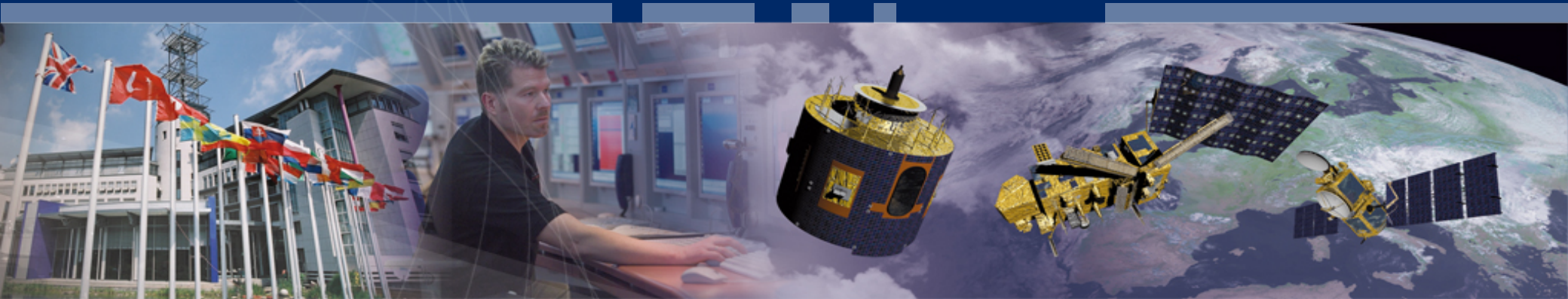




EARS-ATMS, EARS-CrIS and EARS-VIIRS: Three New Regional Services

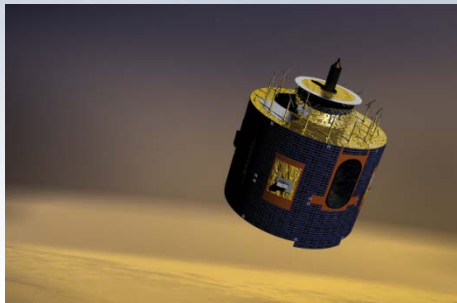
Anders Meier Soerensen, Ester Rojo, Thomas
Heinemann, Michele Burla, Susanne Dieterle





EUMETSAT

Monitoring weather and climate from space



Meteosat-7

Meteosat-8, Meteosat-9, Meteosat-10

Geostationary Satellites



Metop-A, Metop-B

Mid-morning Polar Orbiting Satellites

Partner:



Jason-2

Ocean Surface Topography

Partners:

