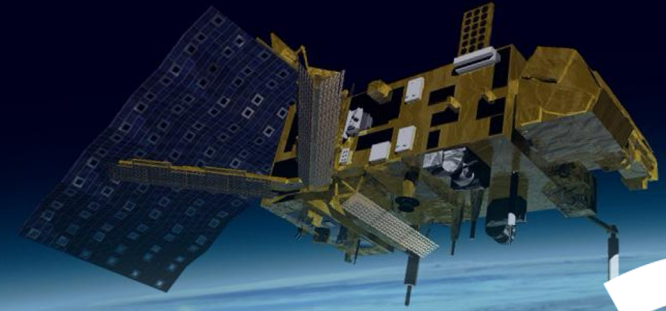


# ASCAT reprocessing

S. Linow<sup>1</sup>, N. Khosravi<sup>2</sup>, S. Kok Lupemba<sup>1</sup>,  
C. Anderson<sup>1</sup>, V. John<sup>1</sup>, K. Petraityte<sup>1</sup>

<sup>1</sup> EUMETSAT, <sup>2</sup> CS Group Germany

IOVWST, 18 – 21 May 2026, Miami





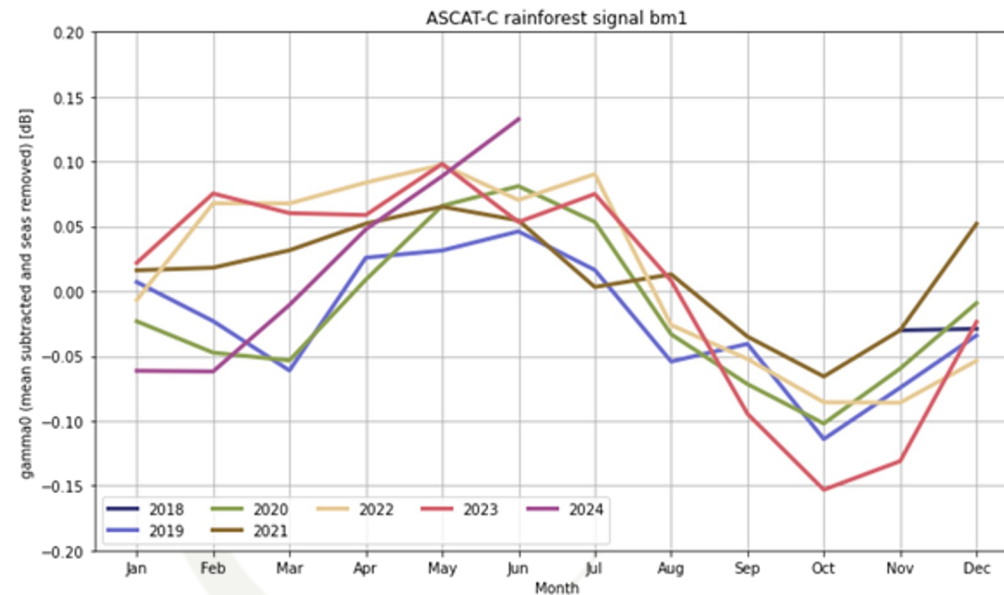
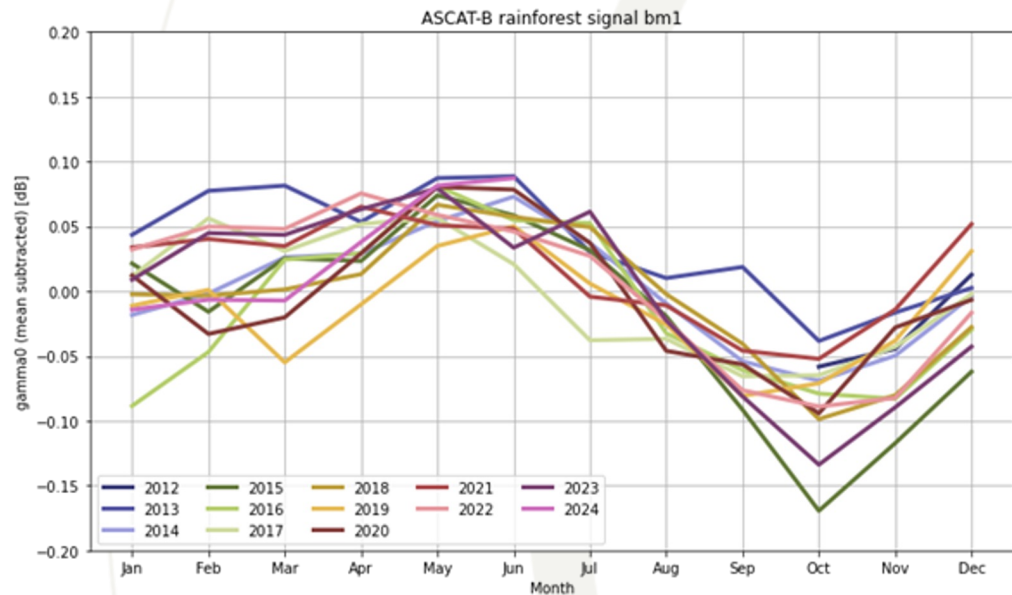
## Results from the ASCAT reprocessing

- ... status
- ... calibration changes
- ... coverage and gaps in the data
- ... long-term behaviour
- ... noise evolution

