

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

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TeraScan HRPT Acquisition and Processing System

1.2m HRPT Tracking Antenna



Antenna Pedestal

Sun Ultra-10 Acquisition and Processing

HRPT Receiver

DAT Drive



Optional Items

Color DeskJet Printer

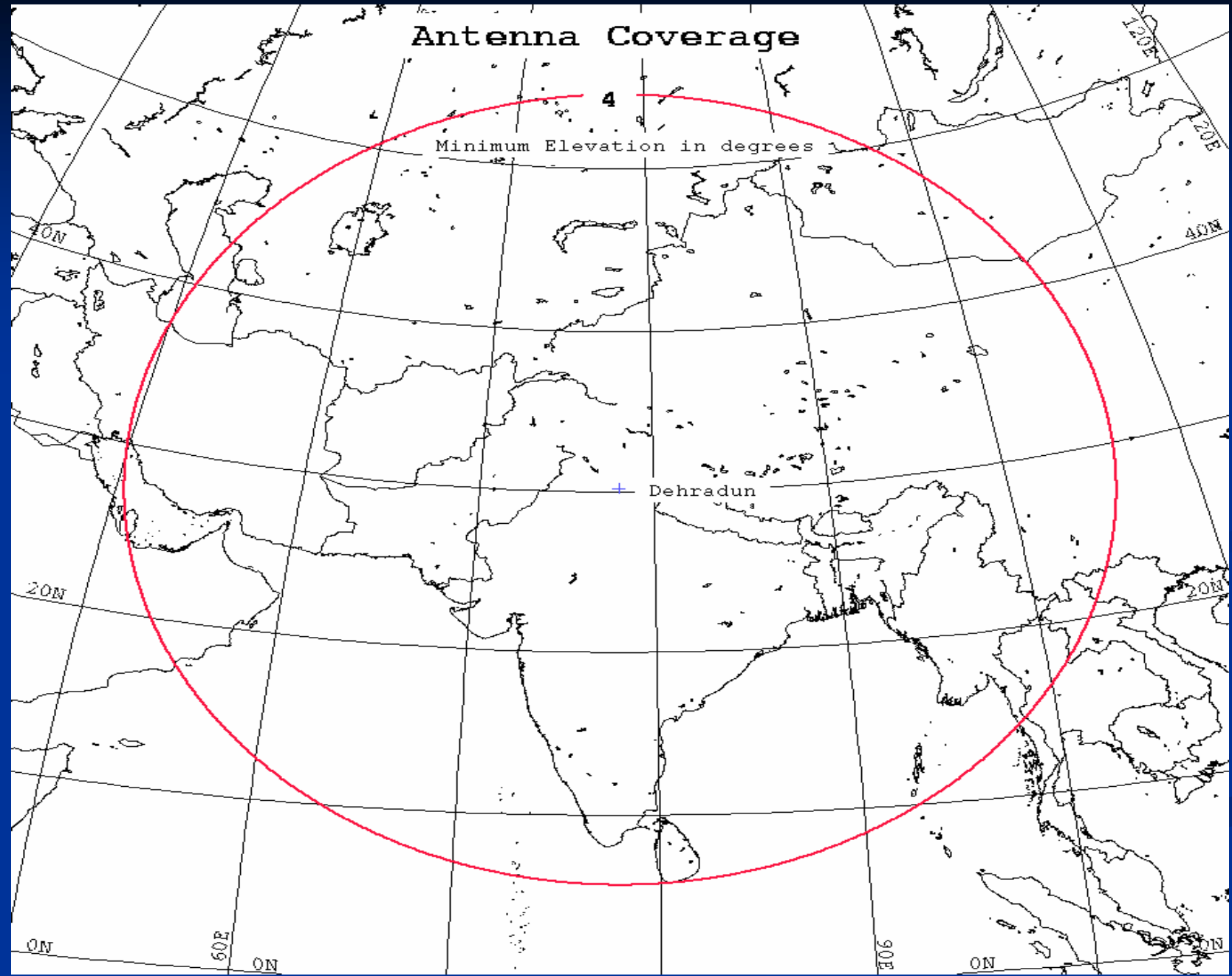
UPS

Antenna Coverage

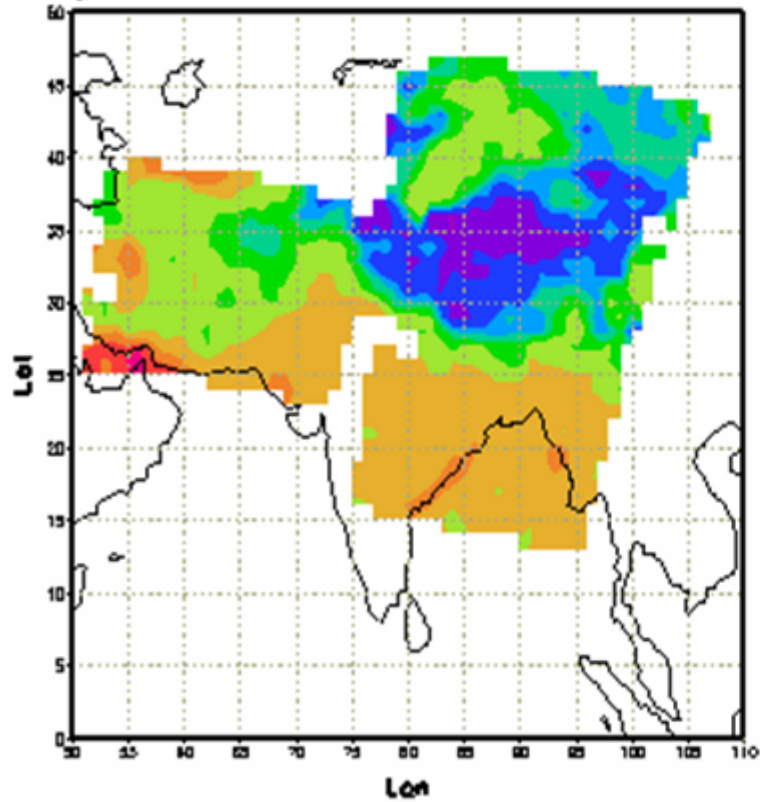
Minimum Elevation in degrees

4

