CURRENT STATUS OF EUMETSAT OPERATIONAL WINDS

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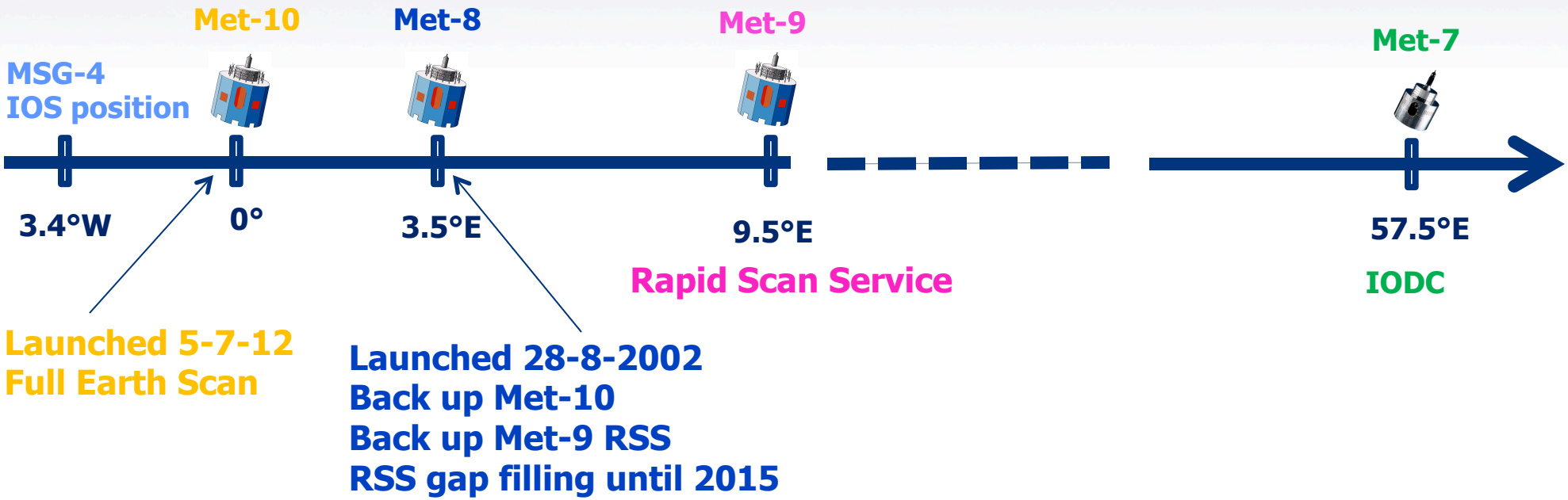
EUMETSAT

Content

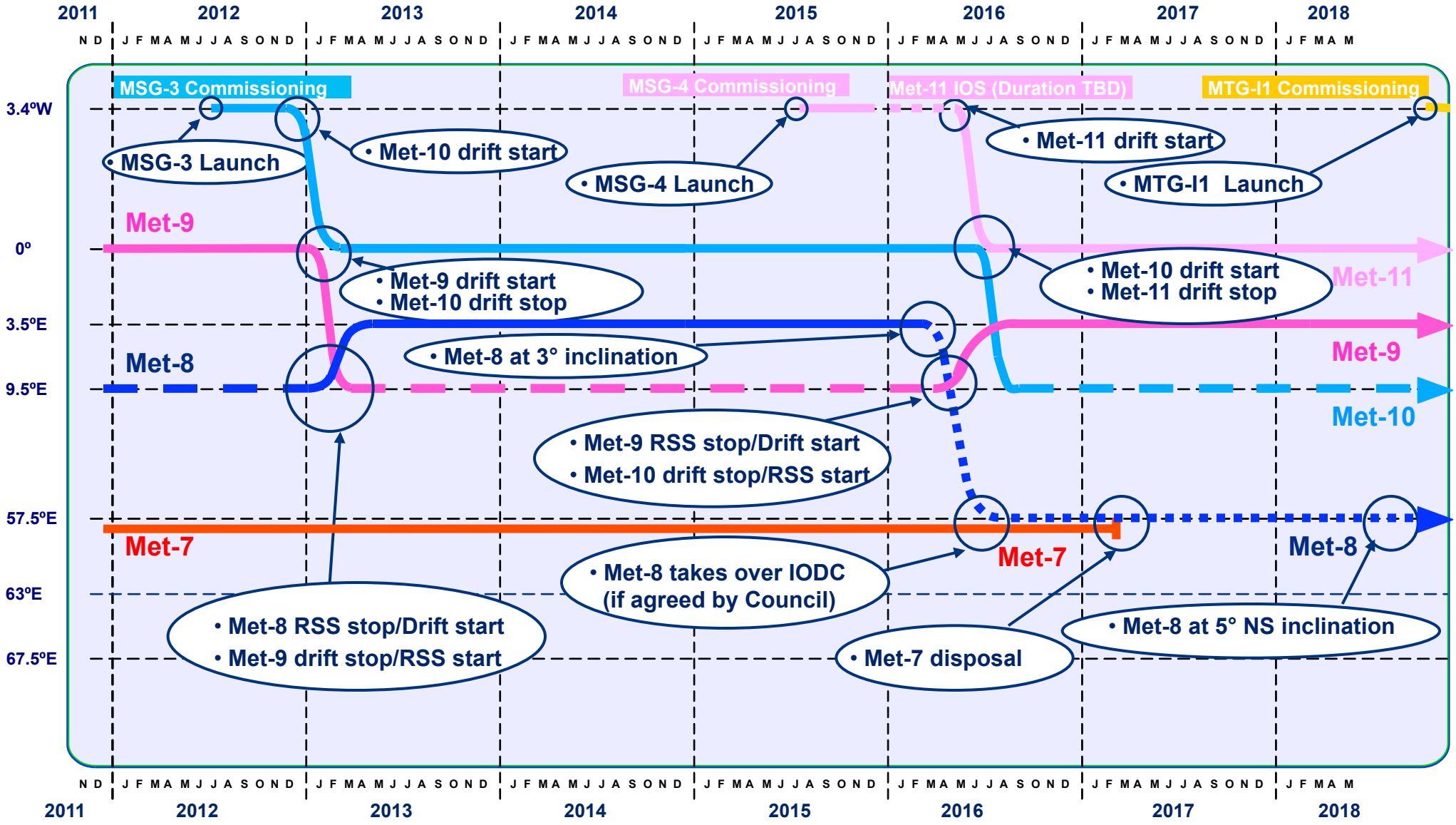
- ✓ Geostationary Satellite status
  - MTP/MSG Planning
  - Major evolutions impacting AMVs since last IWWS
  - Upcoming Changes
- ✓ Low earth Orbiting Systems status
  - Metop planning
  - AVHRR Winds
  - ASCAT Status
  - Oceansat-2 status
- ✓ Reprocessing

