Retrieval of atmospheric parameters from NOAA-16 AMSU data over Indian region - Preliminary results

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ABSTRACT. With the establishment of a new High Resolution Picture Transmission (HRPT) reception system at IMD, New Delhi, the real time data from microwave sounding instruments onboard the NOAA-K, L, M and N series of satellites has also become available. The raw HRPT data is being interfaced with the recently acquired new ‘ATOVS and AVHRR Preprocessing Package (AAPP)’ to perform temperature and moisture retrievals from AMSU data of NOAA-16 satellite using two separate schemes: Inversion Coupled Imager (ICI) and Neural Network (NN) approach. In this study, NOAA-16 satellite data over Indian region were used for retrieving temperature and moisture profiles for the month of January, 2002. The temperature and moisture retrieval results are evaluated by computing the bias and root mean square (RMS) difference using collocated ECMWF analysis. The results based on the analysis of data set for the month of January, 2002 shows that ICI approach yields better results for all atmospheric levels. The RMS errors in temperature profiles are found to be less than 4°C at all pressure levels. The RMS errors in relative humidity are found to be less than 20% at all pressure levels. Intercomparison of the results revealed that bias and RMS error are less for ICI scheme using forecast field compared to ICI without using forecast field and Neural Network approach.

Key words – ICI Inversion Coupled Imager, NN Neural Network, ECMWF European Center for Medium Range Weather Forecasting, Remote sensing.