Summary of splinter:

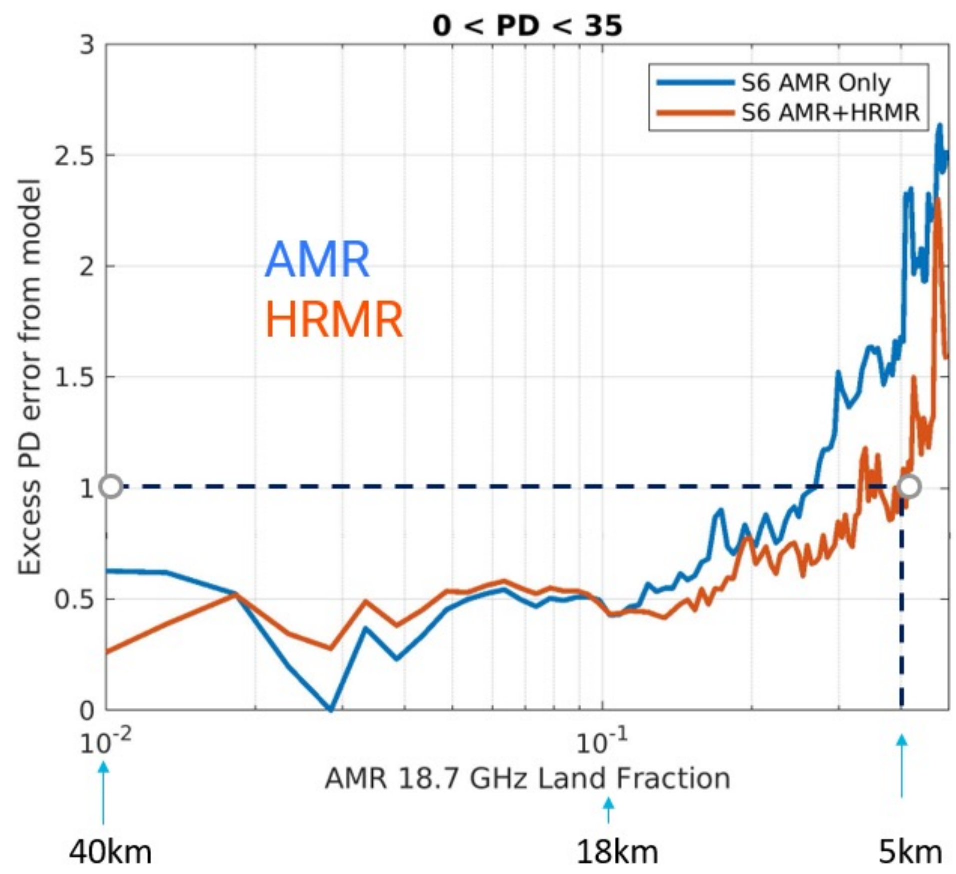
Instrument Processing: Propagation, Wind Speed and Sea State Bias

Co-chairs: S. Brown and E. Obligis

AMR-C Performance by Brown et al

AMR-C includes two innovations from prior generation AMR on Jason-series:

- Supplemental Calibration System (SCS) – maintain mm/yr stability
- High Resolution Microwave Radiometer (HRMR) – provide coastal path delay to 1cm at 10km from land



