

## Regional ATOVS Retransmission System (RARS) ITSC-18 Technical Subgroup

Toulouse, France, Thursday 22 March 2012

Participants: See Annex 1

### 1. General matters

The group highlighted that RARS/ATOVS products were used by an increasing number of NWP centres as shown by the ITWG enquiry.

It strongly supported the extension of RARS to new satellite data including METOP, NPP and ultimately FY-3, considering the great benefit expected from advanced sounding instrument data. It was considered particularly timely given the recent launch of Suomi-NPP to be followed soon by Metop-B.

- A guiding principle for the RARS product definition is that the regional products delivered through the RARS should be as close as possible to the “global products” delivered by the agency responsible for the respective satellite.

### 2. RARS extension to METOP

#### *Report*

EUMETSAT reported on the status and plans of Metop data retransmission in EARS. For Metop/ATOVS, the operating mode will be the same as for NOAA/ATOVS. For IASI, EUMETSAT has selected a set of HRPT stations that will acquire, process and directly forward the data to the EUMETCast uplink station via a dedicated IP-VPN network. The onward dissemination will then be performed through EUMETCast. In addition, the products are sent to DWD for injection to the GTS. The IASI products will be contained in a single file per satellite pass and will include the EUMETSAT selection of 366 channels plus the 300 Principal Components scores. (See details on: [http://www.eumetsat.int/idcplg?IdcService=GET\\_FILE&dDocName=PDF\\_TEN\\_010839\\_EARS\\_OSS&RevisionSelectionMethod=LatestReleased](http://www.eumetsat.int/idcplg?IdcService=GET_FILE&dDocName=PDF_TEN_010839_EARS_OSS&RevisionSelectionMethod=LatestReleased) ).

EUMETSAT has implemented at each station a computer running AAPP together with the IASI Level 1 processor (OPS-LRS). N. Atkinson indicated that both AAPP and OPS-LRS are distributed by the NWP SAF (<http://www.nwpsaf.org/>) and are freely available to any interested user. It was stressed that AAPP requires Metop Level 0 as input (Note: If not already delivered by the receiving station, the Level 0 can be generated by the “Metopizer” freeware available from EUMETSAT: <http://www.eumetsat.int/Home/Main/DataAccess/SupportSoftwareTools/index.htm?l=en>). EUMETSAT further indicated that, for the IASI processing, powerful servers are required to meet the specified timeliness.

#### *Discussion*

The group welcomed the report from EUMETSAT and recommended initiating activities to apply the same approach in all regions. It identified actions which are summarized in the last section of this report.

As concerns North-America, the group encouraged NOAA, Environment Canada, and EUMETSAT to work towards integrating the relevant North American stations into the EARS/IASI service.

As concerns the Asia–Pacific region it was noted that a number of stations were already processing or prepared to process Metop data; the processing software can be obtained from the NWP-SAF; computing facilities need be installed; as concerns the telecommunication aspects, the solution should be determined at the regional level through discussion within the APSDEU group taking into account the respective locations of the stations and of the GTS hubs, the bandwidth constraints, and relevant regional capabilities (e.g. CMACast).

In Brasil, INPE is in the process of implementing several METOP receiving stations; it should follow the same approach as EUMETSAT and consider a means (e.g. FTP push) to forward the products to the appropriate GTS hub (e.g. Brasilia).

In Argentina, the Córdoba station still needs to be equipped for Metop; SMN and CONAE are strongly encouraged to upgrade this station as soon as possible. The Marambio station is planned at a later stage.

- Noting that IASI products for one pass amount to around 8.5 MB, the group discussed the possible optimization of the product size through e.g. providing the PC scores only. Since the product content is configurable in AAPP, it was concluded that adjustments could be made at a later stage when NWP centres will have evaluated the products and e.g. confirmed readiness to use PC scores
- It was clarified that once Metop acquisition is established, the retransmission of Metop/ATOVS products could be a useful initial objective, with the understanding that IASI products would follow as soon as the telecommunication capabilities are in place.
- Y. Tahara raised the need to define appropriate filenames and/or bulletin headers for the new products, and to update the RARS documentation accordingly ([http://www.wmo.int/pages/prog/sat/documents/RARS\\_coding-summary.xls](http://www.wmo.int/pages/prog/sat/documents/RARS_coding-summary.xls))

### 3. RARS extension to Suomi-NPP

#### *Report*

For Suomi-NPP, N. Atkinson and A. Huang informed the group on the availability of AAPP and CSPP software respectively. CSPP performs Level 1 processing which delivers Sensor Data Records (SDR) in HDF5 format for ATMS, CrIS and VIIRS instruments. AAPP has been updated to ingest these SDRs, perform CrIS channel selection, and BUFR encoding.

EUMETSAT presented their plans for the EARS/ATMS, EARS/CrIS and EARS/VIIRS. For EARS/ATMS, the products will include all 22 channels, whereas for EARS/CrIS the product will include the NOAA selected 399 channels and cloud information derived from VIIRS.

#### *Discussion*

The group welcomed the report from EUMETSAT and recommended initiating activities to apply the same approach in all regions. It identified actions which are summarized in the last section of this report.

