

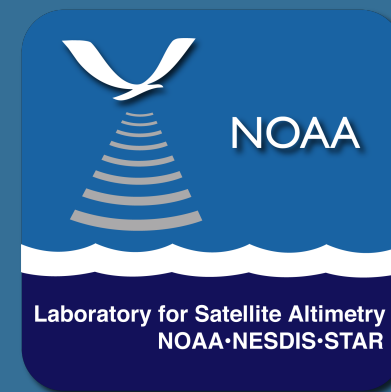
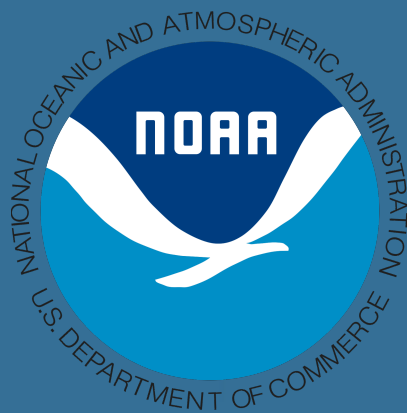
Experiments with FBR SAR data over the oceans, including an investigation of aliasing

Walter H. F. Smith and Remko Scharroo

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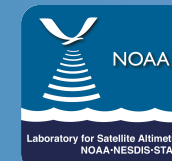
and

Altimetrics LLC



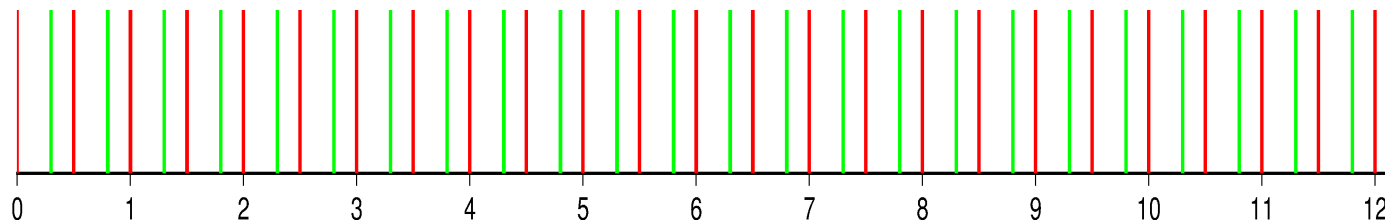


Outline

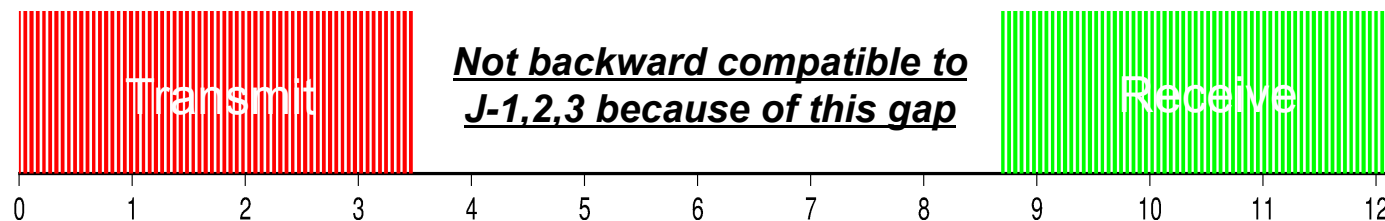


- A plea to the Jason-CS document writers
 - Explain Interleaved Mode with Tx/Rx Chronograms
- Aperture Synthesis requires *coherency*
 - Point targets versus rough surfaces
 - Coherent versus incoherent processing
- Weighted multi-looking
 - Impulse response spread
- Aliased waveforms over nearly flat surfaces
 - Zero-padding I,Q samples
 - Possible relation to sigma0 “blooms”