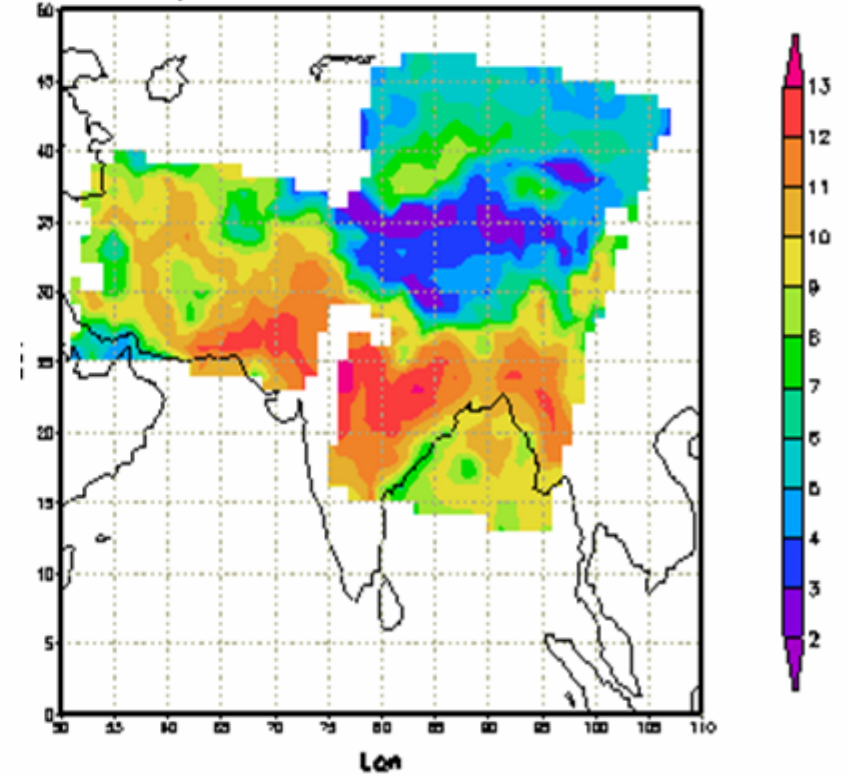
+ Dehradun



Temperature at 850mb on 08-07-03 20-22 UTC



ph Humidity at 850mb on 08-07-03 20-22 UTC



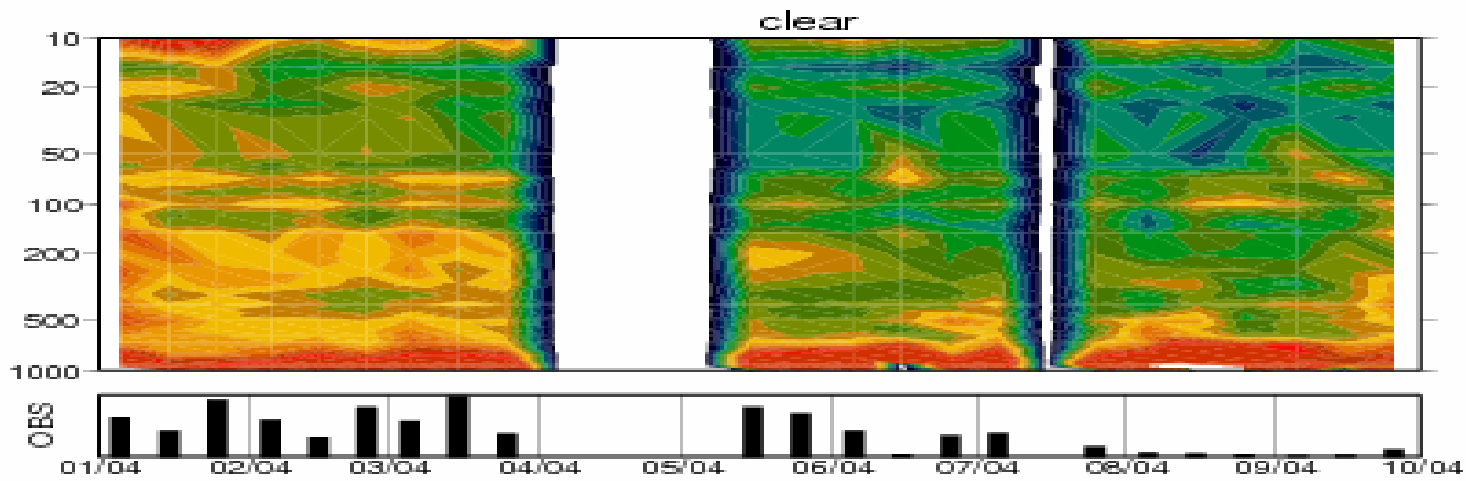
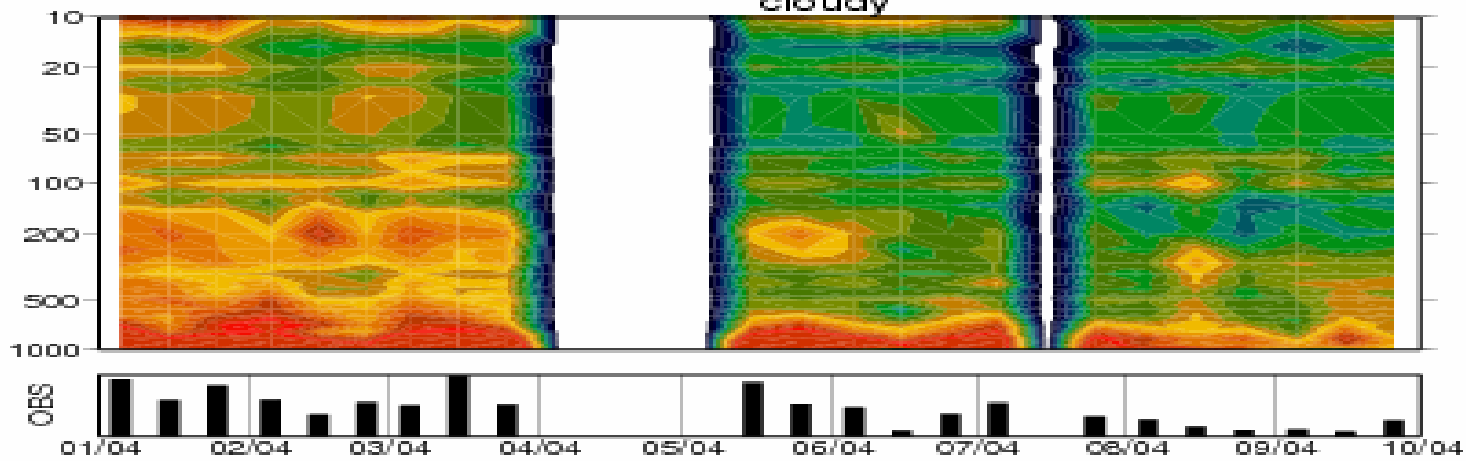
Retrievals of Temperature and Moisture Profiles for NOAA-16 using ICI Model

- 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

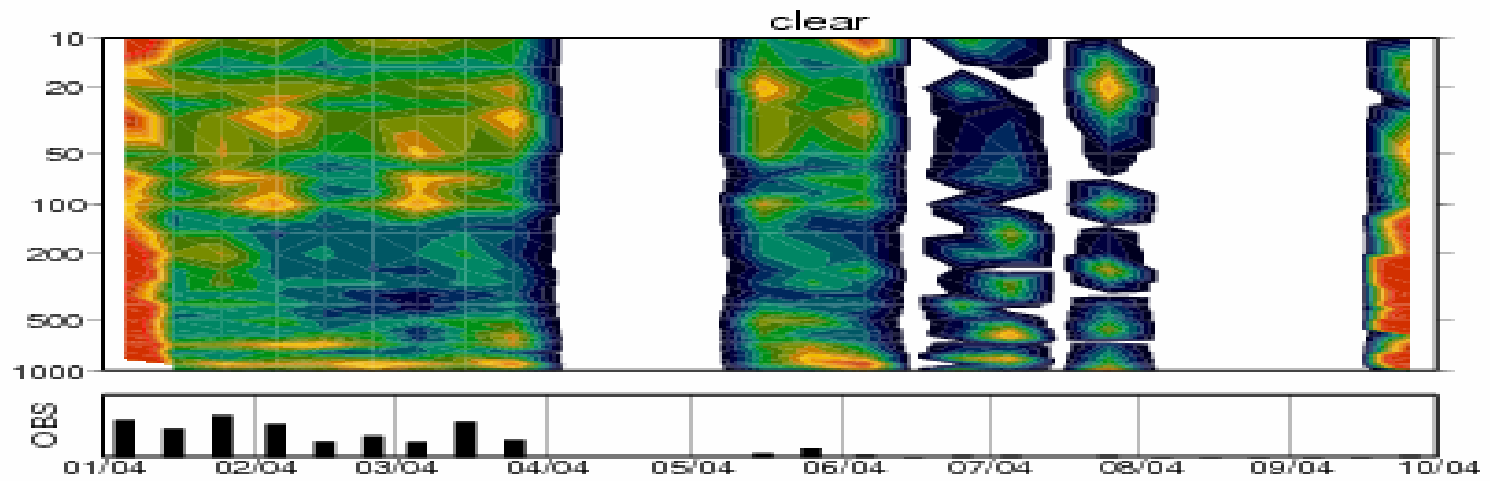
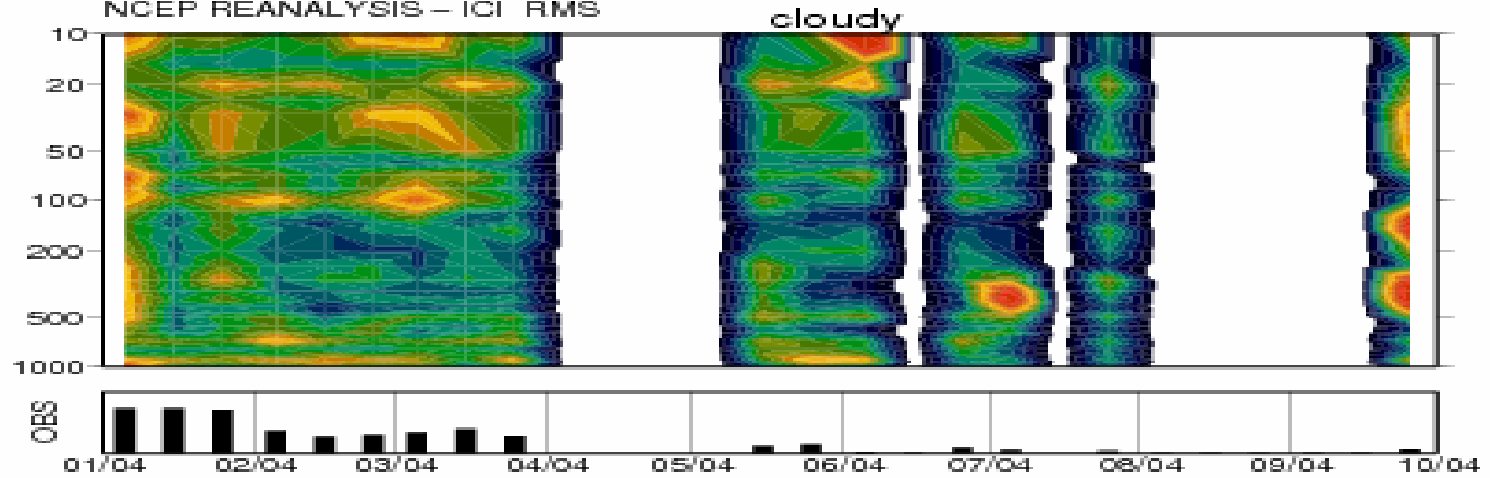
NCEP REANALYSIS - ICI RMS