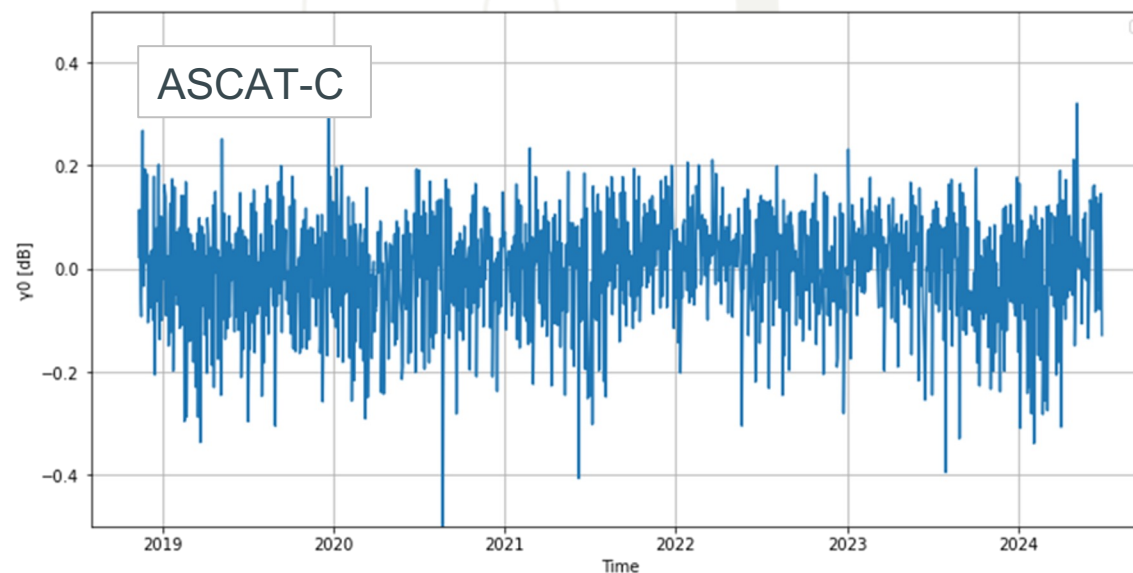
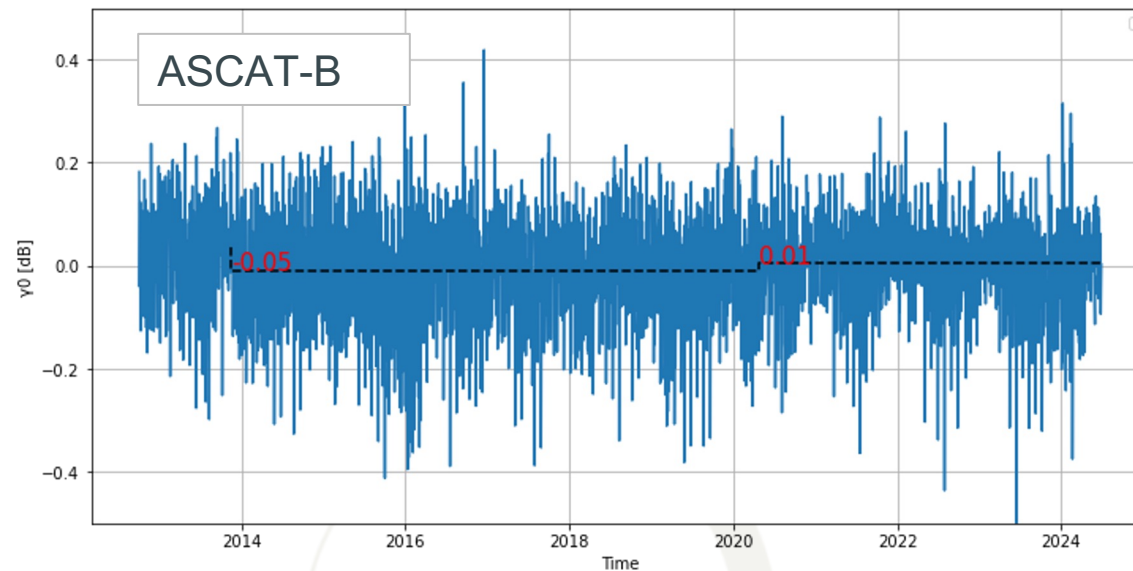
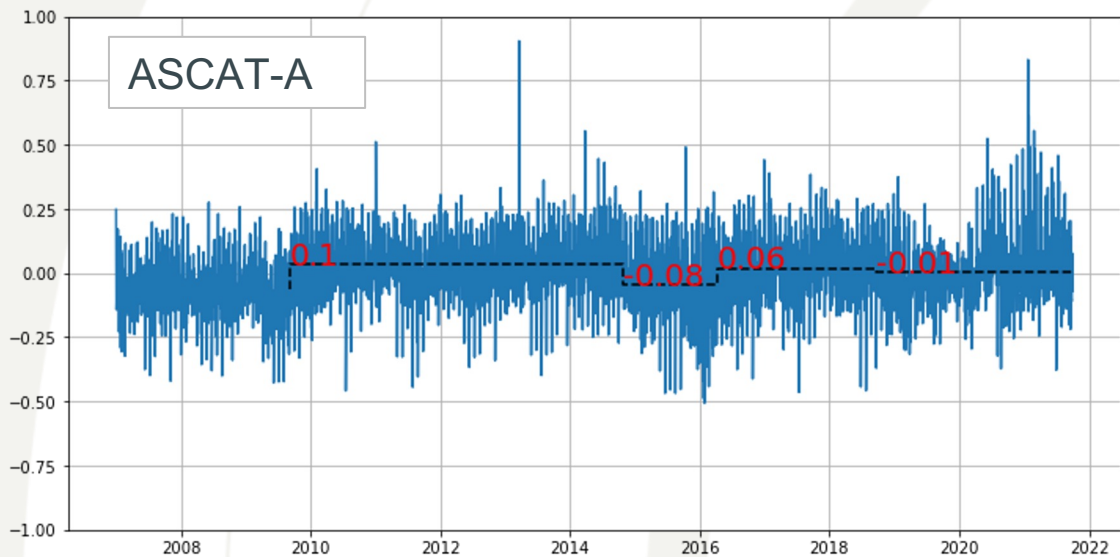
Instrument	Period	Number of orbits	Processing	Validation
ASCAT-A	01/2007 – 11/2021	~77,400	completed	completed
ASCAT-B	09/2012 – 06/2024	~61,000	completed	completed
ASCAT-C	11/2018 – 06/2024	~29,200	completed	completed