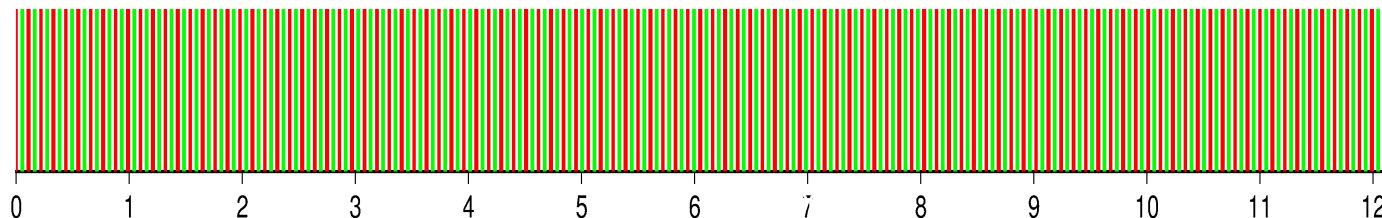
Jason-1,2,3 – Continuous Sampling but Low Resolution (no SAR)

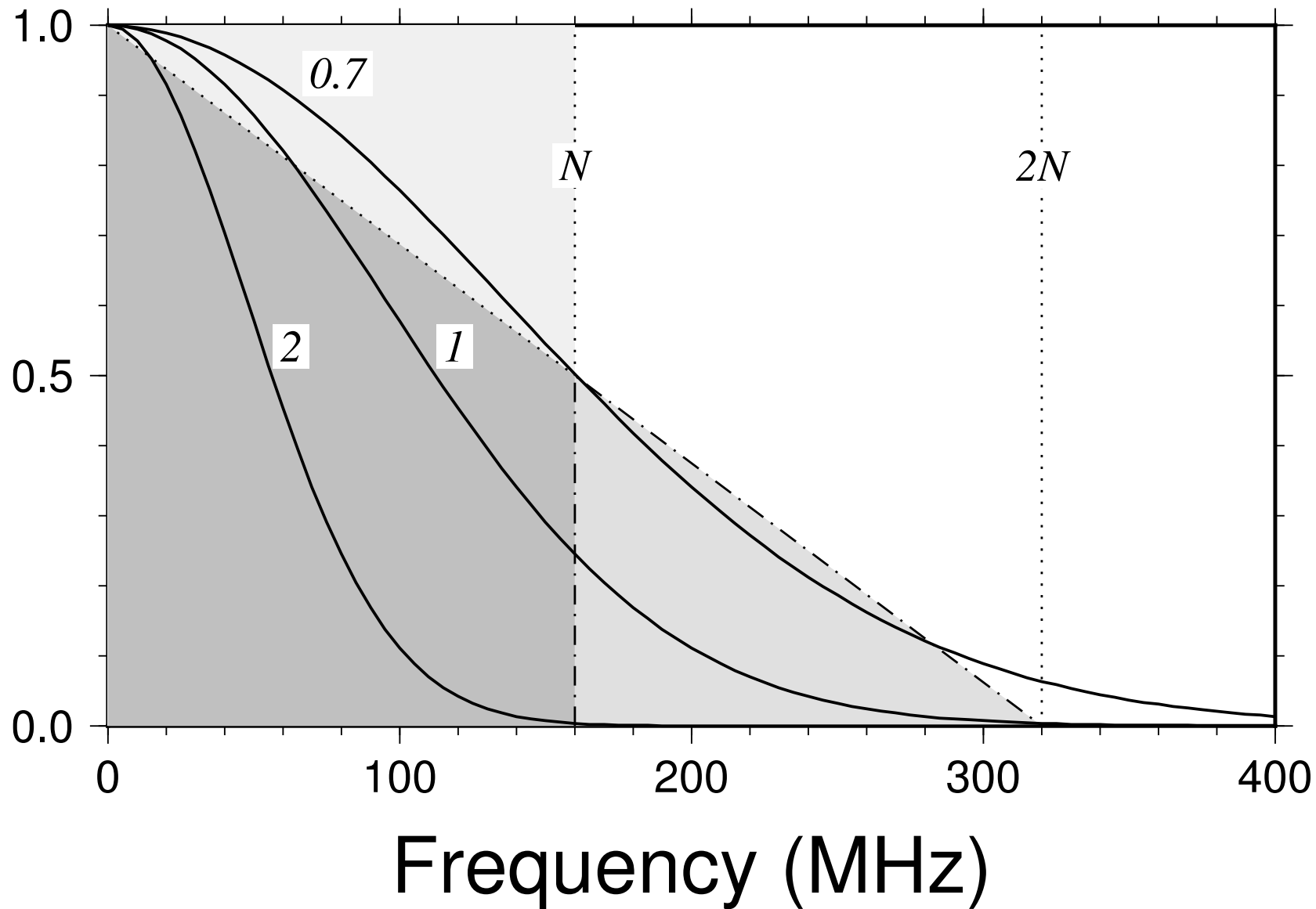


