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Oral

We examine the predictability of large-scale total cloud cover and outgoing longwave radiation (OLR) in leading coupled global ensemble prediction systems, including the Navy Earth System Prediction Capability (Navy ESPC) and ECMWF, UKMO, and NCEP CFSv2 from the Subseasonal-to-Seasonal (S2S) database. An operational 16-member version of the Navy ESPC ensemble has been run operationally once a week out to 45 days since August 2020, allowing us to compare these cloud forecasts to leading operational S2S models. Forecasts are verified against CERES total cloud cover and NOAA CDR OLR.

We examine the actual and potential predictability of OLR and total cloud cover as well as convectively coupled equatorial wave (CCEW) -filtered OLR using 20 years of ECMWF ensemble reforecasts. In examining the extended-range predictability of total cloud cover and OLR we examine the sensitivity of predictive skill and potential predictability to averaging forecasts in time (1, 2, 4, 7, and 14 day windows are used) and spatial averaging (500 and 1000 km radial averages are used). Spatial averaging of the forecasts and observations increases skill especially for window lengths less than 7 days. In addition, we compare predictions of OLR and total cloud cover from the operational Navy ESPC ensemble to leading coupled models from the S2S database for forecasts initialized in 2021 and 2022.

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