[EE] Evening Poster | A (Atmospheric and Hydrospheric Sciences) | A-OS Ocean Sciences & Ocean Environment

[A-OS08]Seasonal-to-decadal climate variability and predictability

convener:Takashi Mochizuki(Japan Agency for Marine-Earth Science and Technology), V Ramaswamy(NOAA GFDL), Yushi Morioka(海洋研究開発機構)

Sun. May 20, 2018 5:15 PM - 6:30 PM Poster Hall (International Exhibition Hall7, Makuhari Messe)

Climate variability on seasonal-to-decadal timescale (e.g. ENSO, IOD, PDO, AMO) involves processes and multiple physical interactions among atmosphere, land, ocean and sea-ice. Many efforts have been made for understanding the underlying physical processes and its predictability, but there remain large uncertainties in model simulation and prediction results of the seasonal-to-decadal climate variability. This indicates that some important gaps still exist in our current knowledge which are not fully resolved in current climate models, for example, atmosphere-ocean-ice interaction, troposphere-stratosphere coupling, initialization, and role of anthropogenic forcings. This session aims to narrow the gaps in our knowledge and identify the unresolved issues for better understanding and prediction of seasonal-to-decadal climate variability. All the observations, theoretical, process-level and modelling research on seasonal-to-decadal climate variability and its predictability are greatly welcome.

[AOS08-P05]Experimental Seasonal Climate Prediction Using CFES

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Keywords:experimental seasonal climate prediction, global coupled atmosphere-ocean GCM, atmosphere-ocean interaction, sea-ice variability

An experimental seasonal climate prediction system has been developed based on the Coupled atmosphere-ocean general circulation model for the Earth Simulator (CFES). Following the well-established system based on the SINTEX-F model, initial conditions for seasonal climate prediction are constructed by strongly nudging sea surface temperature (SST) to observed one.

The atmospheric component of CFES has the resolution of T119 in the horizontal and 48 sigma-layers in the vertical with the top level placed at about 3 hPa. The oceanic component has a resolution of 1/2 degree in the directions of both longitude and latitude and 54 levels in the vertical. They are coupled every hour.

At this stage, 6-member ensemble 6-month predictions from the 1st day of March, June, September, and December have been conducted from 1983 through 2017, after 32-years of coupled spin-up integration with SST-nudging to the observed climatology. The experimental system exhibits skill in predicting SST variability in the tropical Pacific. Detailed analysis of the prediction skill, including comparison with the SINTEX-F system, will be shown in the presentation.