

Status overview of the European scatterometer activities

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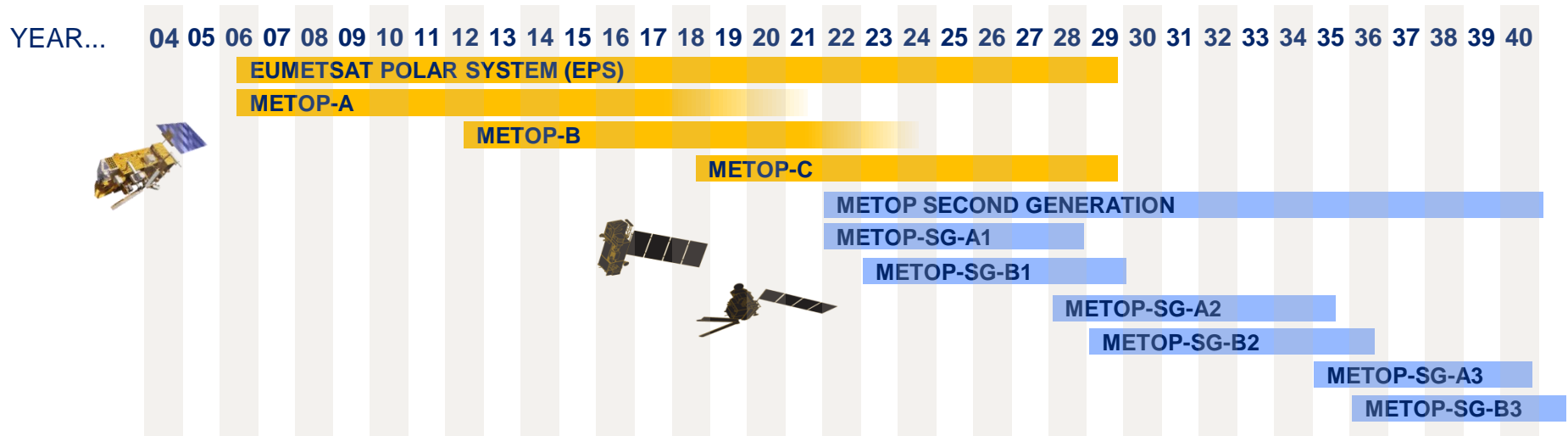
A white line points from the IOVWST 2018 text box to a location on the Earth's surface, specifically over the Mediterranean Sea and the Iberian Peninsula.

IOVWST 2018

24 – 26 April 2018, Barcelona



Current and future European operational scatterometer missions



- ASCAT-A (launched 19.10.2006), ASCAT-B (launched 17.09.2012) – both operational
- ASCAT-C: launch scheduled for September 2018
- MetOp/EPS-SG: scatterometer instruments SCA are on SAT-B, the first one planned for launch in late 2022
- Result: a 36 year continuous climate data record