Stability Validation: Inter-satellite Calibration

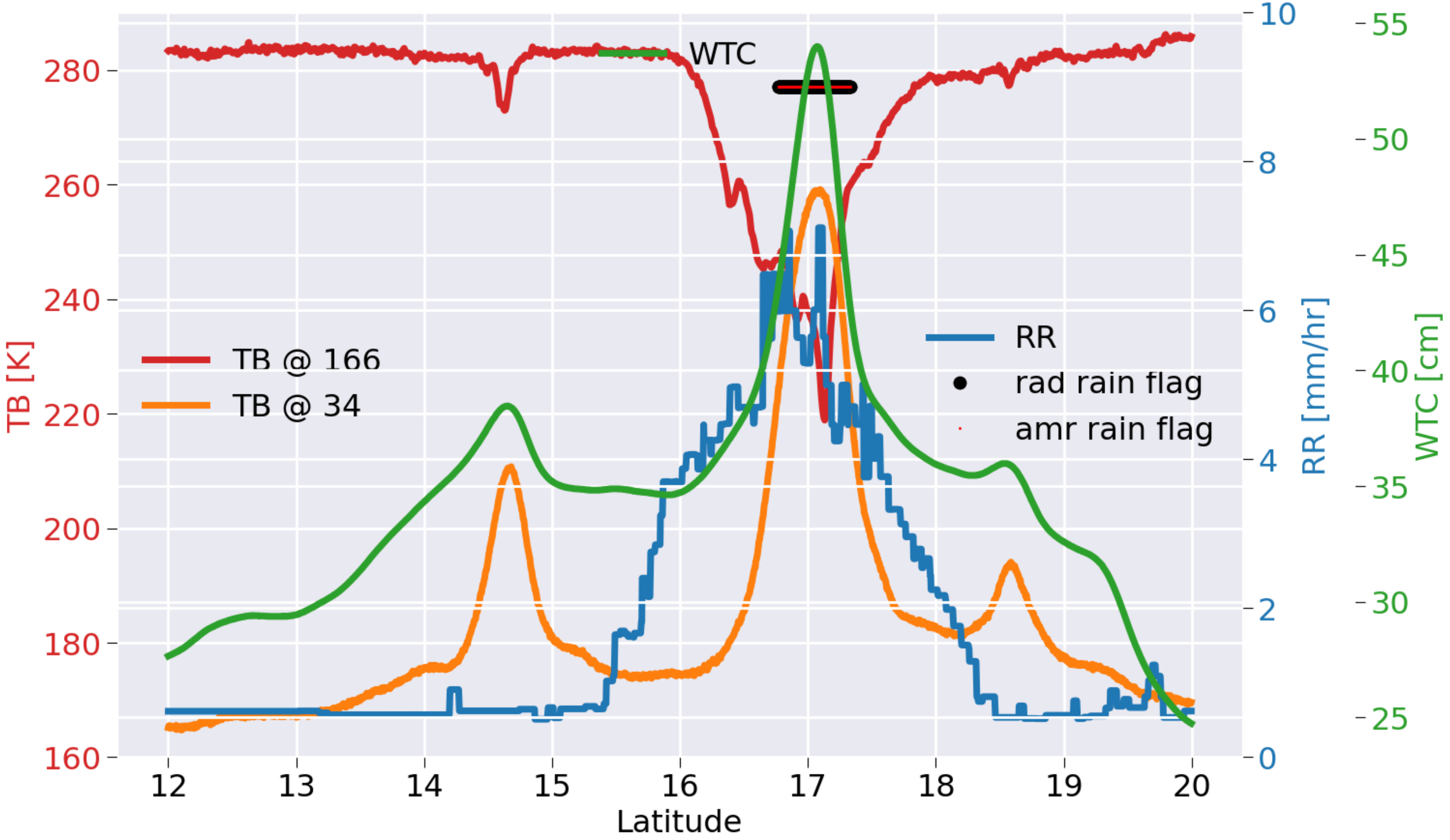
- Inter-satellite calibration most reliable means to verify radiometer stability (Brown et al., 2012)
- Compared co-located observations between AMR and SSMI F16 and F18
  - SSMI TBs converted to equivalent AMR TBs
- **No detectable trends observed in AMR-C TBs with uncertainty < 0.1K/yr**

Channel	Relative Trend to SSMI TB
18.7 GHz	0.01 ± 0.08 K
23.8 GHz	-0.01 ± 0.1 K
34.0 GHz	0.03 ± 0.04 K

Benefits of AMR-C high-frequency observations for the retrieval of the wet tropospheric correction over open ocean by Picard et al

A lot of information in the HRMR to exploit to better characterize the effect of rain, clouds, ice…