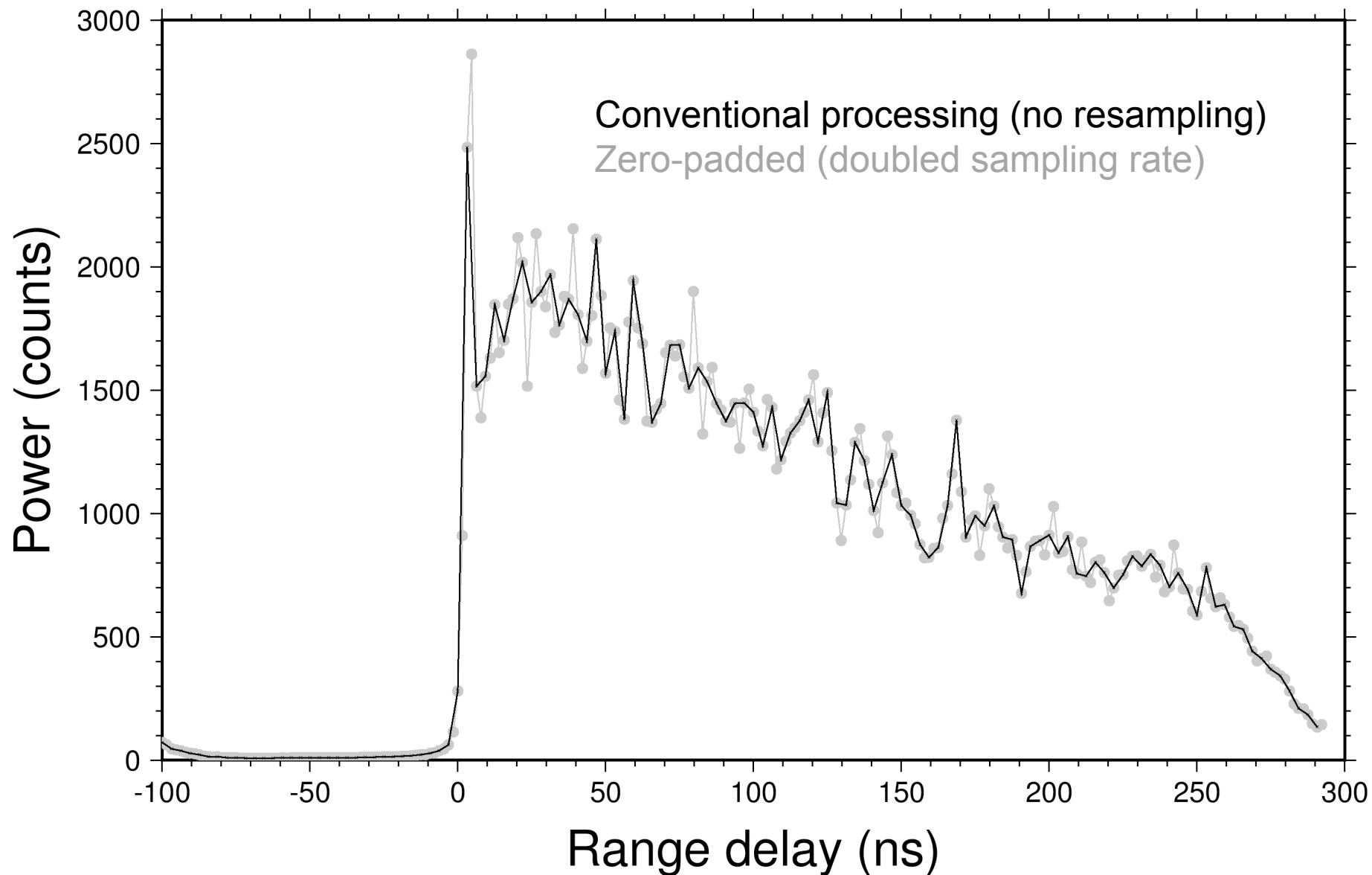
Jason-CS w/Sentinel-3a Heritage SAR– enables High Resolution but samples only about 25% of the available time

