Validation and inter comparisons of profiles from ATOVS and AIRS data over India and its surrounding regions.

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INDIA
TeraScan HRPT Acquisition and Processing System

1.2m HRPT Tracking Antenna

- Sun Ultra-10 Acquisition and Processing
- HRPT Receiver
- DAT Drive

Optional Items
- Color DeskJet Printer
- UPS

Antenna Pedestal
Retrievals of Temperature and Moisture Profiles for NOAA-16 using ICI Model

• The first guess was taken from LAM Model run operationally by IMD for the input to the AAPP and followed by ICI model.

• The NCEP reanalysis was used for the computation of RMSE and bias.

• This exercise was carried out from January 2004 to September 2004.
ICI MODEL

Temperature noaa16 land

NCEP REANALYSIS – ICI RMS

cloudy

OBS

11/01/04 21/01/04 01/02/04 11/02/04 21/02/04 01/03/04 11/03/04 21/03/04

1000

1000

10

10

clear

OBS

11/01/04 21/01/04 01/02/04 11/02/04 21/02/04 01/03/04 11/03/04 21/03/04

0.2 0.4 0.6 0.8 1.0 1.2 1.4 1.6 1.8 2.0 2.2 2.4 2.6 2.8 3.0 3.2

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Intercomparisons of Temperature Profiles for NOAA-16 using ICI Model with AIRS

- The NCEP reanalysis was used for the computation of RMSE and bias for both ICI retrievals and AIRS profiles.
- This exercise was carried out for January 2004.
Intercomparisons of Moisture Profiles for NOAA-16 using ICI Model with AIRS

- The NCEP reanalysis was used for the computation of RMSE and bias for both ICI retrievals and AIRS profiles.

- This exercise was carried out for January 2004.
Intercomparisions of horizontal fields of Temperature Profiles for NOAA-16 using ICI Model with AIRS at different pressure levels

- This exercise was carried out for Temperature profiles for the period of January and August 2004.
Intercomparisons of horizontal fields of Moisture Profiles for NOAA-16 using ICI Model with AIRS at different pressure levels

- This exercise was carried out for Moisture profiles for the period of January and August 2004.
Summary

The ICI model retrieved profiles are validated using NCEP reanalysis yields rms error about 3.2 K over land and 2k over Sea. Further the intercomparisons of ATOVS and AIRS profiles show the larger differences over land areas at few locations compared to oceanic areas. The order of the differences in temperature and moisture over land areas at surface and 850 hPa are about 3K and 3gm/kg respectively. However, these differences are very small in middle atmosphere.
Thanks