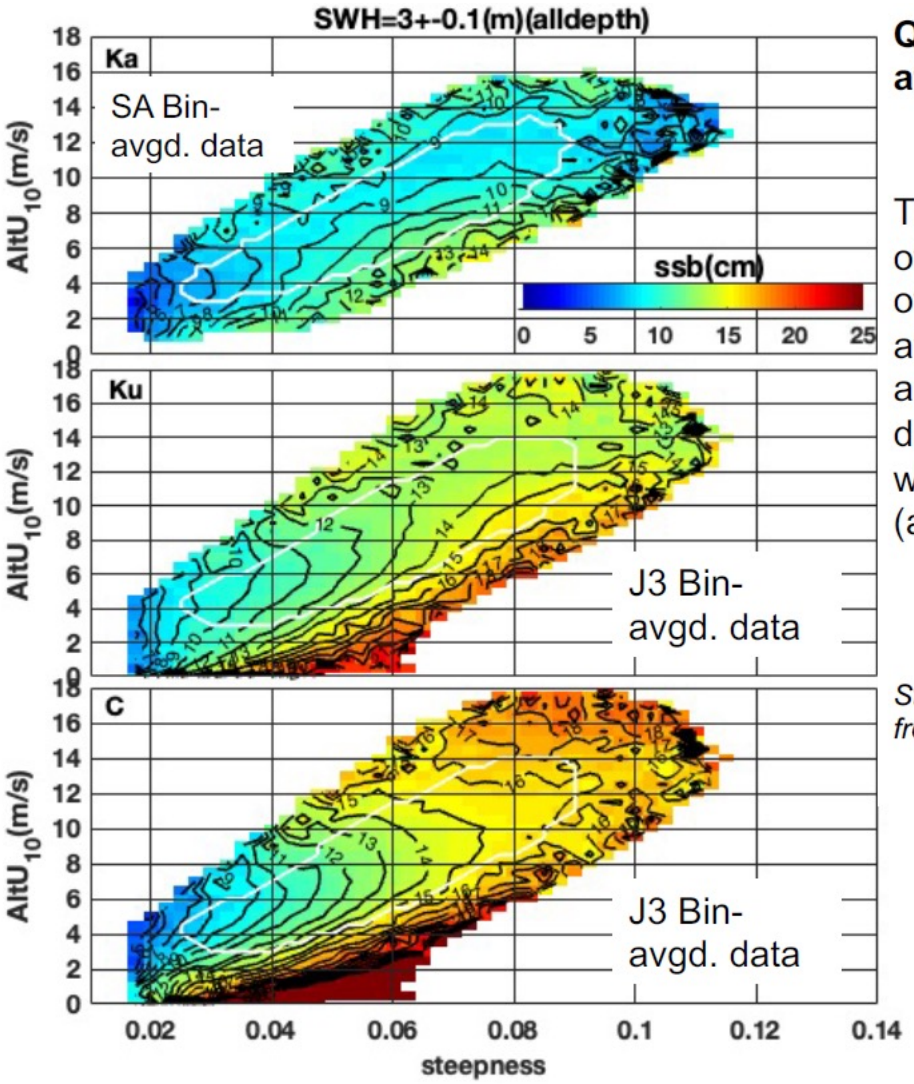
First step for the development of innovative algorithms combining LF and HF TBs



Refined S-6 sea state bias correction models and a multi-frequency EM bias assessment using C-, Ku-, and Ka-band data by Vandemark et al

New Ku-band SSB models for S6 are developed, but this does not harmonize J3 and S6 low resolution mode range or SSHA

