

Stratosphere-troposphere coupling: The Eurasian snow - Arctic Oscillation connection in the operational NCEP Climate Forecast System

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Observational studies have established a significant relationship between October snow cover extent over Eurasia and the following wintertime Arctic Oscillation index. We examine how well this relationship is captured in the National Center for Environmental Prediction (NCEP) operational Climate Forecast System (CFS) model, comparing hindcasts from CFS version 1 and the newly operational CFS version 2. The models are able to capture some aspects of the initial atmospheric response to snow cover variations, but by winter they no longer show significant relationships with October snow. We examine details of the model response in the troposphere and stratosphere and diagnose potential areas for model improvement.