

# EUMETSAT'S GLOBAL AND REGIONAL SERVICES FOR SOUNDER DATA



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## ABSTRACT

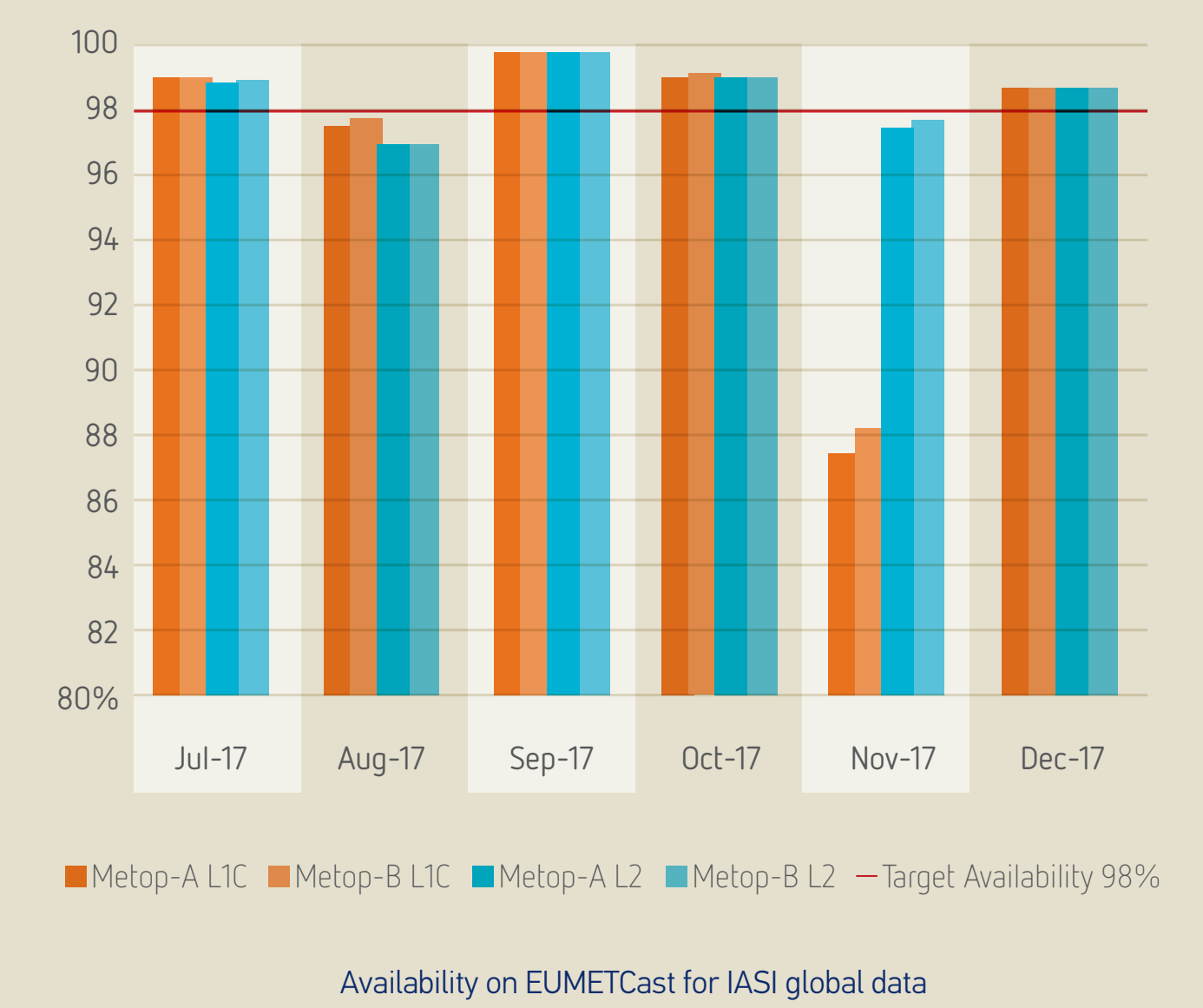


EUMETSAT is well known as the operator of geostationary and polar-orbiting meteorological satellites which carry microwave and infrared sounding instruments, such as IASI, HIRS, MHS, and AMSU-A. Future EUMETSAT satellite missions will also deliver contributions in these areas. In addition to the global data services for its own satellites and NOAA satellites in the framework of the IJPS, EUMETSAT also operates a set of 3<sup>rd</sup> party data services to distribute data from other satellite operators around the world in a comprehensive form to users in Europe, Africa, and America. These 3<sup>rd</sup> party data services already include sounder data from NOAA and FY3 satellites and will be expanded upon user request and according to data availability in the future. The EUMETSAT Advanced Retransmission Service (EARS), which started as a regional data service for sounder data from the Atlantic and Europe, now covers a large part of the Northern Hemisphere. Where possible it has been extended to include IASI data from the two METOP satellites as well as ATMS and CrIS data from Suomi-NPP, with products generated using local processing software packages. A further extension to FY3 sounders is planned for the coming years.

## IJPS services for IASI, AMSU-A, MHS, and HIRS on METOP A/B and NOAA 19

EUMETSAT generates in the EPS core ground segment L1 products in BUFR format for the assimilation in NWP models and disseminates them via the EUMETCast satellite dissemination system and through the GTS.

Instrument Status		
	METOP-A	METOP-B
HIRS		F/W problem
AMSU-A	AMSUA1: H7 failed, H3 + H8 degraded	
MHS	H3 + H4 degraded	
IASI		



