Endo, H., A. Kitoh, R. Mizuta, and T. Ose, 2021: Different future changes between early and late summer monsoon precipitation in East Asia. *J. Meteor. Soc. Japan*, **99**, 1501-1524.
https://doi.org/10.2151/jmsj.2021-073

Plain Language Summary: Future changes in East Asian summer monsoon (EASM) precipitation and the associated atmospheric circulation changes are investigated with a 60-km-mesh atmospheric general circulation model (AGCM). The results highlight a distinct difference between early and late summer in future changes of EASM precipitation (Fig. 1a). Sensitivity experiments with the AGCM reveal that the precipitation changes in early summer are dominated by the effects of sea surface temperature (SST) warming, resulting in an intensification and a southward shift of the Baiu rainband (Figs. 1d and 1f), whereas the influence of land warming and successive large SST warming in the extratropics is evident in late summer (Figs 1c and 1e).

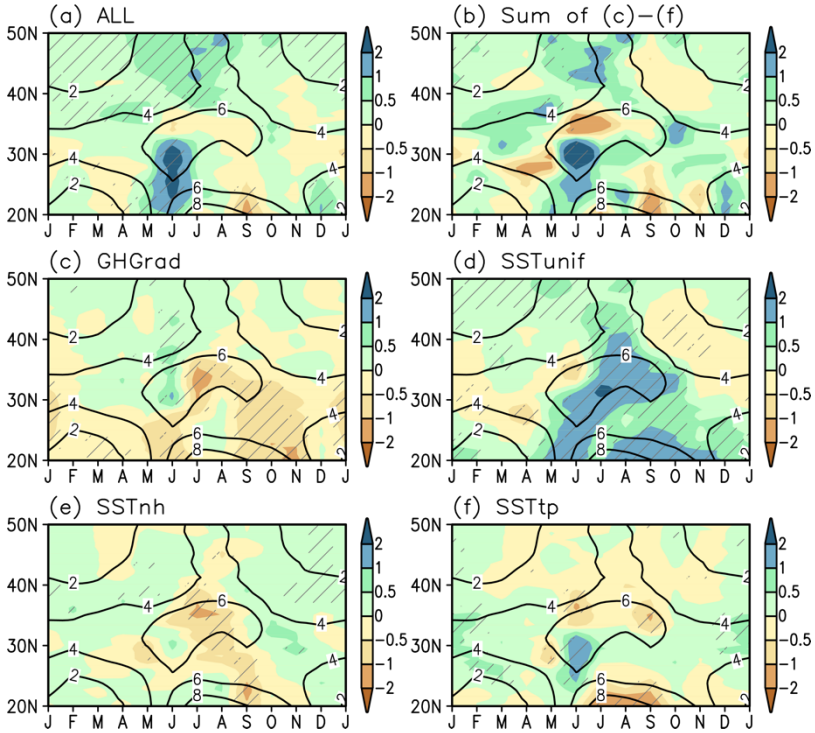

Figure 1. Sensitivity experiments with an AGCM showing time–latitude cross-sections of precipitation (shading; mm day^{-1}) averaged over 125°E–145°E. (a) RCP8.5 scenario, (b) sum of (c)–(f), (c) greenhouse-gas radiative forcing, (d) uniform SST warming, (e) SST pattern change in the Northern Hemisphere extratropics, (f) SST pattern change in the tropics. Contours indicate the present-day climatology. Hatching indicates that the change is statistically significant.

- The Meiyu–Baiu rainband is projected to strengthen, with its eastern part (i.e., the Baiu rainband) shifted southward relative to its present-day position in June, while there is a lack of consensus on the projection of the rainband in July.
- The competition between the opposing factors makes the signal of the Meiyu–Baiu rainband response smaller in July than in June, and thus there tends to be a larger spread among simulations regarding the future tendency of the rainband in July.