

UPDATE ON RARS

A brief report is provided on the global network of Regional ATOVS Retransmission Services (RARS). As of 1 October 2009, the global RARS network included 32 stations (12 in EARS, 15 in the Asia-Pacific RARS and five in the South American RARS) covering in total 68% of the globe's surface. Additional stations in Miami, Muscat, Fortaleza, Santiago and Fiji are expected to become operational in the RARS network during the last quarter of 2009 which will increase the coverage to 76%.

As of May 2009, all RARS stations are transmitting their data over the GTS in accordance with a unified file naming convention agreed within the RARS Implementation Group.

A new phase of the RARS project has been initiated for the retransmission of advanced sounder data from the future NPP and NPOESS missions. A project plan has been developed and adopted in July 2009. The first activity under this plan is to collect and review the detailed requirements from the NWP community regarding the fast delivery of hyperspectral sounding data.

Action/Recommendation proposed:

CGMS Members involved in the RARS project (CMA, EUMETSAT, JMA, KMA, NOAA, ROSHYDROMET), in collaboration with other parties involved, are invited to continue their support to the RARS project that provides an efficient means to improve the timeliness of polar-orbit sounding data, and to support in particular the extension of the RARS project to advanced sounders (X-RARS).

UPDATE ON RARS

1 INTRODUCTION

The global network of Regional ATOVS Retransmission Services (RARS) includes three regional networks:

- The EUMETSAT Advanced Retransmission Service (EARS) implemented by EUMETSAT in collaboration with a number of European countries as well as Canada, Oman, Russian Federation, and the United States;
- The Asia-Pacific RARS coordinated by Australia, with two telecommunication nodes in Australia and Japan respectively, which also involves China, Fiji, Japan, Korea, New Zealand, and Singapore;
- The South American RARS, with two telecommunication nodes in Argentina and Brazil respectively, which is also about to involve Chile.

Monitoring of RARS data is performed by the EUMETSAT SAF on Numerical Weather Prediction, hosted by the Met Office, United Kingdom.

2 STATUS OF THE GLOBAL RARS NETWORK

Since May 2009, satellite sounding data from the global network of Regional ATOVS Retransmission Services (RARS) have been transmitted over the GTS using a common GTS bulletin header structure and, in the case of file transmission, a common file name structure.

As of 1 October 2009, the RARS network included 32 operational stations covering in total 68% of the globe's surface. Additional stations in Miami, Muscat, Fortaleza, Santiago and Fiji are expected to become operational in the RARS network during the last quarter of 2009 which will increase the coverage to 76%.

The RARS network delivers level 1c BUFR encoded ATOVS data (HIRS, AMSU-A, AMSU-B or MHS) from NOAA POES satellites, and from METOP when applicable, nominally within 30 minutes after acquisition. Details on current and planned RARS stations, coding and identification of RARS data, data access and monitoring, are provided on the WMO Space Programme RARS web pages: <http://www.wmo.int/pages/prog/sat/RARS.html> with links to the web pages of the individual RARS operators.

It is noted that among the 32 stations that are operational as of 1 October 2009, 27 have confirmed that they were processing NOAA-19 data and 13 of these 27 are also ready to process Metop data.

Regional component	September 2009	Planned End of 2009	Planned End of 2010
EARS	12 stations 30%	14 stations 35%	17 stations 41%
Asia-Pacific	15 stations 28%	16 stations 30%	17 stations 35%
South-America	5 stations 10%	7 stations 12 %	14 stations 14 %
Overall network	32 stations 68%	37 stations 76%	48 stations 81 %

Estimated coverage as a percentage of the globe's surface

3 RARS EXTENSION TO ADVANCED SOUNDER DATA

A new phase of the RARS project has been initiated for the retransmission of advanced sounder data from the future NPP and NPOESS-C1 missions. The goal is to allow the user community to get familiarized with these new data sets and evaluate their impact as soon as possible, with access to larger amounts of data than what can be received from a single receiving station, and with better timeliness than global data. The project is specifically focussing on NPP and NPOESS-C1 bearing in mind that the NPOESS SafetyNet will not be fully implemented in that timeframe.

A project plan has been developed and adopted in July 2009. The first activity under this plan is to collect and review the detailed requirements from the NWP community regarding the fast delivery of hyperspectral sounding data.

As a first step in this process, a table has been generated addressing the main requirement characteristics (e.g. Timeframe of Interest, Timeliness, Regions of Interest, Types of Data, Data Level, Preferred Data Reception Mechanism and Preferred Data Format).

The Met Office (through the EUMETSAT NWP-SAF Consortium) has agreed to take the lead in contacting the NWP user community to determine their requirements in these areas.

Initial contacts were made with DWD, DMI, ECMWF, Meteo-France, Met Hungary, met.no, MetOffice and SMHI during the summer period and, to date, responses have been received from ECMWF, met.no and UKMO; these responses are broadly compatible.

The outstanding responses are currently being pursued with the aim of completing the gathering of the detailed user requirements by the spring of 2010, in time for their consideration at both the fourth meeting of the RARS Implementation Group and ITWG-17. Following feedback from these groups the user requirements will be analyzed to assess their implications in terms of architecture (e.g. reception stations, processing, communications, etc.).

Based on this initial analysis, a pilot network implementation is planned for the latter half of 2010. Exploiting the experience with this pilot network, a full operational implementation of the network is scheduled for the second half of 2011.

4 RARS TIMELINESS PERFORMANCE

The NWP SAF monitors the timeliness performance of the RARS Network on a daily basis and sends reports to the relevant RARS operators. Regional monitoring is also done by some RARS operators.

A typical extract of the daily performance monitoring reports is attached in the Appendix.

5 CONCLUSIONS

CGMS Members involved in the RARS project (CMA, EUMETSAT, JMA, KMA, NOAA, ROSHYDROMET), in collaboration with other parties involved, are invited to continue their support to the RARS project that provides an efficient means to improve the timeliness of polar-orbit sounding data, and to support in particular the extension of the RARS project to advanced sounders (X-RARS); possibly in the form of a contribution to a Pilot Project during the latter half of 2010.



APPENDIX

TYPICAL RARS PERFORMANCE MONITORING REPORT

Timeliness (from start of overpass, in minutes)
=====

Asia		Pacific		RARS
station	Median	Best	Worst	No. passes
mel	20	14	27	13
pth	21	17	23	9
dar	25	19	28	6
tv1	29	26	37	5
dvs	24	21	28	14
csy	29	25	31	9
kiy	22	15	43	8
syo	27	19	33	8
seo	21	16	41	11
pek	38	23	57	16
sgp	17	12	19	10
mau	25	18	30	12
hkg	0	0	0	0

S		American		RARS
station	Median	Best	Worst	No. passes
cpt	20	15	24	14
inm	22	17	31	7
cba	27	27	53317	8
etc	17	9	18	12
ebm	21	16	24	16

EARS				
station	Median	Best	Worst	No. passes
gan	24	14	27	10
sva	23	18	25	16
mas	21	13	24	17
kan	23	18	24	15
edm	29	15	33	14
ath	18	14	21	13
wal	22	15	53	18
gil	20	16	51	19
mon	32	25	35	5
lan	20	12	24	21
mia	33	27	39	10
ewa	71	51	78	5
std	19	15	23	10