ICI MODEL

Temperature noaa.16 sea

NCEP REANALYSIS - ICI RMS

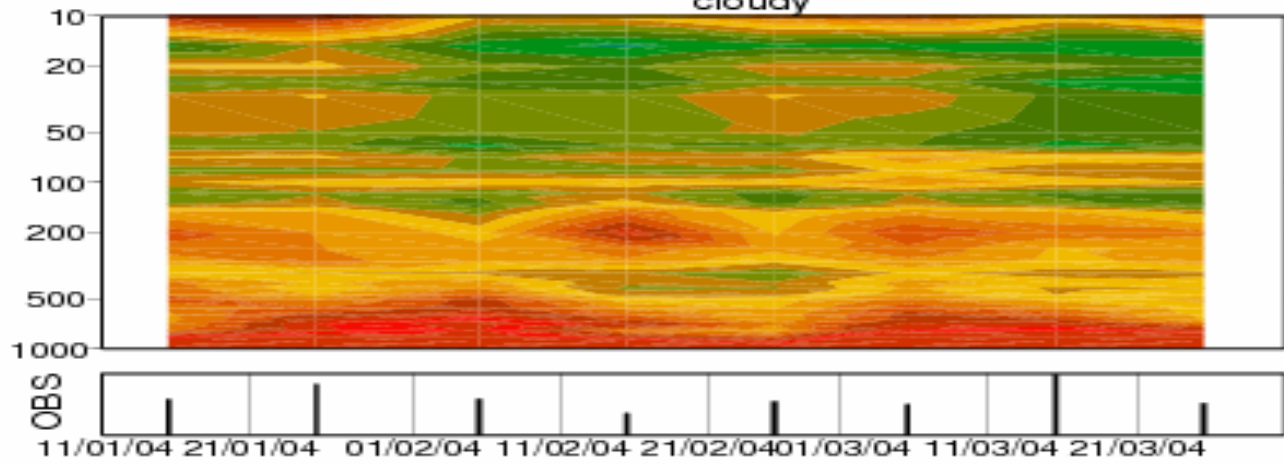


ICI MODEL

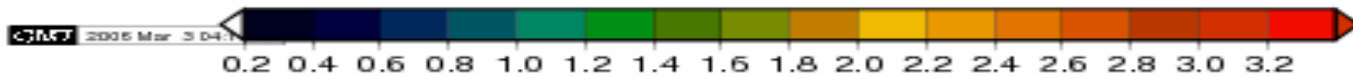
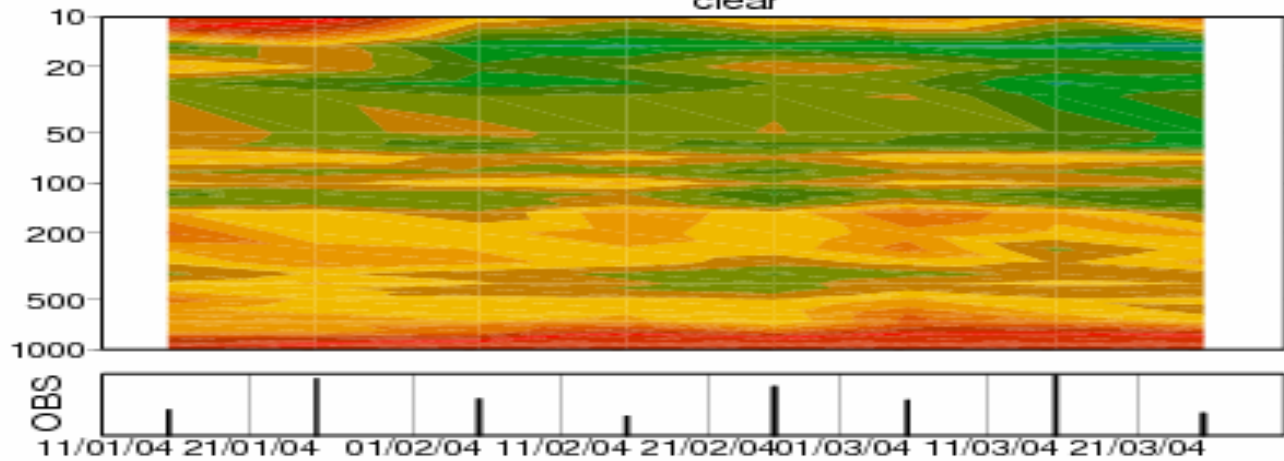
Temperature noaa16 land

NCEP REANALYSIS - ICI RMS

cloudy



clear



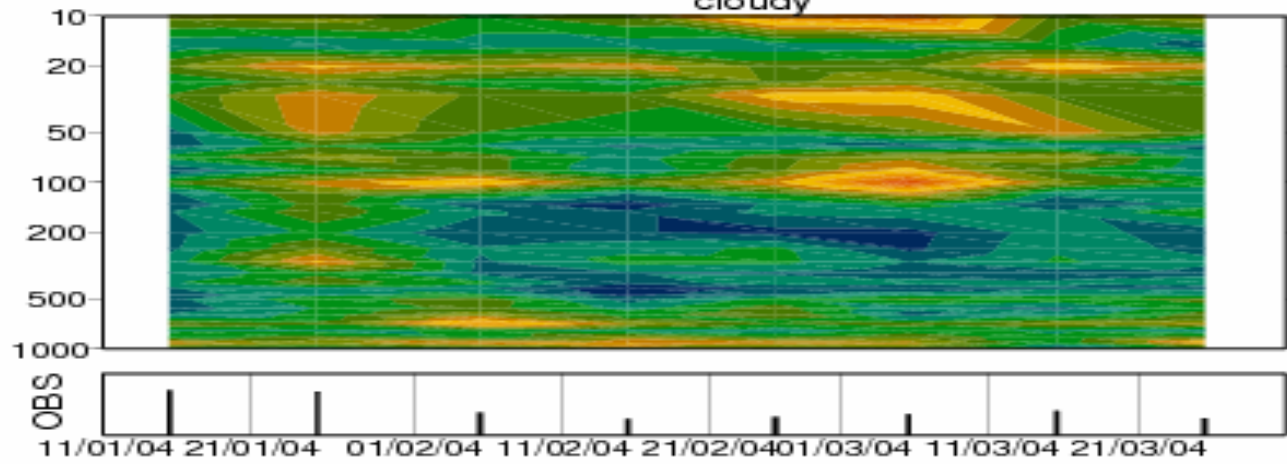
2005 Mar 3 04

ICI MODEL

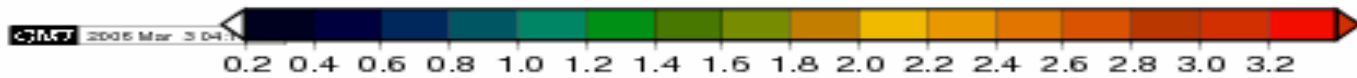
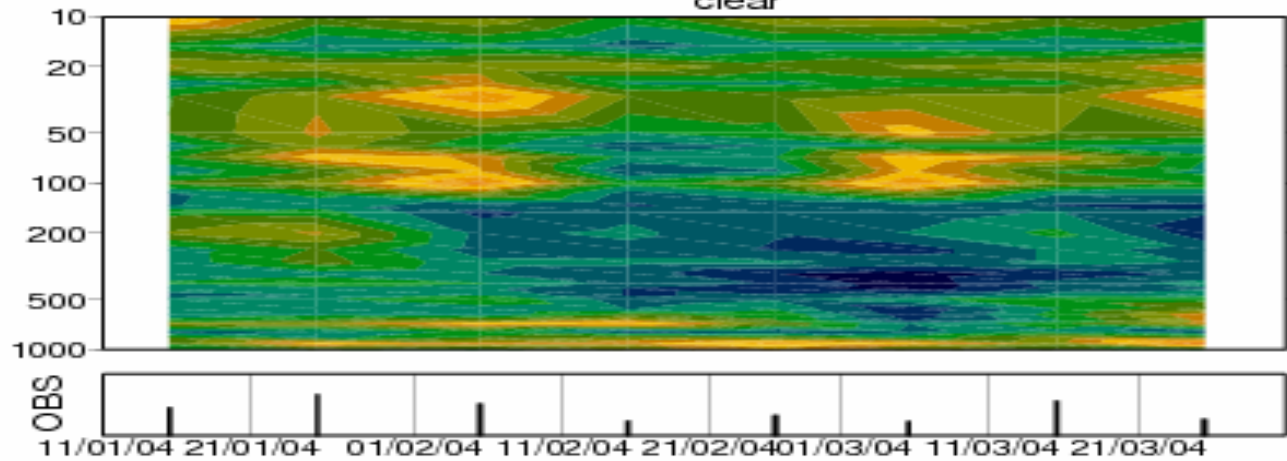
Temperature noaa16 sea