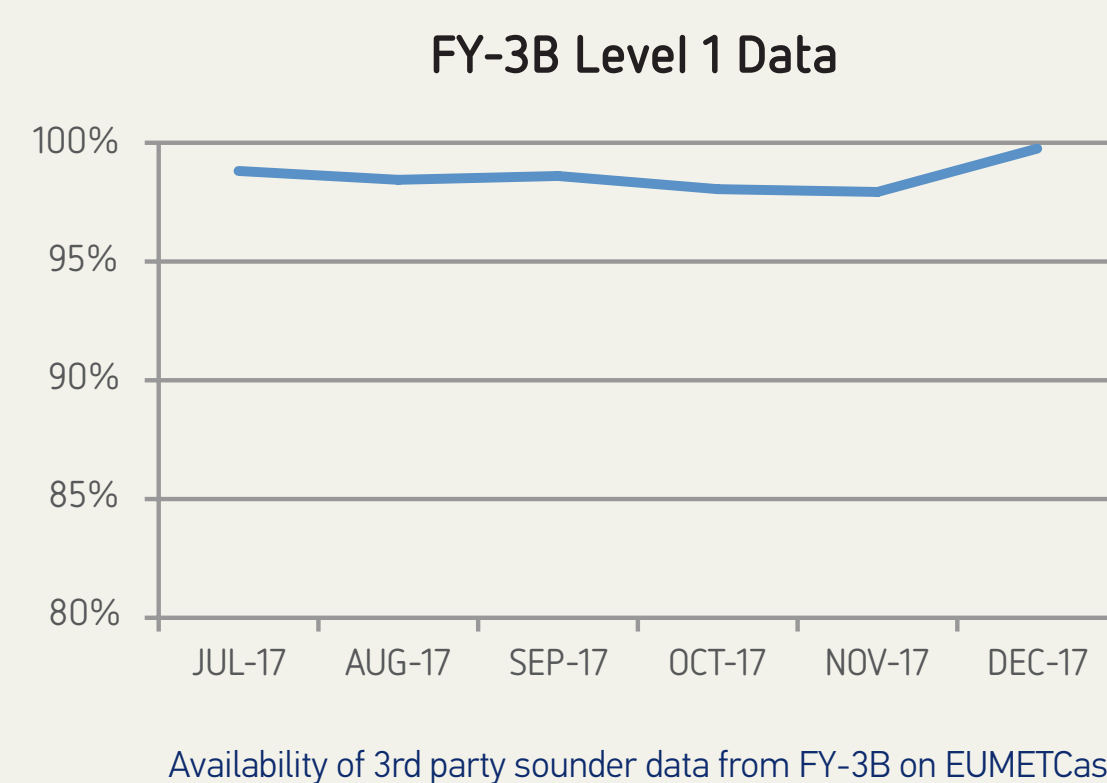
## 3<sup>RD</sup> PARTY DATA SERVICES

In addition to its IJPS services EUMETSAT also provides NRT data from various foreign satellites through its 3<sup>rd</sup> party data services. These are characterised by:

- NRT data come from various organisations (CMA, CNES, ESA, ISRO, JAXA, JMA, NASA, NOAA, NSOAS, ROSHYDROMET)
- The selection and priority setting of data which EUMETSAT tries to make available is done by the STG-OPSWG.
- Data reception is done by the satellite provider or on behalf of the satellite provider.
- Data policy and data ownership remains with the provider.
- Raw data processing is in most cases done by the satellite providers.
- Data are transferred to EUMETSAT in various ways (dedicated lines, RMDCN, Internet, ...)
- using various protocols.
- Depending on user demands EUMETSAT can reformat or tailor the data.
- Data dissemination is done via EUMETCast, in some cases also via GTS.
- Archiving is usually not done by EUMETSAT but by the data provider.
- The registration for the reception of 3<sup>rd</sup> party data follows the same principles as for other EUMETSAT data through the Product Navigator.
- Availability and timeliness of data is mostly determined by the data provider.

## Operational 3<sup>rd</sup> party data service for LEO satellites

- Microwave Sounder L1 products from CMA's FY-3A and FY-3B (only provided to National Met. Services)
- Level 1, 2 and 3 products derived from data of the MODIS instrument on NASA's Terra & Aqua satellites
- SSMIS reformatted BUFR products derived from sounder data of the DoD's DMSP satellites F16 and F17
- SMOS NRT BUFR light products are derived from the MIRAS on-board ESA's SMOS satellite
- SARAL: early dissemination to all users of pre-operational products started 23-July-2013
- Sensor Data Records (SDR) from NOAA's Suomi NPP satellite
- Level 2A and 2B OSCAT products derived from SCAT instrument data of ISRO's Oceansat-2 satellite



## REGIONAL SERVICES FOR SOUNDER DATA

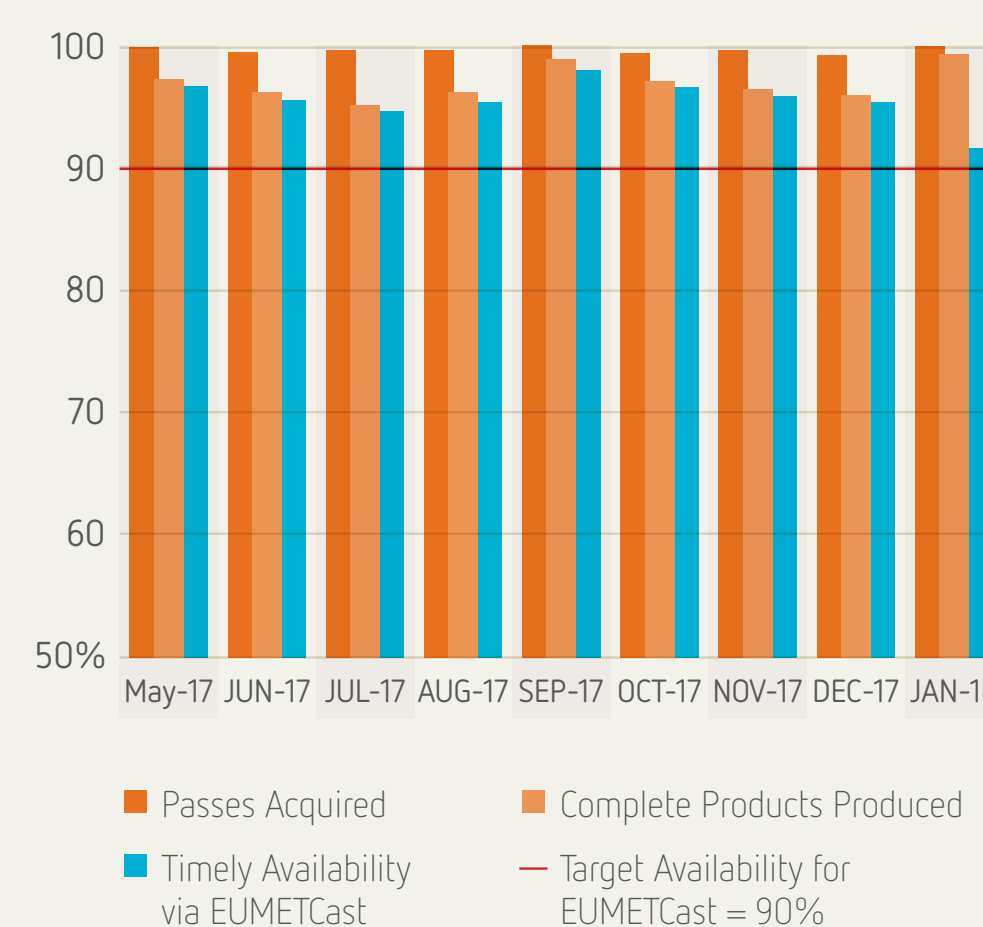
EUMETSAT's Advance Retransmission Services (EARS), the European RARS