→ Pending before release: external review

ASCAT-B and -C left mid beams (**operational data**):



- Monthly averages of  $\gamma_0 = \sigma_0 / \cos(\theta)$  over the rainforest validation area
- Mean of the full time series subtracted from the monthly means (shows the seasonality of the rainforest)



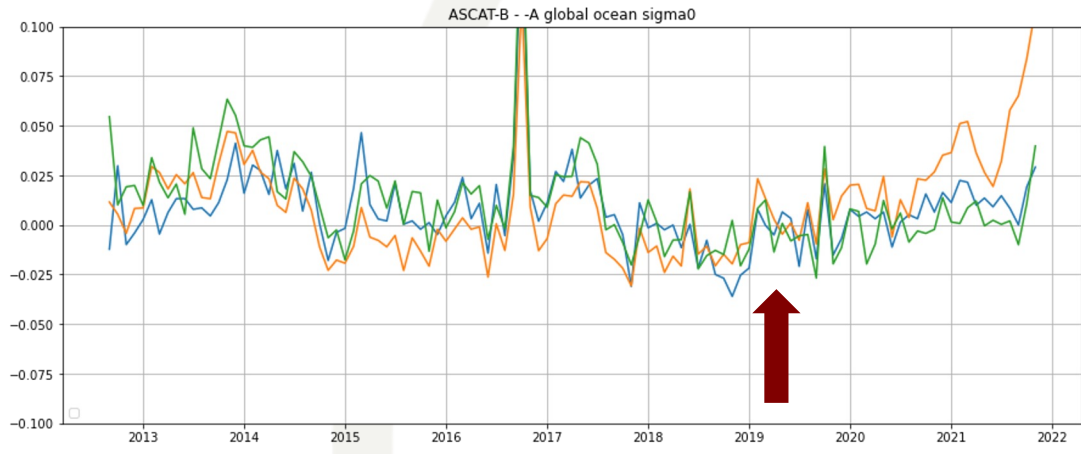
- Shown here: **operational data**
- Daily  $\gamma^0$  over the rainforest validation area, left mid beam, mean value and seasonality removed
- Calibration changes on ASCAT-A: compensated by the reprocessing
- ASCAT-B and –C are very stable during the reprocessing period → the reprocessing will add the LCR to the historical data



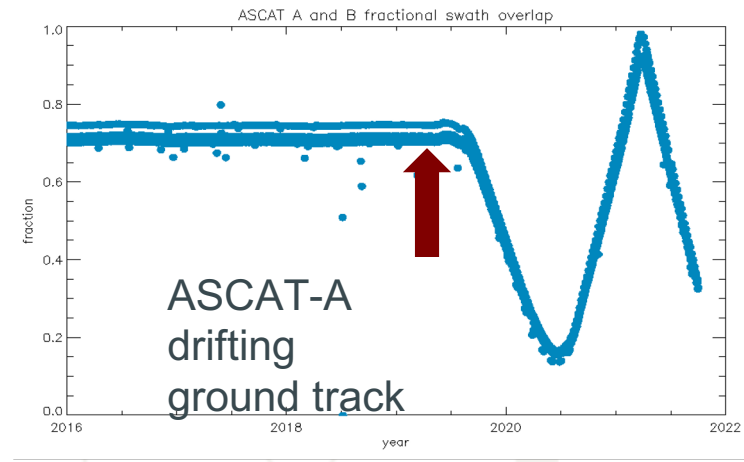
# Orbit impact

ASCAT-A / -  
B

### Backscatter difference in dB over global ocean (reprocessed ASCAT-A, operational B/C)

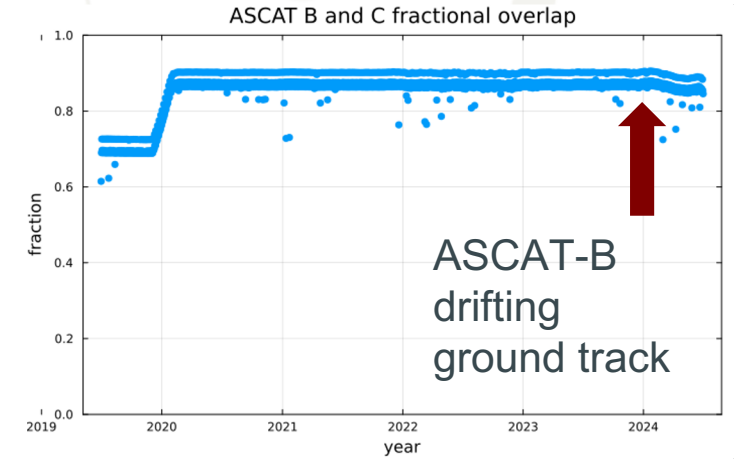
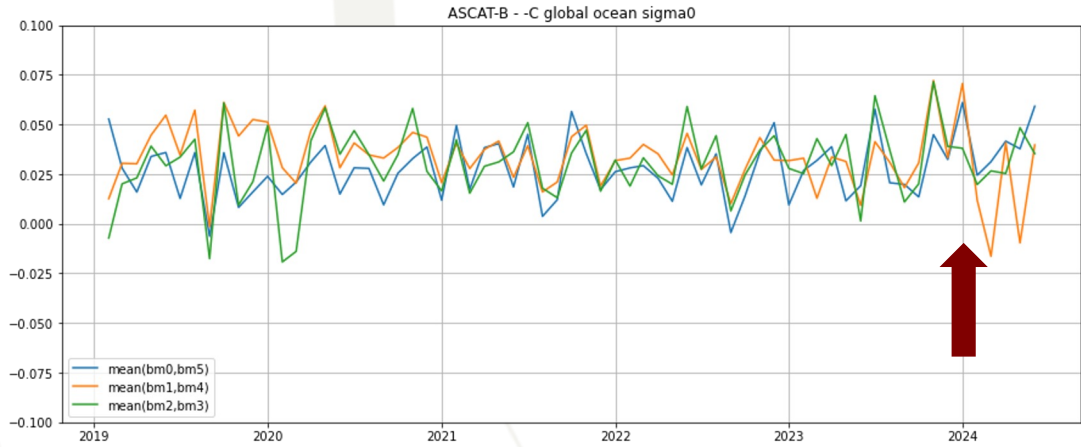