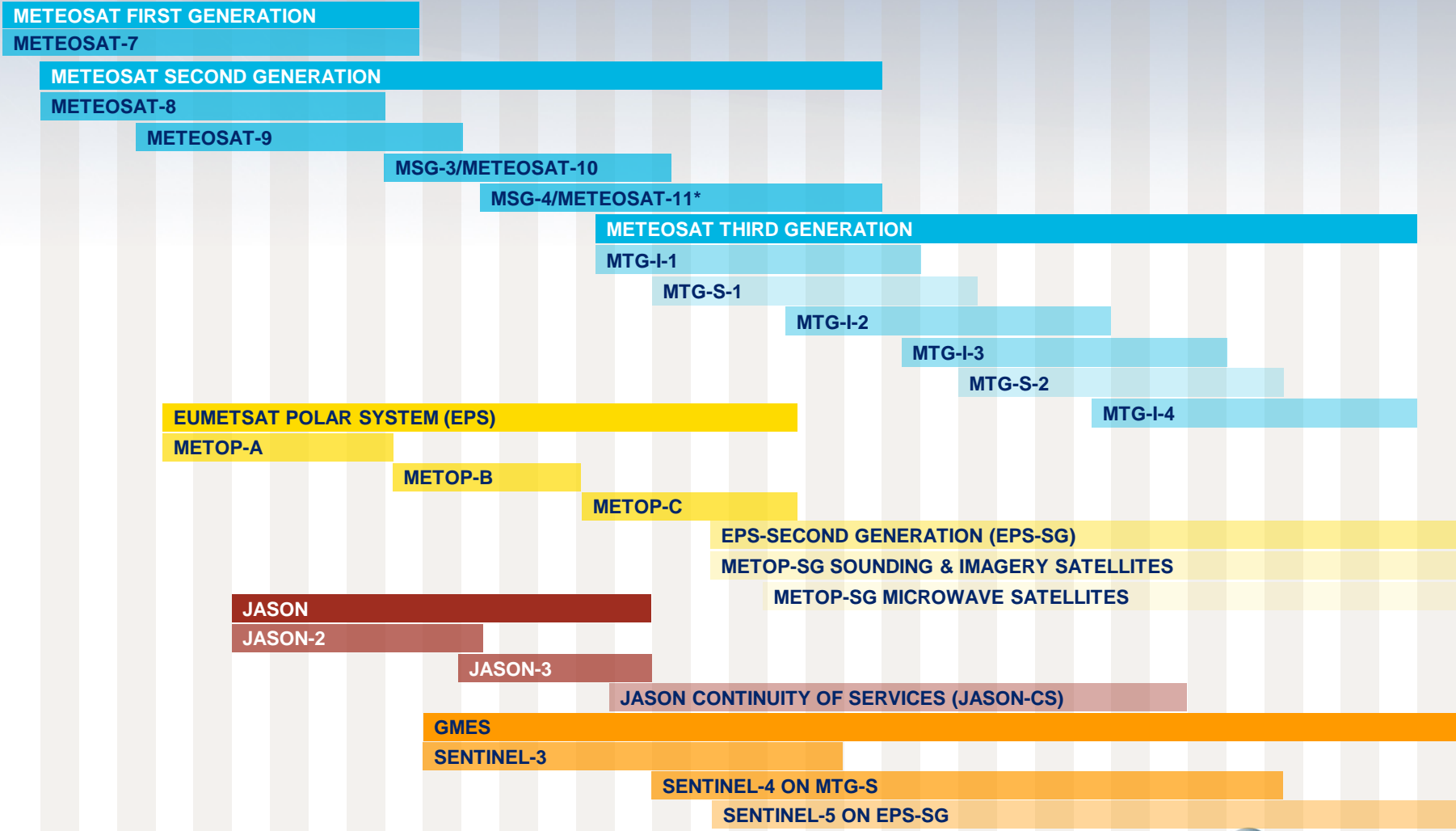




EUMETSAT

Monitoring weather and climate from space

YEAR... 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40

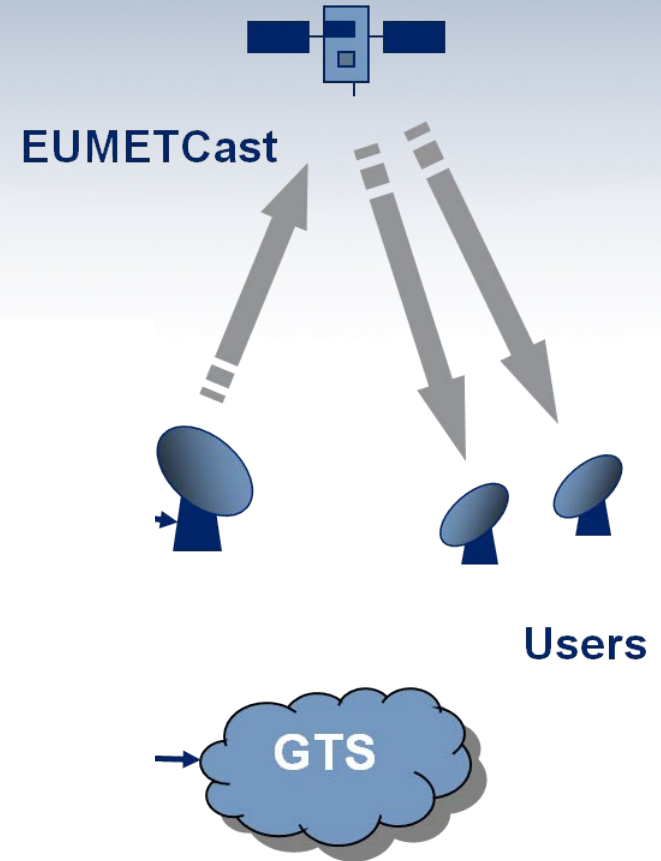




Distribution Channels for EUMETSAT Services

EUMETCast

- Digital Video Broadcast via Satellite (DVB-S)
- Around 3000 Users in Europe (Ku-Band)
- Simple and Affordable Reception Stations
- Current Data Rate 20 Mb/s
- Carries all data of Meteosat, Metop and Jason-2 as well as many third party data sets



