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Potential, application and questions of DBNet Data in Regional NWP in CMA

At present, there are four kinds of sources of ATOVS AMSU-A data available in CMA, including two kinds of DBNet data (as RARS and EUMETcast) and two kinds of global data (as NESDIS and EUMETSAT). There are some differences on satellite kinds, observation coverages and timeliness among different sources.

Up to 2018 only global data are used in global models in CMA. DBNet data have been used neither in global model nor regional model, which has advantage in timeliness.

So firstly, the observation numbers and brightness temperature differences between DBNet data and NESDIS data are studied. It is reflected that some differences in calibration and positioning in satellite data preprocessing, either between RARS stations and NESDIS way or among different RARS stations.

After that, both DBNet data and global data are putting into a real-time regional assimilation system in NSMC. The framework of the real-time regional assimilation system is shown, as well as the assimilation impact both on typhoon Maria in 2018 and on the continuous experiment lasting from January 2018 to September 2018.

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