[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-P08]A study of the fluctuation of planetary albedo in decadal cycle evaluated from JRA-55

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Keywords:hiatus, planetary albedo, cloud cover

In this study, we make time series of the mean planetary albedo in spring, summer, autumn, winter and annual averaged in the Northern Hemisphere. In addition, we explain what influences the variation of planetary albedo in decadal cycle at the top of the atmosphere (TOA). First, we illustrate that the mean planetary albedo at TOA in summer and in annual is fluctuating in decadal cycle similar to that in winter. On the other hand, the time series of the mean albedo at surface in winter, summer, autumn, and annual show decreasing trends. This result indicates that the fluctuation of planetary albedo at TOA is influenced by clouds in the atmosphere. Furthermore, we compare the cloud cover with the planetary albedo at TOA averaged in annual are similar. Further the correlation between them is positive in the Northern Hemisphere. These results show that the variation of low level cloud cover makes the fluctuation of the planetary albedo at TOA in decadal cycle. Finally, by comparing surface air temperature, planetary albedo with low level cover, we suggest that rapid global warming and hiatus are related to the fluctuation of planetary albedo through low cloud cover.