Global Telecommunication System (GTS)

- Established by the World Meteorological Organization (WMO)
- EUMETSAT distributes selected data sets on GTS, including Sounder Data



EUMETSAT Advanced Retransmission Service (EARS) Objective and Principle

EARS Objective

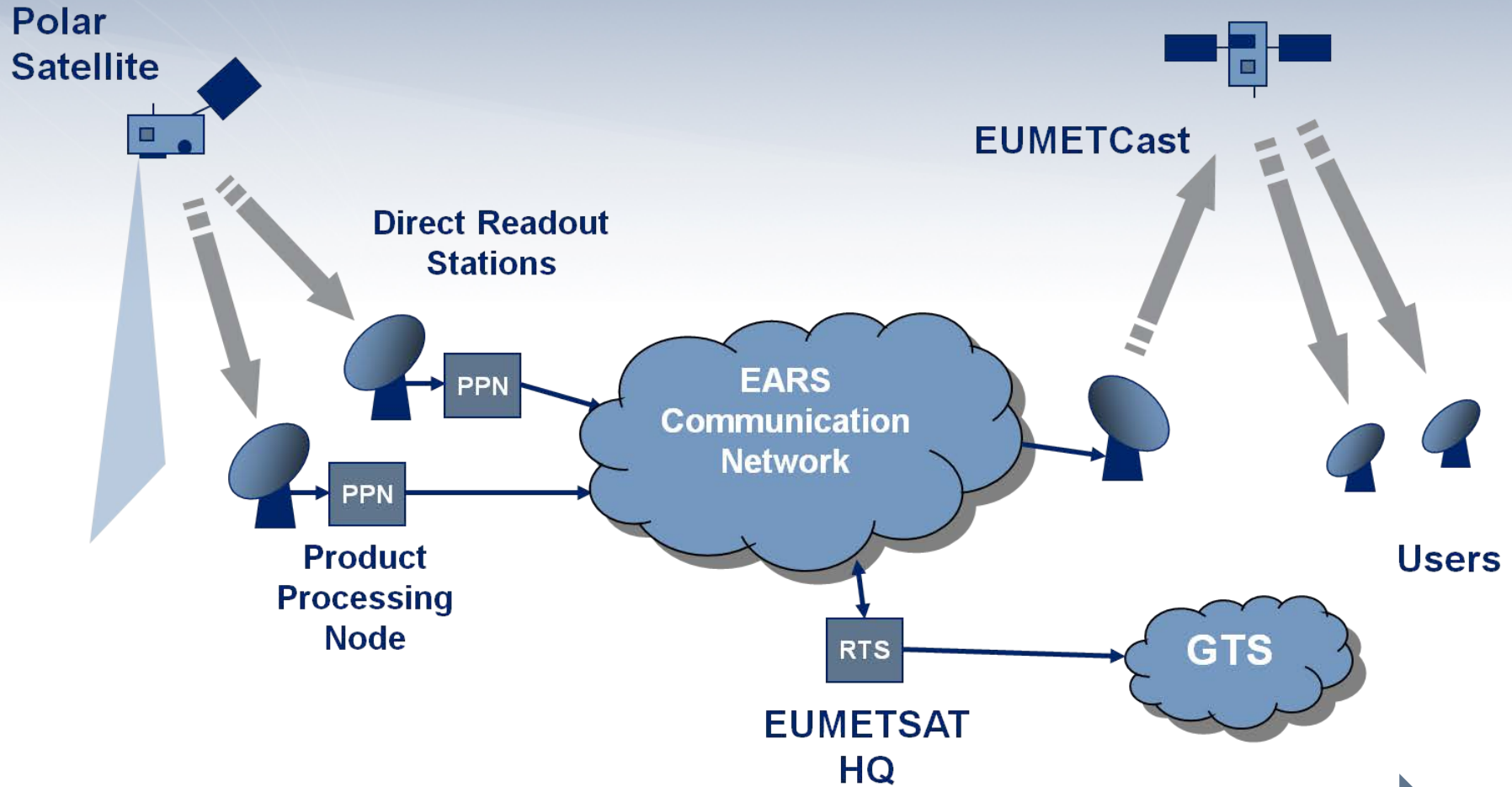
To provide Users with high timeliness regional data from Polar Orbiting Meteorological Satellites in support of Numerical Weather Prediction (NWP) and Nowcasting (NWC).

