[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)

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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-P03]A three-region conceptual model for central Pacific El Niño including zonal advective feedback

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The simple zonal two-region skeleton of the recharge paradigm can accurately manifest the traditional eastern Pacific (EP) type of El Niño–Southern Oscillation (ENSO), as its major warming center is located in the EP and the anomalous sea surface temperature (SST) changes monotonically from west to east along the equatorial Pacific. However, it cannot fully depict the variations of the central Pacific (CP) type of ENSO, whose major warming center is mainly situated in the CP. Therefore, to better investigate the characteristics of the CP type of ENSO, the recharge paradigm is extended to a three-region conceptual model to describe the entire western, central and eastern equatorial Pacific. The results show that the extended conceptual model can depict the different variations between the CP and EP well. Specifically, with increasing magnitude of the zonal advective feedback over the CP, i.e., imitating the situation for CP ENSO, the period of the system and SST magnitude over the CP and EP both decrease. However, the decreasing amplitude is more intense over the EP, indicating an enlargement of the SST differences between the CP and EP. These results are all consistent with the observational characteristics of CP ENSO.