emission scenarios: substantial mitigation and business as usual. At this time scale results show that uncertainties are largest from the choice of emission scenarios.
- Need input from users to refine climate scenarios. Match location, time horizon, month and variable to communicate at the user/climate interface. This information helps constrain the climate problem.
- Recognize there are difficulties in making regional projections. Results differ based on model, region, variable and evaluation metric.
- Projections should include standardized probabilistic statements. Recommend using IPCC nomenclature such as “likely,” “very likely,” etc.
- A need for physical consistency in results, e.g. temperature, sea ice, and precipitation projections are not created independently.