MSG space segment configuration

MSG space segment configuration is stable since the end of re-locations and services swaps in early 2013.



Meteosat Long Term Planning Reference Scenario



1) MSG operations for IODC is TBD by Council
2) Duration of MSG-4 in orbit storage is TBD by Council

Meteosat AMVs change since IWW11

- ✓ Release 1.5.3 ; September 2012.
  - Introduction of CCC to set AMV HA
  - → Statistics of AMVs improved at high and mid levels, degraded at low levels
- ✓ Patch low levels, February 2013
  - → Statistics of AMVs slightly better at low levels.
- ✓ Release 1.5.4 September 2013
  - AMVs extracted at low levels in WV channels set to a poor QI
  - Introduction of the Best-fit calculation
  - *Introduction of OCA product (2 layers, hourly), but not used for AMVs*

Meteosat AMVs upcoming changes

- ✓ MFG
  - Introduction of CCC to set AMV HA, Dec 2015
  - Divergence product, Dec 2015
- ✓ MSG
  - Use OCA to set AMV HA, asap, depends on OCA availability every 15 min.
  - Change WV AMV HA in clear sky conditions, Dec 2015
  - Continue investigation on nested tracking scheme
- ✓ MTG
  - MTG FCI: prototyping activities using proxy data.
  - MTG IRS: Revisit the potential of optical flow methods applied to humidity fields (IASI data and/or proxy data), External study should start in 2014

Satellites

Satellites Status: MTG-I

- MTG-I schedule is quite stable schedule with a FAR in July 2018.
- PDR of the LI is on-going.

Satellites Status: MTG-S

- Realistic date for the MTG-S FAR is now January 2021,
- Closure of the MTG-S PDR : October 2013,
- Closure of the S-4 PDR : November 2013.

SAF – EUM Workshop: update of MTG Status

Major MTG-I milestones:

Milestones	Current	Comment
GS facility PDRs	2014/2015	
GS facility CDRs	2015	
System Implementation Review	Late 2015	Implementation of MTG-S. MTG-I System Status before the System CDR-I
SVT-0	Nov 2016	SatSim and MOF aligned. Fix date
CDR MTG-I1	Sept 2016	
GS MTG-I CDR	2016	
CDR System	Early 2017	After the satellite and GS CDR.
MTG-I FAR	Mid 2018	
Launch	End 2018	early 2019 in the Budget assumptions

