



ASCAT - Metop A developments, Metop B preparations & EPS-SG

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Wilson



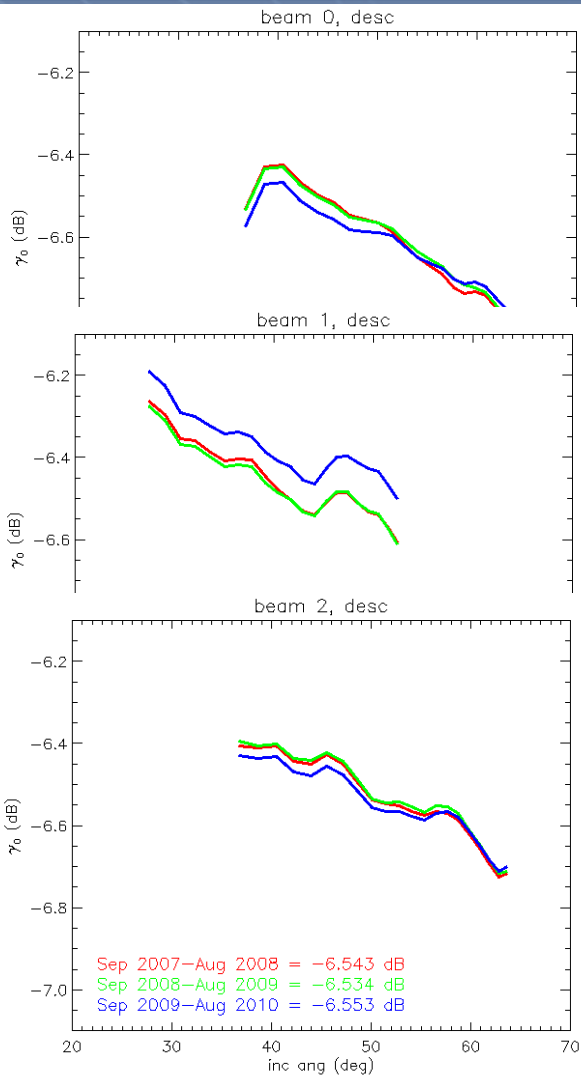


ASCAT Metop A - overview

- Instrument operating nominally (minor incident in Jan 2011 when testing switch for back up electronics)
- Calibration report for 2010 campaign available
- Improved Kp estimation algorithms in ground processing
- ESA/EUMETSAT scatterometer science conference April 2011
- Full resolution data planned for NRT distribution
- Next transponder campaign planned Oct/Nov 2011
- 35th ASCAT SAG meeting likely in Nov 2011



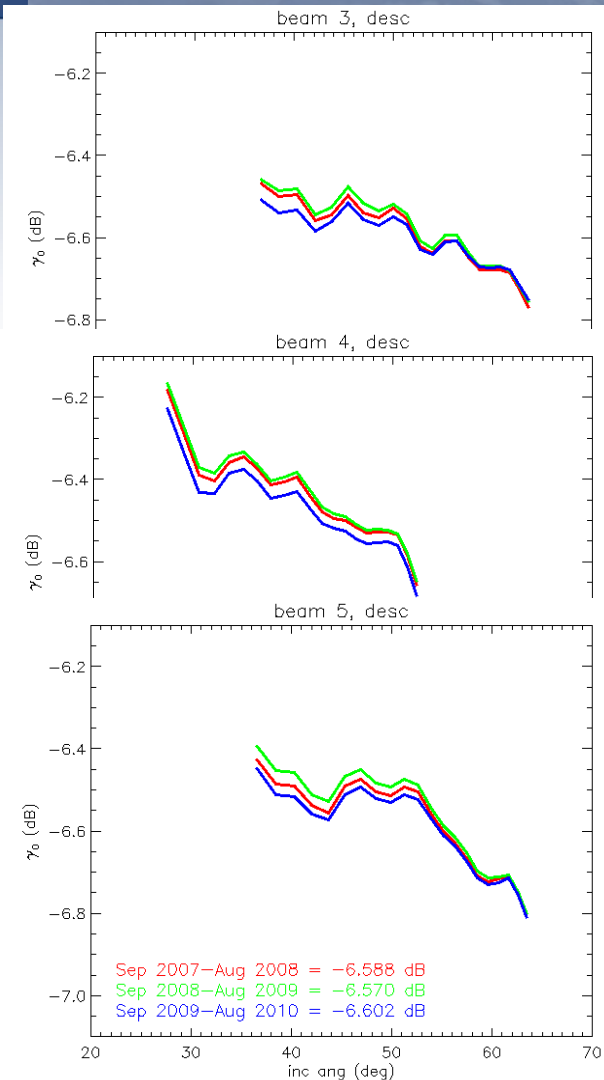
ASCAT Metop A - cal/val activities



- **First 3-transponder campaign in winter 2007/2008.**
- **Second in summer 2010**
- **Third in Oct/Nov 2011**



