

# Five Frozen Trees in Sodankyla:

Relating ASCAT slope to water and carbon processes over a Boreal forest using in-situ, model and reanalysis data

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# Metop ASCAT specifications

Active microwave scatterometer

Frequency: C-band, 5.255 GHz

Polarisation: VV

Spatial Resolution: 25 km/ 50 km

Overpass: asc/desc 9:30 AM/PM

Multi-incidence: 25-65°

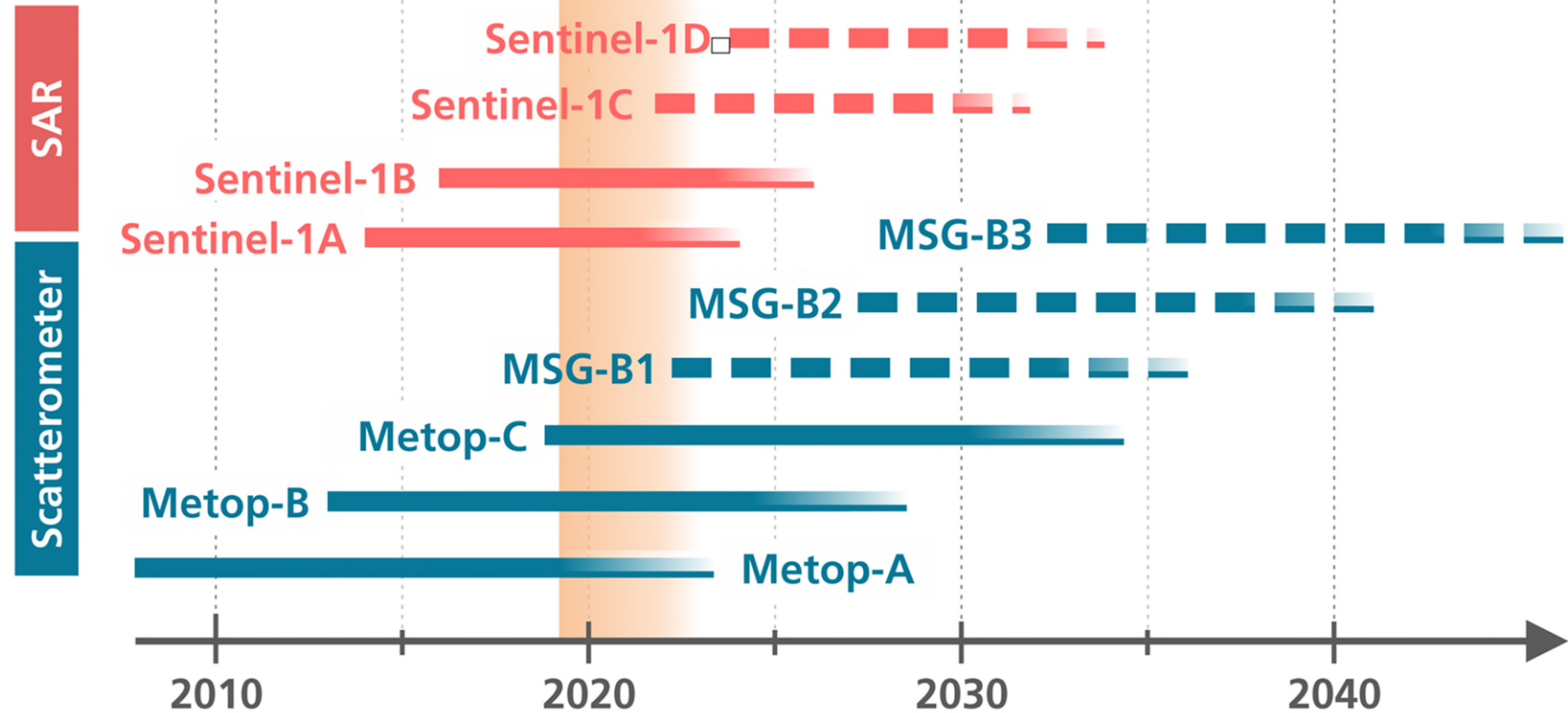
Daily global coverage: 82 %

Metop-A (Oct. 2006 – 2021)

