CGMS

CGMS-35, JMA-WP-08
Prepared by JMA
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JMA'S ACTIVITIES FOR RARS

In response to CGMS Recommendations 34.03 and 34.08

This paper reports on JMA's activities for the Regional ATOVS Retransmission Service (RARS).

JMA has been exchanging ATOVS data via the Global Telecommunication System (GTS) with Australia, China, the Republic of Korea and Singapore for the Asia-Pacific RARS (A-P RARS). JMA has also been providing ATOVS data received at two stations, Kiyose in Japan and the Syowa Station in Antarctica.

JMA started using RARS data in its operational global data assimilation in February 2007. RARS data has a positive impact on JMA's NWP analysis and forecast.

JMA is going to start receiving and providing Metop/ATOVS data in addition to NOAA/ATOVS data.

For user support, JMA will open a dedicated website to provide operational information about the ATOVS data received at Kiyose and the Syowa Station.

JMA'S ACTIVITIES FOR RARS

1 EXCHANGE OF RARS DATA

The Japan Meteorological Agency (JMA) has been exchanging Regional ATOVS Retransmission Service (RARS) data via the Global Telecommunication System (GTS) with Australia, China, the Republic of Korea and Singapore for the Asia-Pacific RARS (A-P RARS). The exchange started with Australia and China in June 2006, with the Republic of Korea in September 2006 and with Singapore in April 2007. As of September 2007, ATOVS data from nine stations are available at JMA.

JMA has been providing ATOVS data received by two direct readout stations at Kiyose in Japan and the Syowa Station in Antarctica. Table 1 shows a summary of these stations. ATOVS data are processed using version 6.5 of the ATOVS and AVHRR Processing Package (AAPP) at both stations.

Table 1. Summary of the direct readout stations

Station	Kiyose (Meteorological Satellite Center (MSC))	Syowa Station
Owner of the ground station	Japan Meteorological Agency (JMA)	National Institute of Polar Research (NIPR) of Japan
Location (Latitude, Longitude)	Kiyose, Tokyo (35.77°N, 139.53°E)	Syowa Station, Antarctica (69.00°S, 39.58°E)
Data acquisition and processing	HRPT data are received and processed at MSC of JMA	HRPT data are received at the Syowa Station and first transmitted to NIPR via INTELSAT. The data are then transmitted by FTP from NIPR to MSC via the Internet for processing.
Satellites	NOAA-17, 18 (and Metop-A in the future)	NOAA-15, 17 and 18 or other satellites such as DMSP Note: Satellite selection depends on NIPR's research activities.
Average frequency of acquisition per day	9.5 times (14 times including Metop-A)	About 8 times
Processing time (from end of receiving to start of transmission)	5 minutes or less	About 10 minutes
Start date of provision in BUFR format	7 June 2006	21 August 2006

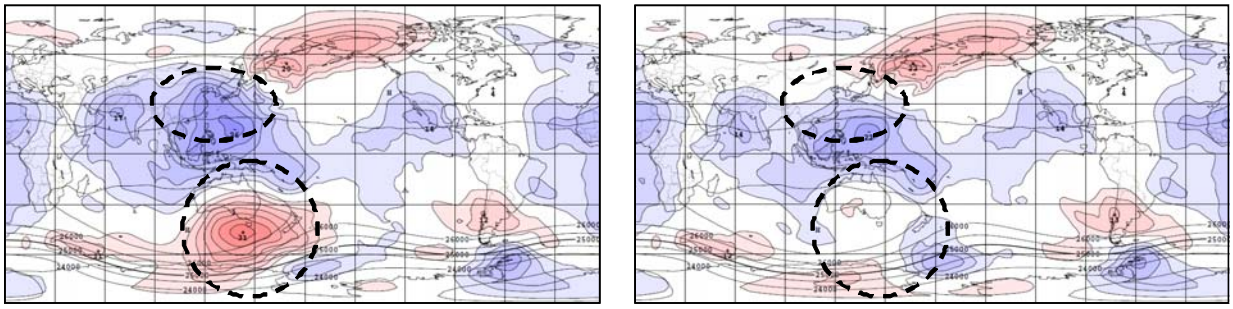
2 USE OF RARS DATA IN NWP

On 22 February 2007, JMA started using A-P RARS data in its operational global data assimilation system. On 2 August 2007, JMA operationally began assimilating EARS ATOVS data after confirming a positive impact on analysis and forecast for a geopotential height of 500 hPa in the Northern Hemisphere in its impact studies.

JMA has been evaluating the impact of A-P RARS data on JMA's early analysis since 2006. Figure 1 shows a difference of 20 hPa in geopotential height between early analysis and cycle (final) analysis at 06 UTC on 25 September 2006. The red zones indicate areas that were over-estimated in early analysis compared with cycle analysis, while the blue indicates under-estimated areas. With A-P RARS data, the early analysis is closer to the cycle analysis, which is more reliable because it uses more data. This is a good example to illustrate the validity of RARS data for Numerical Weather Prediction (NWP). With A-P RARS, the amount of data available increases by between 10 and 40 %.

(a) Without A-P RARS data

(b) With A-P RARS data



(c) NOAA15+16/AMSU -A1

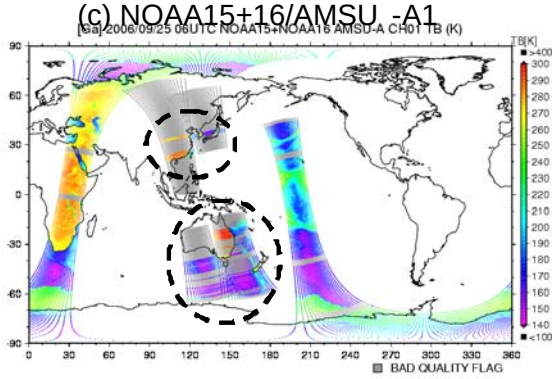


Figure 1. Difference of 20 hPa in geopotential height between early analysis and cycle (final) analysis (06 UTC on 25 September 2006)
a) without A-P RARS data from Beijing and Melbourne
b) with A-P RARS data; early analysis is closer to the more accurate cycle analysis
c) coverage of Beijing and Melbourne (circled area)

3 PLANS FOR FUTURE ACTIVITIES

JMA will continue its activities for further development of RARS while taking into account the concept of RARS. To take advantage of Metop data, JMA is going to start receiving Metop/ATOVS data and providing it for A-P RARS. In order to support

RARS users, JMA will open a dedicated website to provide operational information about ATOVS data received at Kiyose and the Syowa Station.