Analysis of wave impact on SSB in C, Ku and Ka bands -> Preparation for SWOT



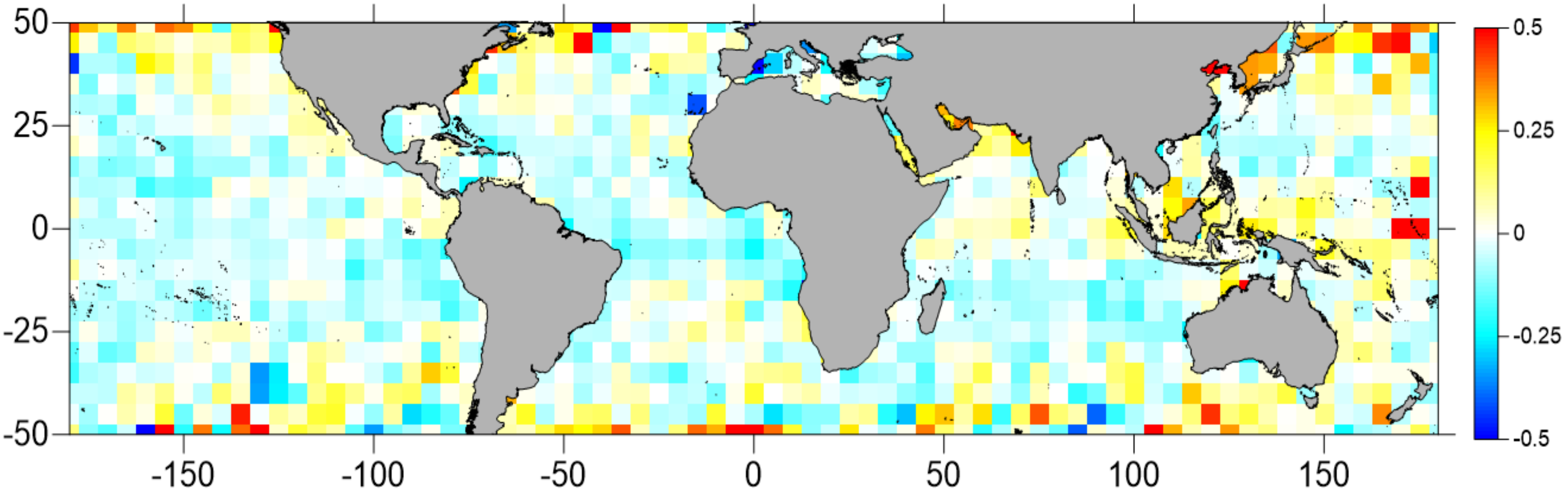
Q3: Wave steepness impact at Ka-, Ku- and C-band

The relative frequency impact of the wave steepness control of EM bias is more clearly seen at three freq. using global AltiKa and Jason-3 and range error data against steepness and wind speed…
(all iono. model corrected)

Steepness = significant slope using T_{02} from wave model

Synergistic use of the Sentinel-3A SRAL/MWR and SLSTR Sensors for the Wet Tropospheric Correction Retrieval by Aguiar et al