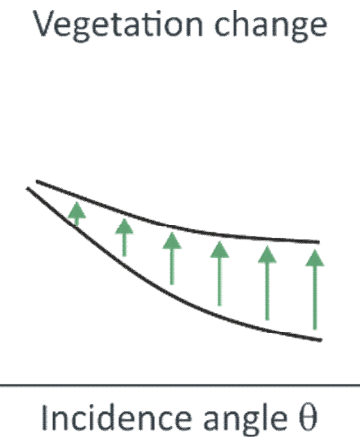
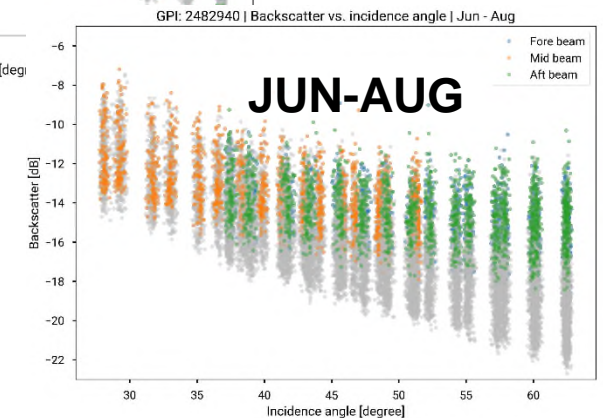
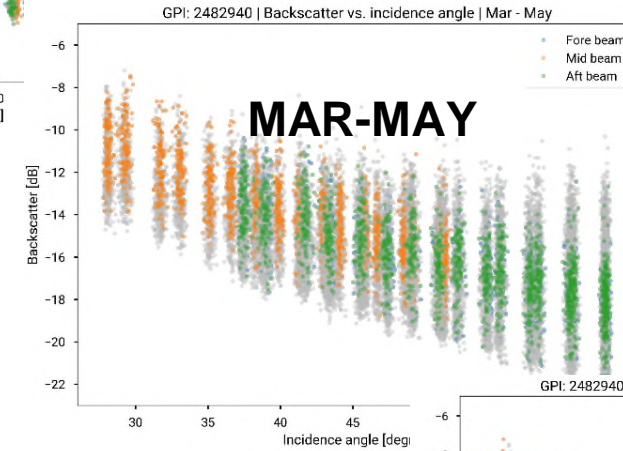
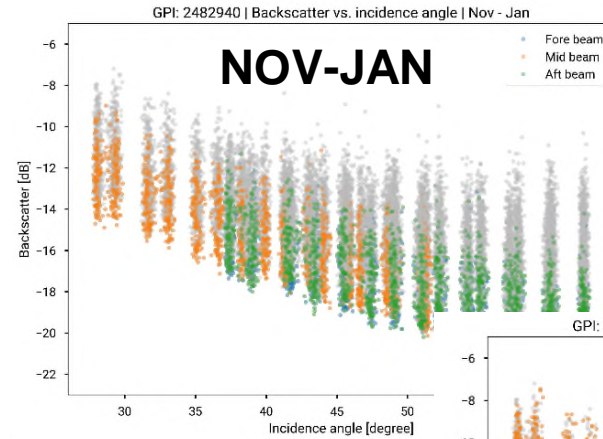
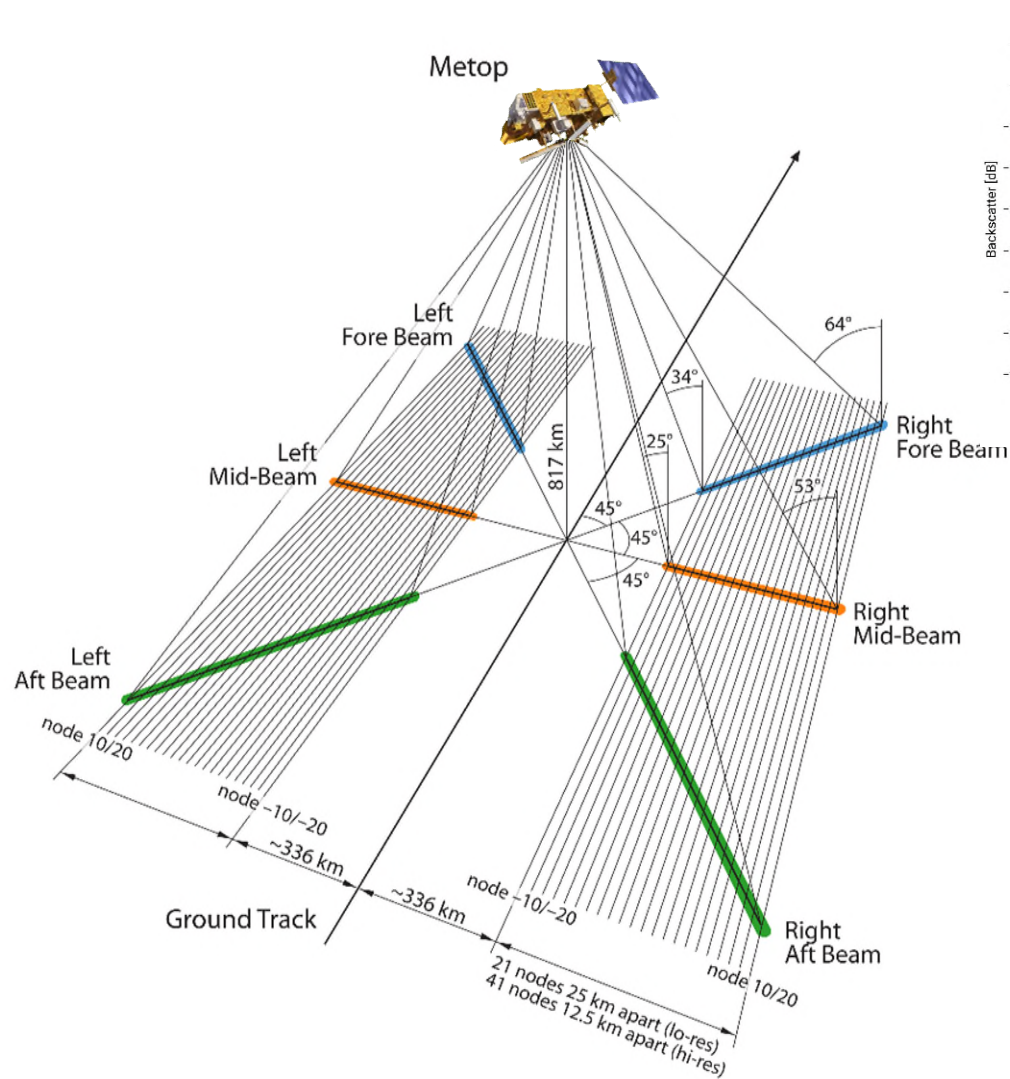
Metop-B (Sep. 2012 – ongoing)

