High resolution Motion Vector for the GSMaP MVK

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The Global Satellite Mapping of precipitation (GSMaP) is global precipitation map with 0.1 gridded every one hour. The GSMaP motion vector with Kalman filter (MVK) precipitation estimated by passive microwave radiometer on low-earth orbit. Although the observation area of the sensors does not cover all earth in an hour. Thus the GSMaP MVK fill the no observation area from previous and feature observation by the Kalman filter with cloud motion vector. The motion vector is estimated from brightness temperature of IR on geosynchronous observation satellites. We are developing high resolution technique for the GSMaP MVK. The observation area of radiometers becomes narrower in a shorter time interval. So the filling region of the high temporal and spatial resolution GSMaP MVK is wider than the current GSMaP MVK. The motion vector for the high-temporal-and-spatial resolution GSMaP MVK must be higher-spatial and temporal resolution by the current motion vector. The resent geosynchronous orbit weather satellite has a high spatial and temporal resolution microwave sounder. The atmospheric motion vector (AMV) is estimation from the sounder. The AMV is high resolution and include altitude information. We will apply the AMV for the high resolution GSMaP MVK. The AMV is, however, not gridded data. The GSMaP MVK algorithm requires motion vector as gridded data. Therefor we develop a technique to calculate motion vector for the high-resolution GSMaP MVK from the AMV. In my presentation, we introduce technique of high-resolution motion vector form the AMV.

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