### Fractional swath overlap ...all beams, asc passes, daily values over rainforest



last OOP manoeuvre for Metop-A on 31 August 2016

ASCAT-B / -  
C

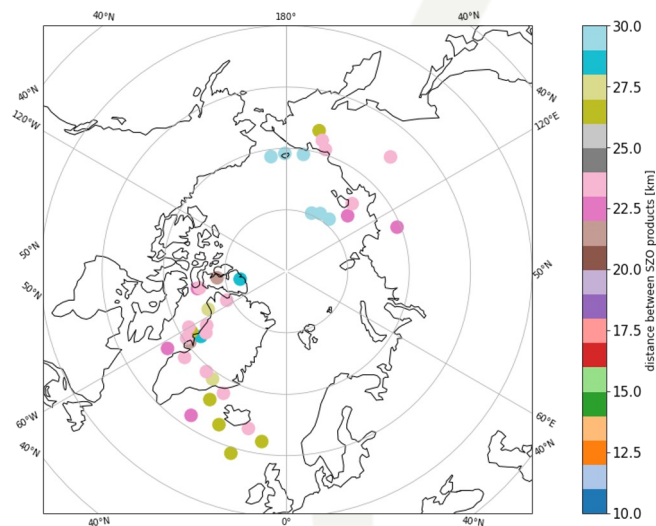


last OOP manoeuvre for Metop-B on 14 September 2022

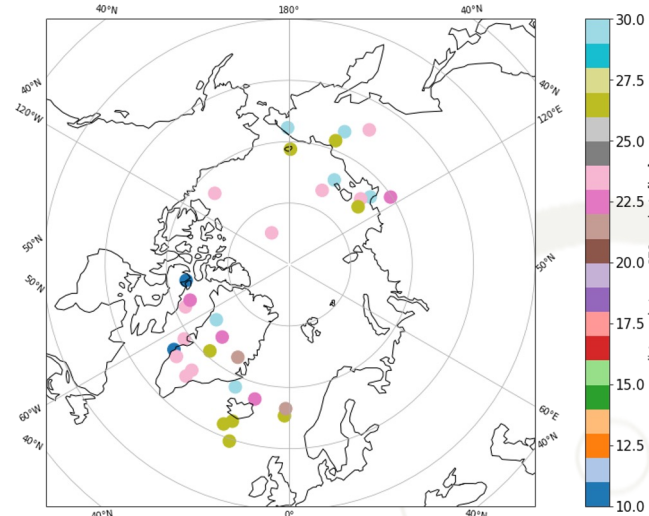
## ASCAT-A

A few occasions with unusual grid spacing between successive SZO products.