NCEP REANALYSIS - ICI RMS

cloudy

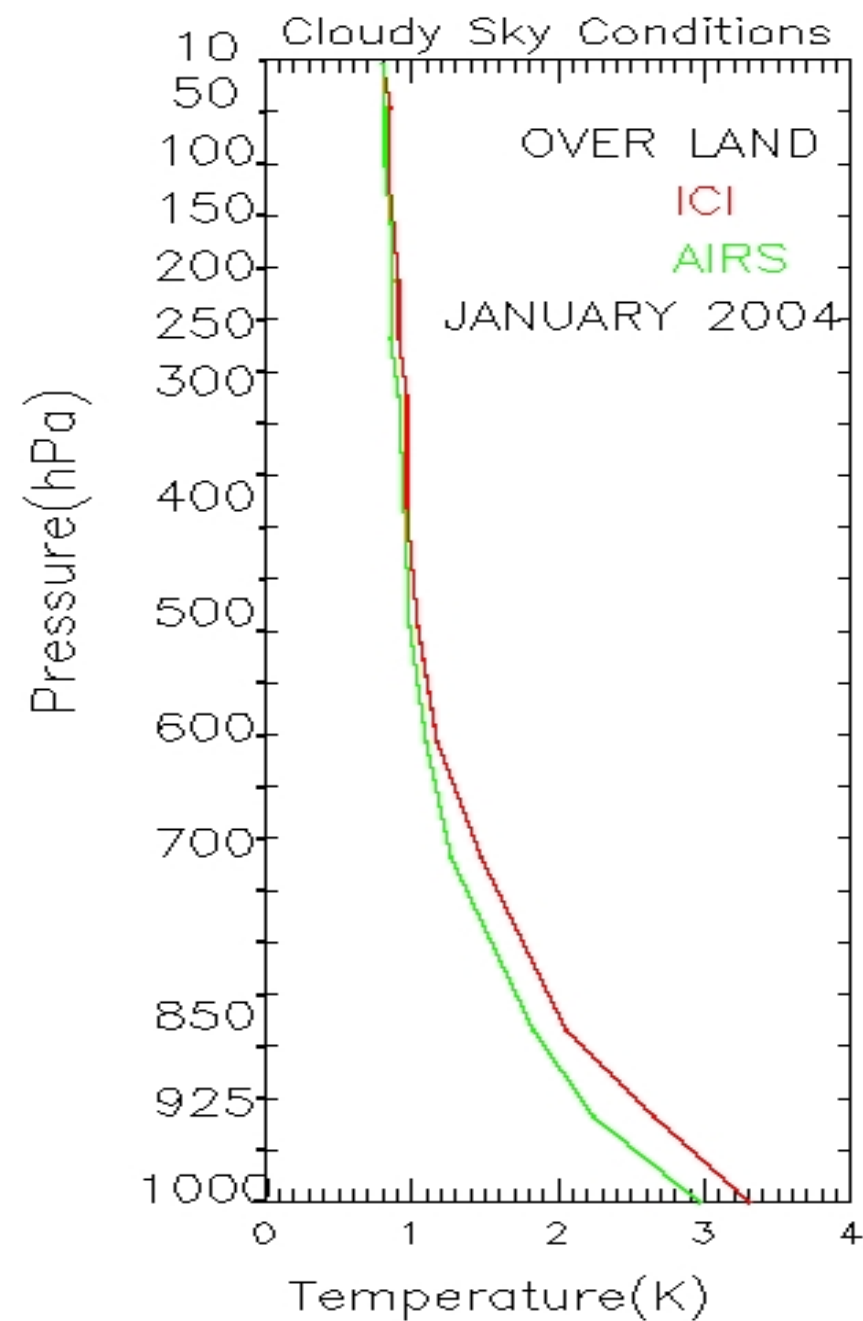
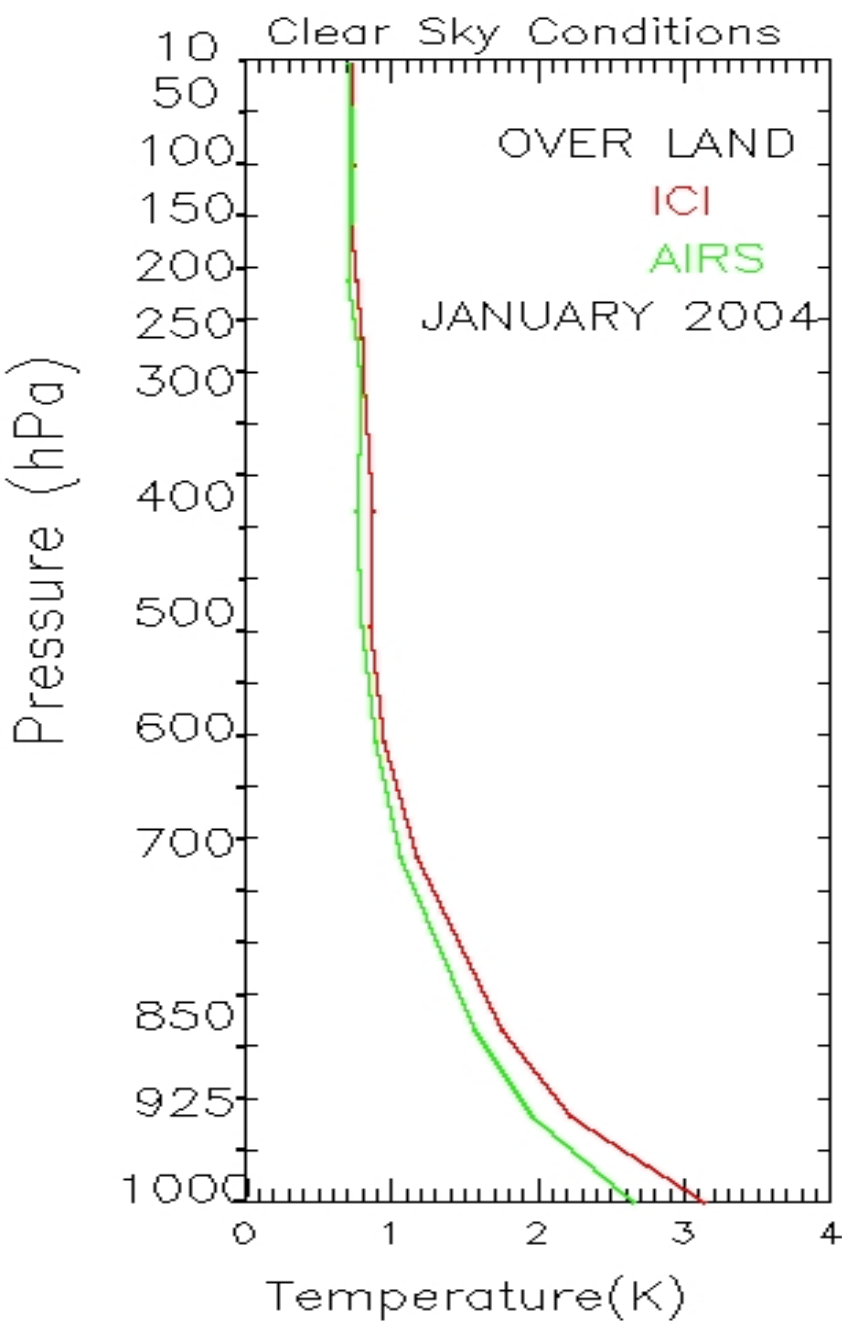


