

Satellite-based Data Assimilation Systems by Using Microwave Radiometers

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Various types of data assimilation systems for monitoring and prediction water cycle have been developed based on the information derived from satellite-based passive microwave radiometers boarded on satellites. By coupling a land data assimilation by using satellite-based passive microwave sensors with an atmospheric model, Land Data Assimilation System coupled with Atmospheric model (LDAS-A) physically input land surface hydrological conditions into a land-atmosphere coupled model. By merging the land surface information obtained ranging from the lower frequencies to the higher frequency, Coupled Atmosphere and Land Data Assimilation System (CALDAS) assimilate soil moisture, vertically integrated cloud water content over land, and heat and moisture within clouds simultaneously. By using high sensitivity of microwave to water included in surface soil and terrestrial vegetation, Coupled Land and Vegetation Data Assimilation System (CLVDAS) can provides better estimates of vegetation growth as we as soil moisture.

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