

Assimilation of all-sky GCOM-W/AMSR2 brightness temperature using a strongly coupled atmosphere-land data assimilation system in snowy Siberia

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Coupled numerical models address the interaction between processes in the atmosphere, ocean, land surface, biosphere, chemistry, cryosphere, and hydrology. Including the interaction between such processes can potentially extend the predictability and eventually help in reducing the uncertainty of the prediction. Coupled data assimilation is a branch of data assimilation that deals with coupled modeling systems. There are two kinds of coupled data assimilation systems such as weakly and strongly coupled data assimilation. Recently we developed a strongly coupled atmosphere-land data assimilation system (Suzuki et al., 2017). In this article the fundamentals of bias correction for the all-sky GCOM-W/AMSR2 brightness temperature using coupled data assimilation are described. Through a series of data assimilation experiments, we analyze the effectiveness of bias correction coefficients and predictors. Through this study, we analyze the impact of all-sky brightness temperature in reanalysis. Finally, applying coupled data assimilation can visualize more details of coupled atmosphere-land interaction.

Reference

Suzuki, K., Zupanski, M. and Zupanski, D. (2017), A case study involving single observation experiments performed over snowy Siberia using a coupled atmosphere-land modelling system. *Atmos. Sci. Lett.* doi:10.1002/asl.730

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