Introduction

Assimilation and impact assessment of the Infrared Atmospheric Sounding Interferometer (IASI) data at the Norwegian Meteorological Institute (Metno) is defined in one of the working packages of the Norwegian international Polar Year project (THORPEX-IPY-Norway). ALADIN-HARMONIE assimilation and forecasting system have been chosen for this study. Since at Metno, the operational model is the IREX, the ALADIN-HARMONIE system had to be implemented first.

This poster describes the implementation of the IASI data in the ALADIN-HARMONIE-Norway assimilation system. The importance of the bias correction in the assimilation of satellite radiances is well known. In the ITU/RIP/PSG-ALADIN codes, the correction of radiances biases can be done in two different ways: Bias can be estimated in off-line regime (Harris and Kelly, 2001), or adaptively using variational technique. The power of both techniques will be discussed in this poster to approve our decision on using the variational bias correction technique to correct the bias of the IASI data.

Main characteristics of the ALADIN-HARMONIE/Norway

- **Implemented observations**
  - Conventional data: Satell. data
  - IASI radiances (IASI-AMU-A, -AMU-B/MHS, -AMU-E/MHS)
  - Sounders: MLS, MOPP, AMV, PILOT
  - GPS: Zenith Total Delay
  - Radio sondes
  - Aircraft observations

- **Variational bias correction setup**

Visualisation of verification results

Verification against observations

Verification against ECMWF analyses

Conclusions

Variational bias correction was found to be very efficient in reducing the analysis bias. Compared to the off-line bcor, the variational technique had large positive impact on the analysis and forecast. Off-line tables for satellite radiances assimilation were estimated and tested. Use of stratospheric channels over land and tuning of the cloud detection scheme improved the performances of the assimilation of IASI data. In both the assimilation and forecast results, the overall impact of the IASI data remained slightly positive than neutral for temperature, especially in lower troposphere. From biases of temperature and humidity, IASI is warmest in the mid- tropospheric layers producing drying effect. DFS computation shows that despite a large number of active IASI channels, the relative "contribution" is small. One of reason for this may be the fact that IASI data is assimilated in one of the working packages of the IPY-THORPEX project.

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Fig. 4. Monitoring the channel 13 of the AMU-A from METOP-2 satellite using off-line bcor.

Fig. 5. Monitoring the channel 13 of the AMU-A from METOP-2 satellite using off-line bcor.

Fig. 6. The power of off-line bcor (upper case) and VarBC (lower case).

Fig. 7. RMSE difference between runs with off-line bcor and variational bias corrections.

Verification against observations

Verification against ECMWF analyses