SAF – EUM Workshop: update of MTG Status

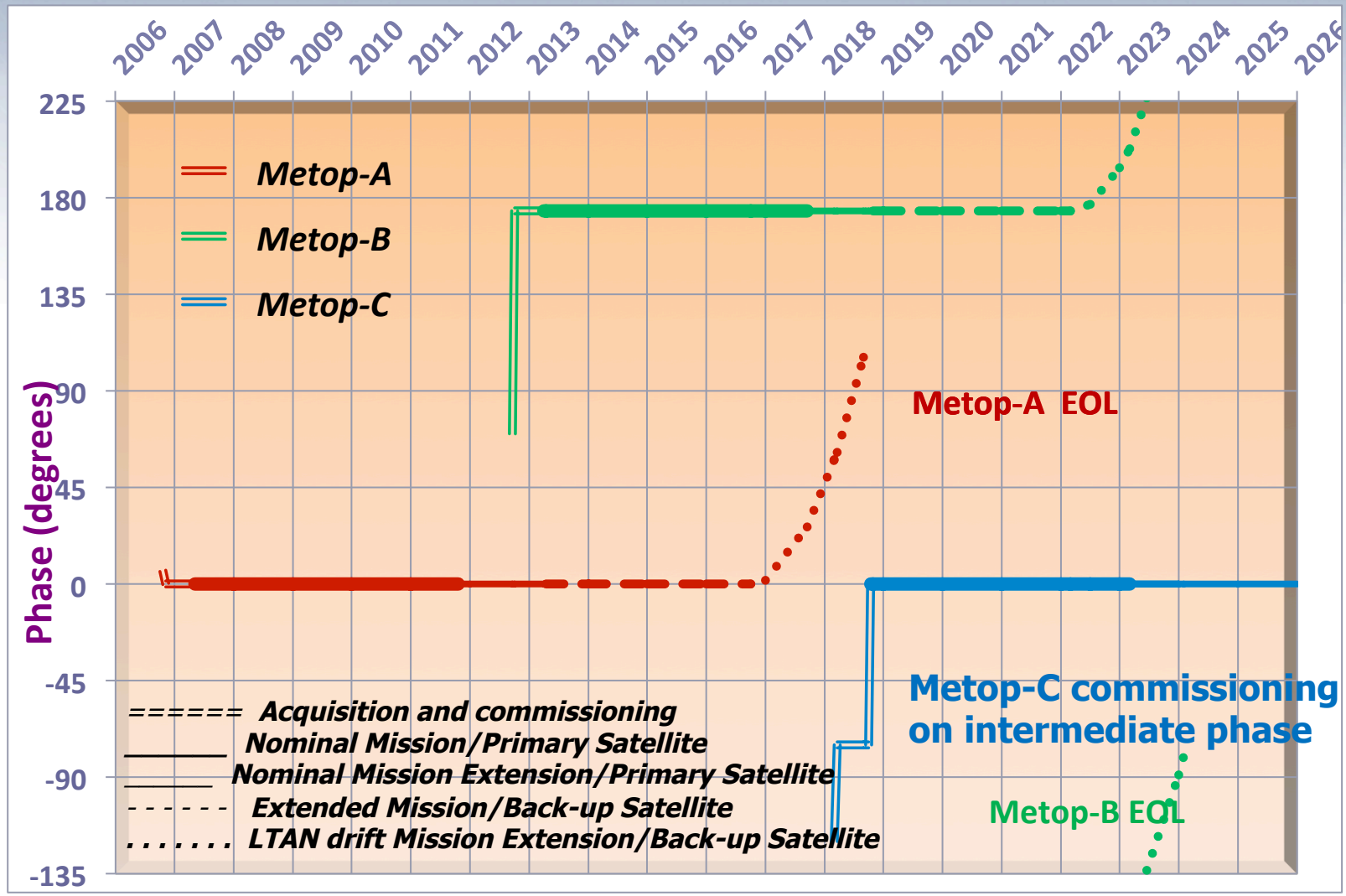
Major MTG-S milestones :

FAR announced with high probability to be delayed by about 6 months, leading to launch in 2021.

Milestones	Current	Comment
System Implementation Review	Late 2015	
CDR MTG-S1	Dec 2016	
GS facility ΔPDRs	2017/2018	
GS facility ΔCDRs	2018	
GS MTG-S CDR	2018	
CDR System	2018	
MTG-S1 FAR	Early 2021	Impacts to be analysed
Launch	Mid 2021	

EPS-Metop Lifetime Review

Lifetime Review in Sept. 2013 confirmed Metop-A lifetime extension remains feasible (77th Council) and Metop-B expected operational lifetime is same as for Metop-A (12 years).



Metop-B Status

Data Acquisition:

Primary Operational

- ADA Dumps (most, but not all passes);
- HRPT Full Coverage.

Status:

- HIRS F/W problem – channels out of spec caused no real impact as yet;
- ADCS ARGOS 2 Only (CRA Antenna);
- SARR/SARP also impacted to lesser extent.

SVM	AOCS	→	POWER	→	DHSA	→
	COMMS	→	Housekeeping	→		
	Thermal	→	PMCIF	→		
PLM	PMC	→	TCU	→	PCU	→
	PDU	→	RTU	→	FMU	→
	SSR	→	XBS	→		
	A-HRPT	→	LRPT	**Off**		
INST	ASCAT	→	MHS	→	ADCS	→
	AMSUA1	→	GRAS	→	SARR	→
	AMSUA2	→	GOME	↘	SARP	→
	HIRS	↘	IASI	→		
	AVHRR	→	SEM	→		

Metop-A Status

Data Acquisition:

Secondary Operational

- No ADA Dumps
- HRPT Limited Coverage

Status:

- HRPT B-side, SSPA switching since 16/05/13
- AMSUA1 H7 failed, H3 & H8 out of spec/worsening
- MHS H3 & H4 worsening, LO-B;
- GOME UV Throughput still falling slightly.