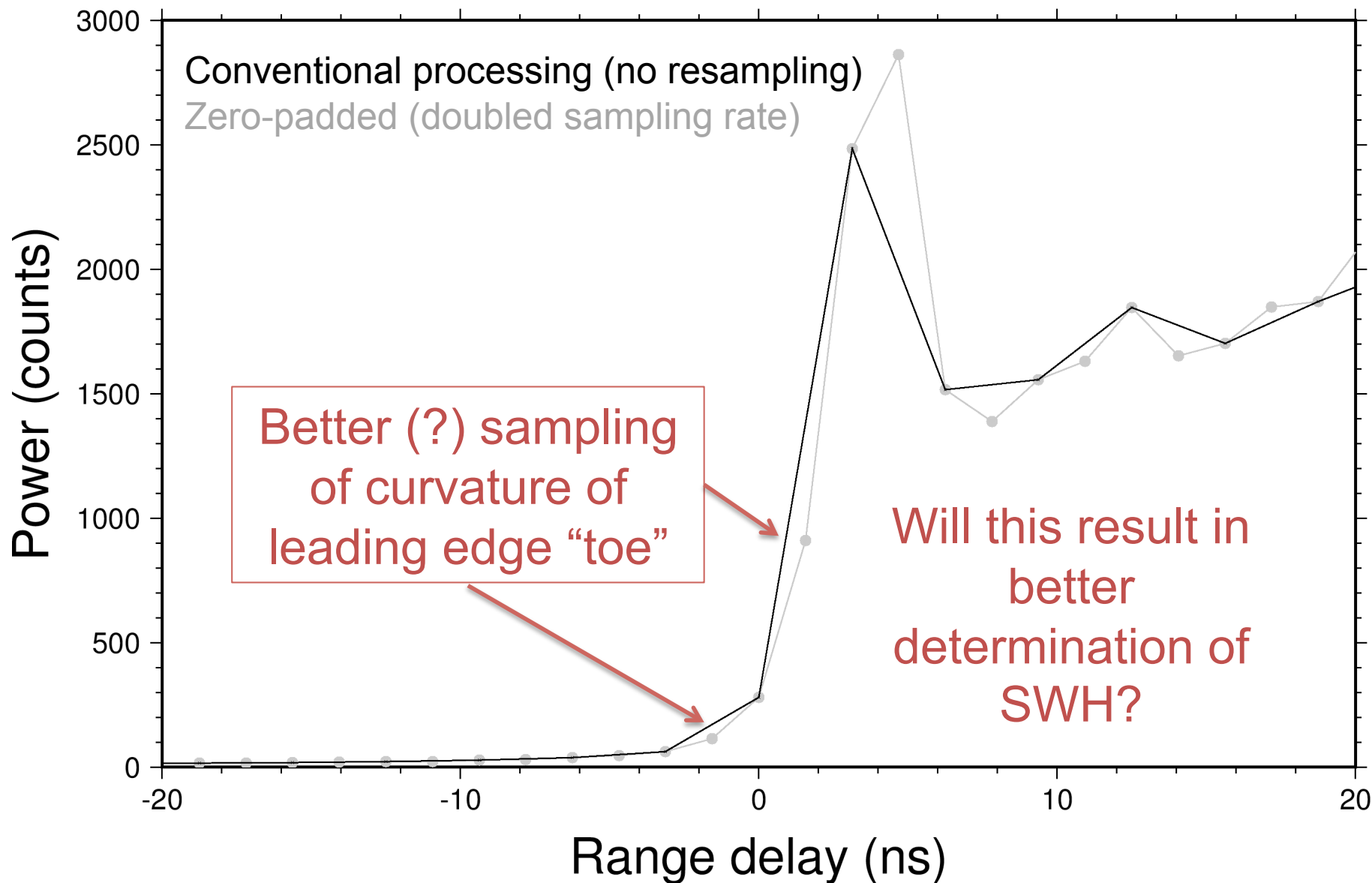


J-CS SAR Interleaved – Continuous High Resolution allows 100% SAR and 100% backward compatibility to J-1,2,3