- EARS-ATOVS: NOAA 15-19 and METOP A-B, AMSU-A/B, MHS, HIRS (BUFR)
- EARS-AVHRR: NOAA 15-19 and METOP A-B, AVHRR
- EARS-ASCAT: METOP A-B, ASCAT
- EARS-IASI: METOP A-B, IASI, 300 PC Scores and 366 channels
- EARS-ATMS: S-NPP ATMS SDR(BUFR)
- EARS-CrIS: S-NPP CrIS SDR, reduced 399 channel data set (BUFR)
- EARS-VIIRS: S-NPP VIIRS, compact M-Band SDR (in trial mode)
- EARS-NWC: METOP B + NOAA 19, AVHRR cloud products

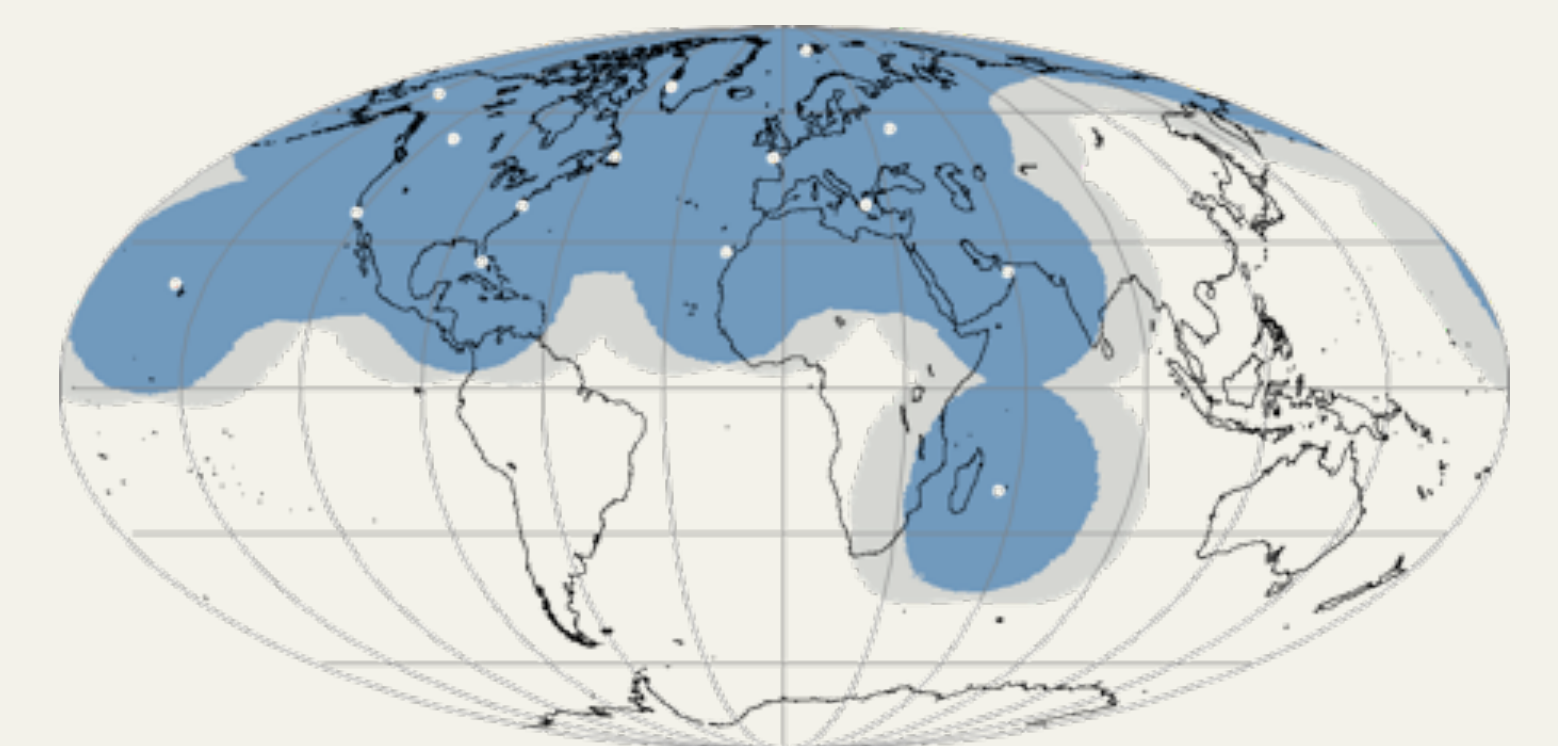
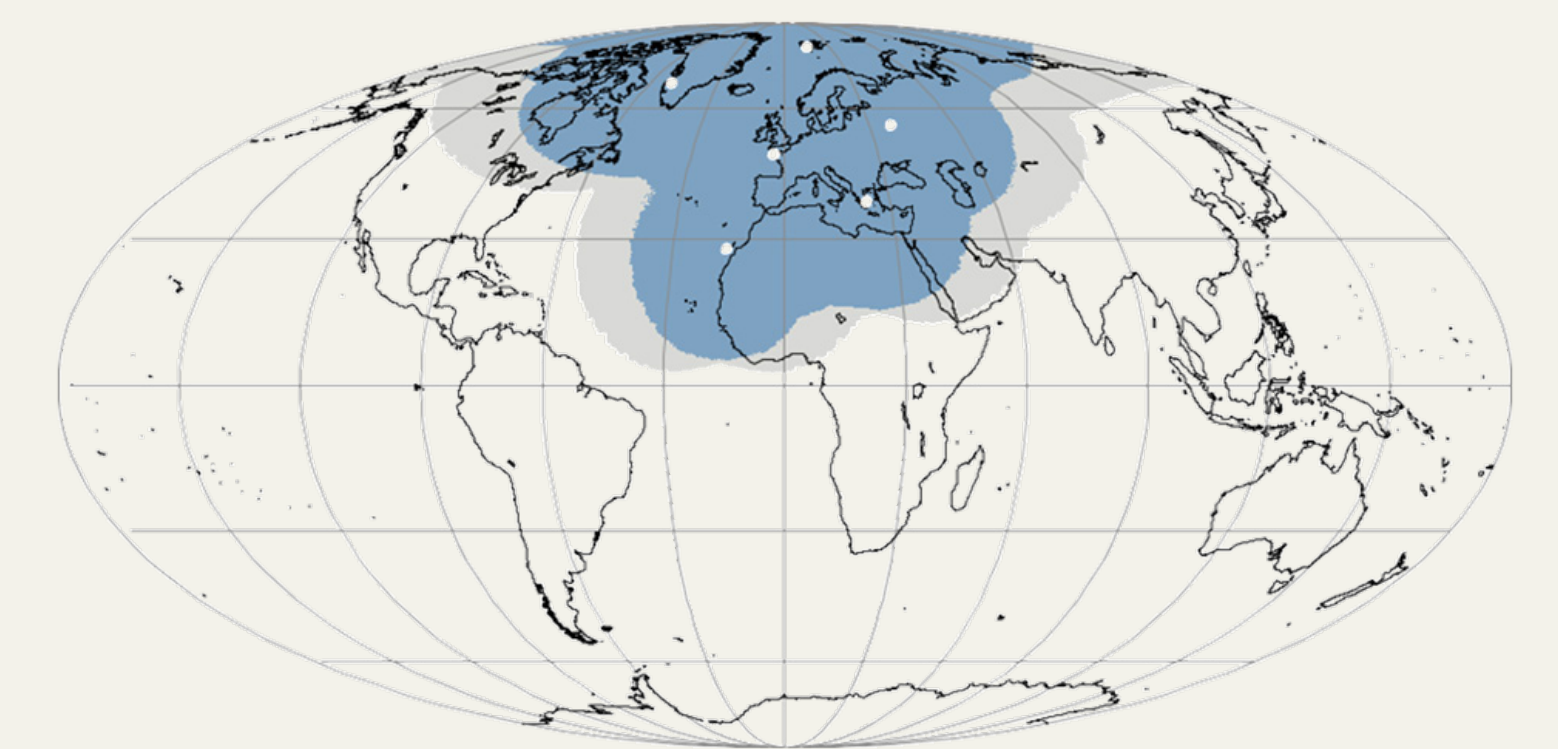
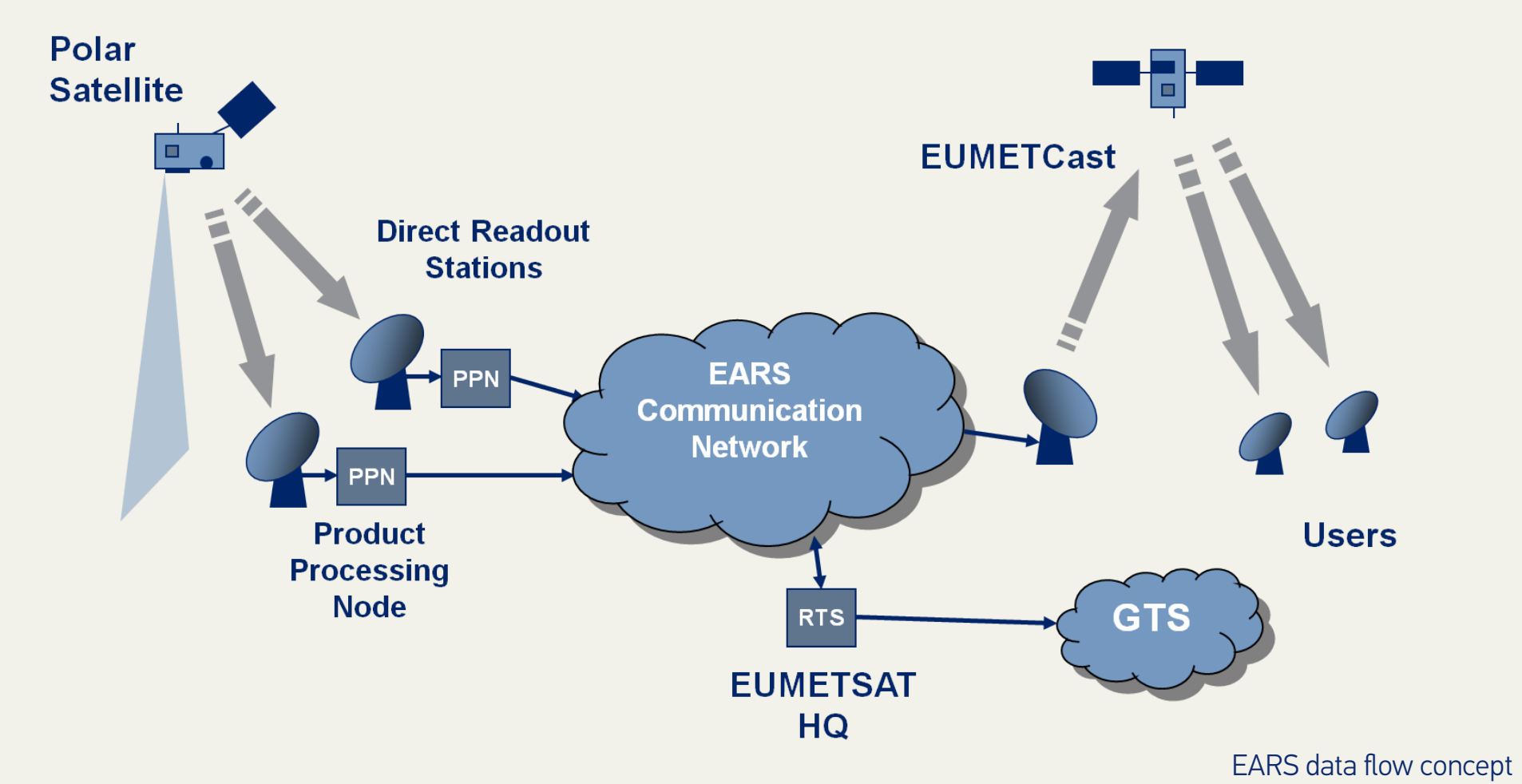
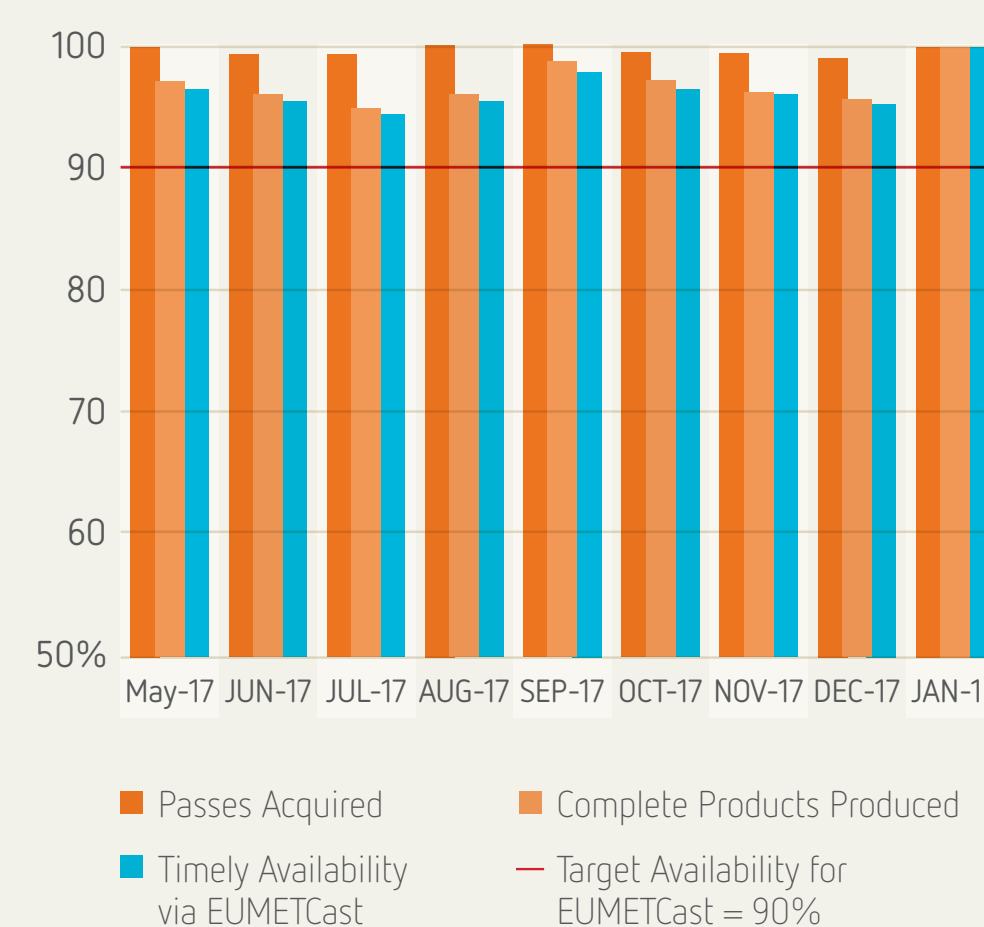
Note: Not all services are available from all stations.