clear

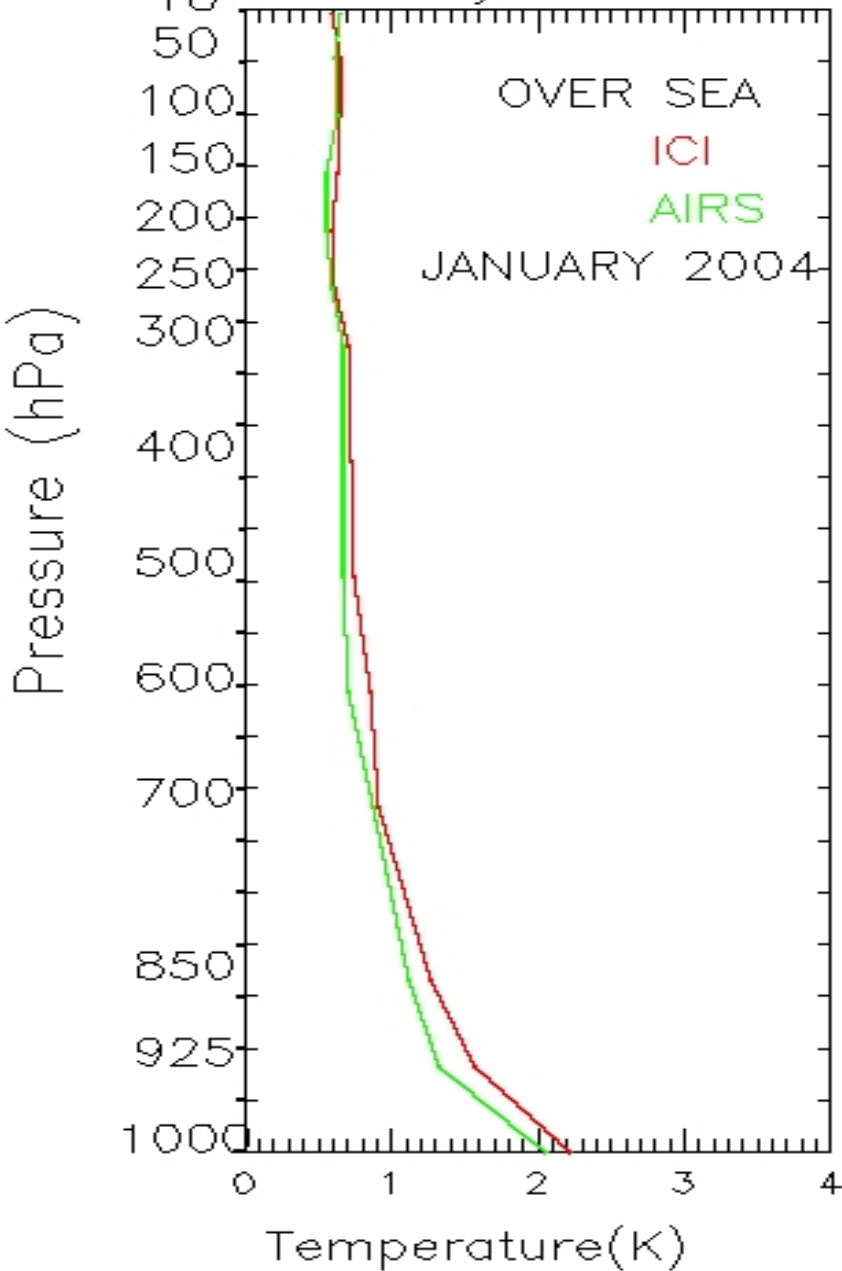


Intercomparisons of Temperature Profiles for NOAA-16 using ICI Model with AIRS

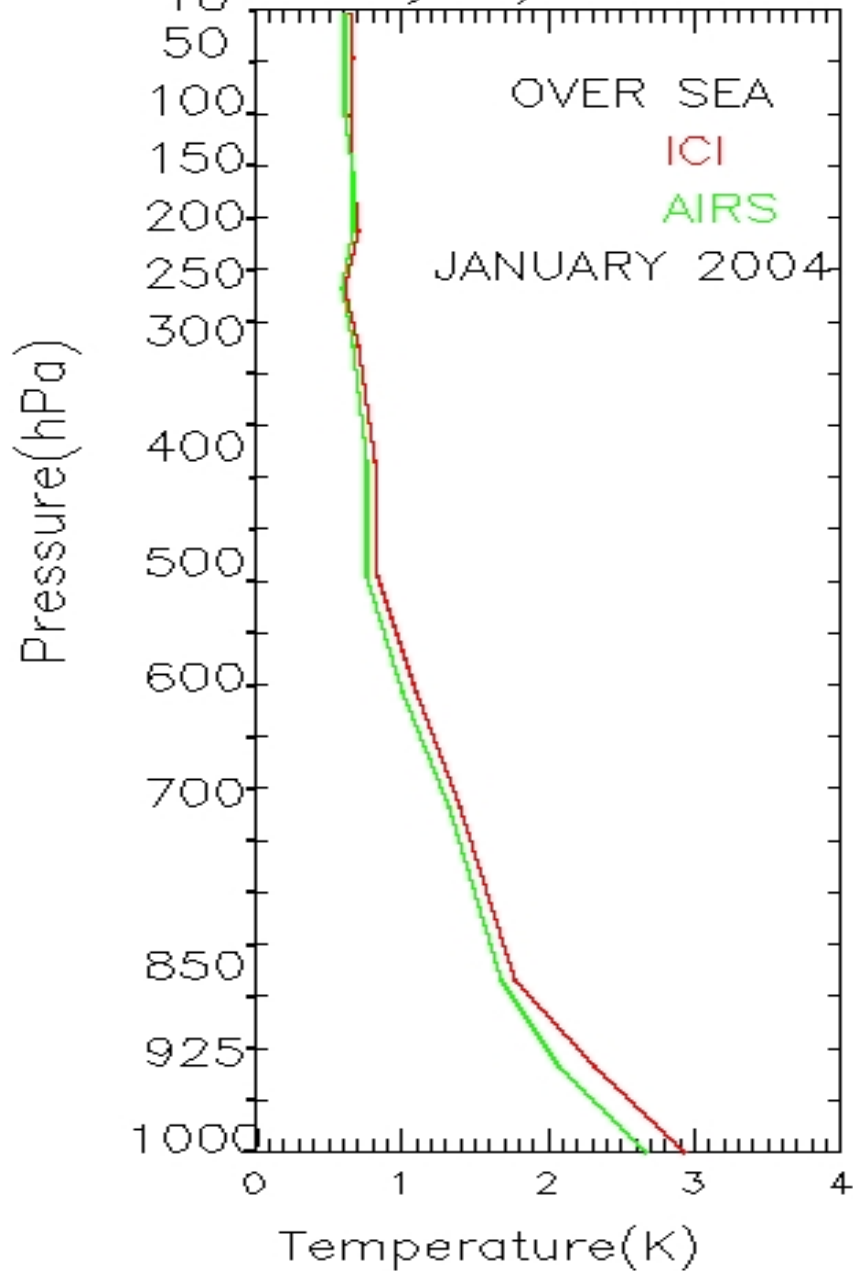
- The NCEP reanalysis was used for the computation of RMSE and bias For both ICI retrievals and AIRS profiles.
- This exercise was carried out for January 2004.



Clear Sky Conditions

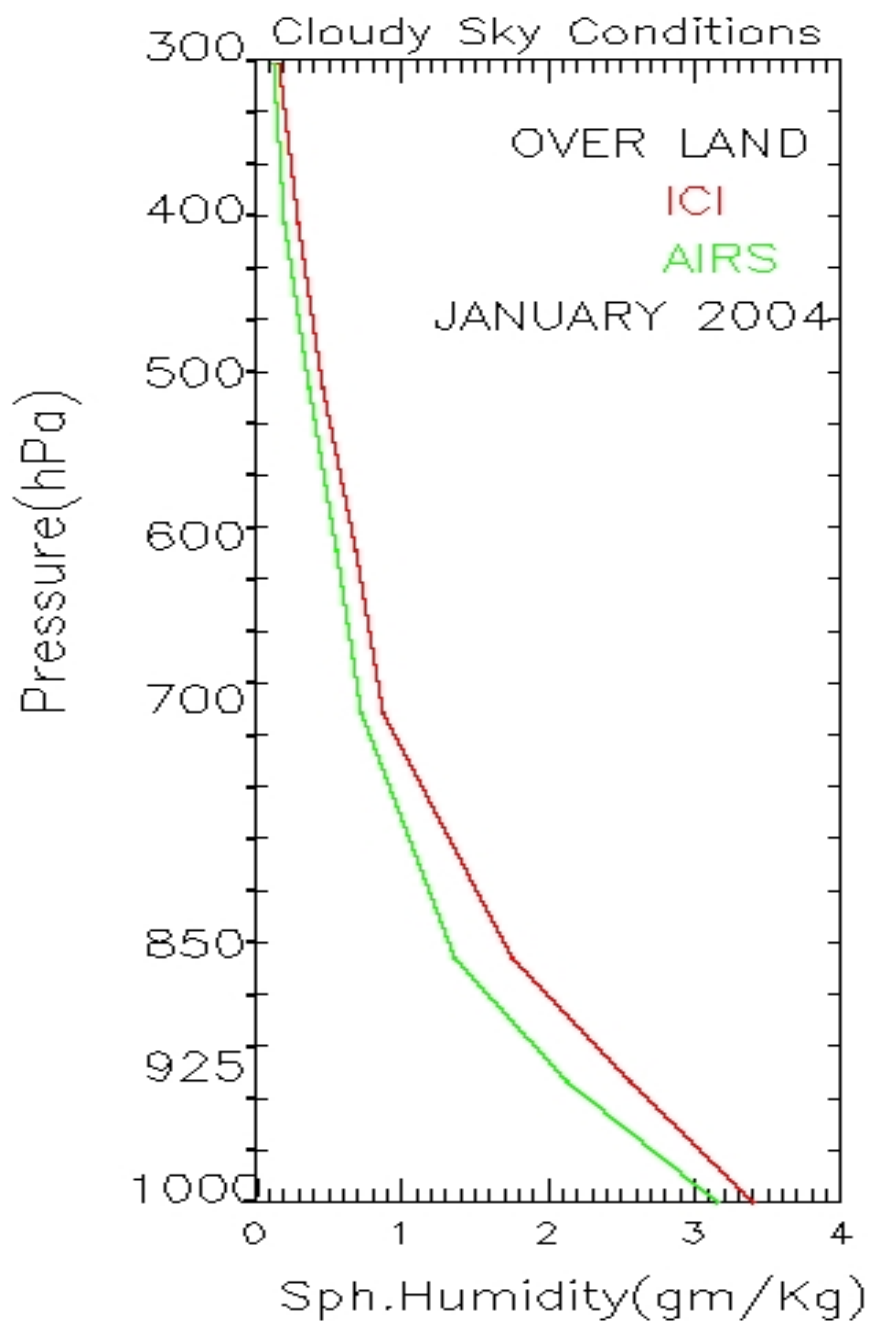
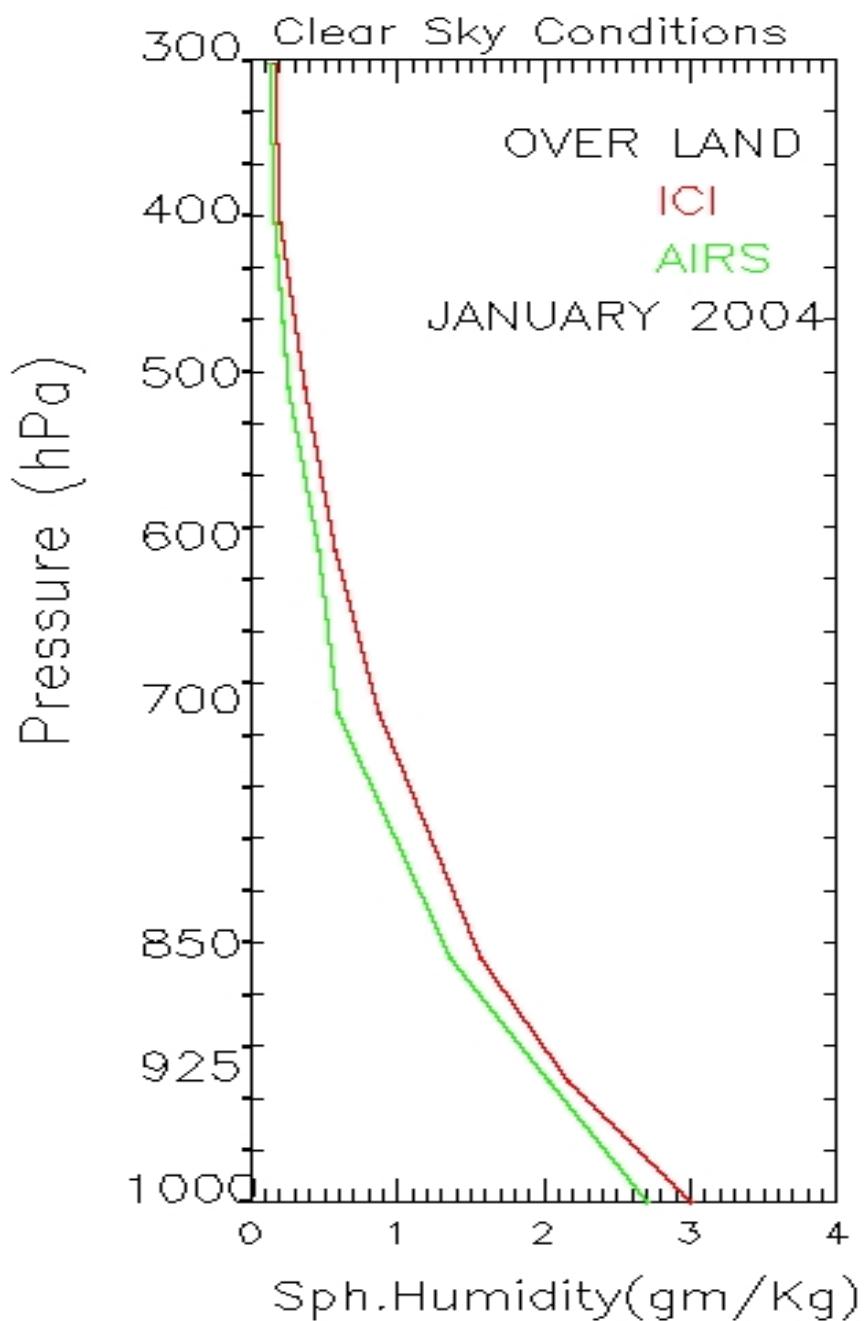