Metop-C (Nov. 2018 – ongoing)

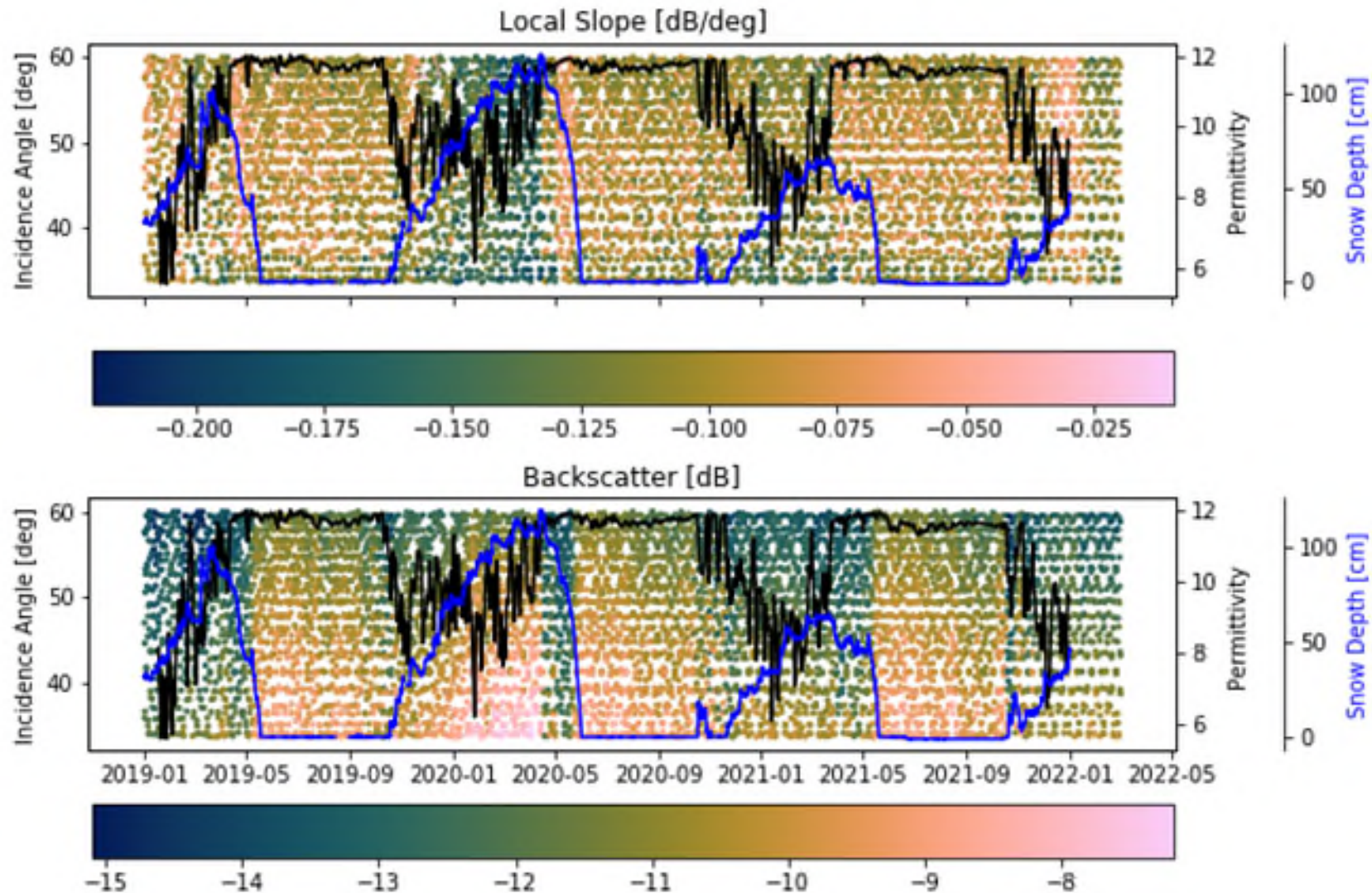
Metop-SG (2023, planned until 2040)



