

OSTST 2019

Instrument Processing – Corrections

Tuesday, October 22, 2018

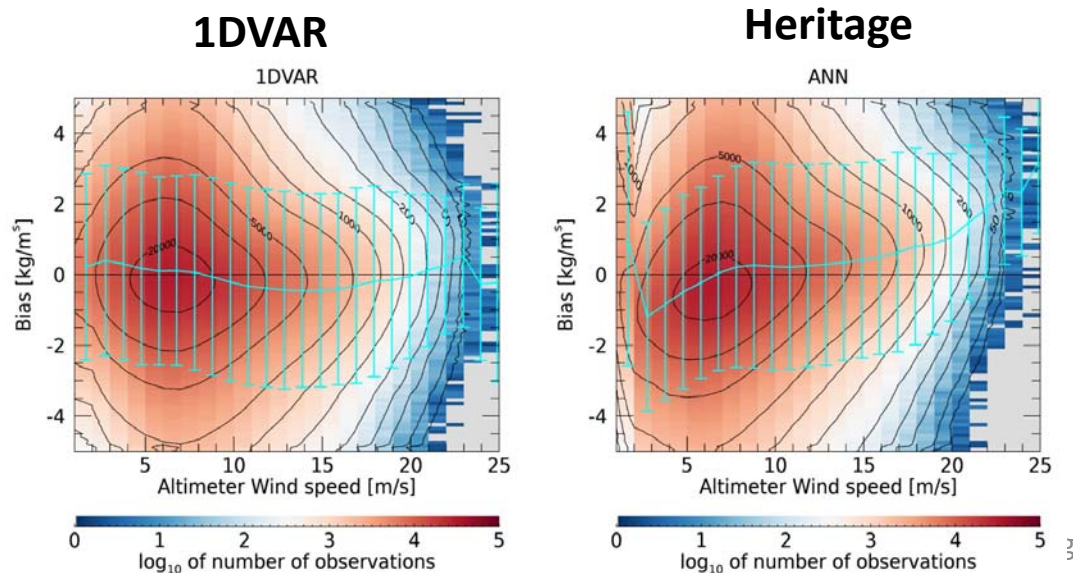
Wet Path Delay – Calibration

- Jason-3 AMR
 - mm-level stability over mission to date confirmed with independent sources (SSMI, GPD)
- Sentinel-3 MWR
 - Brightness temperatures stable relative to vicarious sources
 - WPD stable over mission relative to external sources
 - 3-input and 5-input WPD algorithm give similar performance – investigation on-going

Coldest ocean points		Amazon forest	
3 years	S3A	3 years	S3A
23.8 (K/yr)	-0.02 (-0.07 / 0.04)	23.8 (K/yr)	0.02 (-0.12 / 0.17)
Liq. wat/. (K/yr)	-0.05 (-0.11/0.00)	Liq. wat. (K/yr)	0.02 (-0.11/0.16)

Wet Path Delay – Algorithms

- Comparisons with climatologies show that 1DVAR retrieval provides results for TCWV and WTC on par with Heritage algorithm.
- 1DVAR retrieval also provides traceable and physical uncertainty estimates alongside each retrieved parameter
- Active/passive 1DVAR simultaneously improves WTC and altimeter WS products in physically consistent way



Issues from Project Scientists

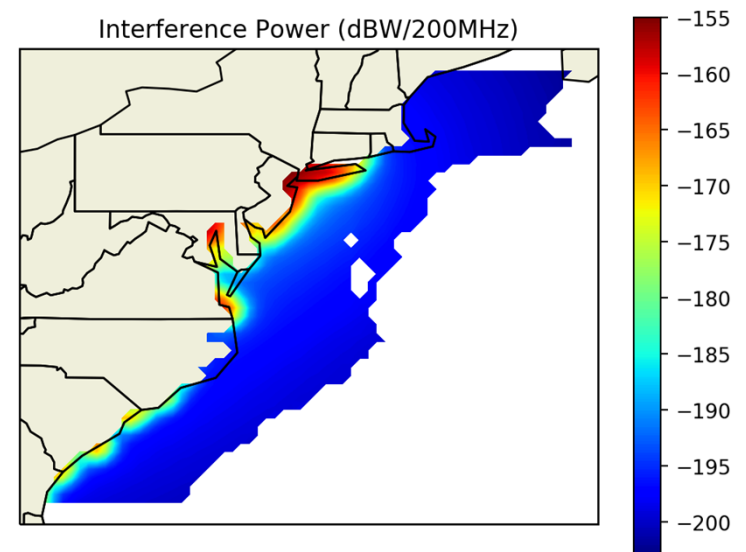
- **5G Contamination:** Concerns have been raised on radio frequency interference from the 5G spectrum on the 23.8 GHz radiometer channel
- **Sentinel-3 Stability:** What cal/val and instrument processing studies should be conducted in advance of Sentinel-6/Jason-CS? Sentinel-3A could be a good testbed for these studies.
- **Sentinel-6/Jason-CS Annual Reprocessing:**
 - “Annual” reprocessing is planned as part of operations (similar to Sentinel-3 all instruments) triggered by major evolution of processing baseline. Aimed at keeping the S6/JCS products as near to the state-of-the-art as possible.
 - Jason-1 through -3 products may be “left behind” if not updated as well (Jason-2, -3 will be updated to GDR-F), and could break the consistency. **Should these go through more regular reprocessing as well?**
- **Jason-3 after Sentinel-6/Jason-CS commissioning:** What orbit – interleaved or directly to geodetic? End of life considerations.
- **Future of OSTST and meetings:** How to advance coastal, hydrology, cryosphere, and ocean altimetry
 - Should the OSTST try a joint meeting with other teams (Argo, SWOT, etc.)? If so, what other groups?
 - Lower carbon footprint

5G Recommendations

- International agencies have provided inputs on 5G issue, raising concerns about impacts on passive microwave water vapor measurements
- Expectation is that RF spectrum contamination issue will only get worse with time

Recommendations:

- Project should coordinate 5G impact assessments through agency spectrum management offices
- Future altimetry missions should consider radiometer designs that are more adaptable/tolerant to an increasingly contaminated RF environment
- Existing missions should plan for RFI detection/filtering algorithms to developed and implemented in the ground software



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Corrections splinter agrees:

- Algorithm/calibration updates related to corrections (e.g. WPD, SSB) should be back-applied to prior missions routinely