EARS Principle

Achieved through a regional network of Direct Readout ground stations collecting, processing and retransmitting data to Users in near real time.



EARS – System Overview

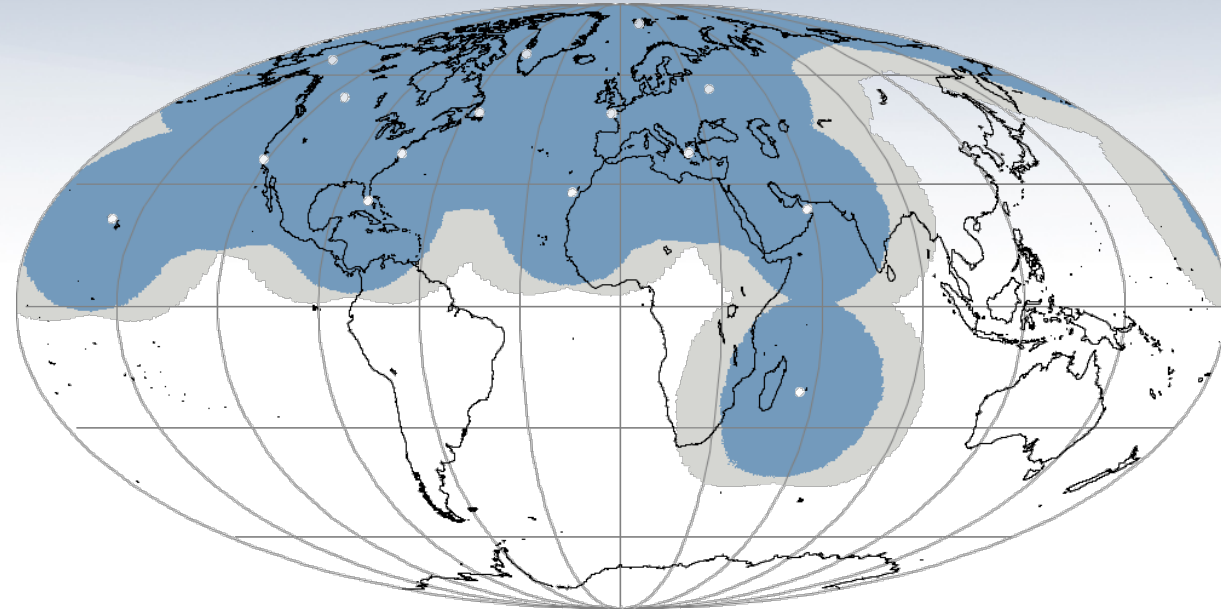


10-30 Minutes



EARS – Current Operational Services

Services	
EARS-ATOVS	L1
EARS-ASCAT	L2 Winds
EARS-AVHRR	L0
EARS-IASI	L1C
EARS-NWC	L2 Clouds