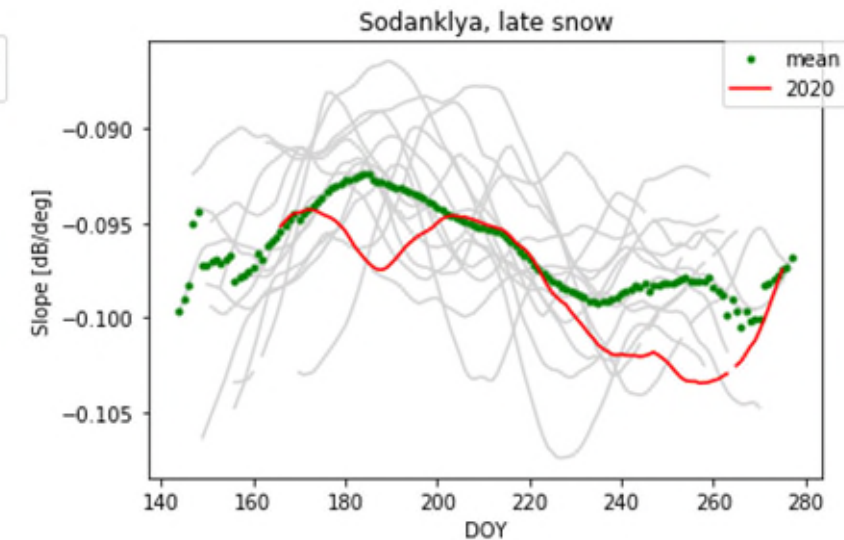
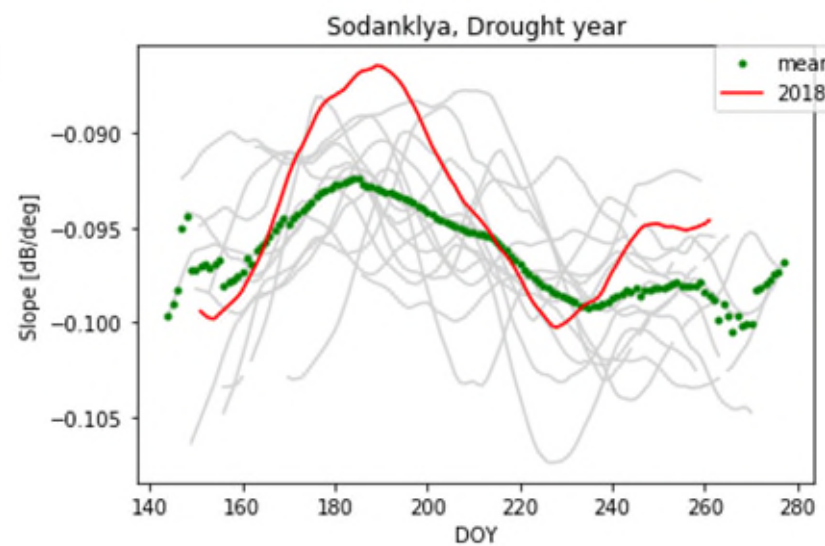
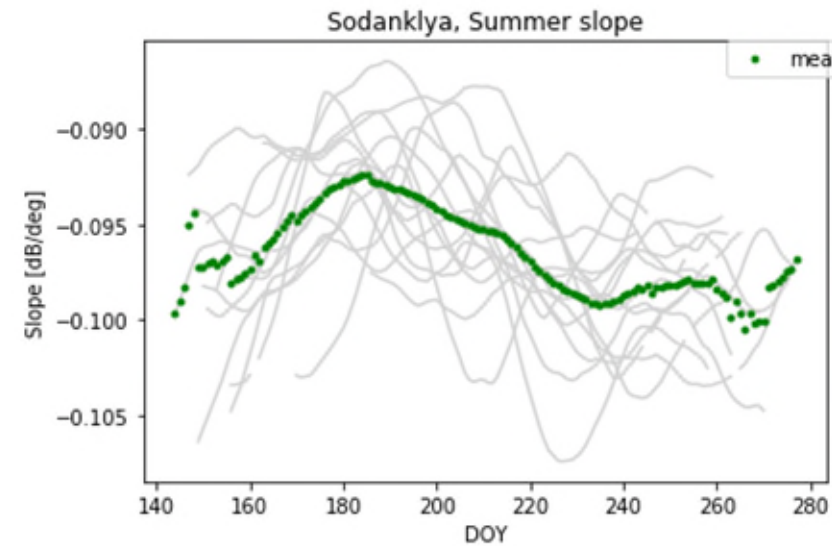
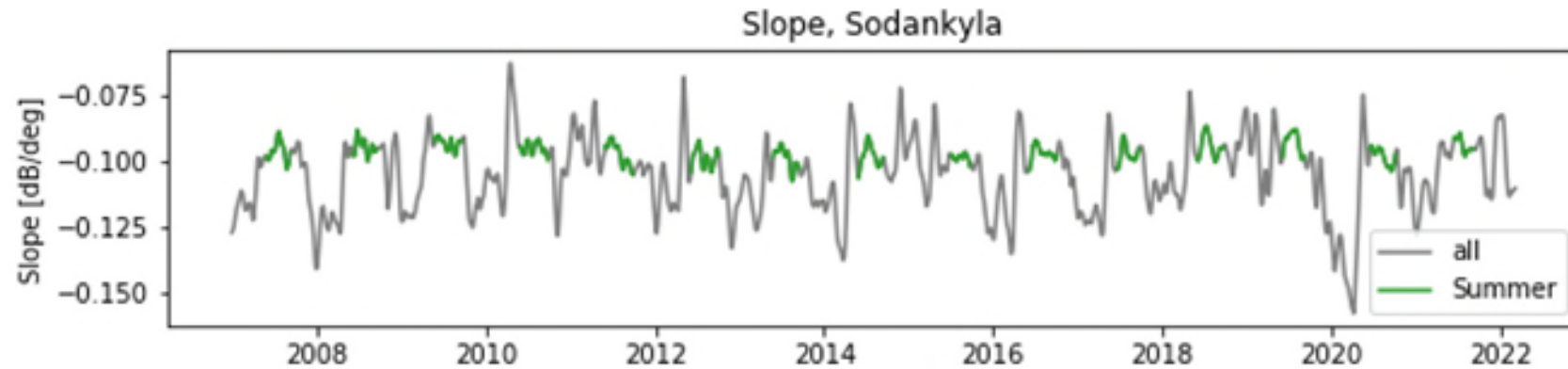
# ASCAT geometry, backscatter vs incidence angle



