Operational Processing of Satellite Sounding Data at NMSC

KMA Su-Hyun Jung, Kwang-Jae Lee, Jeong-Sik Kim, Jae-Dong Jang, Young-Won Park and Seung-Hee Sohn National Meteorological Satellite Center Korea Meteorological Administration, Republic of Korea

Mail : hosoo07@korea.kr

Introduction

NMSC

- KMA had started to produce NOAA ATOVS BUFR data at KMA HQ since August 2006.
- KMA and JMA officially have exchanged ATOVS BUFR data since September 2006.
- Receiving station of NOAA series was moved to NMSC(National Meteorological Satellite Center) located in Jincheon on December 2008.

HRPT	Coordinates	Operator	Availability
Jincheon	36.99N, 127.43E, 154m	KMA	Operational
Seoul	37.48N, 126.92E, 31m	KMA	Replaced by Jincheon

Table 1 KMA RARS Site

Web-based Monitoring of Operational Processing

+ RARS

NMSC RARS Web site

- Web Address

 http://nmsc.kma.go.kr/html/
 homepage/en/testoperate/
 rarsInfo.do
- Main Info. (Activities>RARS>RARS Information)
- TBB Monitoring (Activities>RARS>TBB Monitor)

NMSC		HOME LOGIN	I JOIN MYPAGE		QSEARCH
				the market	A CLAR WA
COMS	Foreign Satellites	Data Service	Activities	Information	Introduction
		Data Services 🌼 Data Reques	t 🏽 Data Request Result		

	RARS / RARS information	n	HOME > Activities > F	ARS > RARS information	Quick Link	
	Introduction					
lion	The sounder ATOVS aboard weather prediction (NWP) to operational arrangements un received at RARS direct rea	The sounder ATOVS aboard the NOAA/Metop satellites provides essential observational information for numerical weather prediction (NWP) to generate atmospheric analysis fields. Regional ATOVS Retransmission Services (RARS) are operational arrangements under the World Meteorological Organization to provide NWP centers with ATOVS data received at RARS direct readout stations within 30 minutes of observation.				
	The RARS monitoring pages present the operational information on JMA as a direct readout station, and outline the status					
	of all Asia-Pacific RARS dat	a collected in Tokyo via the GTS regardin	g navigation, calibration and	umeliness.	MTSAT	
		10.0105			FY-2	
	I he KMA contribution	to AP-RARS			Terra/Aqua	
	The service offered by KMA	The service offered by KMA to the meteorological community consisted of : Processed data from NOAA-15, NOAA-17, NOAA-18, and NOAA-19 from 2 sites : These sites are leaded at				
	Processed data from NOAA					
	These siles are localed at				DMSP SSMIS	
	HRPT Station	Coordinates	Operator	Availability	WindSat	
	Jincheon	36.99N, 127,43E, 154m	KMA	Operational		
	Seoul	37.48N, 126.92E, 31m	KMA	Replaced by Jincheon		

Issues
 Software : AAPP 6.13 is upgraded since June 23, 2010
 Hardware : 2.4m Antenna
 Acquisition Scheduling : 16 times a day (4 satellite × 4times in max)
 Telecommunications: GTS between Seoul and Tokyo at a speed of 128kbps

• NMSC processing ATOVS L1C, L1D data and disseminated them through GTS.

SAT. LEV.	Level 1A,B,C				Leve	el 1d
NOAA-18	AMSU-A	HIRS	MHS		HIRS	
NOAA-19	AMSU-A	HIRS	MHS		HIRS	
MetOp-A	AMSU-A	HIRS	MHS	IASI (test)	HIRS	IASI (test)
MetOp-B	AMSU-A	HIRS	MHS	IASI (test)	HIRS	IASI (test)
NPP (test)	CrIS		ATMS		CrIS	ATMS

Table 2. List of Satellite Sounding Data received and processed by NMSC

ATOVS Data Operation For RARS

Current Status

- AAPP(ATOVS and AVHRR Processing Package) V7.5 was installed in November 4 2013.
- Period of data acquisition : 4 times a day for each satellite(max).
- Data format : Compressed BUFR
- Data Process Duration
 - Reception : less than 15min.

ATOVS TBB Monitoring by RARS Website (Example : 17th Mar. 2014)



Figure 3. ATOVS Data TBB Monitoring (CH1)

New Sounding Data Preparation For RARS

CrIS, ATMS on NPP

NMSC has started to receive NPP data via antenna since August 13 2012.
The system for CrIS, ATMS bufr (L1c, L1d) processing was established in March 2014.
Software : CSPP V1.3, AAPP V7.5



Figure 2. RARS Web Page (RARS Information)

- AAPP Processing : less than 5 min.
- ATOVS data process tool
 - Level 0 : Metopizer (cadu_to_ccsds, ccsds_to_l0) provided by EUMETSAT
 - Level 1c, 1d : AAPP
 - * Metopizer was upgraded from V3.42 to V3.47 in April 2013.



Figure 1. NOAA, MetOp ATOVS Processing Flow Chart

NOAA

• Currently ATOVS data of NOAA-18&19 are being processed and utilized operationally for forecasters, NWP, researches, etc.

MetOp

- The new HRPT antenna was established to receive MetOp-A data at NMSC in December 2007 and then normal operation has started on April 2011.
- Currently ATOVS data of MetOp-A&B are being processed and utilized operationally.
- The MetOp-B ATOVS data processing has begun since April 2013.



Figure 4. NPP CrIS·ATMS Processing Flow Chart

► IASI on MetOp-A·B

- Process Phase
- step 1 : MetOp ATOVS data processing by AAPP
- step 2 : IASI L1c, L1d processing by OPS-LRS
- Operationally, 314 channels are selected for KMA NWP Model.
- Software : AAPP V 7.5, OPS-LRS V7.0





Enhance ATOVS monitoring by adding function of monitoring the each path coverage and number of observations.
Additional process of NPP CrIS·ATMS data formatting into Compressed BUFR and its official release to RARS until June 2014.
Verification of local MetOp-A·B IASI data by global IASI data and its official release to RARS until June 2014.

The 19th International TOVS Study Conference, March 26 – April 1, Jeju-Island, Korea