SVM	AOCS	→	POWER	→	DHSA	→
	COMMS	→	Housekeeping	→		
	Thermal	→	PMCIF	→		
PLM	PMC	→	TCU	→	PCU	→
	PDU	→	RTU	→	FMU	→
	SSR	→	XBS	→		
	A-HRPT	→	LRPT	**Off**		
INST	ASCAT	→	MHS	↘	ADCS	→
	AMSUA1	↘	GRAS	→	SARR	→
	AMSUA2	→	GOME	↘	SARP	→
	HIRS	→	IASI	→		
	AVHRR	→	SEM	→		

Metop AVHRR polar wind change since IWW11

- ✓ Validation METOP B winds and Version v2.1.3 ; March 2013.
  - Several minor changes

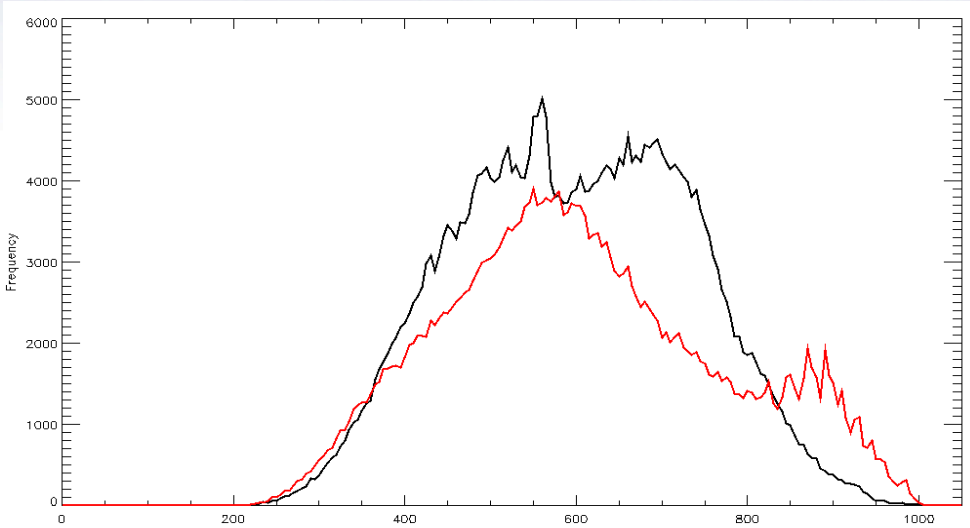
- ✓ Validation Version v2.2 ; May 2013
  - Tropopause determination
  - Temperature inversion determination.
  - Coverage extended from 55° to 50° latitude
  - The IASI CTH is only used if the barycentre of the CCC method is contained in the IASI pixel. In this version, the collocation distance threshold is set to 5 km.

- ✓ Version 2.4 that extracts both single Metop polar winds and global dual Metop winds, May 2014.
  - Change in quality (more good quality winds, smaller bias, smaller RMS)

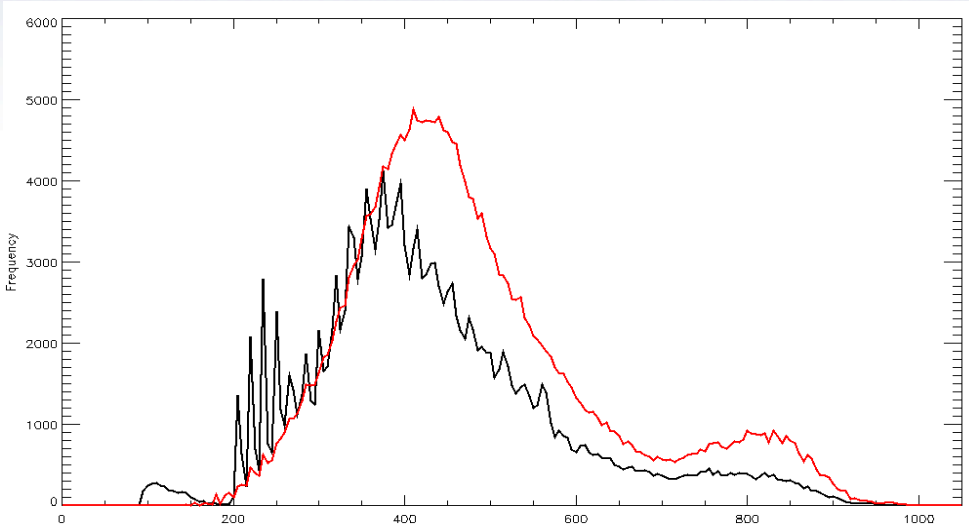
Validation Version v2.2 ; Histogram Pressure