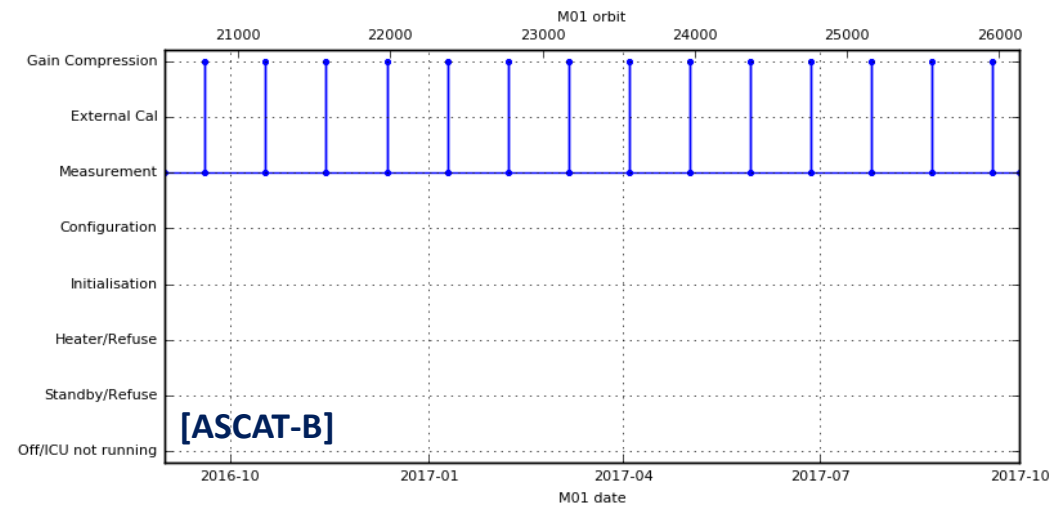
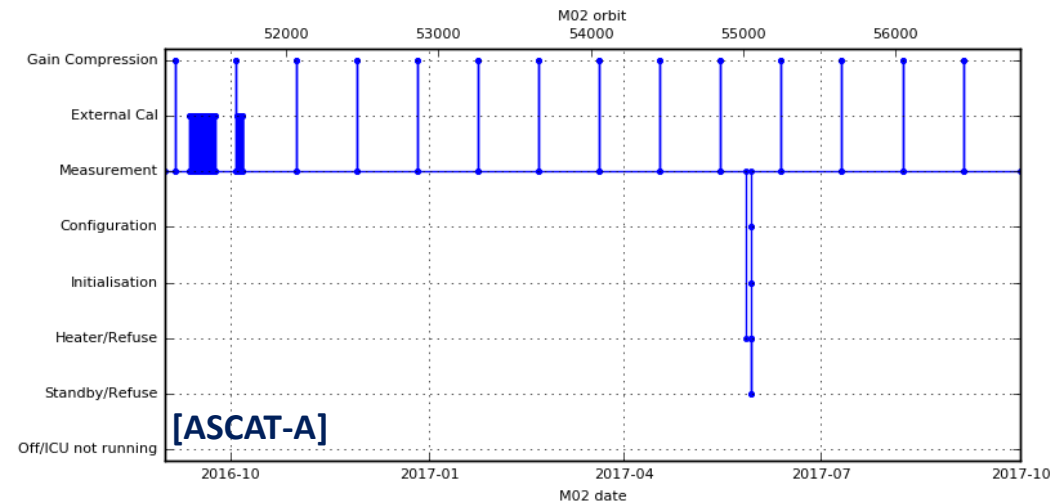
ASCAT status

ASCAT instruments

- ASCAT-A: at 2017-147-02:04:34 UTC, the instrument entered heater refuse mode, no data available which resulted in a total data outage of 2d 09h 17m
- Measurement data availability
 - ASCAT-B: 99.984 %
 - ASCAT-A: 99.346 %

L1 Processing

- Update of the ASCAT Level-1 processor on 13/09/2017 – no product changes



ASCAT product evolution

ASCAT L1 processor updates

- Clean-up of the product flags
- Land Contamination Ratio (see also poster by C Anderson)
- Release pending resolution of performance issues in the LCR implementation

ASCAT Climate Data Record

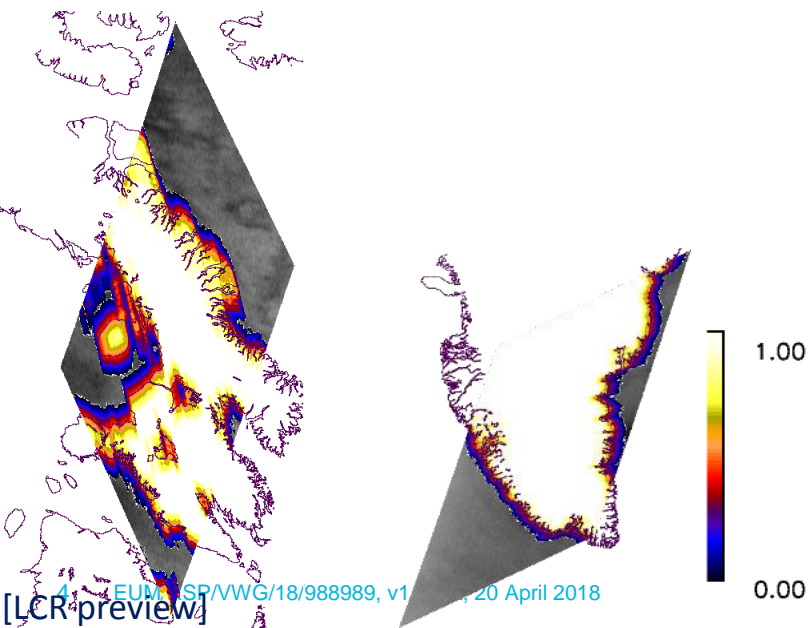
- Reprocessing of ASCAT-A and B planned for Q2/2019
- Will be generated using the new processor version (including LCR)