- γ_0 over rainforest has stronger incidence angle dependence than ERS scatterometers.
- **Implications for intercalibration, climate products.**



ASCAT Metop A - New NRT full resolution σ_0 product

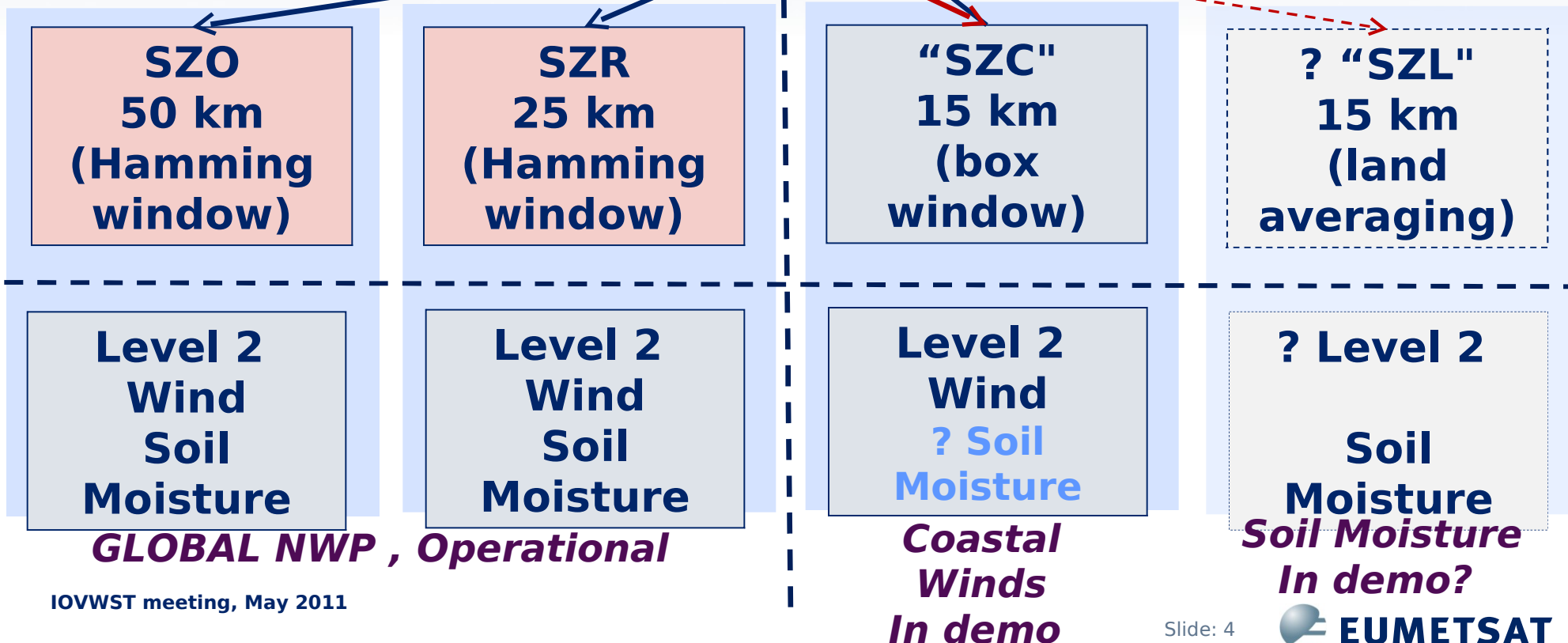


Archive and NRT:

**updated SZF product
(more compact, lat/long
grid)**

CAF
SAF
Joint product

Archive and NRT:





EUMETSAT/ESA scatterometer conference

- highlight the successes achieved with ASCAT on Metop and the Active Microwave Instrument on ERS
- assess current and future challenges of processing, calibration and validation
- discuss applications in a multi-mission scatterometer context
- provide guidance on reprocessing, climate issues and intercalibration of the sensors with other scatterometers
- address scientific issues of the proposed ASCAT follow-on mission
- involve a wider scientific and user community