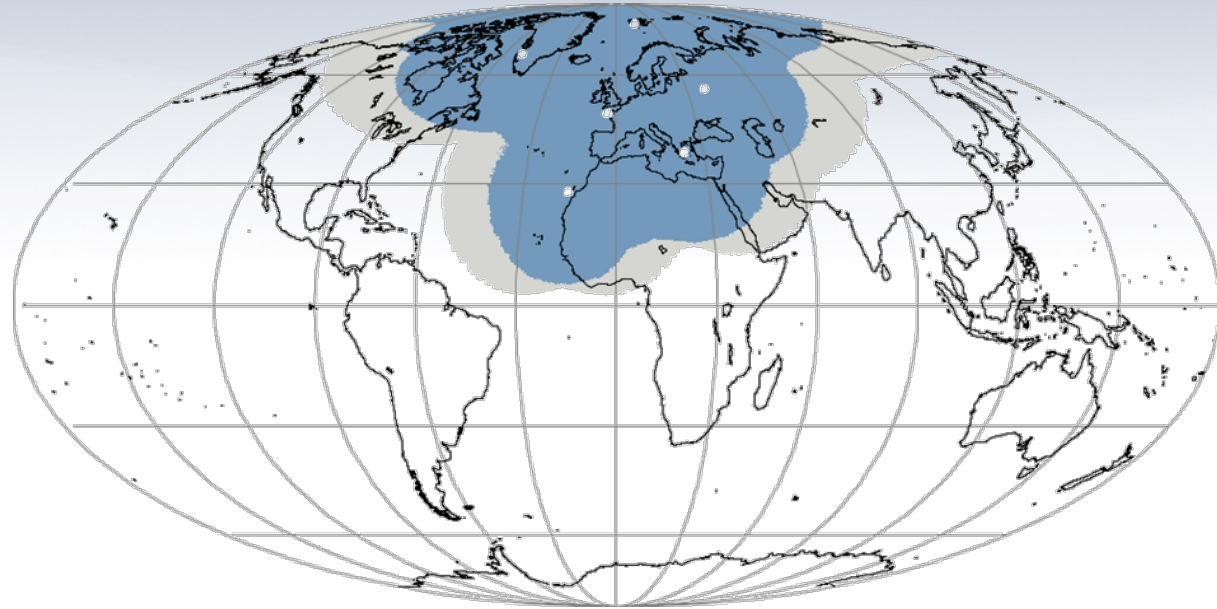
Satellites: NOAA POES
Metop



EARS – New Regional Suomi NPP Services

Services	
EARS-ATMS	SDR (L1c)
EARS-CrIS	SDR (L1c)
EARS-VIIRS	SDR (L1c)

Initial EARS NPP Coverage



Satellites: Suomi NPP



Data Segmentation and Selection Applied for EARS-AVHRR and EARS-VIIRS



Svalbard



Lannion



Maspalomas



EUMETCast

User Station

Timeliness
10 Minutes



New EUMETSAT Provided Global and Regional NPP Services

Global	Regional
ATMS	ATMS
CrIS	CrIS
	VIIRS



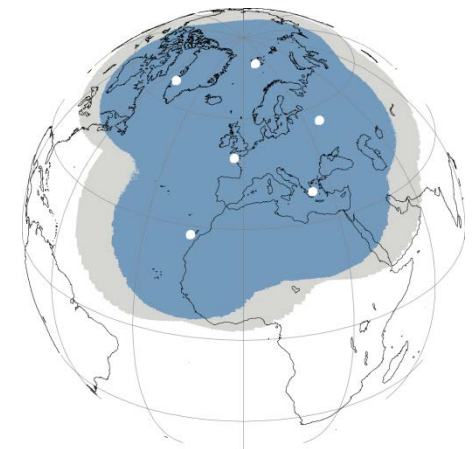
New EUMETSAT Provided Global and Regional NPP Services