Period: 24th May - 4th June 2013

North Pole



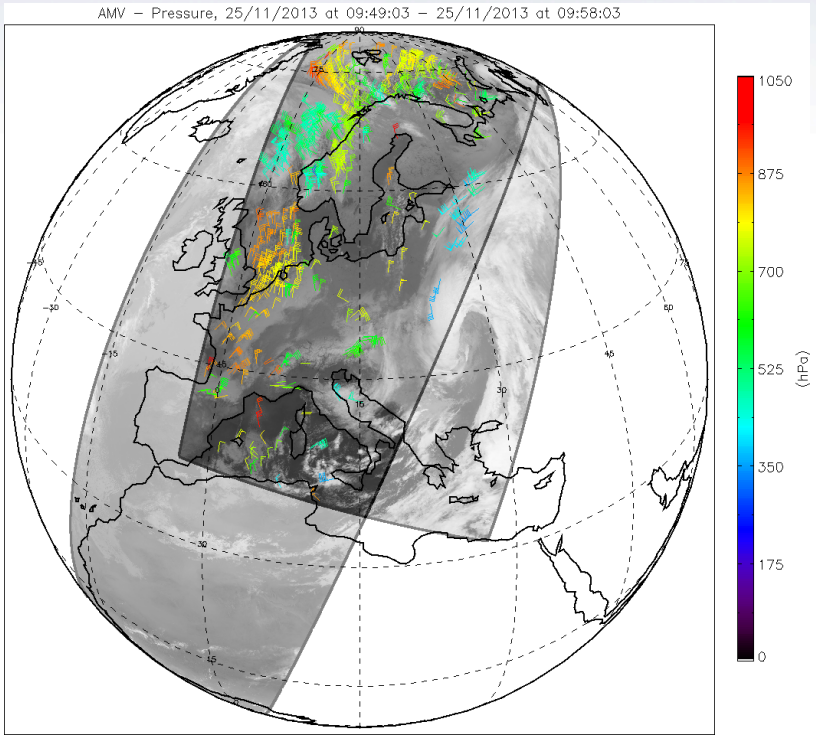
South Pole



Histogram of AMV pressures obtained on GS-1 (black) and on GS-2 (red) for Metop A between 24th May 2013 and 4th June 2013. QI larger than 60 %.

Global Dual Metop AVHRR wind

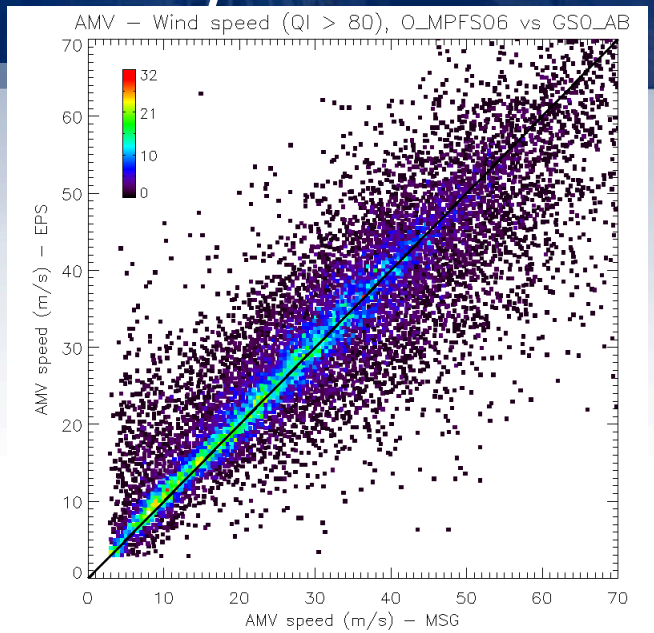
- ✓ Version 2.4 that extracts both single Metop polar winds and global dual Metop winds, May 2014.

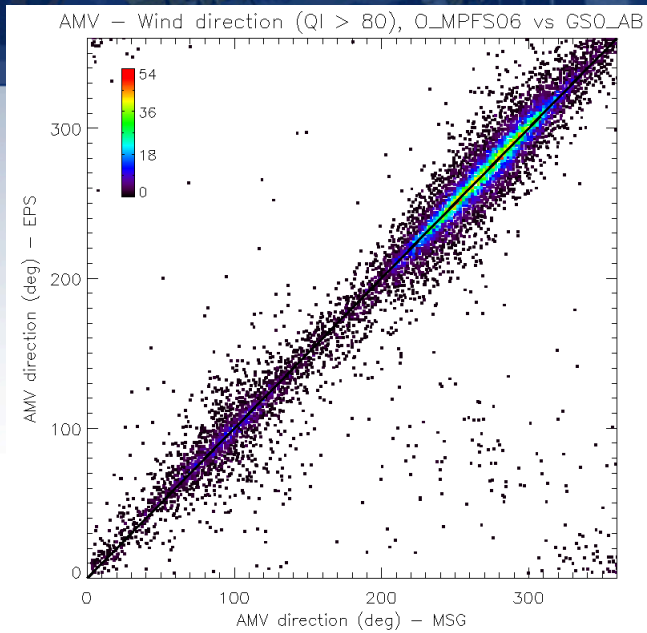


- Two complementary products: Metop A/Metop B and Metop B / Metop A
- Global coverage
- Help filling 50-70 deg latitude band
- Trial dissemination foreseen in July
- Validation study against other wind observation. (TROPOS, Leipzig)