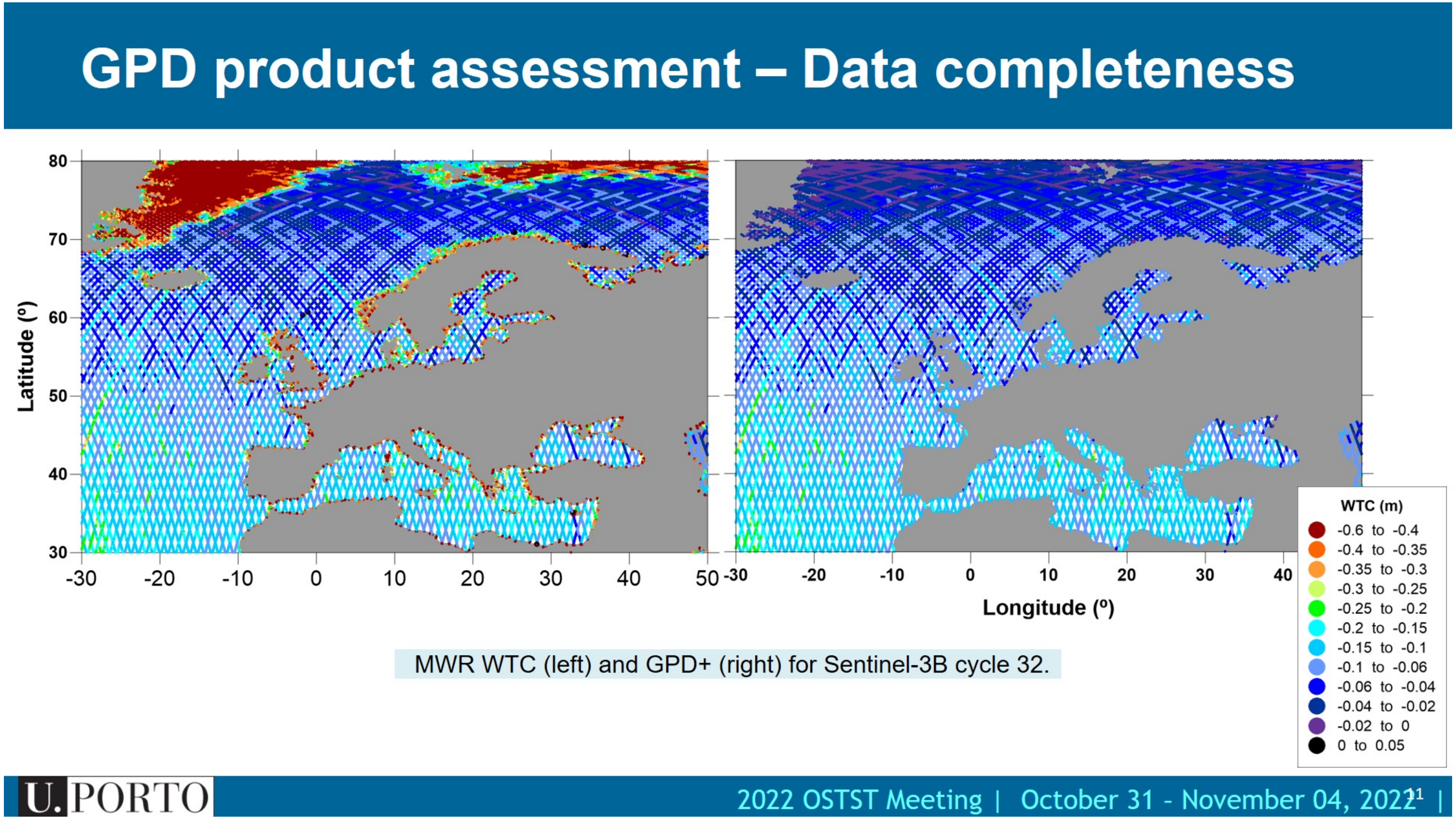
- The ERA5 atmospheric model is a good SST input source for the WTC retrieval and is available for most altimeter observations.
- No benefit when using SLSTR SSTskin observations against ERA5.



Differences, in cm, between RMS values for Algorithm 3 – Algorithm 4 (5º by 5º resolution).

Enhanced GPD+ wet tropospheric correction for the Copernicus Sentinel-3 missions by Fernandes et al