Potential extensions:  
EARS-NWC: S-NPP VIIRS cloud products  
EARS-FY3: FY3 series, MWTS, MWHS, IRAS

## AVAILABILITY ON EUMETCAST FOR IASI REGIONAL DATA



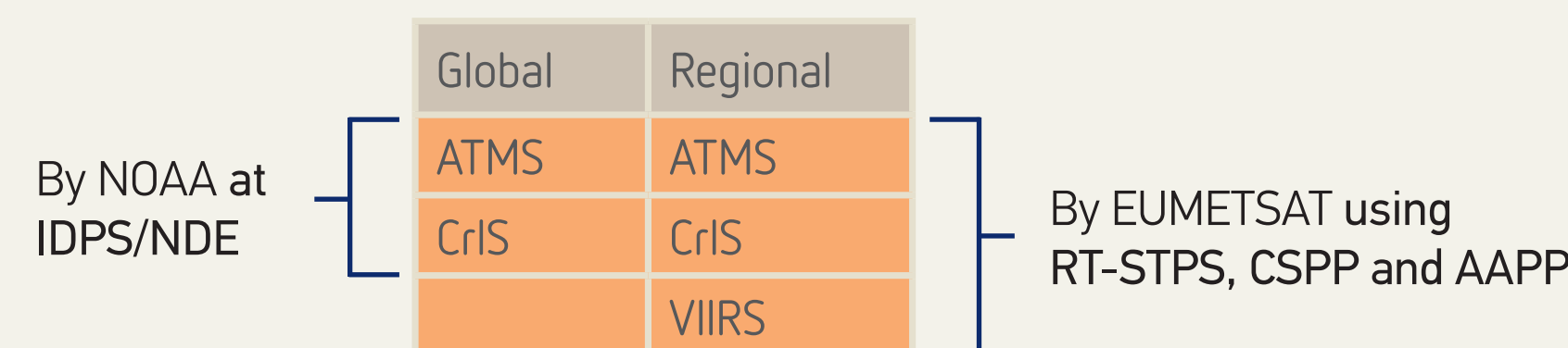
## AVAILABILITY ON EUMETCAST FOR ATOVS REGIONAL DATA



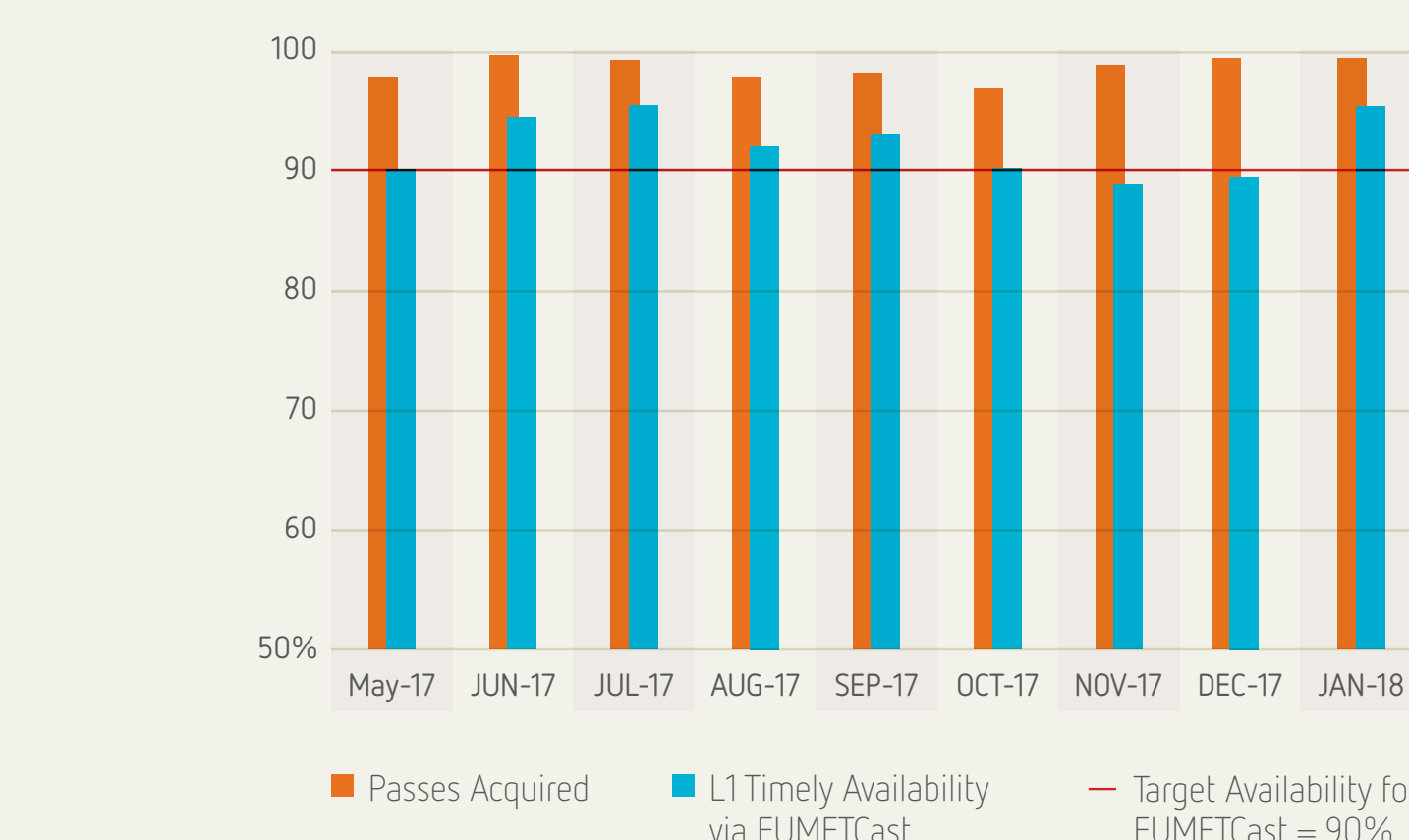
## Planned 3<sup>rd</sup> party data service for LEO satellites