EUMETSAT dual Metop winds

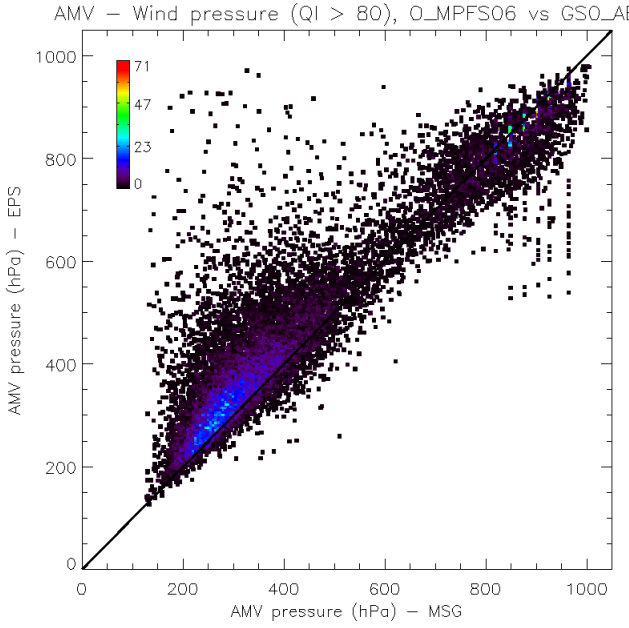
Comparisons dual Metop winds / MSG





Comparison criteria:

- 1st Oct 2013 – 31st Jan 2014
- QI > 80
- 45 minutes max difference
- 0.25 deg lat/lon grid box



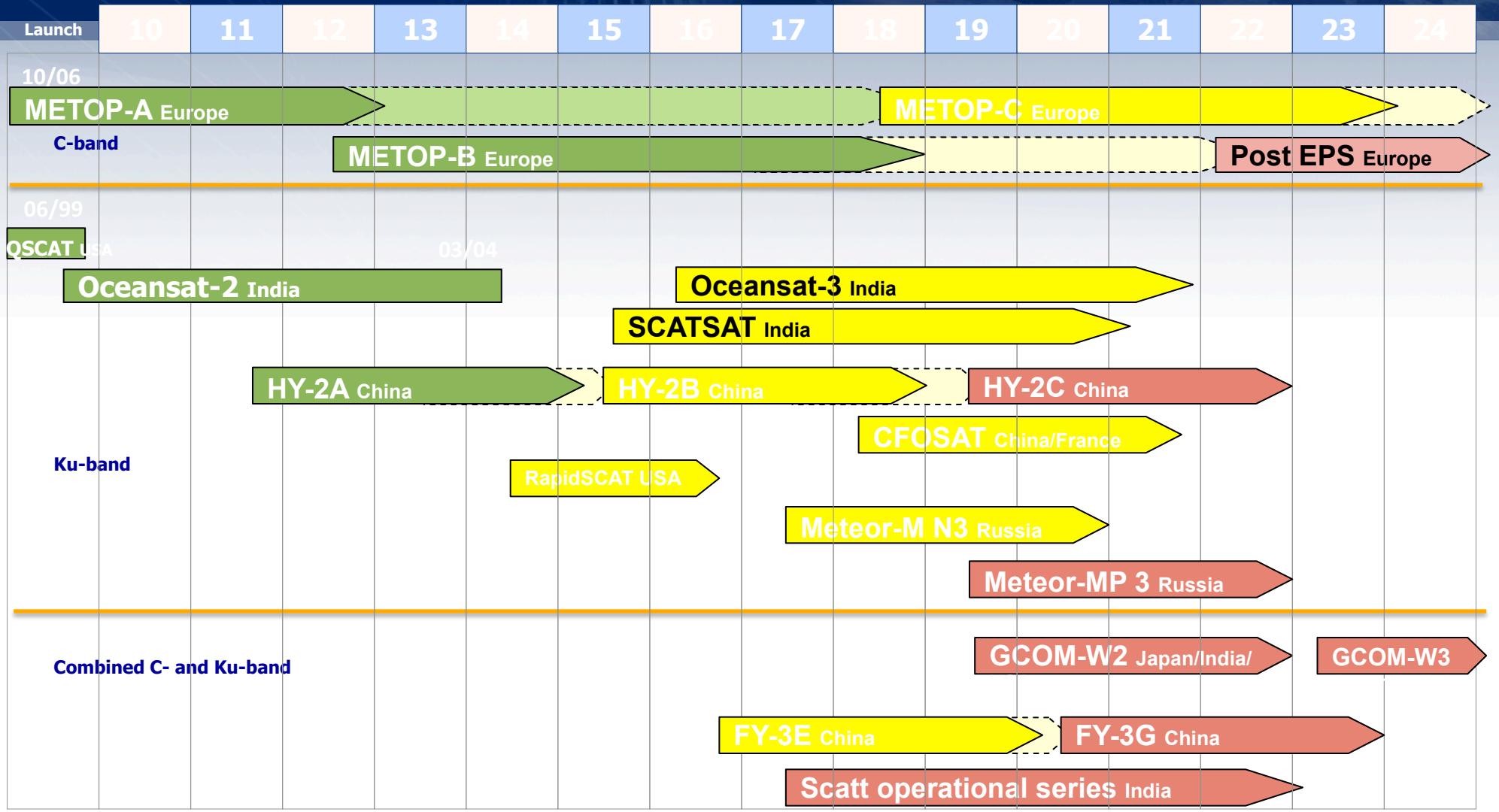
For more details, see:
- Olivier's talk
- Akos' poster for validation