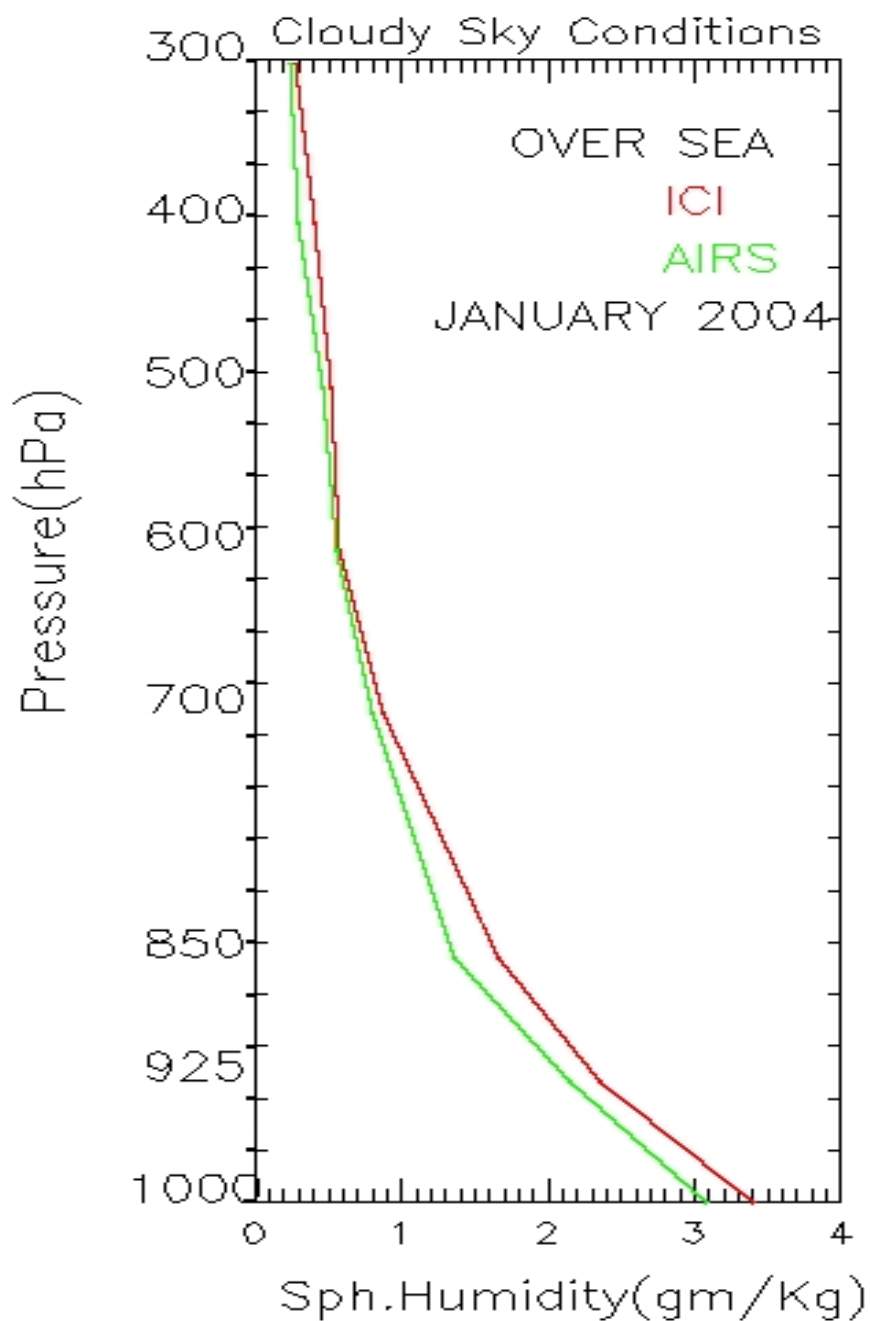
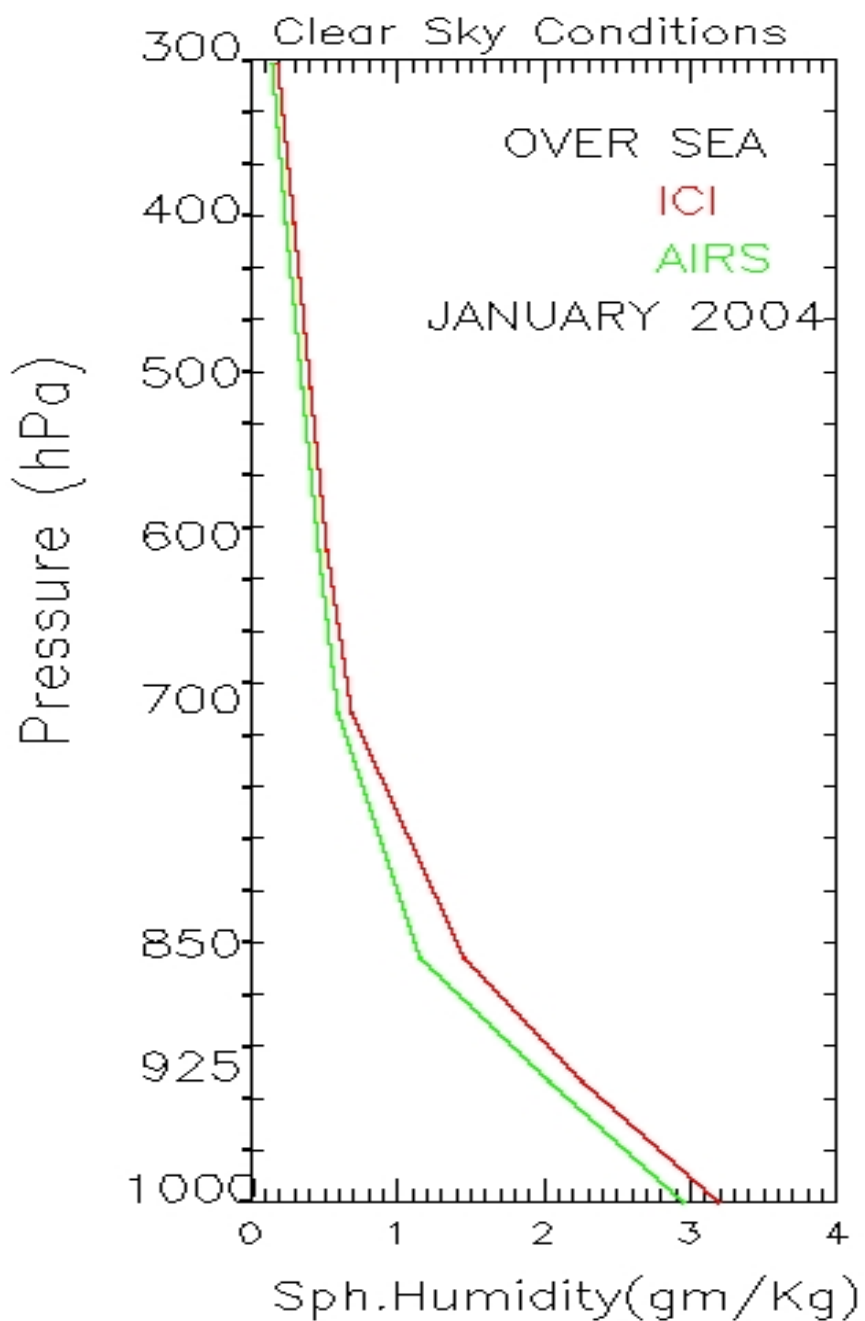
Cloudy Sky Conditions



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.

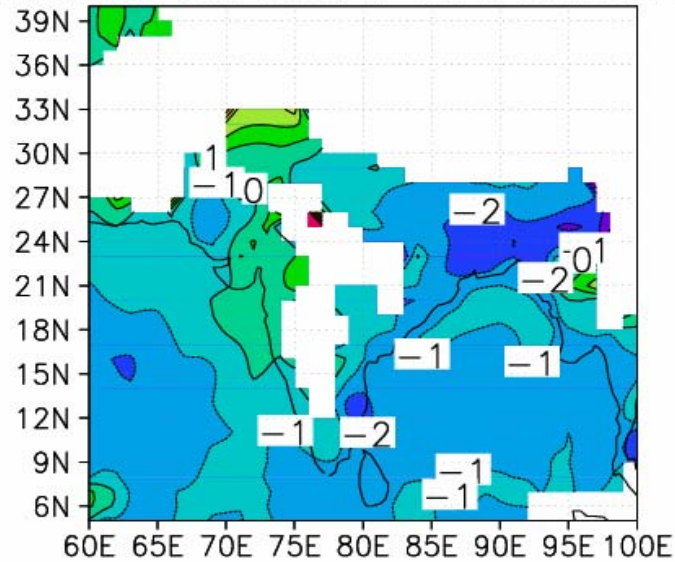




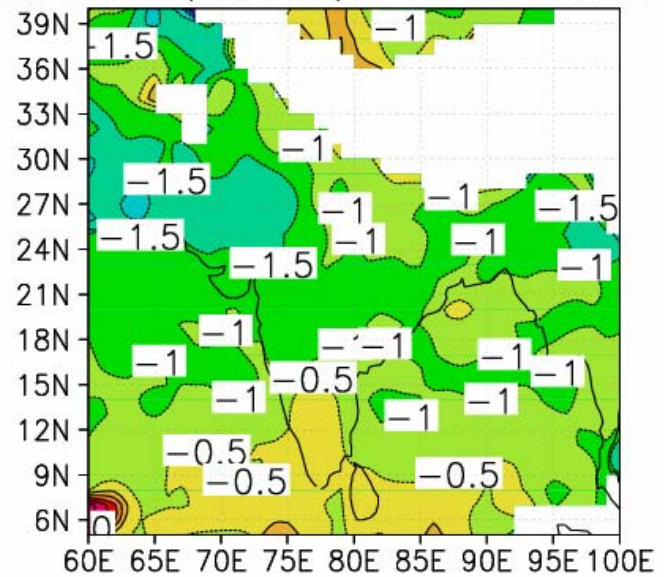
Intercomparisons of horizontal fields of Temperature Profiles for NOAA-16 using ICI Model with AIRS at different pressure levels