Satellite	Instrument	Data	Impl. Date
NOAA-15, 18	Sounders	L1 BUFR	April 2014
Megha-Tropique	SAPHIR	L1A2 BUFR	April 2014
GCOM-W1	AMSR-2	I1B(R), SST	Q1/Q2 2014
FY-3A, B	Sounders	L1 BUFR	Q2 2014
HY2-A	MW Imager, Altimeter, Scatterometer	BUFR, GHRSSST, netCDF	Q2 2014
Suomi-NPP	VIIRS	Various EDR (SST, AOT)	Q2/ Q 2014

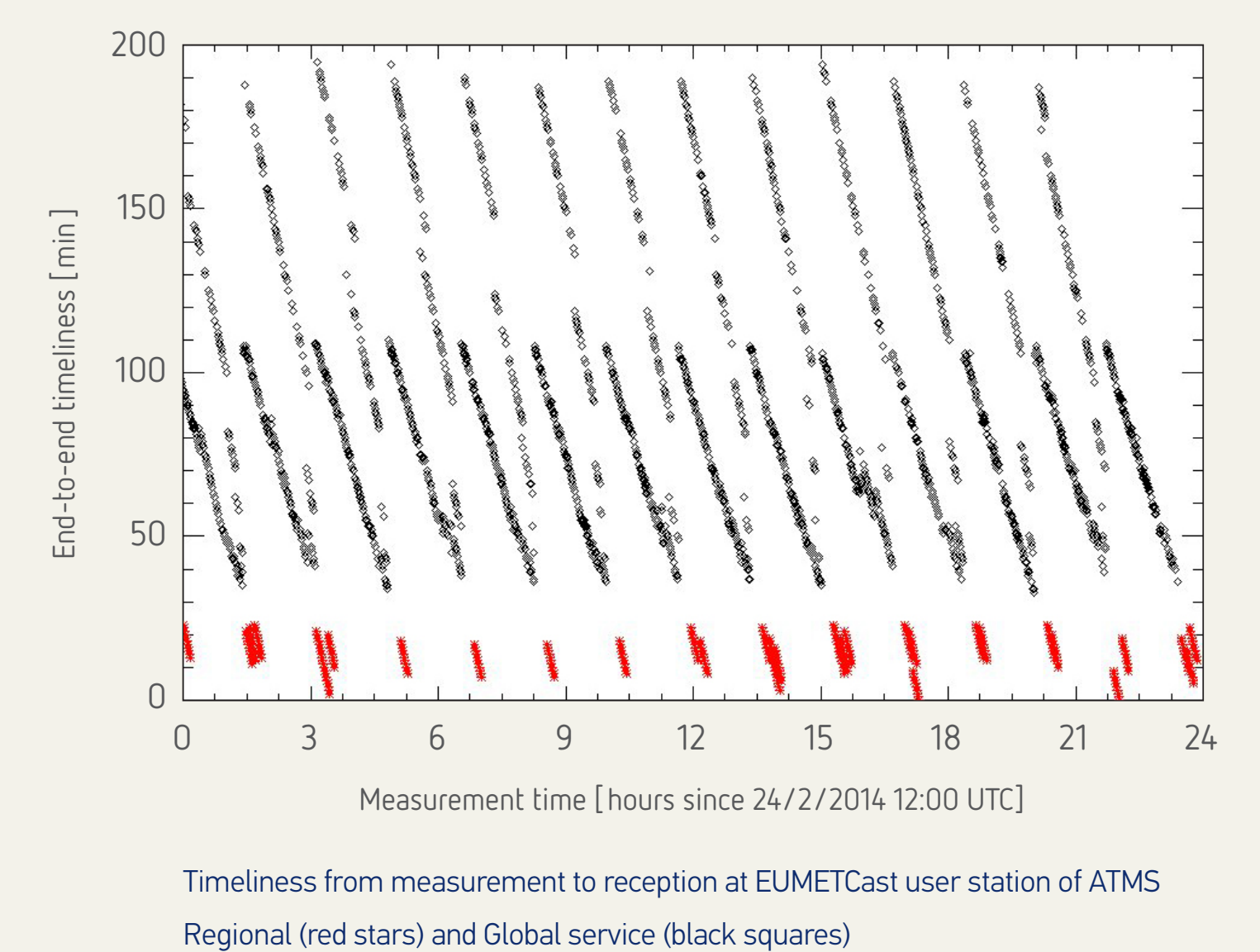