Metop AVHRR AMVs upcoming changes

- ✓ Polar winds
  - Introduction of triplet mode over polar areas, Dec 2014
  - Preparation of AMV METImage ATBD
- ✓ Dual winds
  - Development and updates according to users feedbacks.

Scatterometer constellation

Source: CEOS Ocean Surface Winds Virtual Constellation



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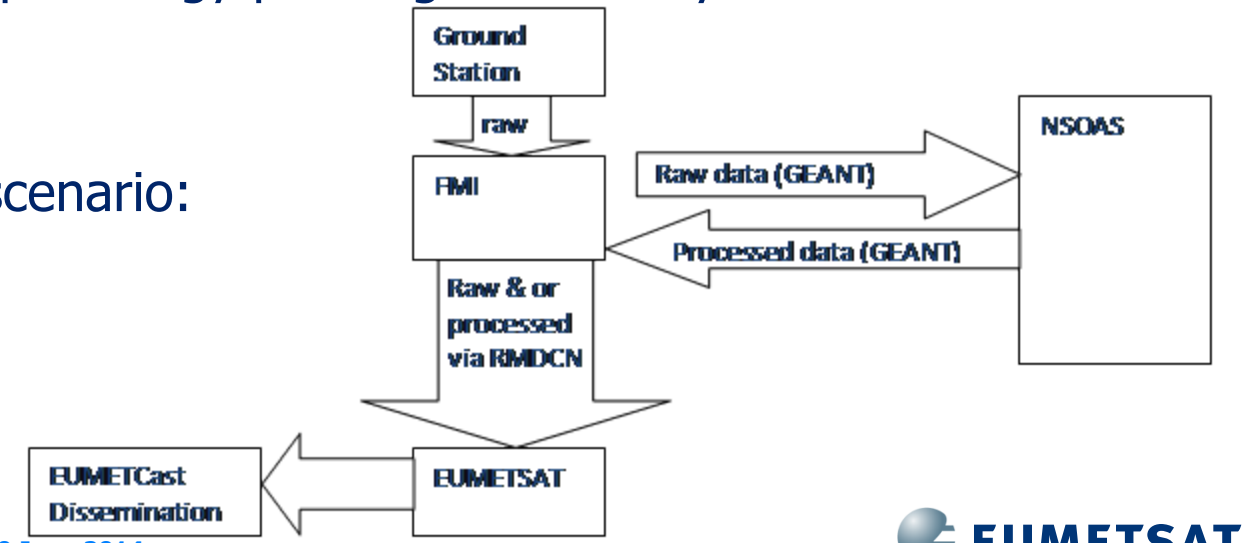
Update on HY-2/NSOAS data access

- Technical bilateral with NSOAS 21 May in Guangzhou, China
- NRT data distribution discussions ongoing
- Use of a Nordic reception station (Sodankylä, TBC), would enable NRT timeliness for 75% of the data initially (limitations due to Ground Station conflicts with other missions
- Preparations for tests ongoing, however limited by EUMETSAT's DVB-S2 migration activities
- Final commitment on dump strategy pending decision by China's State Oceanic Administration
- A Potential redistribution scenario:



Scatterometer data from ISRO's missions

- Oceansat-2 scatterometer failed 20 February 2014

- At the 42 CGMS in Guangzhou, China, ISRO reconfirmed it's commitment to CGMS:
  - Requested to become full member
  - Committed to provide NRT access in a similar fashion to Oceansat-2 from future missions

- Next step is to prepare for SCATSAT to be launched in 2015

Scatterometer winds MetOp

Instruments: ASCAT on Metop-A and Metop-B in Dual (tandem) operations:

Good coverage and revisit time at mid to high latitudes (50/100 min, and almost full daily coverage)

In tropics/Equator, overlap swaths from consecutive orbits provide measurements with 50 min time interval – convection at the surface