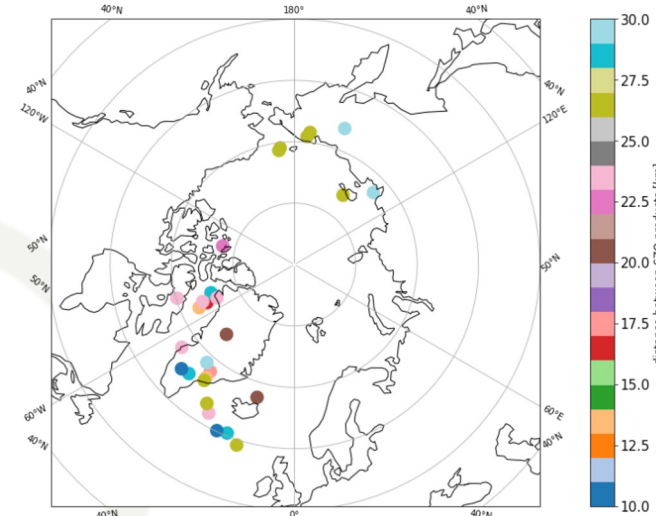
... around orbit start / end points



## ASCAT-B



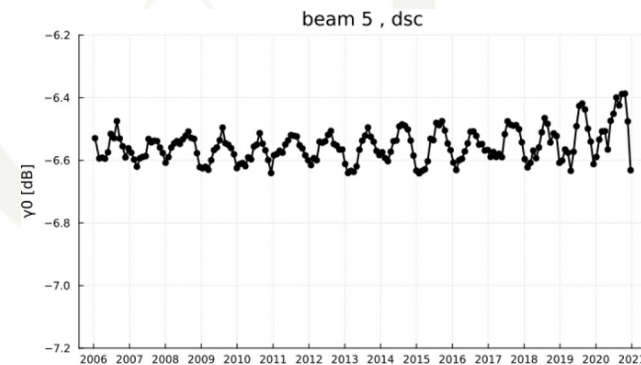
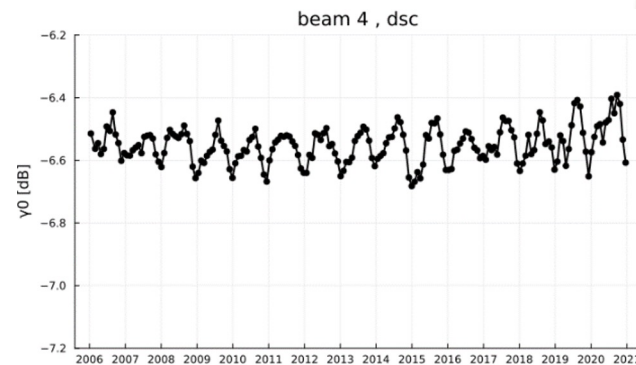
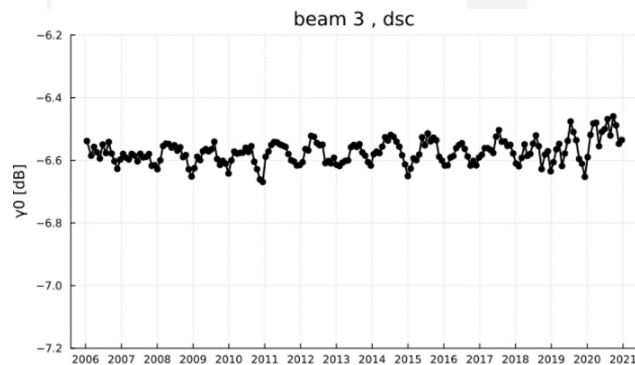
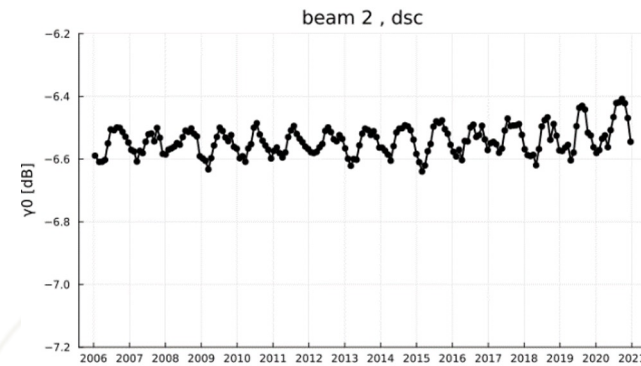
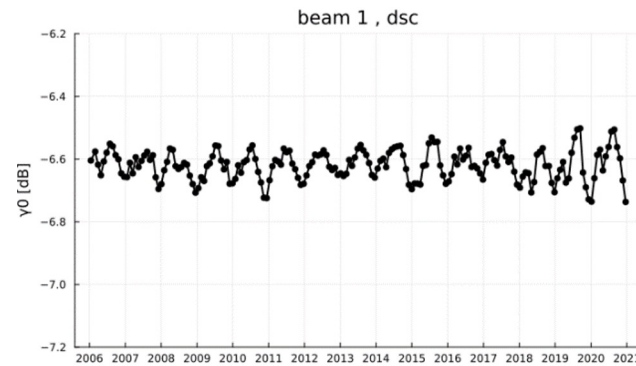
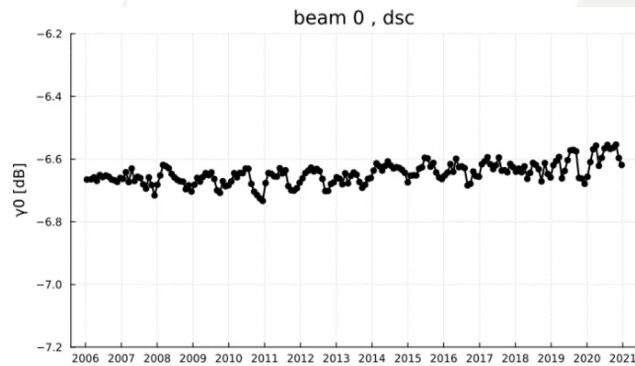
## ASCAT-C