OSI SAF L2 winds

- See ASCAT session on Tuesday + talks on Thursday

Science

- Impact of ASCAT winds in NWP → see talk on Wednesday



Metop-C preparations

Preparation for launch and commissioning of MetOp-C

- Launch scheduled for September 2018 from Kourou
- Ground systems have been upgraded for operating and processing data from 3 Metop satellites

ASCAT-C

- Updated ASCAT-C System In-Orbit Verification and Cal/Val plans
- New transponders for ground-based absolute calibration will be installed



Metop-C phasing approach

Metop-C Commissioning

- to be performed in an approximately equal-spaced phasing configuration = “Tristar” configuration
- Tristar retained at least until end of Metop-C Commissioning

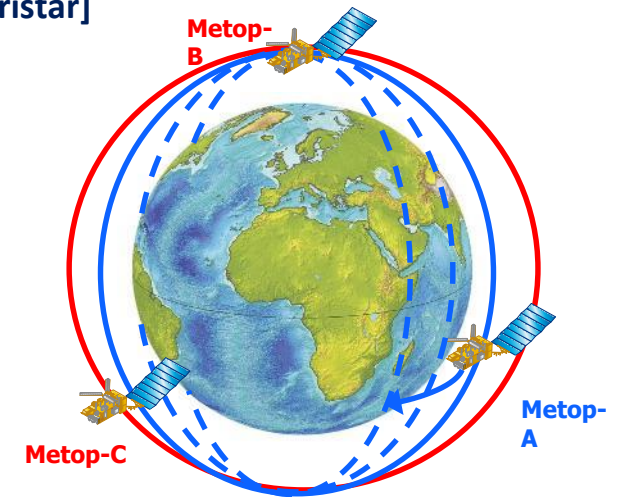
Options after Metop-C Commissioning

1. retain Tristar configuration XOR
2. establish “Trident” configuration

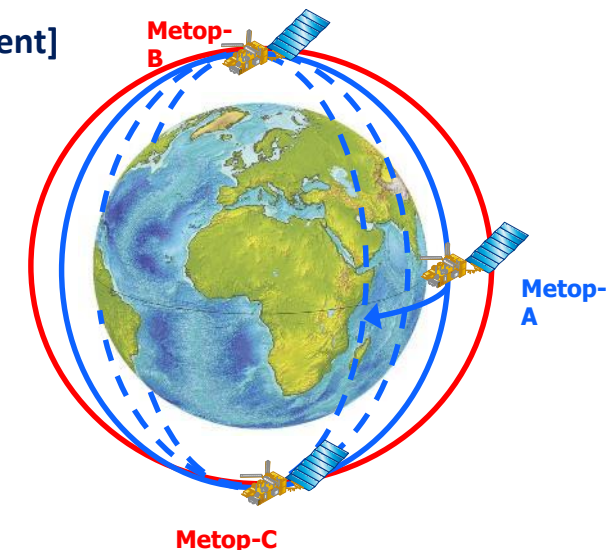
After Metop-A de-orbiting

- Re-establish current dual-Metop configuration with Metop-B/C
- Decision will be based on user feedback, taking into account optimal phasing wrt. Metop-SG satellites.

[Tristar]