Services: Global and EARS/Fast extraction service

EUMETSAT provides NRCS and OSI SAF (KKNMI) provides winds

Timeliness global: ASCAT-B ~ 80 min (primary mission) / ASCAT-A ~ 120 min

Timeliness EARS/FES: 30 min

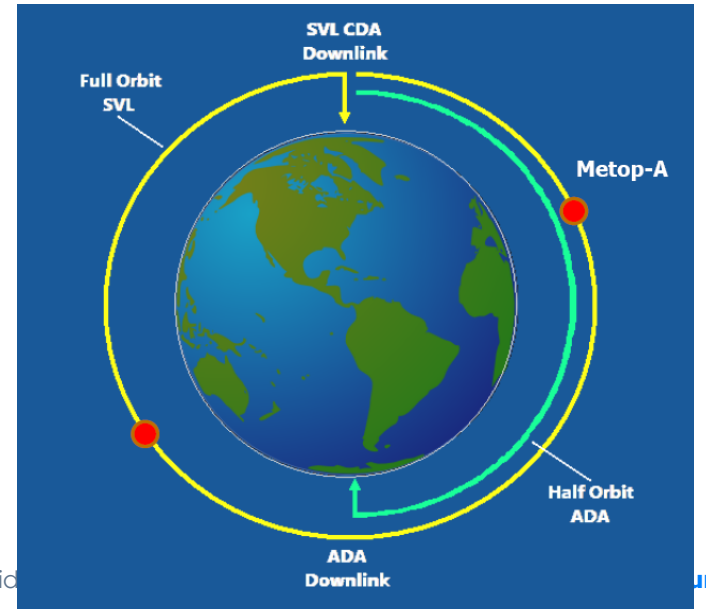
Since may 2013, dissemination of full-resolution NRCS in NRT

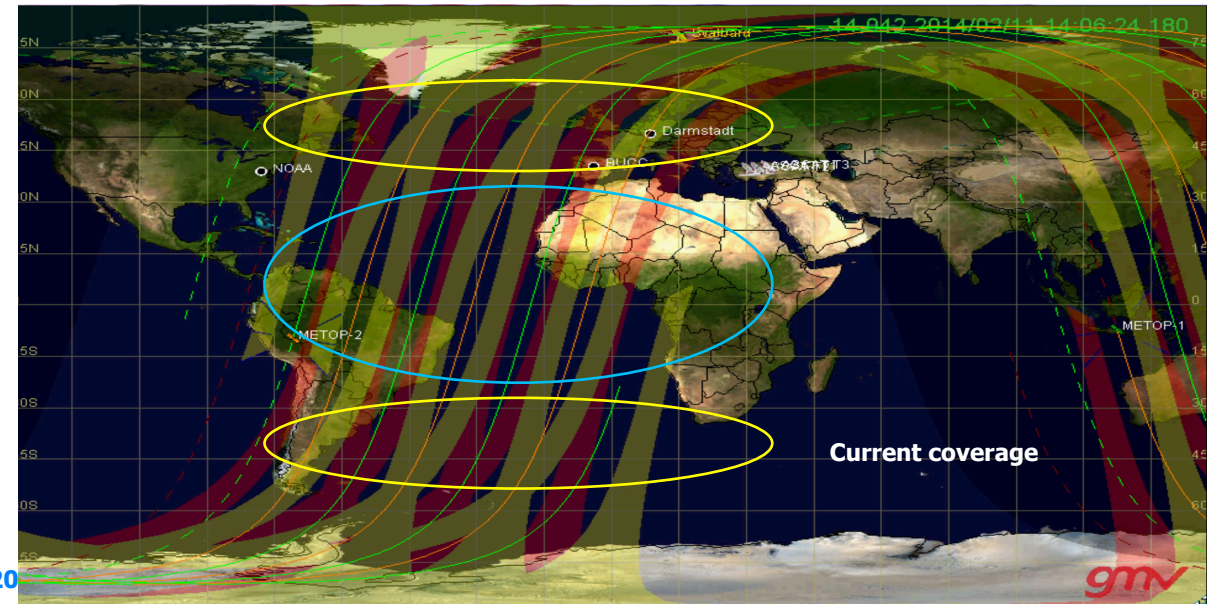
Ongoing activities: consolidation of services (integration) by Q2 2015 and optimization of spatial re-sampling and resolution, as well as coastal processing

Products

ASCAT-A NRCS record (2017-2013) re-processed – validation it shows a very stable instrument, able to detect long term surface wind trends over 0.1 m/s over 5 years

See Ad's presentation on Wednesday for more on winds products





Wind reprocessing activities (mainly in the framework of ERACLIM project)

LEO

METOP AVHRR AMVs were reprocessed over the period 2004 – 2012 using two algorithms (CIMSS / EUMETSAT) .
-> End of 2014, reprocessing with the new EUMETSAT algorithm

GEO

MSG AMVs have been reprocessed (2004-2011). 2012 will be done by the end of the summer.
Meteosat First Generation AMVs reprocessing with an MSG-like algorithm by the end of 2016.

Thanks

Special thanks to M. Doutriaux-Boucher, J. Figa, R. Stuhlmann and F. Montagner for their inputs.