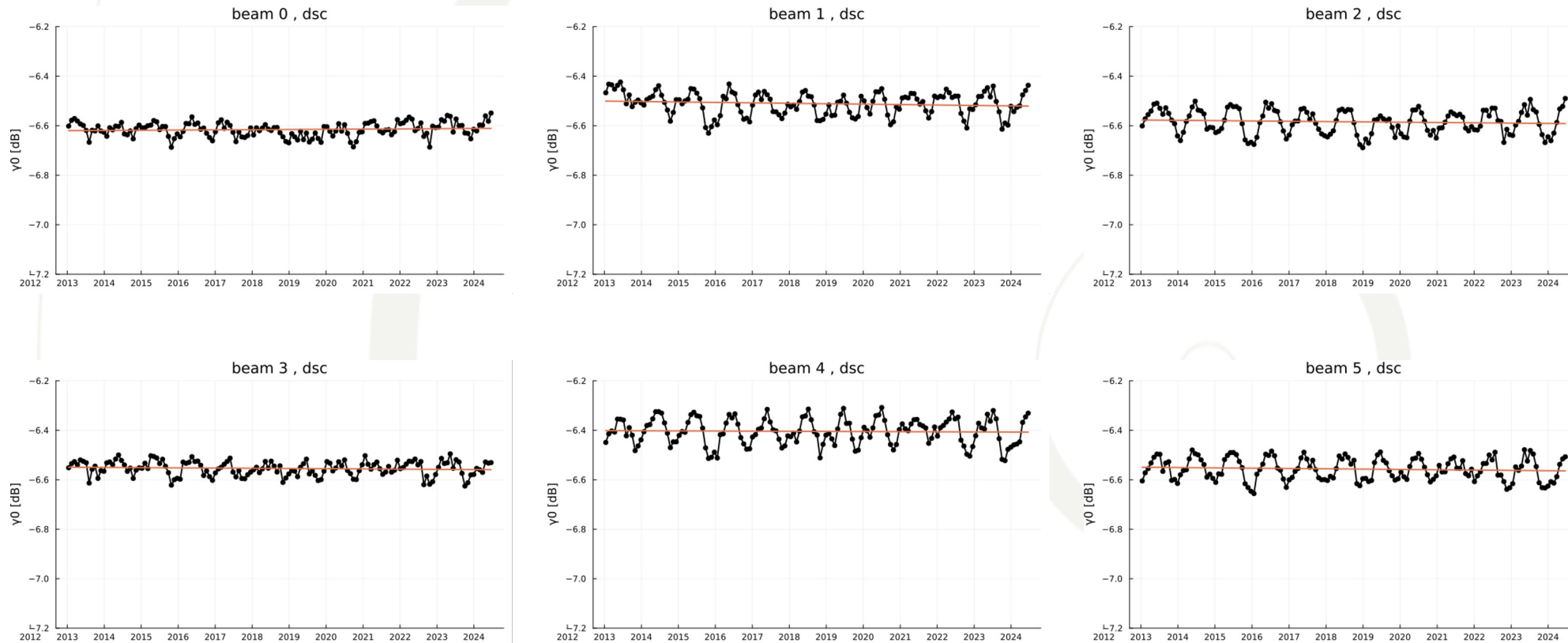
Category	Number of Gaps	Total gap (hours)	Fraction of the Total Data Set (%)
< 50 min	418	1.63	0.54
50 – 150 min	106	133.53	0.14
> 150 min	53	1221.01	0.07

Number of Gaps	Total gap (hours)	Fraction of the Total Data Set (%)
342	1.26	0.56
19	19.67	0.03
11	87.11	0.02

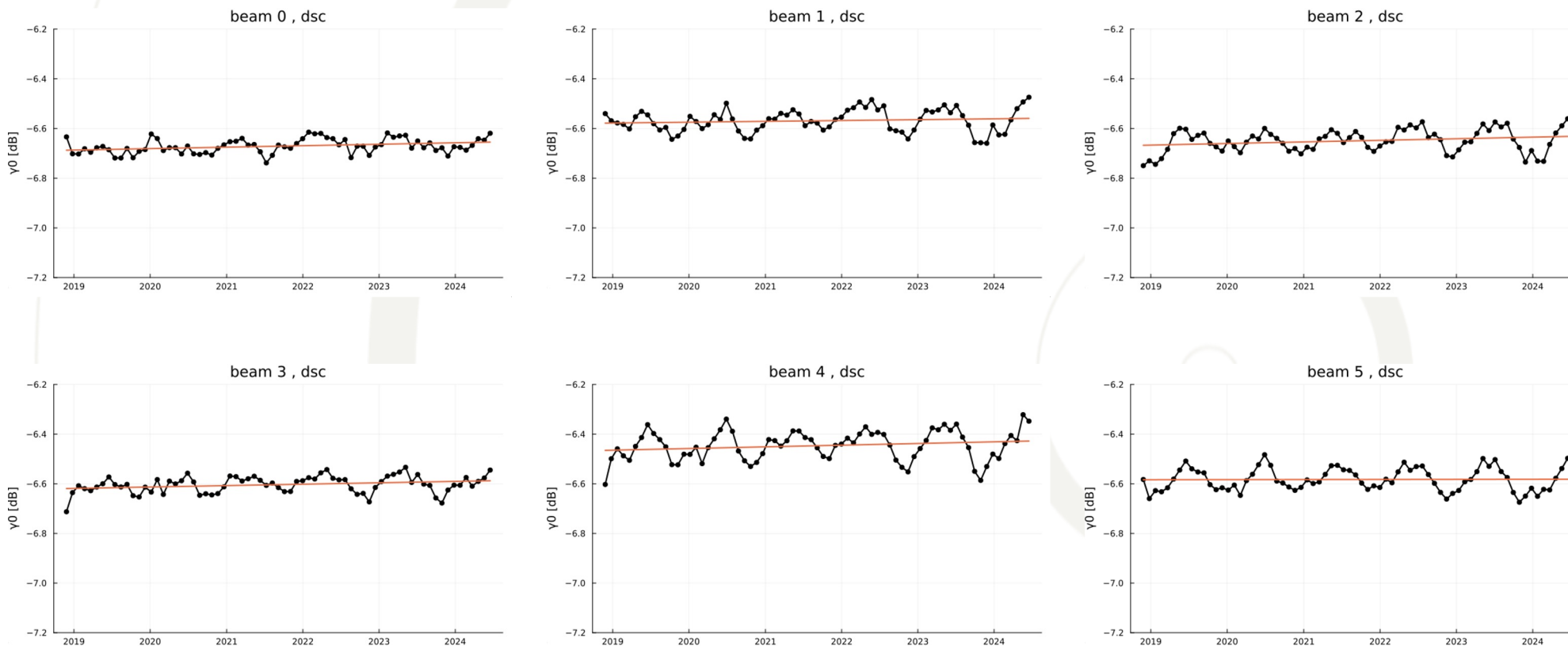
Number of Gaps	Total gap (hours)	Fraction of the Total Data Set (%)
157	0.35	0.54
27	32.18	0.09
12	53.88	0.04



