

Ose, T., H. Endo, Y. Takaya, S. Maeda, and T. Nakaegawa, 2022: Robust and Uncertain Sea-Level Pressure Patterns over Summertime East Asia in the CMIP6 Multi-Model Future Projections. *J. Meteor. Soc. Japan*, **100**, 631-645.

<http://doi:10.2151/jmsj.2022-032>.

**Plain Language Summary:** Robust and uncertain sea-level pressure patterns over summertime East Asia in the future global warming projections and their causes are studied by applying the inter-model empirical orthogonal function (EOF) analysis in the sixth phase of the Coupled Model Intercomparison Project (CMIP6) and focusing common features with the previous CMIP5 analysis.

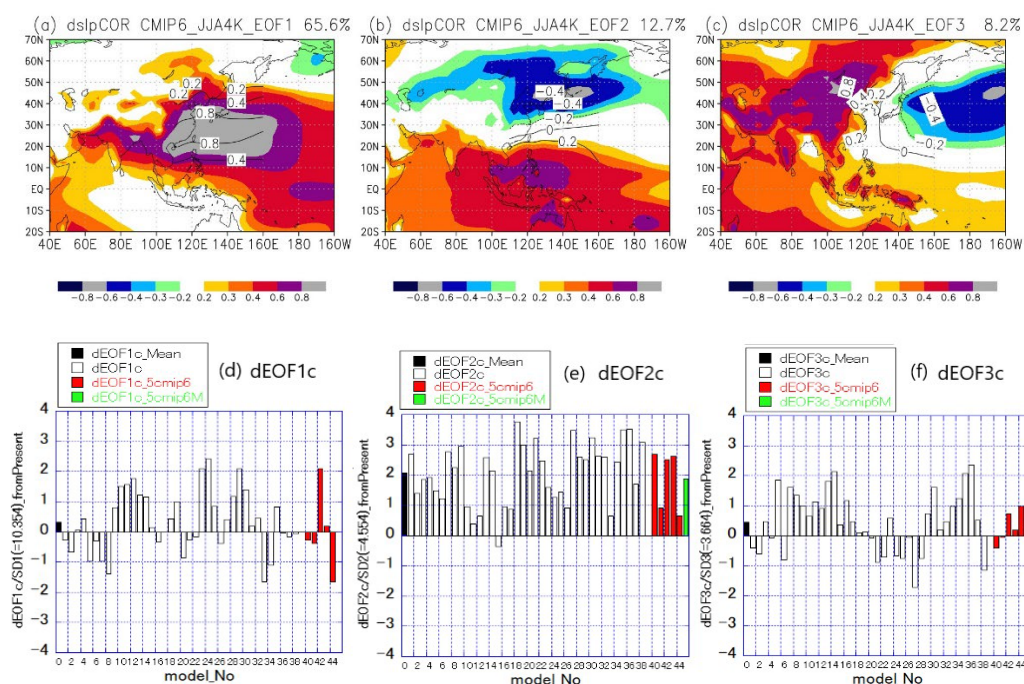


Figure 1. (a)-(c) Geographical distributions of the first to third inter-CMIP6-model EOFs for the future sea-level pressure changes. (d)-(f) Empty bars at 1-38 of the horizontal axis represent the first to third EOF resolution coefficients for the future sea-level pressure changes by 38 CMIP6 models.

- A robust future projection pattern making positive contributions to almost all the CMIP6 future pressure changes (Fig. 1b and Fig. 1e), represents a weakened high-pressure system in northern East Asia and is understood as the result of surface warming over the northern continents.
- For two uncertain (but major) patterns in the ensemble projections (Fig. 1a and c), the signs of their contributions to the future changes are dependent on the model used (Fig. 1d and f). They represent a high-pressure system in subtropical East Asia and the anomaly of the climatological pressure pattern over summertime East Asia, respectively.
- The two uncertain patterns are caused by suppressed vertical motion over the equatorial and northern Indian Ocean respectively in the vertically stabilized atmosphere under the global warming.