As indicated for RARS/Metop, the use of PC scores should be considered for RARS/CrIS products.

The group encouraged NOAA, Environment Canada, and EUMETSAT to work towards integrating the relevant North American stations into the EARS/CrIS and EARS/ATMS services.

CMA was invited to check the readiness for Metop and NPP of its three RARS stations, and upgrade these stations if necessary.

As concerns South America, at least two stations are planned to be upgraded for NPP in 2012.

Telecom issues for NPP/CrIS RARS products are the same as for as for Metop/IASI products.

#### **4. Way forward and milestones**

Actions should be taken by the participating organizations to:

- (i) Implement or upgrade the receiving stations for Metop and for NPP (See Annex 2);
- (ii) Implement adequate servers;
- (iii) Install the CSPP and AAPP processing software to be obtained respectively from CIMSS and from the NWP-SAF;
- (iv) Organize the telecommunication aspects, which should be addressed at the regional level taking into account the respective locations of the stations and of the GTS hubs, and the bandwidth constraints.
- (v) Initiate as soon as possible the retransmission of Metop/ATOVS products, which should not raise any telecom difficulties;
- (vi) Define filenames and/or bulletin headers for the new products, and update the RARS documentation accordingly;
- (vii) Proceed with the retransmission of Metop/IASI and Suomi-NPP products once the telecommunication scheme is in place for these higher data volumes, and inform the NWP user community.
- (viii) Seek feedback from NWP community as concerns the adequacy of product contents and consider adjustments if relevant.

The telecommunication scheme should be investigated in each Region, and the outcome of these investigations be reviewed at the latest at the joint NAEDEX-APSDEU meeting (22-26 Oct 2012, Exeter, UK).

#### **5. Other business**

As concerns the routine operations, the group noted the need to develop and implement a procedure to react efficiently in the case of anomalies (geolocation errors, erroneous headers, etc).

---

**Annex 1: Participants**

Dirceu L. Herdies	INPE/CPTEC
José A. Arevéquia	INPE/CPTEC
Simone M. Sievert Costa	INPE/CPTEC
Gilles Verner	Environment Canada
David Bradley (remotely)	Environment Canada
Dieter Klaes	EUMETSAT
Christelle Ponsard (Rapporteur)	EUMETSAT
Anders M. Soerensen	EUMETSAT
Allen Huang	CIMSS
Jérôme Lafeuille (Moderator)	WMO
Gloria Pujol	SMN Argentina
Nigel Atkinson	NWP SAF, Met Office
John Eyre	Met Office
Christopher Down	BOM
Jean Pla	CNES
Niels Bormann	ECMWF
Mitch Goldberg	NOAA/NESDIS
Akira Okagaki	JMA
Yoshihiro Tahara (remotely)	JMA
Chunfang Wang (remotely)	CMA

## Annex 2 : List of initial candidate stations

Metop Stations		NPP Stations	
<b>EARS</b>			
Svalbard	Metop received	Svalbard	Planned: Q2 2012
Lannion	Metop received	Lannion	NPP-ready
Moscow	Metop received	Moscow	TBC
Athens	Metop received	Athens	Planned: Q2 2012
Kangerlussuaq	Metop ready	Kangerlussuaq	Planned: Q3 2012
Maspalomas	Metop received	Maspalomas	NPP-ready
Edmonton	Metop ready	Edmonton	Planned: April 2012
Gander	Metop ready	Gander	Planned: 2012
Monterey	Metop received	Monterey	TBC
Wallops Island	Metop received	Wallops Island	TBC
Gilmore Creek	Metop received		
Ewa Beach (Hawaii)	Metop received		
Miami	Metop received		
St Denis (Reunion)	Metop received		
Muscat	Metop received		
Khabarovsk	Metop ready		
Novosibirsk	Metop ready		
<b>South America RARS</b>			
Cachoeira Paulista	Planned: 2012	Cachoeira Paulista	Planned: 2012
Cuiabá	METOp ready	Cuiabá	Planned: 2012
Brasilia	Potential: 201)		
Manaus	Potential: 2012		
Natal/INPE	Planned: 2012		
Córdoba	Planned	Córdoba	Upgrade needed
Ushuaia/Tierra de fuego	Planned		
Marambio	Planned		
<b>AsiaPacific RARS</b>			
Melbourne CribPt	Metop ready	Melbourne	NPP ready
Darwin	Metop ready	Darwin	NPP ready
Perth	Metop ready	Perth	NPP ready
Townsville	Metop ready	Townsville	NPP ready
		Casey	NPP ready
Kiyose	Metop ready	Kiyose	NPP by end of March
Beijing	Metop ready( TBC)	Beijing	NPP planned (TBC)
Guangzhou	Metop ready( TBC)	Guangzhou	NPP planned (TBC)
Urumqi	Metop ready( TBC)	Urumqi	NPP planned (TBC)
Maupuia	Planned	Maupoia	X-Band
Jincheon	Metop ready	Singapore	X-Band
Fiji	Metop capable		
<b>Other stations</b>			
Exeter		Exeter	Being equipped