Current status and plan of the satellite data assimilation at Korea Meteorological Administration

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Introduction

- NWP system at KMA
- Satellite data usage
  - Observations: WV CSR improve the skill score.
  - Impact of monthly update of bias correction

COMS CSR assimilation

- Impact of COMS CSR in global NWP
- Implementation plan
- Metop-B assimilation
- Satellite impact evaluation using FSO

Summary & Plans

- Summary
  - FSOs are operationally used to evaluate the impact of satellite data in global NWP.
  - Metop-B and COMS CSR are successfully assimilated to improve the NWP performance 2013.
- Plans
  - ATOVS observation error was tuned with the linear estimate in parametric space and it showed positive impact. The tuned error will be implemented in operation after long term evaluation.
  - IASI channels selection will be evaluated in operation mode and will be implemented in operation system.

ATOS observation error tuning

- Methodology to select beneficial channels
- Selected channels using DFS
- Impact of new channel selection(200) compared to the operation(183)

IASI Channel selection

- IASI B matrix
- IASI B matrix
- Channel list

Metop-B data coverage

- #5839 from MetOp-A/IASI
- #5612 from MetOp-A/IASI

- Impact of Metop-B data in global NWP
  - With additional Metop-B/ATOS and IASI, the performance of global NWP is slightly improved.

3 hour forecast errors in moist energy norm

- The ATOVS observation error is large and its reduction diminish forecast error in terms of moisture energy norm.
  - (See Hyun Mee Kim’s presentation for details)

IASI Channel selection

- Sensor
- Fine
- Medium
- Coarse
- Channel list
- Description
- Number of IASI channels

Global JJA

- The errors are measured by 24 hour forecast moisture energy norm in global model.
- The FSOs are calculated routinely every day and monitored regularly to assess the impact of observations.
- AMSU- A in winter season (See Eun-Jung’s poster)