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

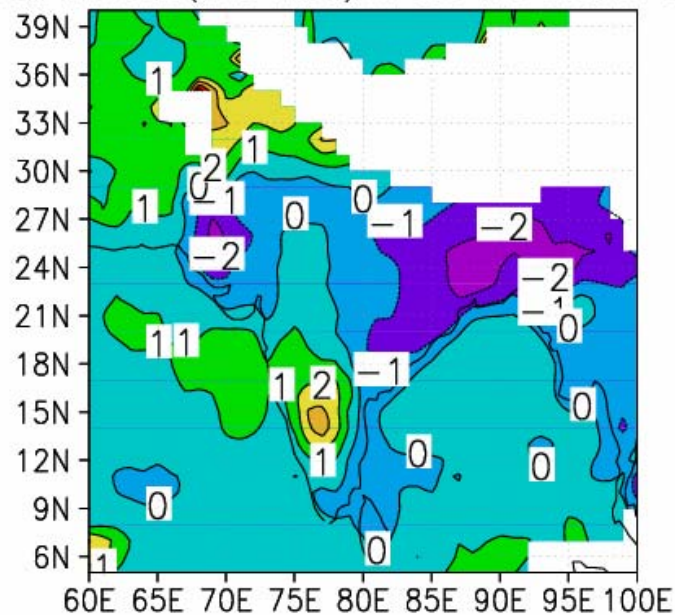
TEMPERATURE (AIRS-AMSU) AT 1000 hPa JANUARY 2004



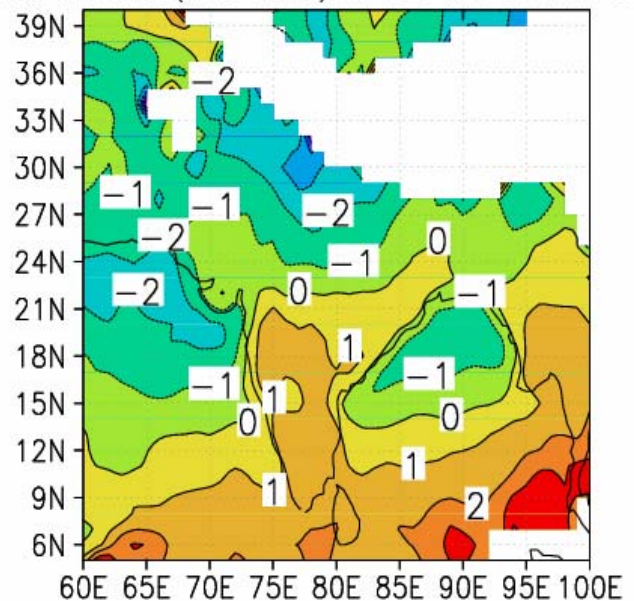
TEMPERATURE (AIRS-AMSU) AT 500 hPa JANUARY 2004



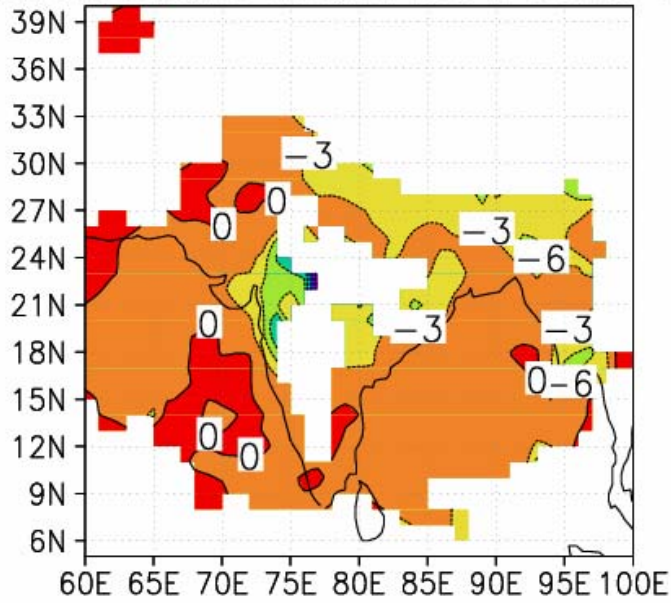
TEMPERATURE (AIRS-AMSU) AT 850 hPa JANUARY 2004



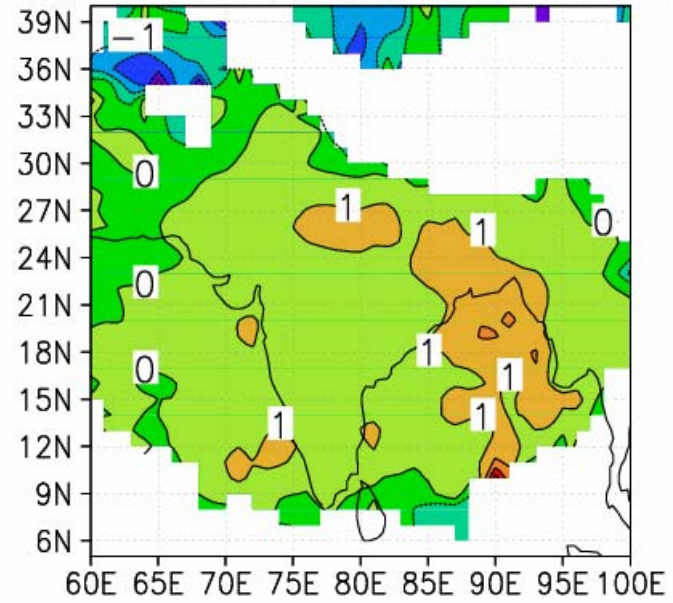
TEMPERATURE (AIRS-AMSU) AT 200 hPa JANUARY 2004



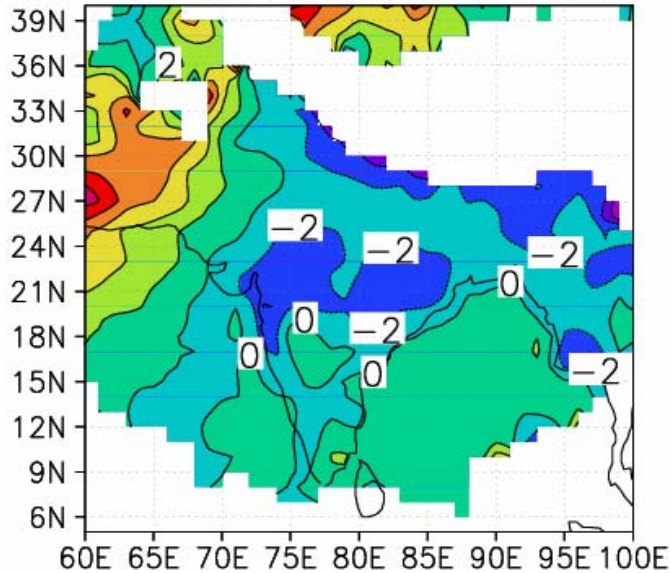
TEMPERATURE (AIRS-AMSU) AT 1000 hPa AUGUST 2004



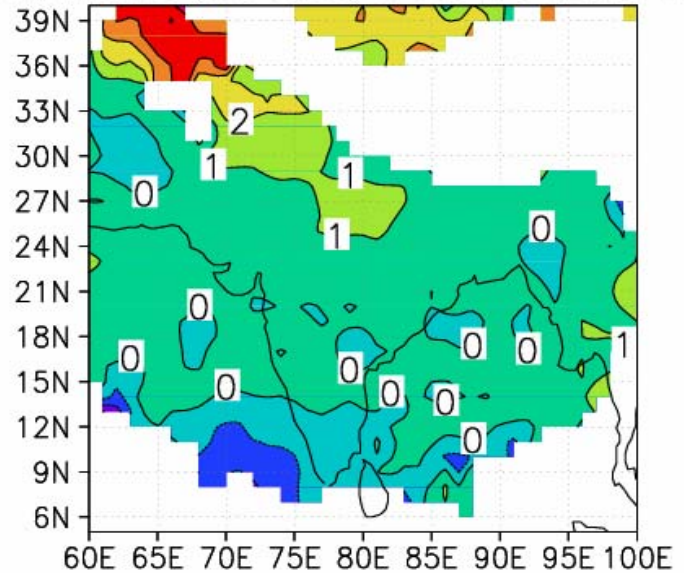
TEMPERATURE (AIRS-AMSU) AT 500 hPa AUGUST 2004



TEMPERATURE (AIRS-AMSU) AT 850 hPa AUGUST 2004



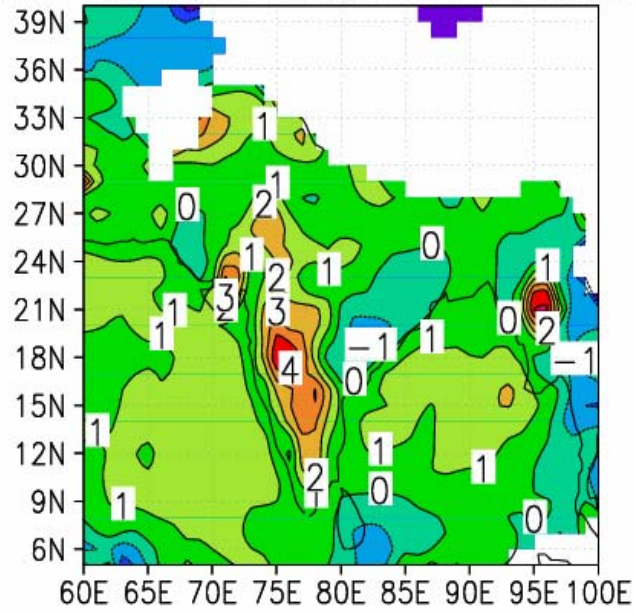
TEMPERATURE (AIRS-AMSU) AT 200 hPa AUGUST 2004