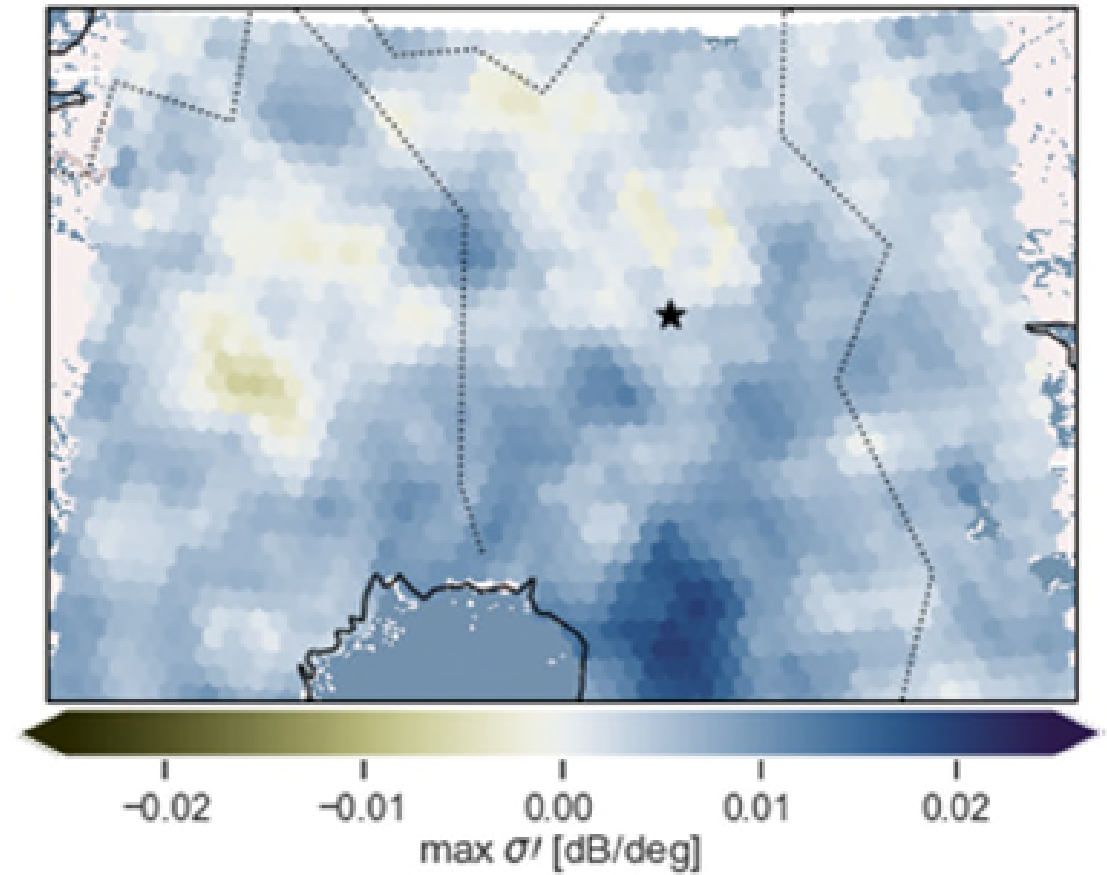
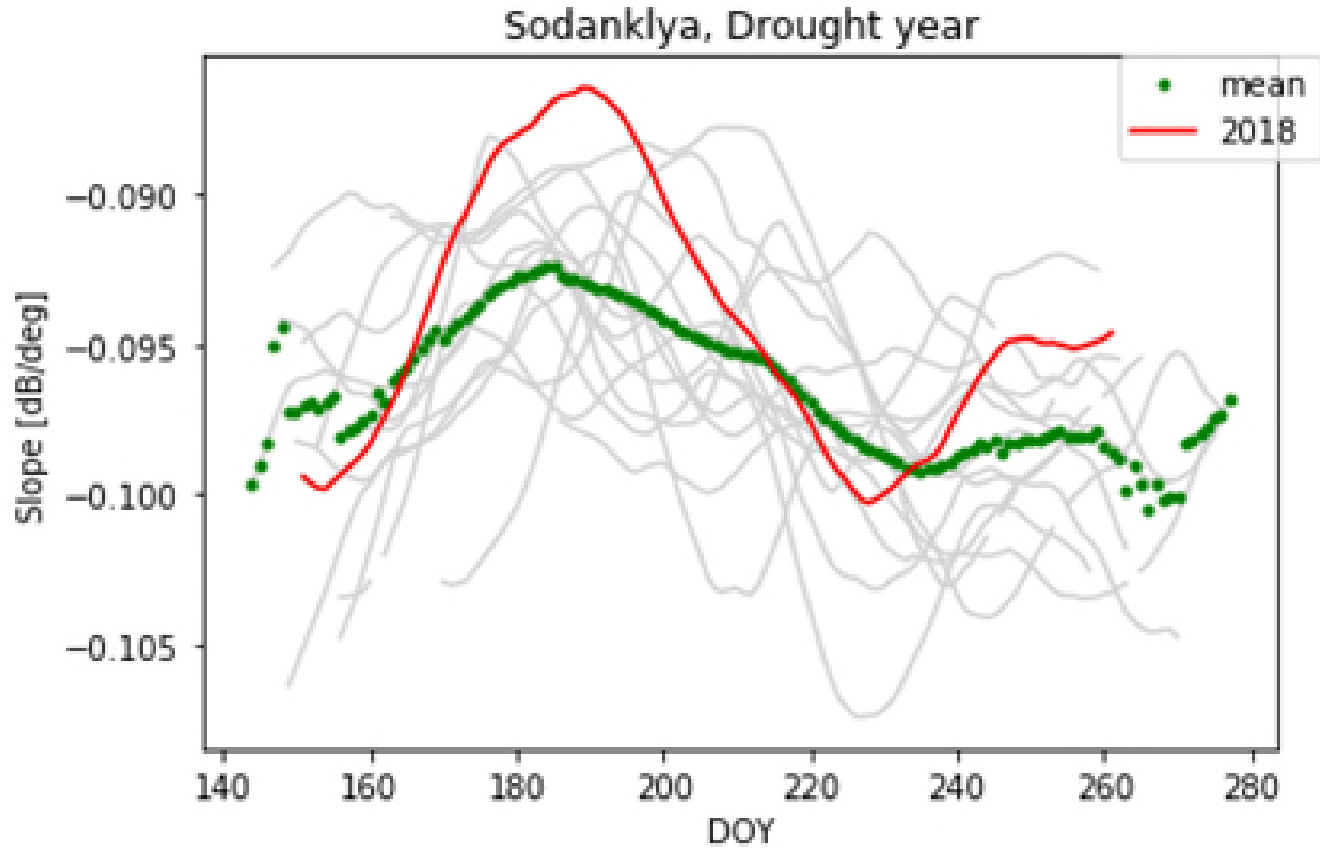
# What drives slope dynamics throughout the year?



