

Trends in seasonal forecast models

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Abstract

To improve the skill of seasonal predictions, the next-generation Seasonal Forecast System (SFS) is being developed as part of the Unified Forecast System (UFS) to replace the current operational Climate Forecasting System (CFSv2). The CFSv2 has a number of deficiencies including an erroneous long-term warm trend in tropical Pacific sea surface temperature (SST) and too strong a warm trend in surface air temperature over North America. Long-term trends are crucial for accurate seasonal predictions. However, climate models often have trends that differ significantly from observations, leading to errors in seasonal forecasts. This work will evaluate the trends in global SST, 2m air temperature within the contiguous United States (CONUS), and precipitation within CONUS and the tropics in observational datasets and experimental SFS hindcasts, and their comparison with CFSv2, GFDL_SPEAR, and NMME models. The enhanced Model Evaluation Tools (METPlus) will also be explored for skill evaluation.