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Multi-model ensemble seasonal predictability of Asian summer monsoon precipitation

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Dynamical seasonal predictability of summer monsoon rainfall is examined by combining forecasts from different GCMs. Through a simple analysis of skill metrics, it is shown that the performance of the multi-model ensemble prediction depends on the mean performance of collected models and their diversity, which is a basis of improvement of predictability by the multi-model ensembling. The benefit of multi-model ensemble comes from two factors; using many ensemble members and using different models. In particular, multi-model effect is significant over the Asian monsoon region.

Under the level of diversity of climate models examined here, the multi-model ensemble prediction is generally better than the single best model. Although the selection of several skillful models can provide more improved skill, the sophisticated combination of models based on the historical performance does not improve prediction skill significantly.