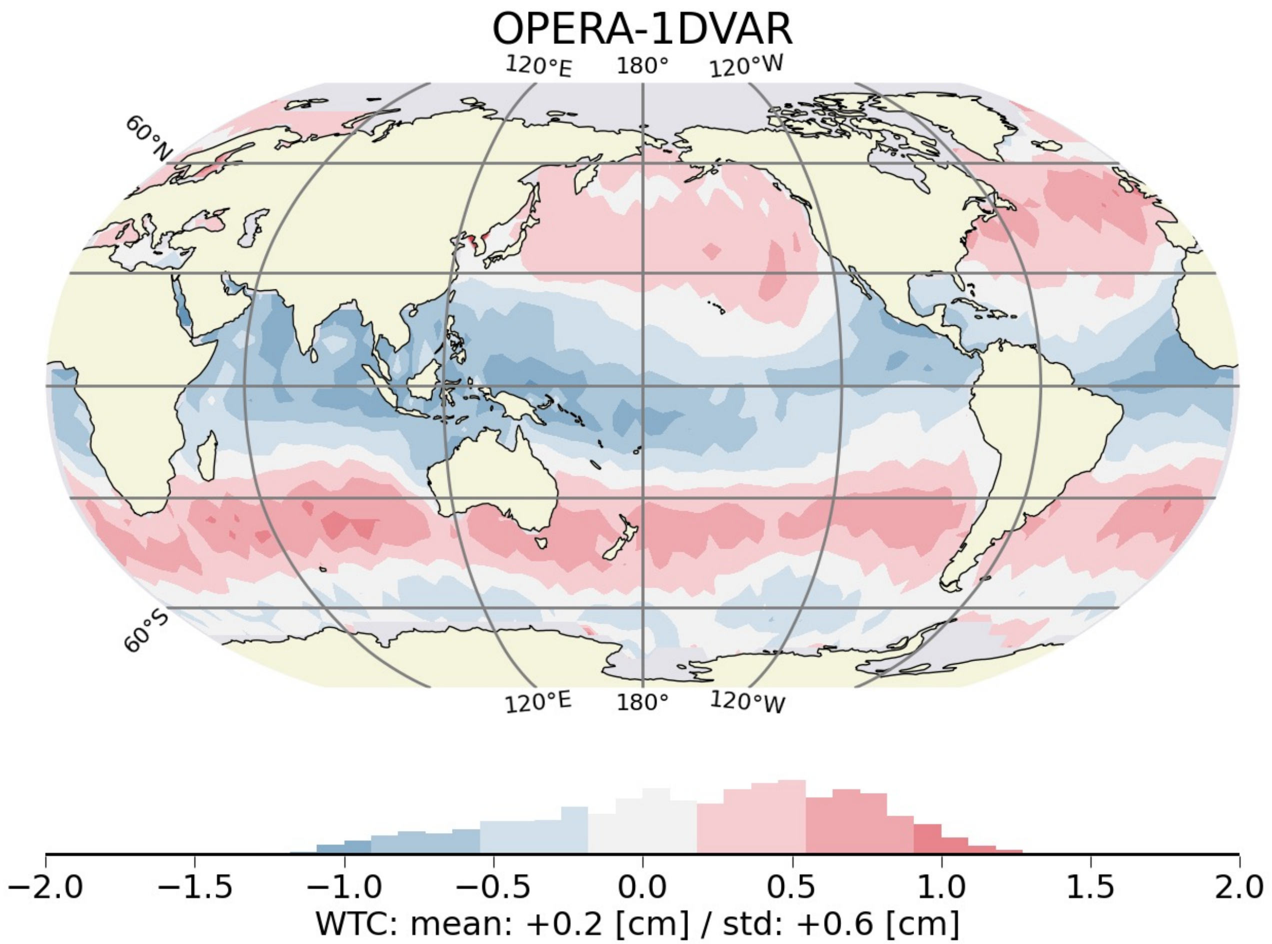
Improvement of coverage especially in coastal and polar areas



MWR WTC (left) and GPD+ (right) for Sentinel-3B cycle 32.

