Climate Variability and Predictability (CVP) FY 2015 Information Sheet

Competition Name: Climate Process Teams – Understanding Madden-Julian Oscillation Initiation and Propagation

The key aim of the Climate Process Team (CPT) concept is to speed development of global coupled climate models and reduce uncertainties in climate models by bringing together theoreticians, field observationalists, process modelers and the large modeling centers to concentrate on the scientific problems facing climate models today.

In FY2015, proposals are solicited for Climate Process Teams (described in http://www.usclivar.org/resources/climate-model-evaluation) that will use DYNAMO data, and other observations, to identify and improve processes that affect MJO initiation and propagation in the NOAA NCEP and/or GFDL weather and climate models. Use of observations and associated modeling activities from other recent NOAA-funded projects such as Eastern Pacific Investigation of Climate Processes (EPIC), Pan American Climate Studies (PACS), VAMOS Ocean-Cloud-Atmosphere-Land Study (VOCALS), and/or National Multi-Model Ensemble (NMME) is encouraged but not required. NMME real-time and hindcast data on a daily timescale is expected to be released in Summer of 2014. Partnership with at least one NOAA lab or center is required.

Climate Variability and Predictability (CVP) FY 2015
Competition Name: Understanding Arctic Sea Ice Mechanisms and Predictability

The climate in the Arctic is rapidly changing, especially with regard to rapid temperature changes, and loss of sea and land-fast ice. Observed records of the area covered by sea ice in the Arctic at the end of summer has shrunk by about 40% since 1979, with 2007 and 2012 being years of record low sea ice. These changes are vitally important to NOAA and the Nation as our citizens living in the Arctic are impacted due to increased strong storms and increased coastal erosion. These changes also affect our future access to transportation routes, economic development in the Arctic, and access to natural resources.

In order for our Nation to understand, prepare, and respond to the changing Arctic, we need improved predictions of weather, climate, and the fully coupled system of atmosphere-ocean-land-ice-ecosystem. Some of the current challenges for improved predictions are a lack of adequate and integrated observations in the Arctic region, climate and weather models that were historically developed to have high skill in the mid- and lower-latitudes, and a nascent understanding of the unique weather and climate processes that drive the coupled Arctic system. Therefore, it is important for NOAA to develop a capability to skillfully and reliably predict regional variations and changes in Arctic sea ice on time scales

of a few months to decades to improve our predictive capability and address the need for environmental information for informed decision making.

In FY 2015, the CVP program invites data and model (single model, multi-model, and/or hi-resolution) experimentation and analysis that seeks to advance the understanding of Pan-Arctic sea ice interactions in any of the following areas:

- Climatic mechanisms that affect Arctic temperatures and growth and/or loss of sea ice.
- Mechanisms, predictability and prediction of regional sea ice variation and change.
- Systematic predictability of the fully coupled climate-ocean-ice system, its driving factors, its state dependence as external forcings change, and whether such predictability can be achieved in operational-like predictions.

The goal of this research is to improve future operational predictions. Partnership with NOAA labs and centers is strongly encouraged. Use of NOAA-funded observational data is encouraged but not required. Examples of NOAA-funded observational data are:

- NOAA Climate Observations Division Arctic Data: www.arctic.noaa.gov/data.html
- CRREL Sea Ice data: http://imb.crrel.usace.army.mil/
- Polar Science Center - UW: http://psc.apl.washington.edu/wordpress/research/sea-ice/

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