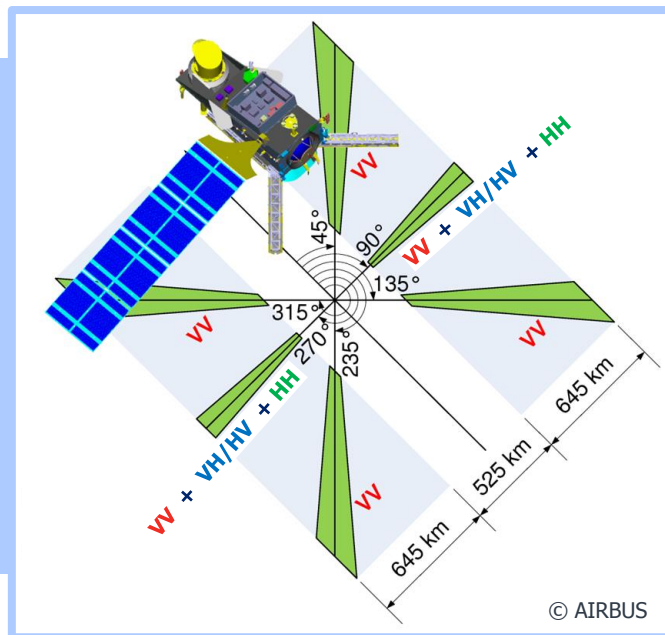
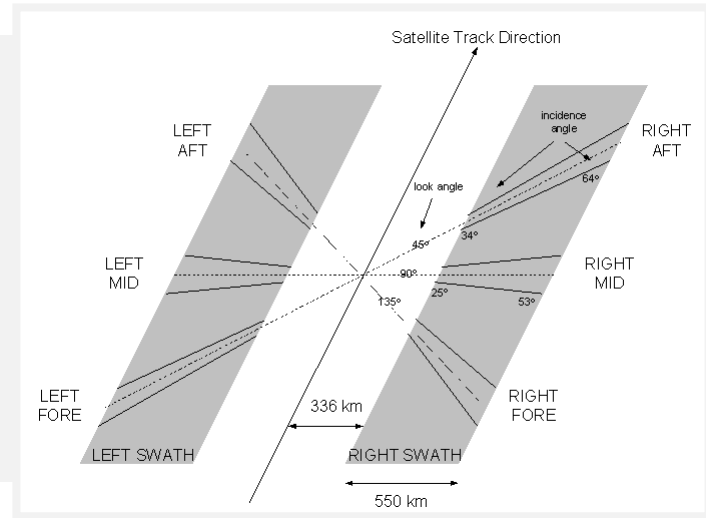
[Trident]



EPS-SG SCA Instrument

ASCAT

- Frequency 5.255 GHz (C-band)
- Swath width 550 km
- Incidence angles
 - 25° to 53° (mid beams)
 - 34° to 65° (side beams)
- Polarization: VV



SCA

- Frequency 5.355 GHz (C-band)
- Swath width ~650 km
- Incidence angles
 - 20° to 53.7° (mid beams)
 - 28.4° to 65° (side beams)
- Polarizations: VV; HH+cross-pol (mid-beams)

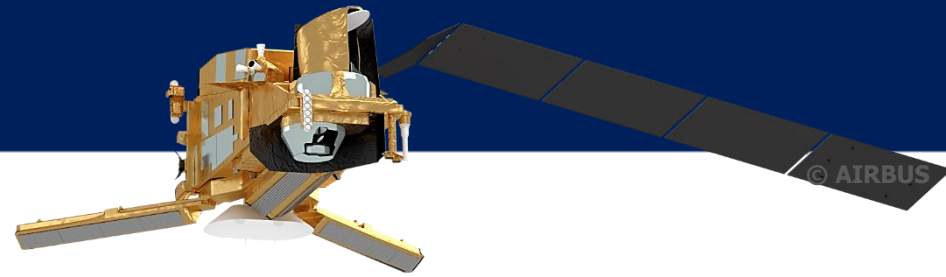
Mission Products - SCA

Planned Level 1b backscatter products

	SCA SZR	ASCAT SZO	ASCAT SZR	SCA SZF	ASCAT SZF
Grid configuration	Swath based grid, colocated σ^0 measurements			Individual σ^0 measurements	
Spacing	12.5 km	25 km	12.5 km	Range 3 km Azimuth 1.5 km (values TBC)	
Resolution	25 km	50 km	25-30 km	Range 5 km Azimuth 25 km (values TBC)	Range 10 km Azimuth 25 km
Kp	3%	2-3%	4-5%	—	—
Calibration accuracy	0.1 dB	0.1 dB	0.1 dB	0.1 dB	0.1 dB
File formats	NetCDF, BUFR	NetCDF, BUFR, native	NetCDF, BUFR, native	NetCDF, BUFR	NetCDF, native

Timeliness

- ASCAT / Metop-A 2 hours 15 mins, ASCAT / Metop-B: 90 min, EARS (regional): 15-30 min
- SCA: threshold 120 min (regional: 110 min), breakthrough 70 min (30 min)



SCA Science

- Special issue “New Challenges and Opportunities in Scatterometry” published in IEEE JSTARS:
<https://ieeexplore.ieee.org/xpl/tocresult.jsp?isnumber=7933278>
- High winds study (CHEFS) → see talks on Wednesday

Development status

- Instrument: SCA CDR planned for March 2019
- EPS-SG product specs and Cal/Val plan have been updated
- Faraday rotation flagging algorithm is established, L1 product will contain a Faraday contamination ratio (correction: Day-2 product)

Next

- Preparation of test data / tools

Thanks!