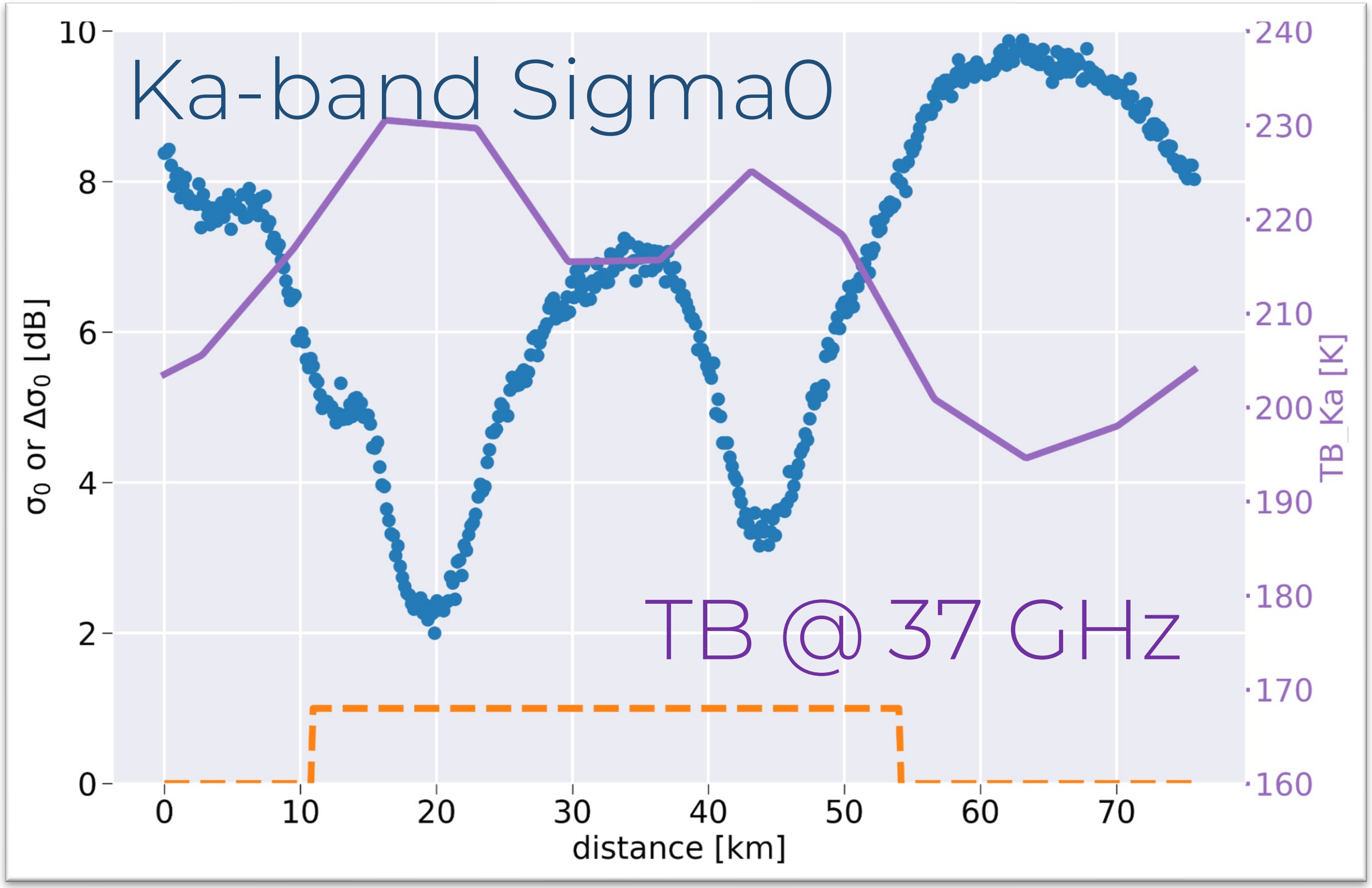
Performances of a 1D-variational approach for the wet tropospheric correction of the Sentinel 3A and 3B topography missions by Picard et al

- 1D-VAR and operational WTC retrievals show similar performances
- With some regional biases not yet completely understood
- 1D-VAR benefits: uncertainty + adaptability to
  - ✓ all instruments
  - ✓ frequencies
  - ✓ surface type



Characterizing Rain Cells as Measured by a Ka-band Nadir Radar Altimeter: First Results and Impact on Future Altimetry Missions by Picard et al

- Ka sigma0 contains high resolution information
- It can be used for
  - a precise estimation of the size of rain cells
  - a very accurate atmospheric attenuation
- Will be usefull for down-scaling algorithm for SWOT mission



Summary

- +7 posters available in the forum
- Please visit the forum, take a look, add comments and questions
- Significant improvements in the field of the WTC
  - ✓ With new instruments, better calibration for better stability and higher frequencies for better resolution
  - ✓ With new retrieval methods
- SSB is still a major contributor in the error budget -> we encourage more work on SSB for SAR and swath missions