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THE CONTRIBUTION OF LOCALLY GENERATED MTSAT-1R ATMOSPHERIC MOTION VECTORS TO OPERATIONAL METEOROLOGY IN THE AUSTRALIAN REGION

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MTSat-1R was launched on 26 February 2005. It was subsequently moved over the Equator at 140° E where it has been operated by the Japanese Meteorological Agency (JMA) as the primary geostationary meteorological satellite, observing the Western Pacific, Asia and the Australian Region. Since 2005, MTSat-1R data have been received via direct readout at the Bureau of Meteorology (hereafter referred to as 'the Bureau') satellite groundstation at Crib Point, Victoria, and the calibrated and navigated radiance data (imagery) has subsequently been used to calculate hourly Atmospheric Motion Vectors (AMVs). These data have been error characterized using the Expected Error (estimated RMS error in m/s), the Quality Indicator (0 – 100) and other error metrics. The data have subsequently been used in real time data assimilation trials to gauge their impact on operational regional Numerical Weather Prediction (NWP). Their benefit is described in this paper. They are used, operationally, for analysis in the Darwin Regional Forecast Office and, subsequent to the trials described here, were introduced into the Bureau's National Meteorological and Oceanographic Centre's (NMOC's) operational numerical weather prediction suite with the upgrade of the Operational Regional Prediction System in October 2007. Both hourly winds and winds from other satellites, error characterized using the methods noted above, have also been used in data assimilation trials and these experiments will be noted.