Acquisition of NPP Data

By NOAA via NOAA's main ground station(s) for global data

Global	Regional
ATMS	ATMS
CrIS	CrIS
	VIIRS

By EUMETSAT via EARS network of Local Reception Stations



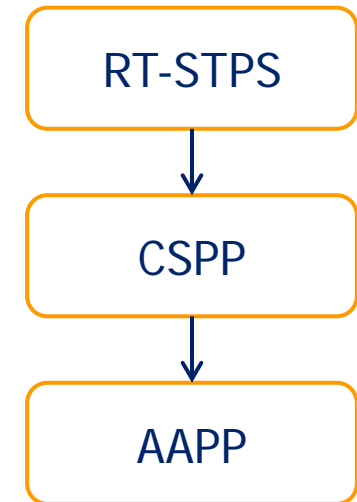
New EUMETSAT Provided Global and Regional NPP Services

Product Processing

By NOAA at
IDPS/NDE

Global	Regional
ATMS	ATMS
CrIS	CrIS
	VIIRS

By EUMETSAT





New EUMETSAT Provided Global and Regional NPP Services

Timeliness

	Global	Regional	
15 minutes after products are made available by NOAA	ATMS	ATMS	30 minutes (pass based)
	CrIS	CrIS	
		VIIRS	15 minutes (segment based)

New EUMETSAT Provided Global and Regional NPP Services Product Content via EUMETCast Europe

All Calibrated and Geolocated (SDR)

	Global	Regional	
All 22 Channels All FoV	ATMS	ATMS	All 22 Channels All FoV
All 1305 Channels All FoV Cloud Information	CrIS	CrIS	399 Channels All FoV Cloud Information
		VIIRS	All 16 M-Band Channels

New EUMETSAT Provided Global and Regional NPP Services Product Content via RMDCN/GTS

All Calibrated and Geolocated (SDR)

	Global	Regional	
All 22 Channels All FoV	ATMS	ATMS	All 22 Channels All FoV
399 Channels All FoV Cloud Information	CrIS	CrIS	399 Channels All FoV Cloud Information
		VIIRS	

New EUMETSAT Provided Global and Regional NPP Services

Product Formatting

All Calibrated and Geolocated (SDR)

	Global	Regional	
BUFR	ATMS	ATMS	BUFR
BUFR	CrIS	CrIS	BUFR
		VIIRS	HDF5 EUMETSAT VIIRS Product Format



EUMETSAT VIIRS HDF5 Product Format

See also poster "A compact VIIRS Product Format"

Original VIIRS SDR

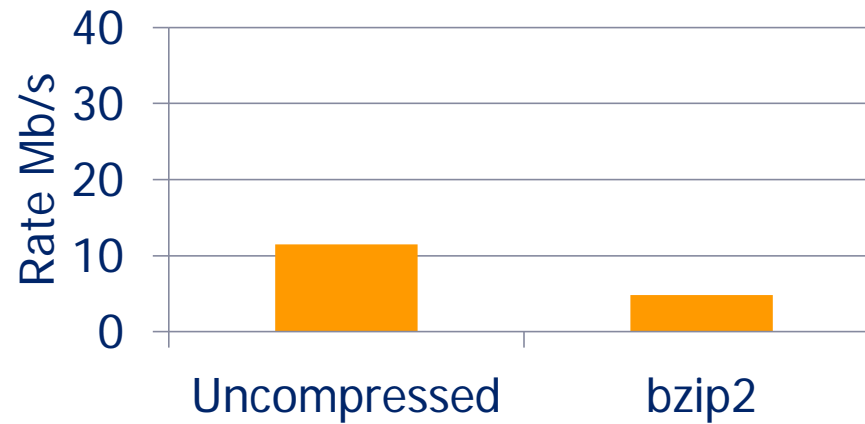
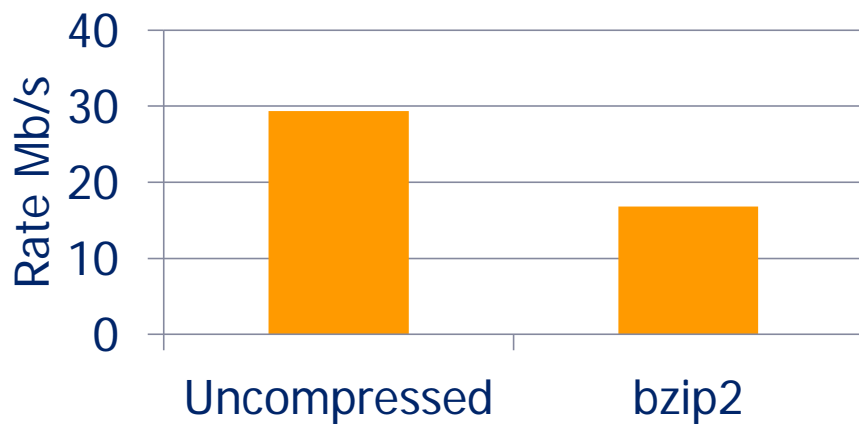
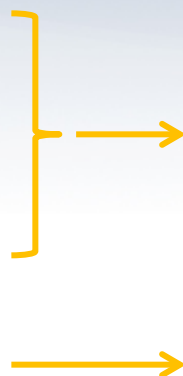
- Radiances
- Brightness Temperatures
- Reflectances

