

Masutomi, Y., T. Iizumi, K. Oyoshi, N. Kayaba, W. Kim, T. Takimoto and Y. Masaki, 2023: Systematic global evaluation of seasonal climate forecast skill for monthly precipitation of JMA/MRI-CPS2 compared with a statistical forecast system using climate indices. *J. Meteor. Soc. Japan*, **101**, 209-227.
<https://doi.org/10.2151/jmsj.2023-014>.

Plain Language Summary:

This study aimed to systematically and globally evaluate the monthly precipitation forecasts of JMA/MRI-CPS2, a dynamical seasonal climate forecast (Dyn-SCF) system operated by the Japan Meteorological Agency, by comparing its forecasts with those of a statistical SCF (St-SCF) system using climate indices. Consequently, the skill of JMA/MRI-CPS2 was determined to be globally higher than that of the St-SCF for zero-month lead forecasts. Contrarily, for forecasts made with a lead time of 1 month or longer, the deterministic skill of JMA/MRI-CPS2 was comparable to that of the St-SCF, and the probabilistic skill of JMA/MRI-CPS2 remained slightly higher.

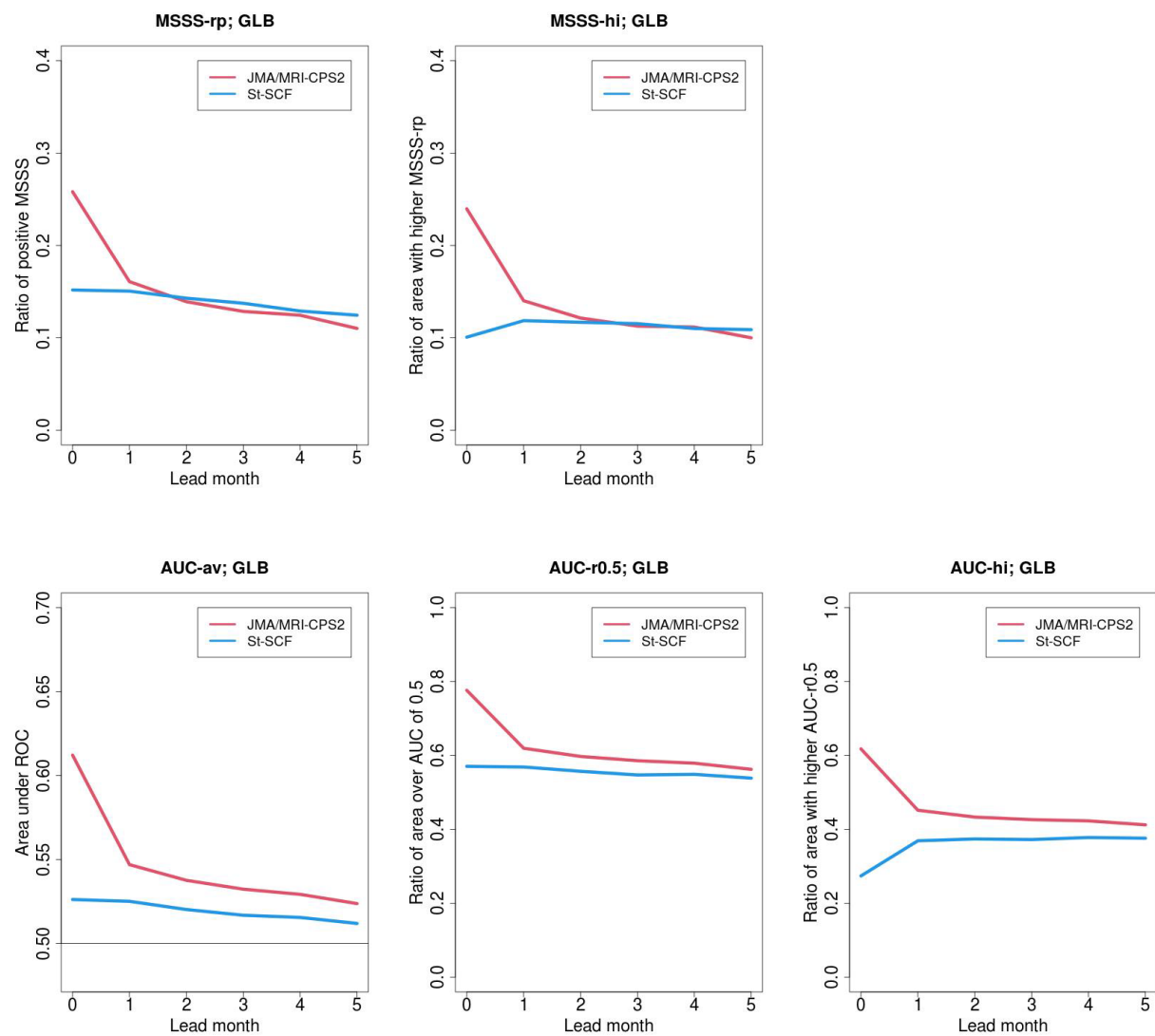


Figure 1. Comparison of MSSS-rp (the ratio of areas with positive Mean Squared Skill Score, MSSS; top left), MSSS-hi (the ratio of areas with positive and higher MSSS; top right), AUC-av (the global average of area under receiver operating characteristic curve, AUC; bottom left), AUC-r0.5 (the ratio of areas with AUC > 0.5; bottom center), and AUC-hi (the ratio of areas with AUC > 0.5 and the higher AUC; bottom right) between JMA/MRI-CPS2 and the St-SCF using climate indices.

- The skill of JMA/MRI-CPS2 for global zero-month lead forecasts was higher than that of the St-SCF.
- For lead forecasts of 1 month or longer, the deterministic skill of JMA/MRI-CPS2 was comparable to that of the St-SCF, and its probabilistic skill was slightly higher.
- Comparison between Dyn-SCFs and St-SCFs enables the determination of potential regions and seasons for the improvement of the forecast skill of Dyn-SCFs.