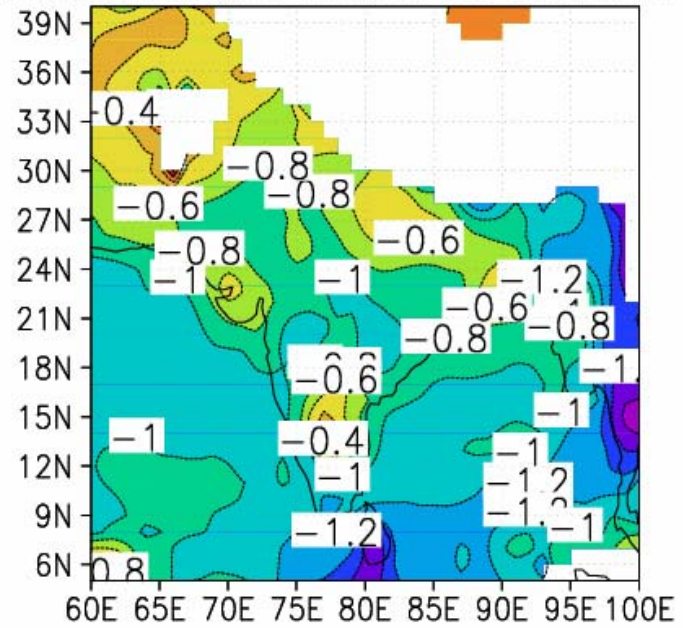
Intercomparisons of horizontal fields of Moisture Profiles for NOAA-16 using ICI Model with AIRS at different pressure levels

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

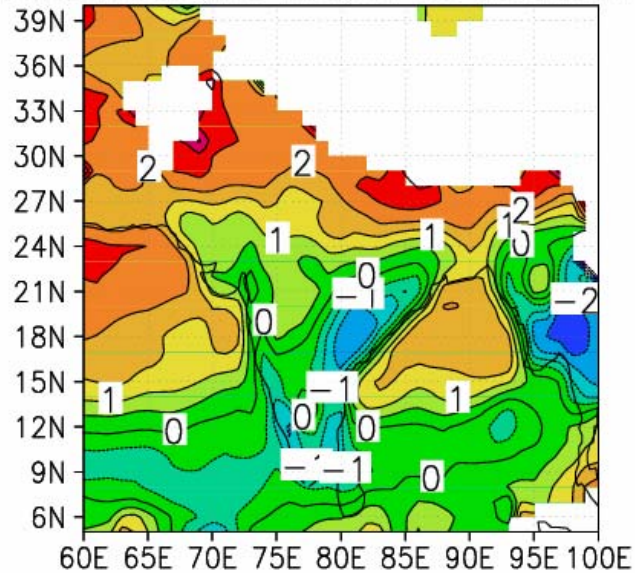
SPECIFIC HUMIDITY(AIRS-AMSU) AT 1000 hPa JANUARY 2004



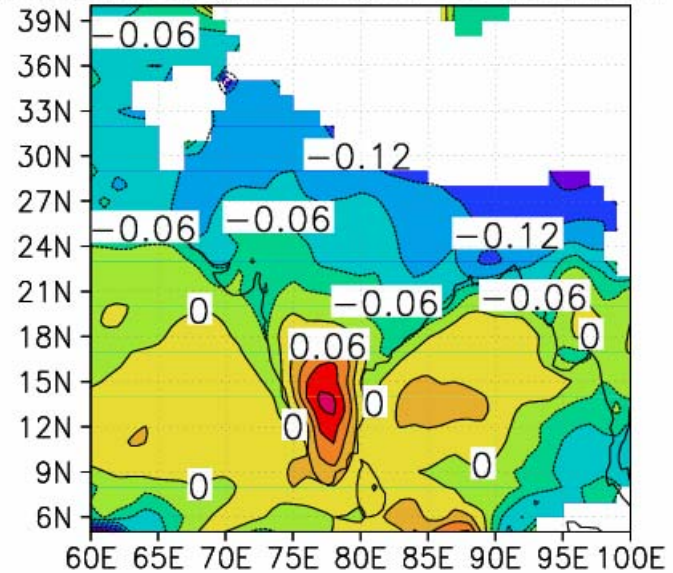
SPECIFIC HUMIDITY(AIRS-AMSU) AT 500 hPa JANUARY 2004



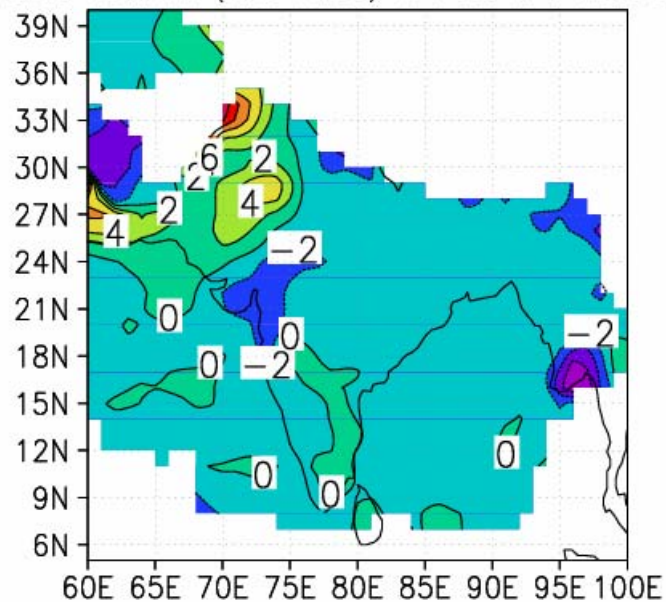
SPECIFIC HUMIDITY(AIRS-AMSU) AT 850 hPa JANUARY 2004



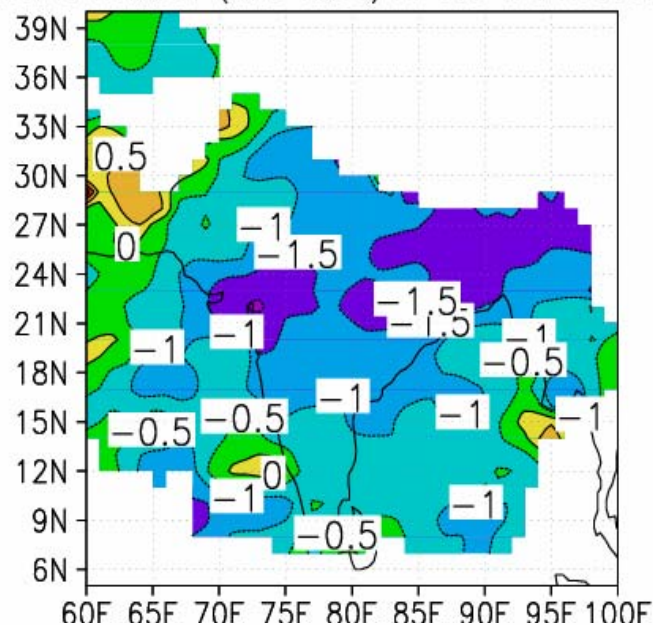
SPECIFIC HUMIDITY(AIRS-AMSU) AT 300 hPa JANUARY 2004



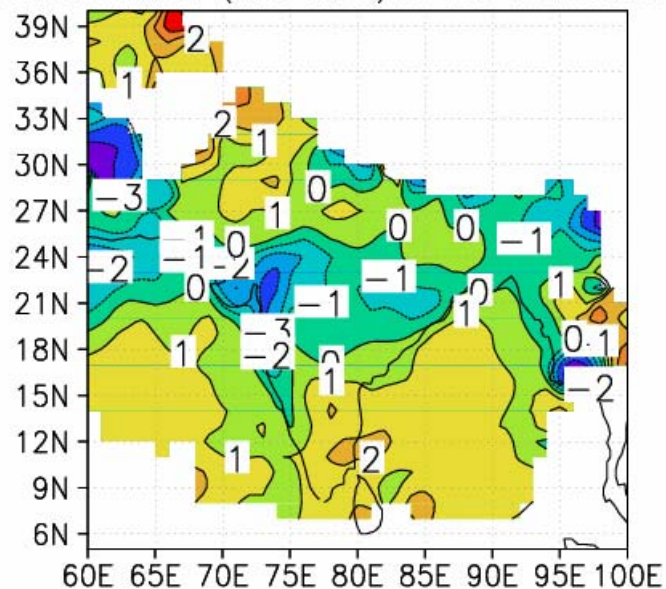
SPECIFIC HUMIDITY (AIRS-AMSU) AT 1000 hPa AUGUST 2004



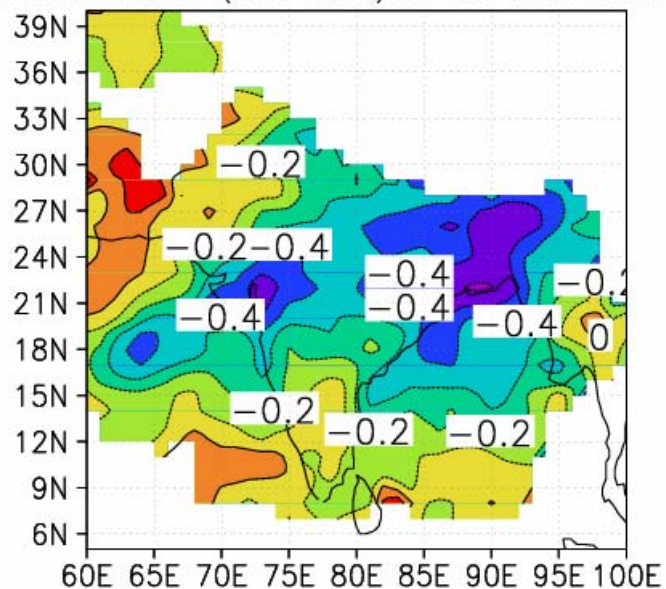
SPECIFIC HUMIDITY (AIRS-AMSU) AT 500 hPa AUGUST 2004



SPECIFIC HUMIDITY (AIRS-AMSU) AT 850 hPa AUGUST 2004



SPECIFIC HUMIDITY (AIRS-AMSU) AT 300 hPa 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 intercomparisions 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