EUMETSAT/ESA SCATTEROMETER SCIENCE CONFERENCE 2011

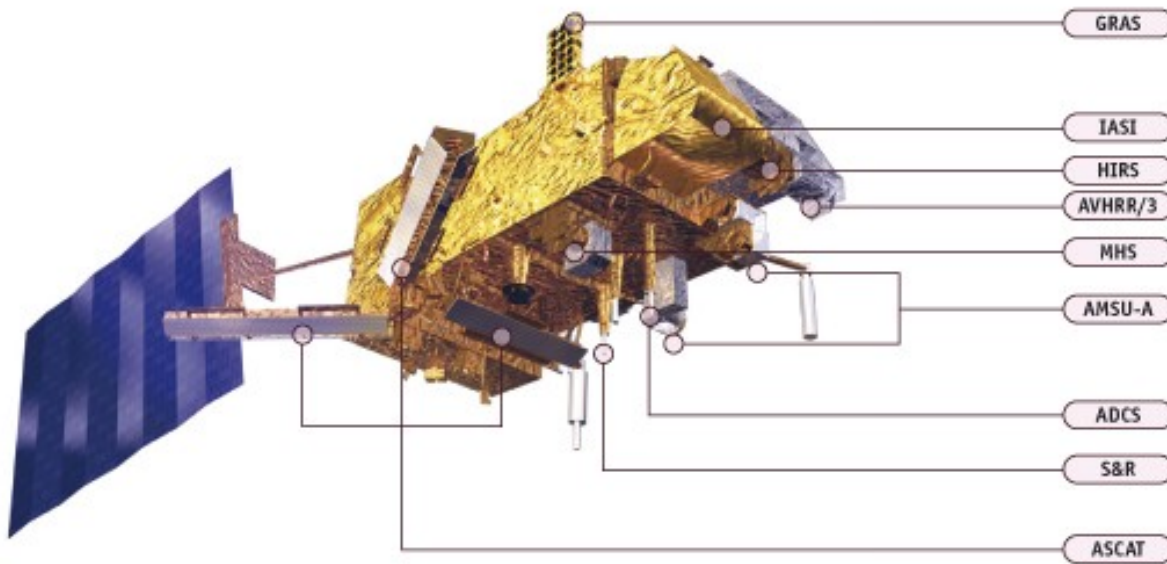




ASCAT Metop-B preparations

The Metop-B spacecraft is scheduled for launch on 2nd April 2012

ASCAT has passed all testing, has been installed on Metop B and currently in storage in Toulouse.





Metop-B summary information

- Metop-B identical to Metop-A
- Metop-B launch planned April 2012
- Commissioning planned to last 4 months
- Preparations under way
- SIVVRR successfully held in December 2010
- SIVVR planned in September 2011
- LORR in December 2011
- Launch campaign first quarter 2012
- Same orbit (9:30 AM descending node), phased 48.93 min apart from Metop-A.



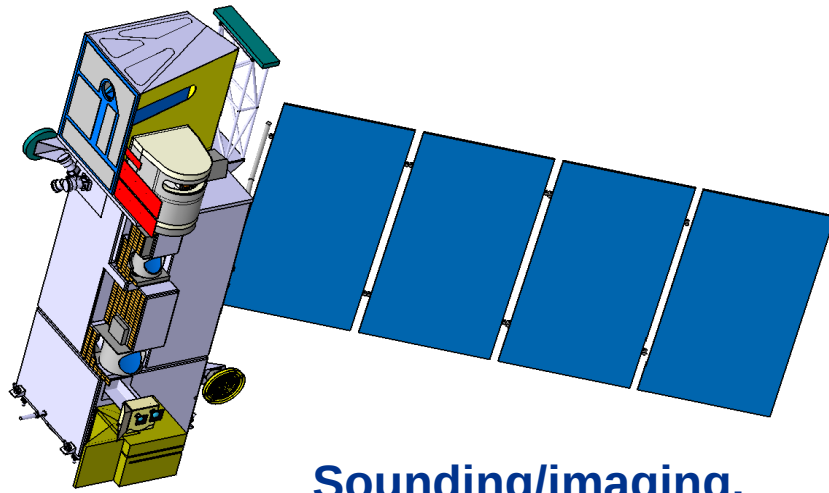
Metop A and B orbit phasing

- Users want maximum coverage and optimised temporal sampling for NWP and climate monitoring
- Constraints
 - ground station (Svalbard) can only support one satellite at a time
 - RF interference of active instruments requires separation of at least 21 min
 - ASCAT transponders require exact repeat phasing, i.e. possible separation limited to 27.96, 31.46, 34.95, 38.45, 41.94, 45.22 or 48.93 min
- Adopted phasing is 48.93 min (approx 1/2 orbit, not optimum for ASCAT coverage but better for other instruments and ground segment)