## GLOBAL AND REGIONAL SERVICES FOR SUOMI-NPP: A COMPLIMENTARY DATA SET



## AVAILABILITY ON EUMETCAST FOR S-NPP (ATMS AND CRIS) REGIONAL DATA

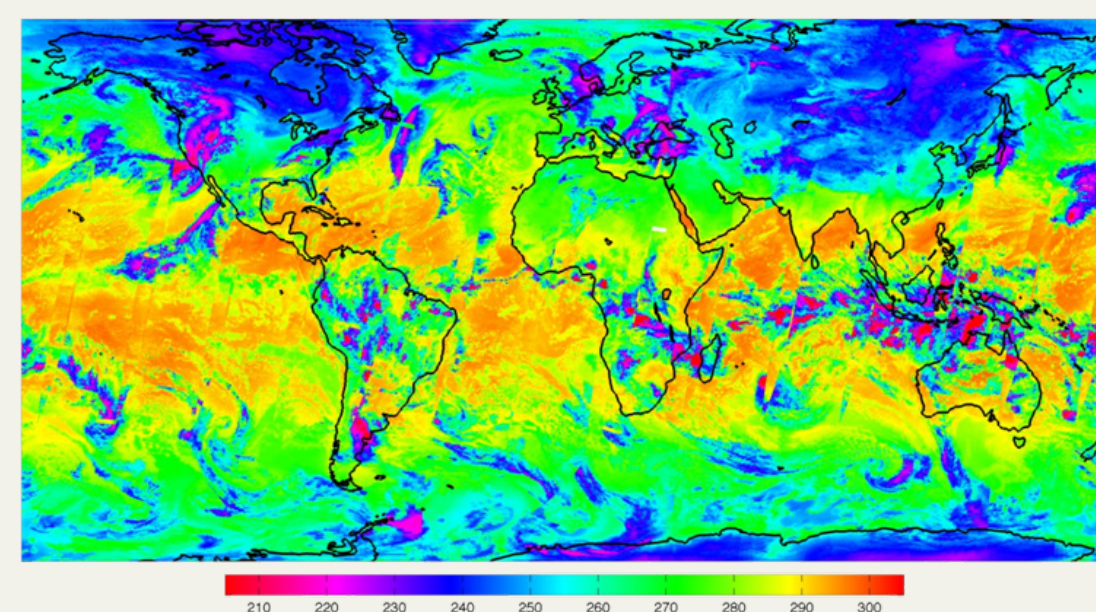


## GLOBAL AND REGIONAL ATMS SDR

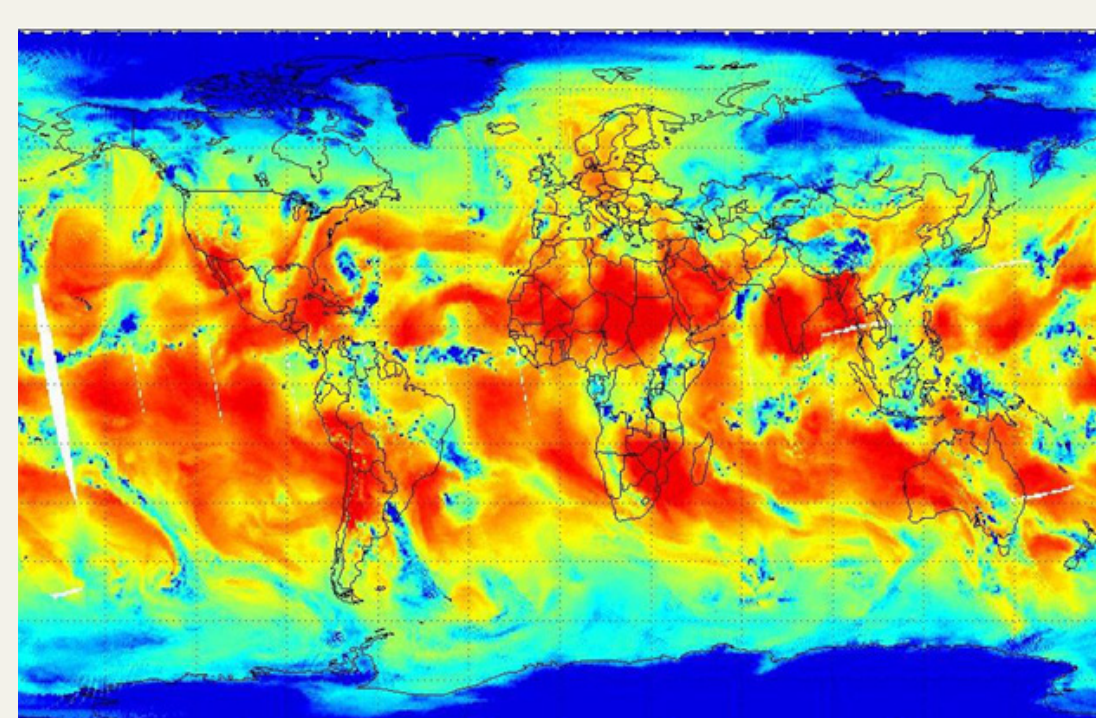


## GLOBAL S-NPP SERVICE VIA EUMETCAST

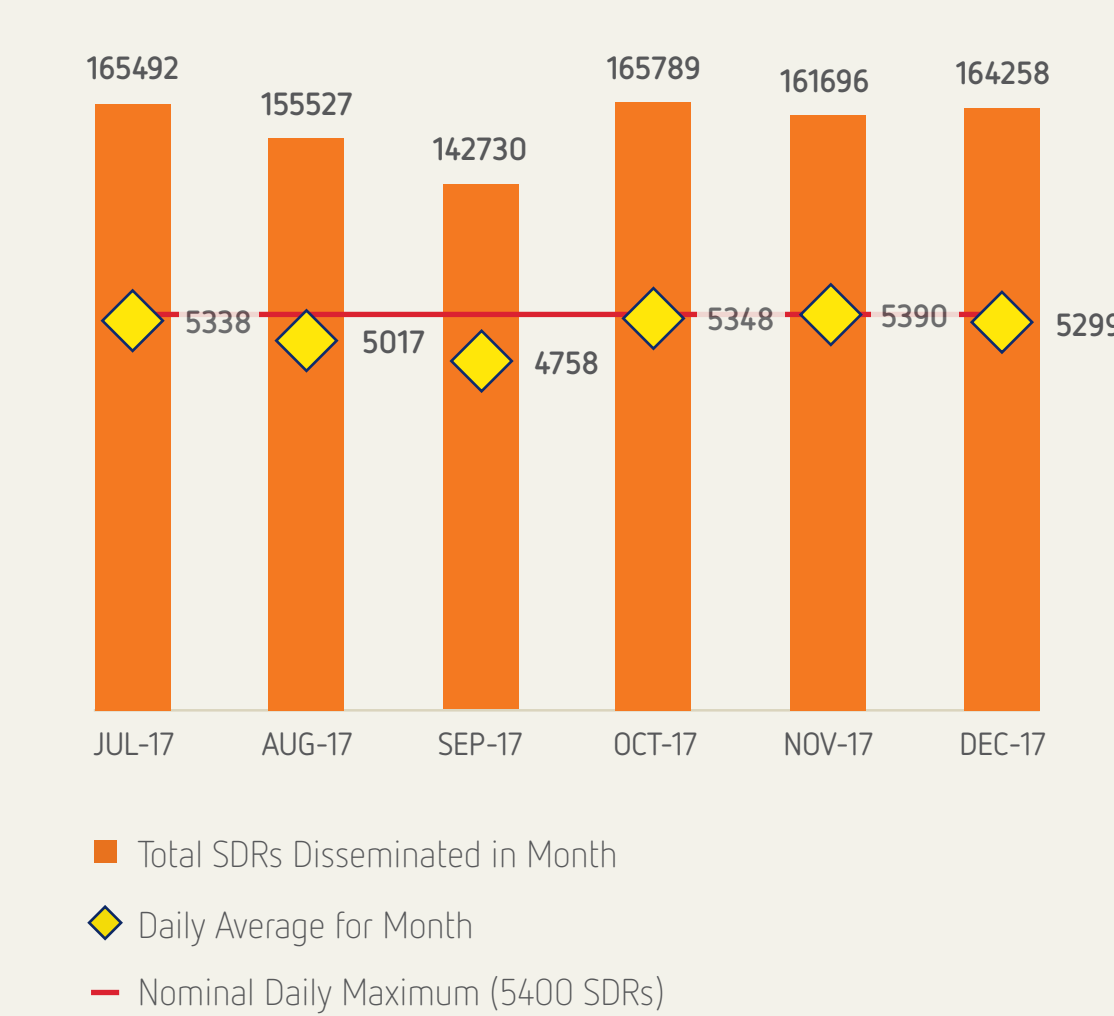
Pass thru:  
extract BUFR bulletins  
repack BUFR bulletins  
rename file to WMO GTS standard



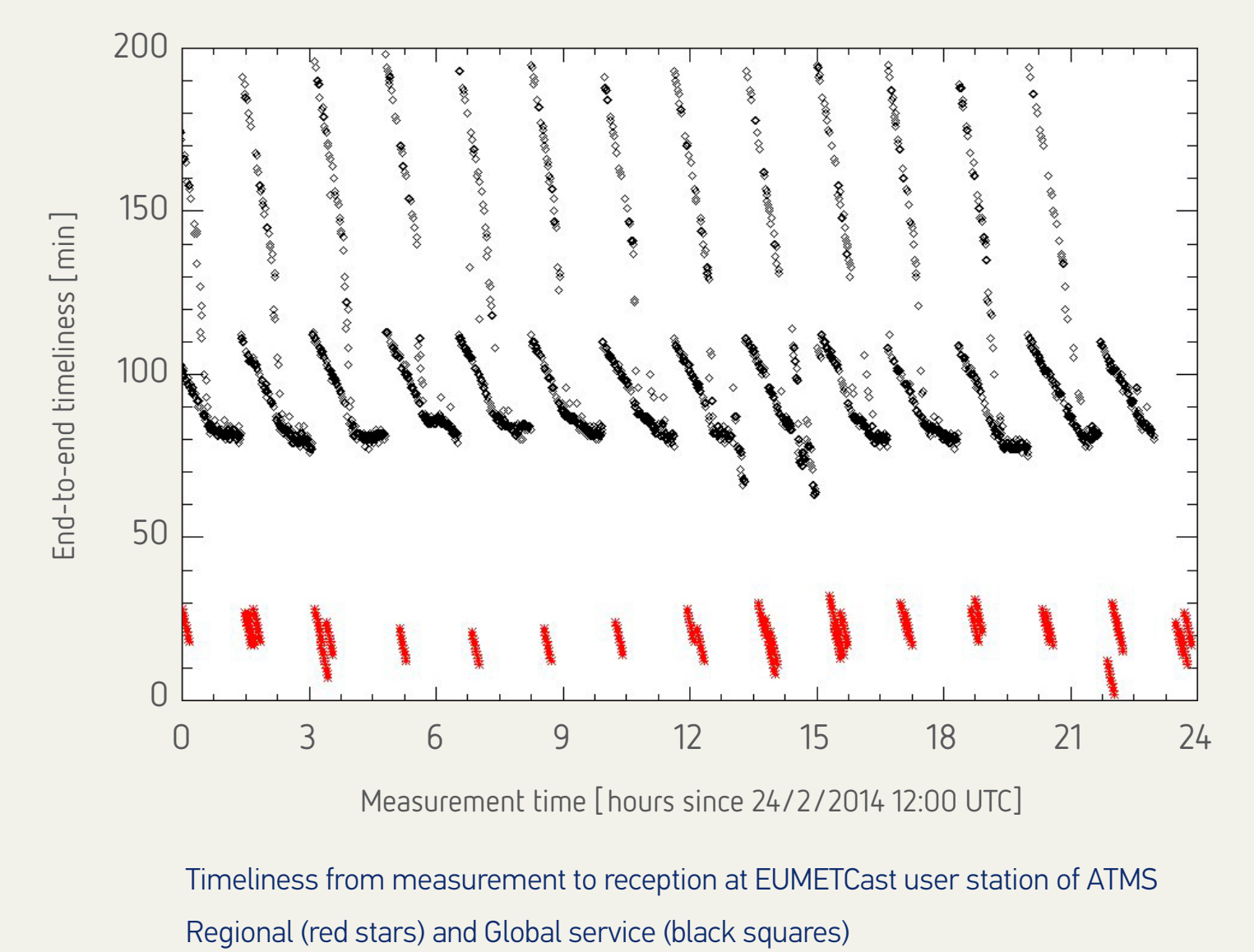
CrIS GTS with VIIRS cloud data:  
As pass thru, plus  
decode CrIS BUFR SDRs  
set additional channels to "missing"  
decode netCDF cloud EDRs  
re-grid and merge with co-located CrIS  
re-encode CrIS BUFR SDRs



## SUOMI NPP SDRs



## GLOBAL AND REGIONAL CRIS SDR



	EUMETCast satellite dissemination	GTS/RMDCN
ATMS	Pass thru	Pass thru
CrIS	Add VIIRS cloud data	1305 to 399 channels and add VIIRS cloud data