Monthly mean rainforest  $\gamma_0$  in each beam for descending passes → no significant trend

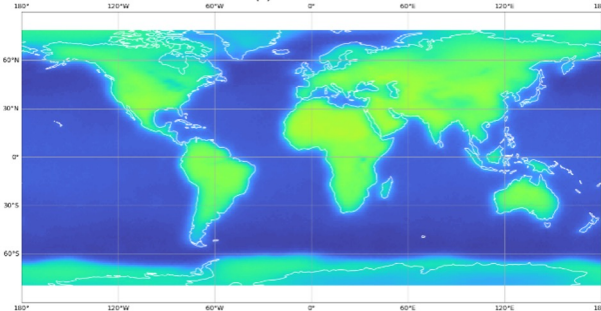


Monthly mean rainforest  $\gamma_0$  in each beam for descending passes → no significant trend

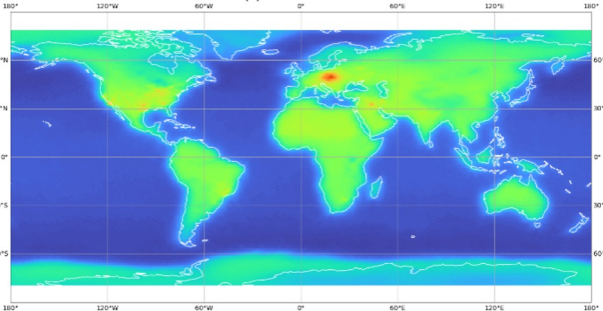


Monthly mean rainforest  $\gamma_0$  in each beam for descending passes → no significant trend

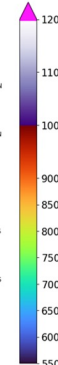
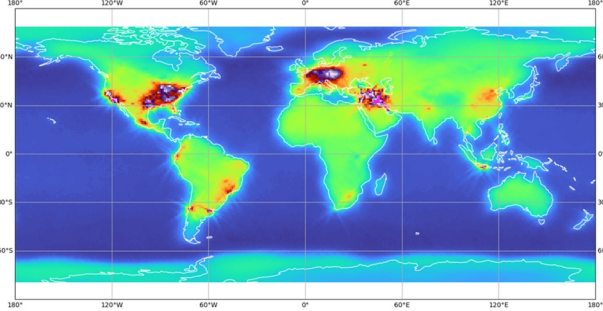
ASCAT-A mean noise (grd = 1.0°)  
beam(s): all 200906 all orbits



ASCAT-A mean noise (grd = 1.0°)  
beam(s): all 201406 all orbits

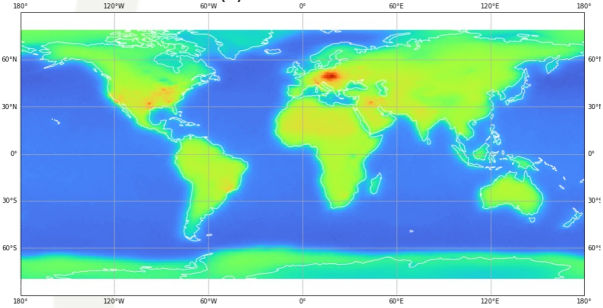


ASCAT-A mean noise (grd = 1.0°)  
beam(s): all 202106 all orbits

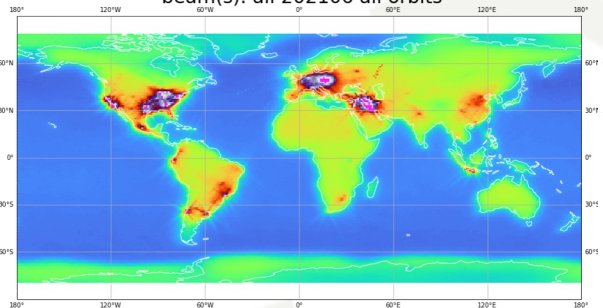


Level-0  
noise  
counts  
(unitless)

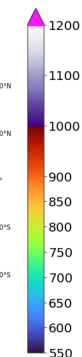
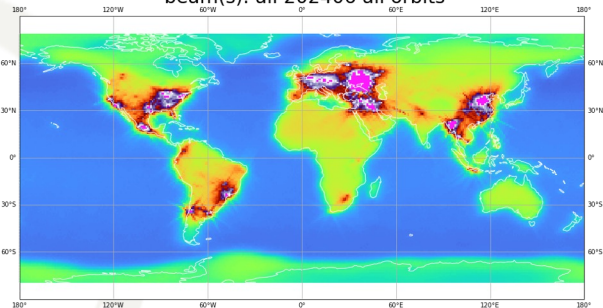
ASCAT-B mean noise (grd = 1.0°)  
beam(s): all 201406 all orbits



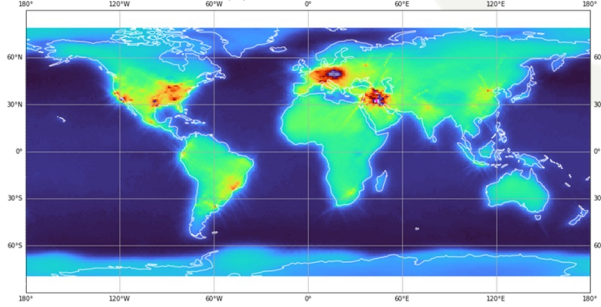
ASCAT-B mean noise (grd = 1.0°)  
beam(s): all 202106 all orbits