- Geolocation and Angles for each Pixel

EUMETSAT VIIRS

- Radiances
- Coefficients for converting to Brightness Temperatures and Reflectances

- Geolocation and Angles on Tiepoint Grid



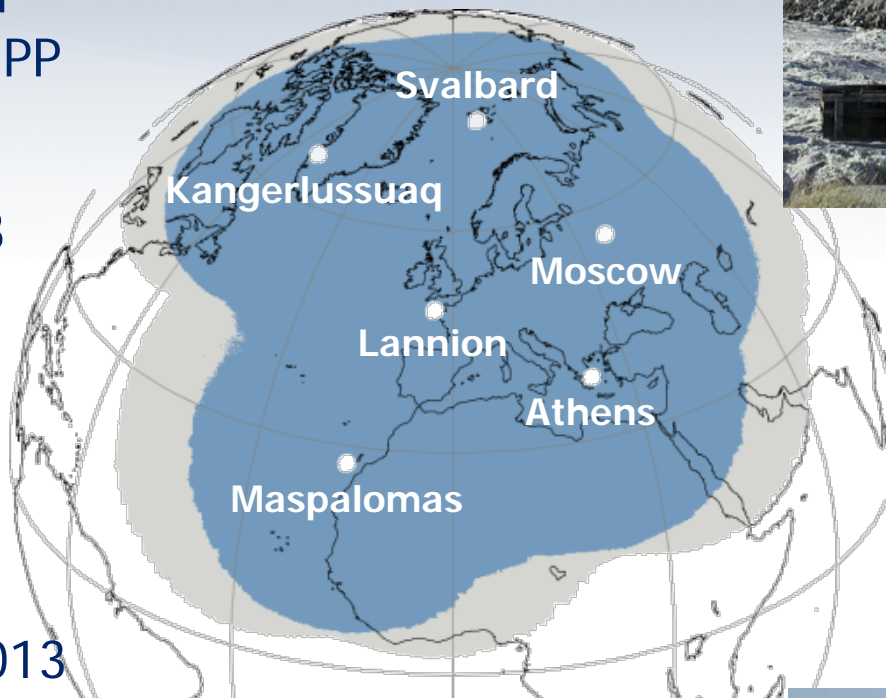
M-Band Only



Suomi NPP Regional Services

Current Status

- Svalbard, Lannion, Athens and Maspalomas completed and routinely receiving Suomi NPP
- Kangerlussuaq installation postponed to summer 2013 due to flooding of access bridge
- EARS-ATMS and EARS-CrIS services in trial since November 2012 and operational from 15 May 2013
- EARS-VIIRS to start Summer 2013 with pass-based processing, End 2013 with segment based processing



- Next: More X-band stations in the network: Madison?