

Trends of summer precipitation over northern Eurasia in historical simulations with MIROC6

*Manabu Abe¹, Hironari Kanamori², Hatsuki Fujinami², Tetsuya Hiyama², Hiroaki Tatebe¹

1. Japan Agency for Marine-Earth Science and Technology, 2. Institute for Space-Earth Environmental Research

It is well known that many models developed by organizations around the world have simulated past climate changes and projected future climate changes (e.g., Eyring et al, 2016). However, in northern Eurasia, features and uncertainties of long-term trends simulated in the models are not sufficiently evaluated. Therefore, in this study, the features and the uncertainties of the variability of summer mean precipitation over northern Eurasia in the historical simulations by MIROC6 are investigated. We analyzed data from 50 members of the historical simulation (1850-2014) with MIROC6 under CMIP6 protocol. In the regions (north more than 60N) and Northeast Asia, the ensemble averages of temporal trends of summer precipitation for 1951-1980 among the 50 members were negative, approximately $-0.04 \sim -0.02 \text{ mm day}^{-1} \text{ decade}^{-1}$. However, for 1971-2000, the trend changed to positive. For 1990-2014, the positive trends in eastern Siberia became significant, but the negative trends in the southern part of western Siberia also appeared. In the presentation, we discuss uncertainties in the trends of summer precipitation as well as changes in atmospheric circulation and sea ice conditions which could relate to the trends of summer precipitation.

References:

Eyring, V., Bony, S., Meehl, G. A., Senior, C. A., Stevens, B., Stouffer, R. J., and Taylor, K. E. (2016), Overview of the Coupled Model Intercomparison Project Phase 6 (CMIP6) experimental design and organization, *Geosci. Model Dev.*, 9, 1937-1958, doi:10.5194/gmd-9-1937-2016.