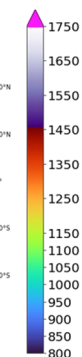
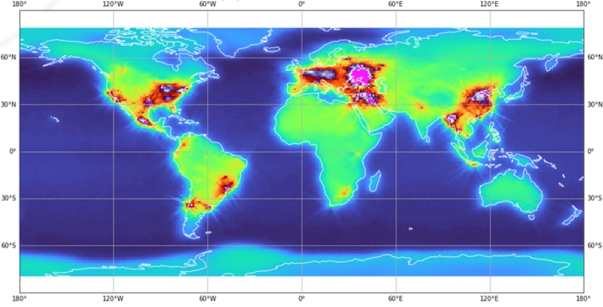
ASCAT-B mean noise (grd = 1.0°)  
beam(s): all 202406 all orbits



ASCAT-C mean noise (grd = 1.0°)  
beam(s): all 201906 all orbits

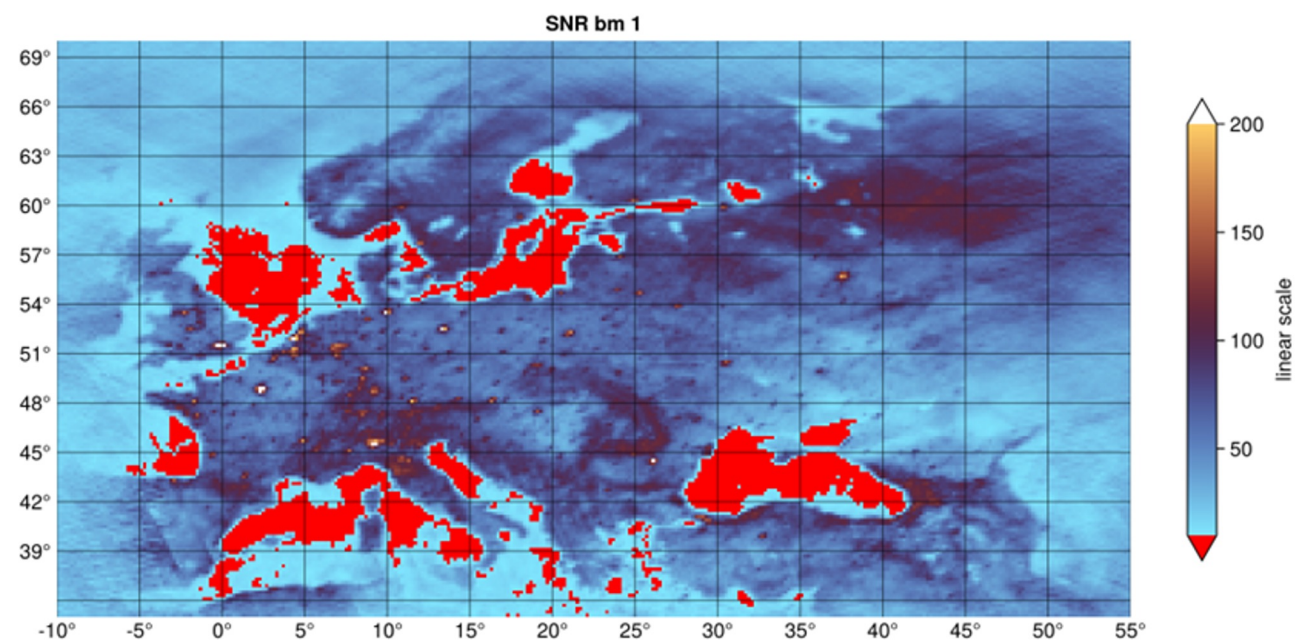
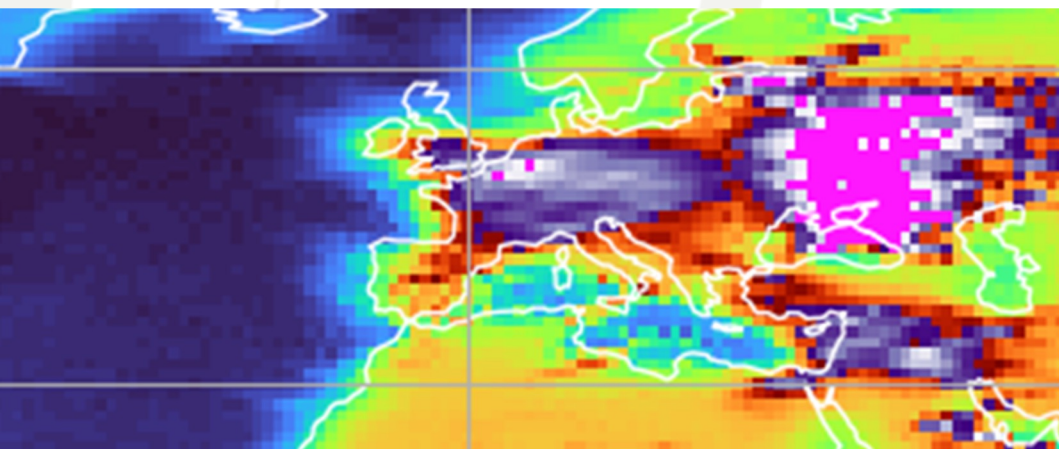


ASCAT-C mean noise (grd = 1.0°)  
beam(s): all 202406 all orbits



- Slightly higher noise levels on ASCAT-C (instrument characteristic)
- Consistent increase in the background noise across all instruments
- Impact on coastal winds?

- ASCAT noise measurements are averaged on-board
- Each noise measurement represents a 65 km (along-track) by 550 km (full swath width) footprint
- Noise emitted over land impacts the ocean measurements



ASCAT-C, 13 May 2026, beam 1 (left mid). Data is collected from the entire previous month and gridded to 0.1°. SNR values below 10 are shown in red.



**Thank you!**

Questions are welcome.