



Evaluation of Forecast Performance on Asian Summer Monsoon Low Level Wind Using TIGGE Dataset

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The forecast performance of EASM (East Asia summer monsoon) and SASM (South Asia summer monsoon) for six TIGGE (the THORPEX Interactive Grand Global Ensemble) centers in the summers of 2008-2013 are evaluated to reflect the current predictability of the state-of-the-art numerical weather prediction. The results show that EASM is overestimated by all the TIGGE centers (except the Canadian Meteorological Center, CMC). SASM is also over-predicted by ECMWF (the European Center for Medium-Range Weather Forecasts), CMA (the China Meteorological Administration) and CMC but conversely under-predicted by JMA (the Japan Meteorological Agency). Additionally, SASM is overestimated for the early lead times and underestimated for the longer lead times by NCEP (the National Centers for Environmental Prediction) and UKMO (the United Kingdom Meteorological Office (UKMO)). Further analysis suggests such biases are likely to be associated with those in the related land-sea thermal contrasts. EASM surge is basically overestimated by NCEP and CMA and mainly underestimated by the others. The bias predictabilities for SASM surge are similar to that of SASM. The peaks of SASM and EASM including their surges are mainly underestimated while the valleys are mostly overestimated. By comparison, ECMWF and UKMO have overall the highest forecast skills in predicting SASM and EASM and both have respective advantages. All the TIGGE centers generally show higher skills in predicting SASM than EASM. The forecast skills of SASM and EASM are superior to that of their respective surges. Moreover, the bias-correction forecast skills tend to be improved with higher correlation coefficients in raw forecast verification.