

ANALYSIS AND EVALUATION OF OBSERVING SYSTEM SIMULATION EXPERIMENTS (OSSES) FORECAST DATA FOR INDIAN SUMMER MONSOON

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Abstract

An attempt is made here to evaluate the skill of forecast during boreal summer monsoon regime over the Indian region using the Observation Simulation System Experiment (OSSE) with Doppler Wind LIDAR (DWL) onboard International Space Station (ISS), assimilated in the initial condition. Through various techniques such as pattern correlation, root mean square error etc, we found that there is some positive impact of assimilating the DWL data on the forecast particularly at the lower tropospheric level. Impact on lowering the RMSE is seen for wind fields in the 850 and 500 hPa over Indian domain but not much impact is seen over larger domain. The moisture field and cloud also show marginal impact due to assimilation of DWL. This indicates that possibly due to lower spatial resolution of DWL data and more data gap over Indian and surrounding oceanic region, the impact on forecast is less. However, it shows the promise that monsoon being a convectively coupled system; increase in spatial data by DWL may better resolve the low level wind and subsequently the low level shear which is important for convection trigger in boundary layer.