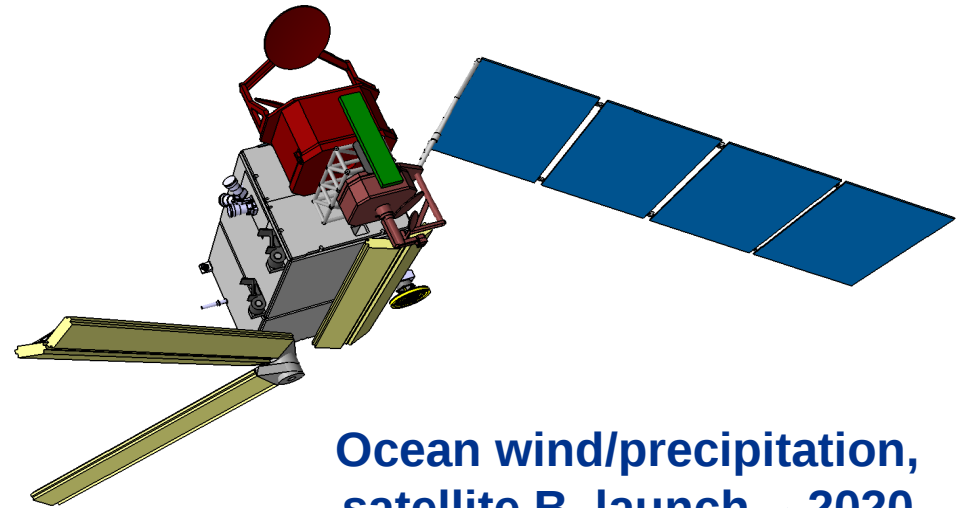
EPS Second Generation: satellite configurations

Two satellites concept: Sun-synchronous orbit (~817 km altitude) 09:30 descending node



Sounding/imaging, satellite A, launch ~ 2019

- Payload
- METimage
 - IASI-NG
 - ATMS (or MWS)
 - 3MI
 - Sentinel-5
 - CERES
 - RO



Ocean wind/precipitation, satellite B, launch ~ 2020

- Payload
- SCA
 - MWI-Precipitation
 - MWI-Cloud
 - ARGOS-4
 - S&R
 - SEM
 - RO



EPS-SG scatterometer chronology

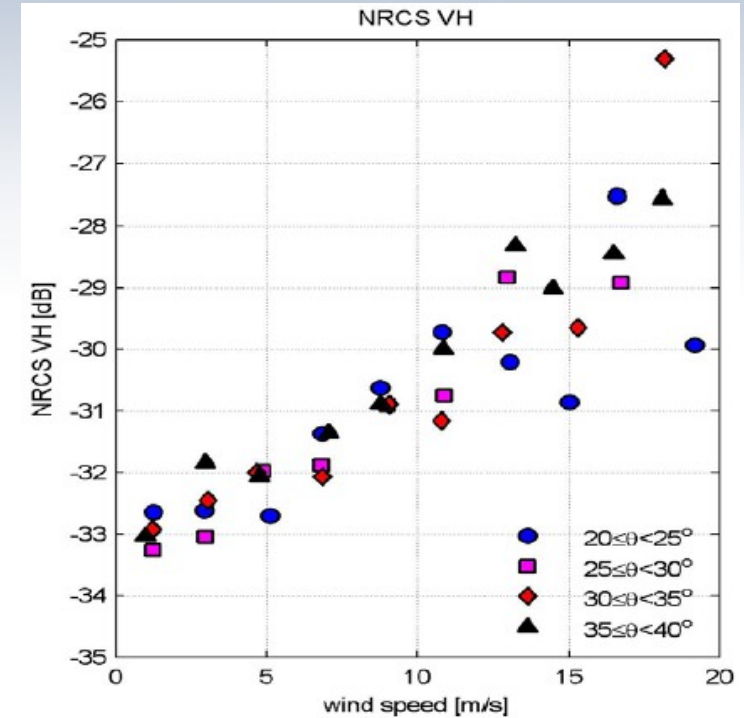
- 2005:** EPS-SG Phase 0 process started at EUMETSAT
- 2008/2009:** ESA's industrial Phase 0 studies
(Astrium SAS and Thales Alenia Space Italy)
Output: 2 satellites concept (SCA on Satellite B)
- 2010:** EUMETSAT Phase A process started
- 2011:** ESA's industrial Phase A studies started
(Astrium SAS and Thales Alenia Space France)
- 2019:** Projected launch of 1st Satellite A
- 2020:** Projected launch of 1st Satellite B

[CC LIN ESA 2011]



EPS SG scatterometer - way forward

- High-resolution level 1b product with 6.25 km sampling, resolution TBD (but shall not drive the instrument design or cost)
- Addition of VH or HH polarisation. Various options under consideration include
 - VH on fore and aft beams
 - VH on mid beams
 - HH on fore and aft beams
 - HH on mid beams
- Model functions for C band HH and VH required for high wind speeds (airborne campaigns?)



B Zhang, W Perries & P Vachon (SeaSAR 2010)



ASCAT Metop A, Metop B, EPS SG

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