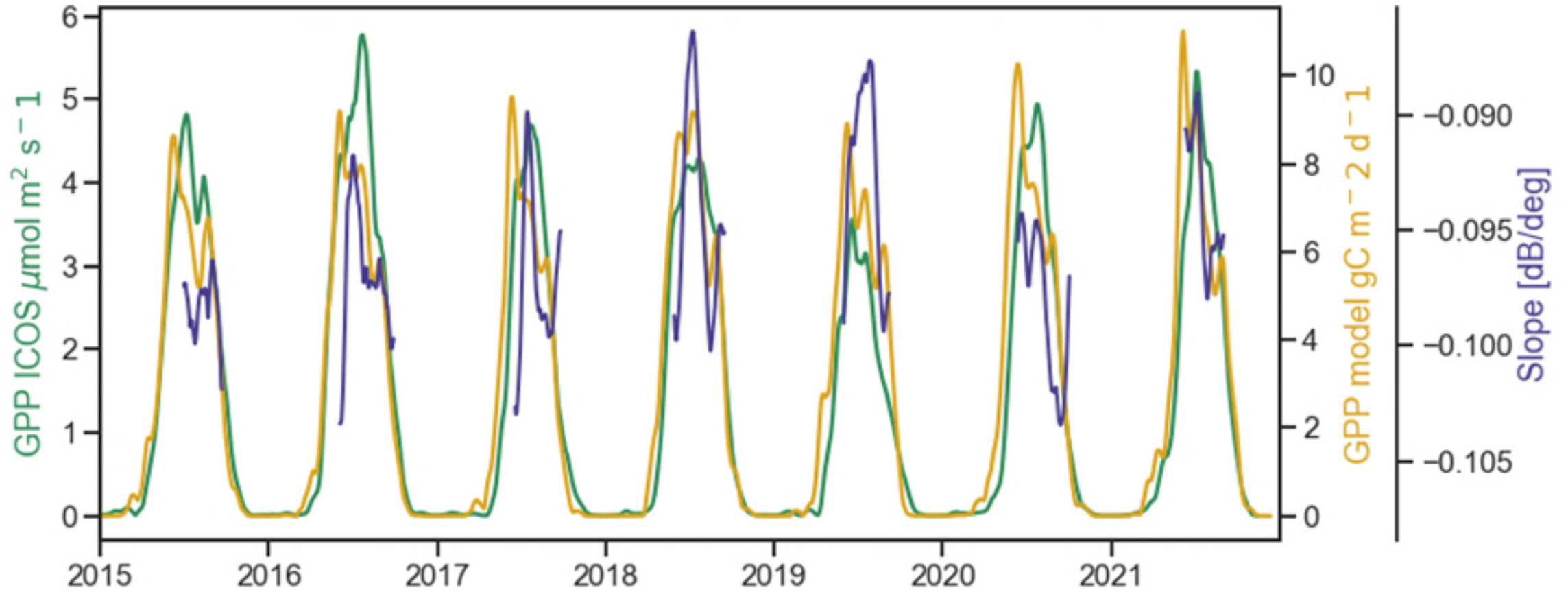
# Phenological change during the summer



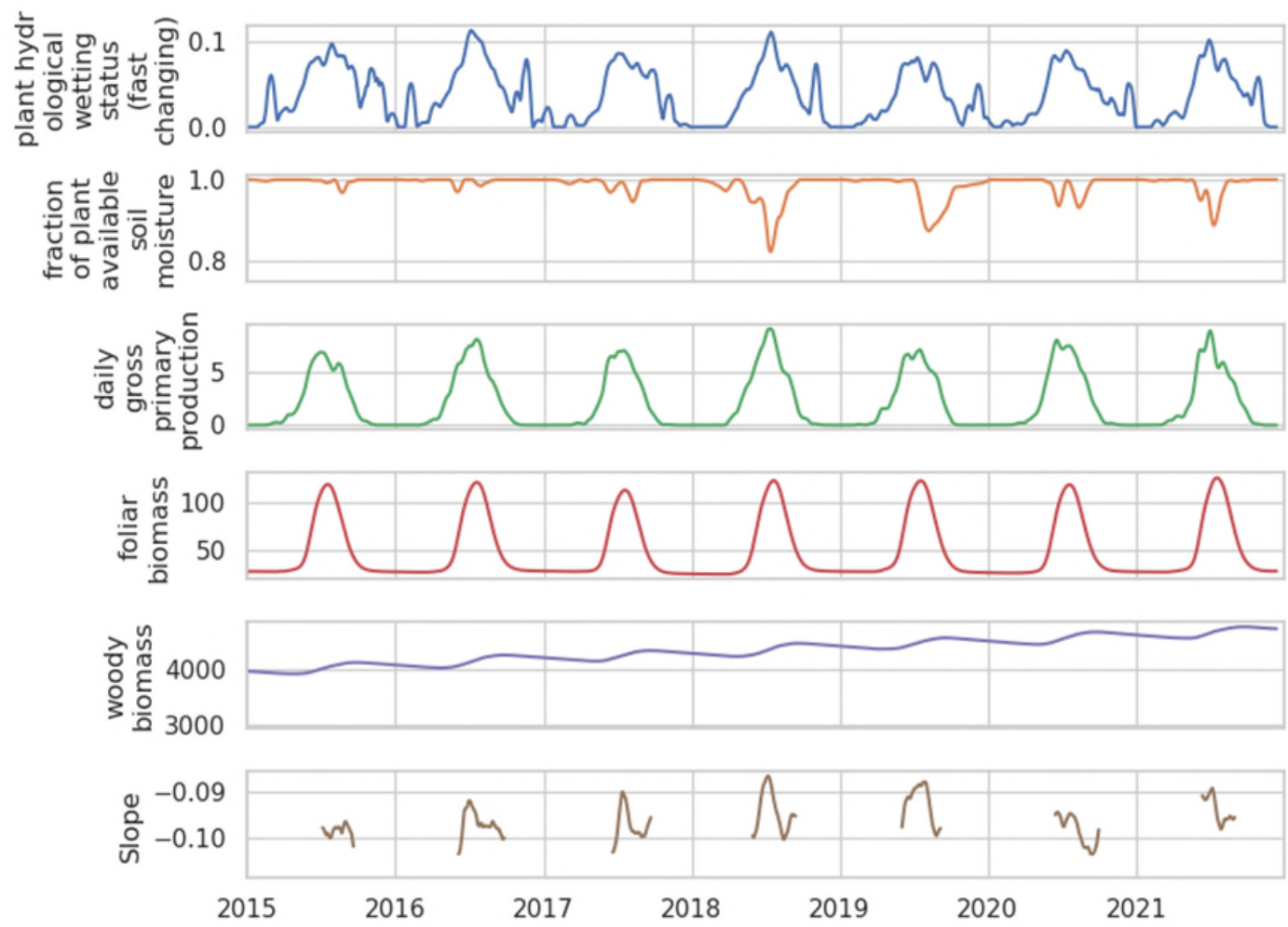
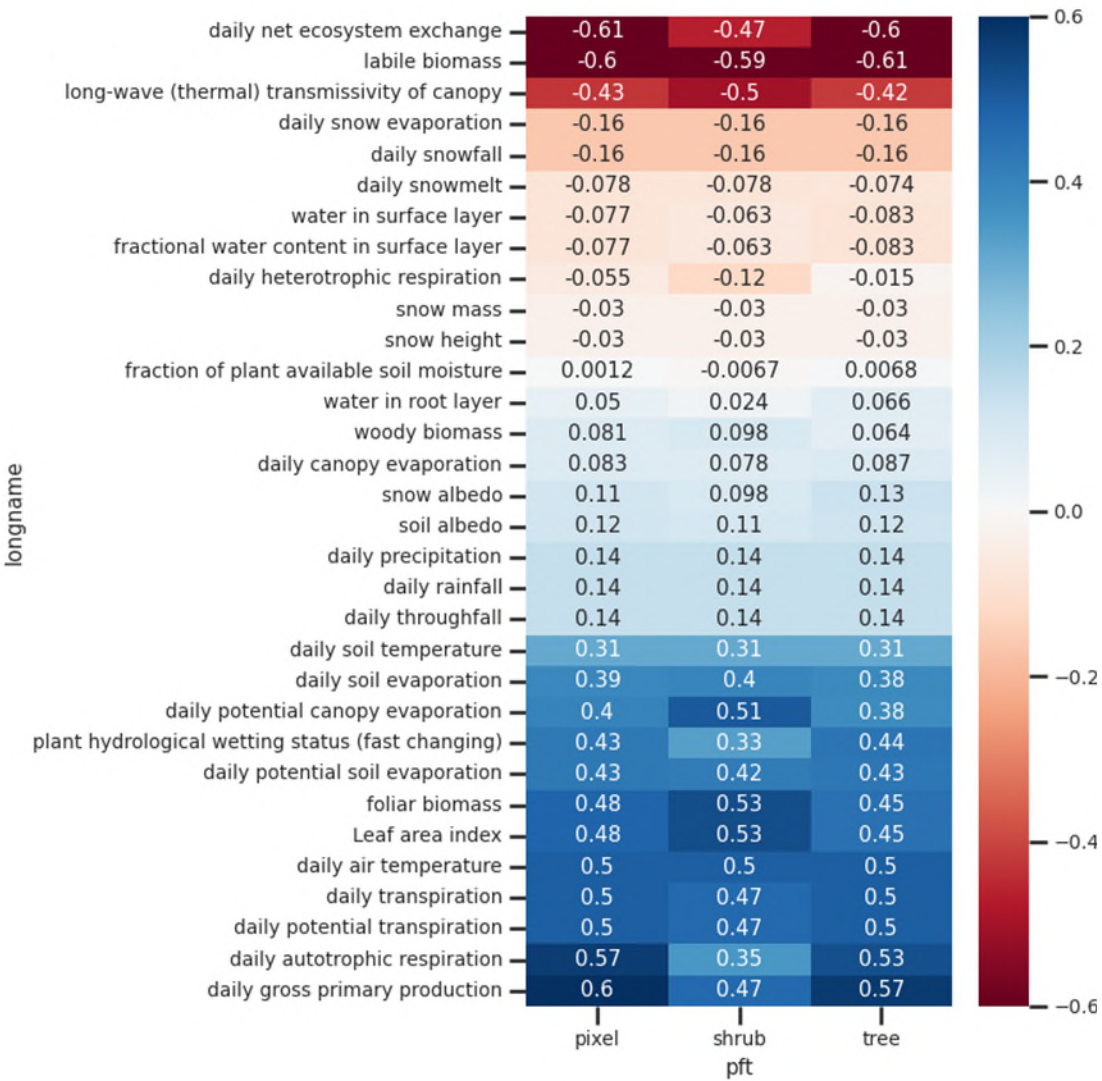
# Sensitivity to extremes



# Sensitivity to GPP



# DALEC-BETHY - Measurement operator





# Conclusions and outlook

## **ASCAT Slope:**

Is sensitive to vegetation phenology, outside of winter

Valuable consistent long data record

Potential with 6.25km full resolution and extending to ERS

Further research on vegetation dynamics at different time scales and anomalies