RECENT STATUS OF ATMOSPHERIC MOTION VECTORS RETRIEVAL ACTIVITY AT ISRO

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Abstract

The operational derivation of atmospheric motion vectors (AMVs) from the different spectral channels of three successive geo-stationary satellite images started in the early seventies and for the last decade or so the AMV retrieval has become one of the most important component for operational numerical weather prediction. From the satellite measurement, the major contribution of atmospheric wind information are derived by considering the movement of cloud and water vapor tracers to determine wind operationally. In India, at Indian Space Research Organization (ISRO) the operational derivation of AMVs from the Indian Geostationary satellites have been initiated few years back using Kalpana-1/INSAT-3A infrared and water vapor channels. Subsequently over the course of time many changes have been made in the retrieval algorithm. The recent launches of INSAT-3D satellite with improved imager channels have significantly improved the status of AMV accuracy in India by widen its range of applications in tropical weathers. The capability to derive day-time AMVs using high-resolution visible images and 3.9 μm channel images for night-time is also explored using INSAT-3D data. Initial analysis with first few months of INSAT-3D data shows that AMV retrieved from INSAT-3D are comparable with AMVs retrieved from other contemporary satellite (viz. Meteosat-7) over this region. This paper describes the present status of AMV retrieval activity at ISRO and the improvement achieved in accuracies especially in terms of INSAT-3D for a last couple of months.