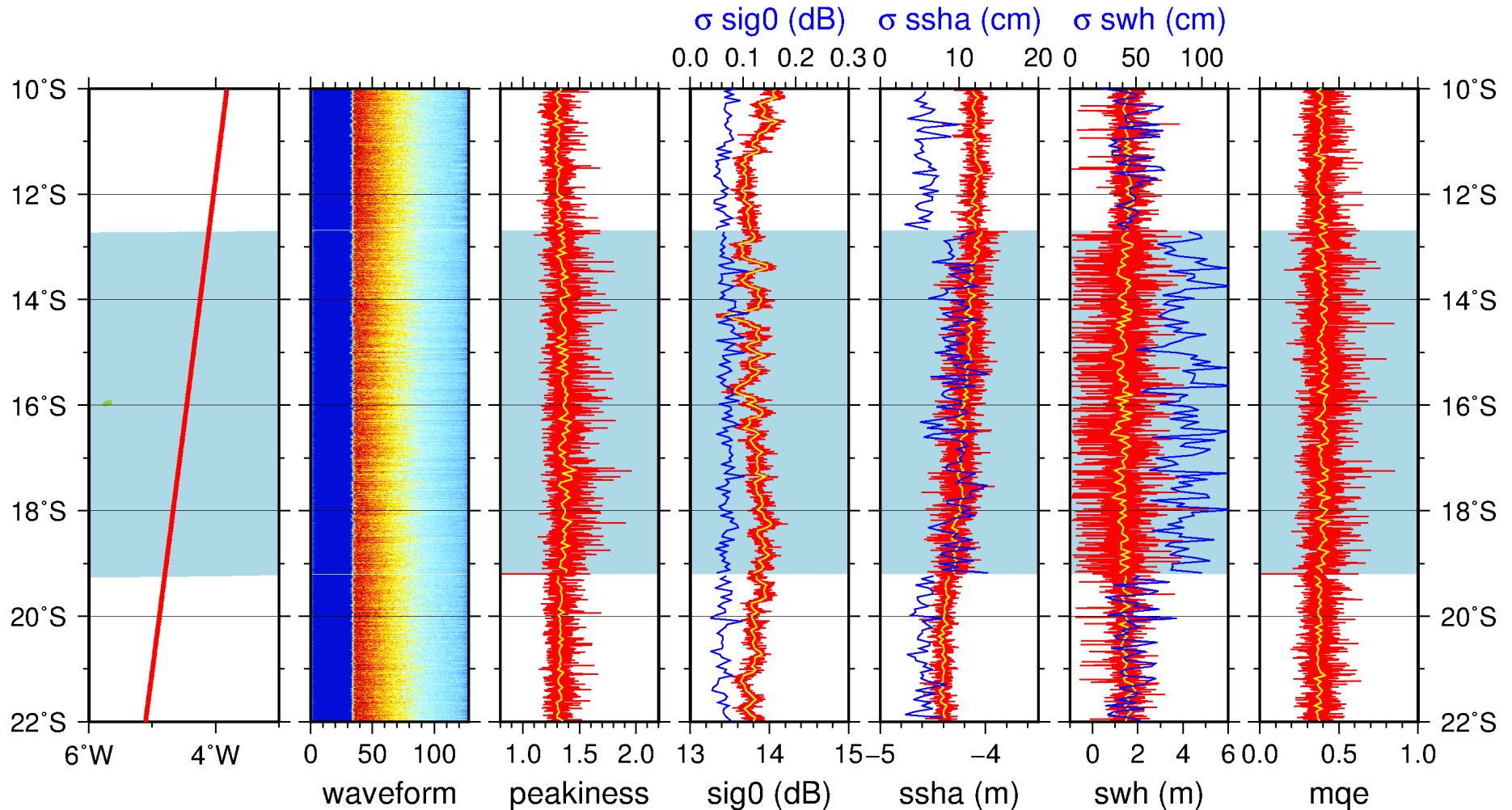






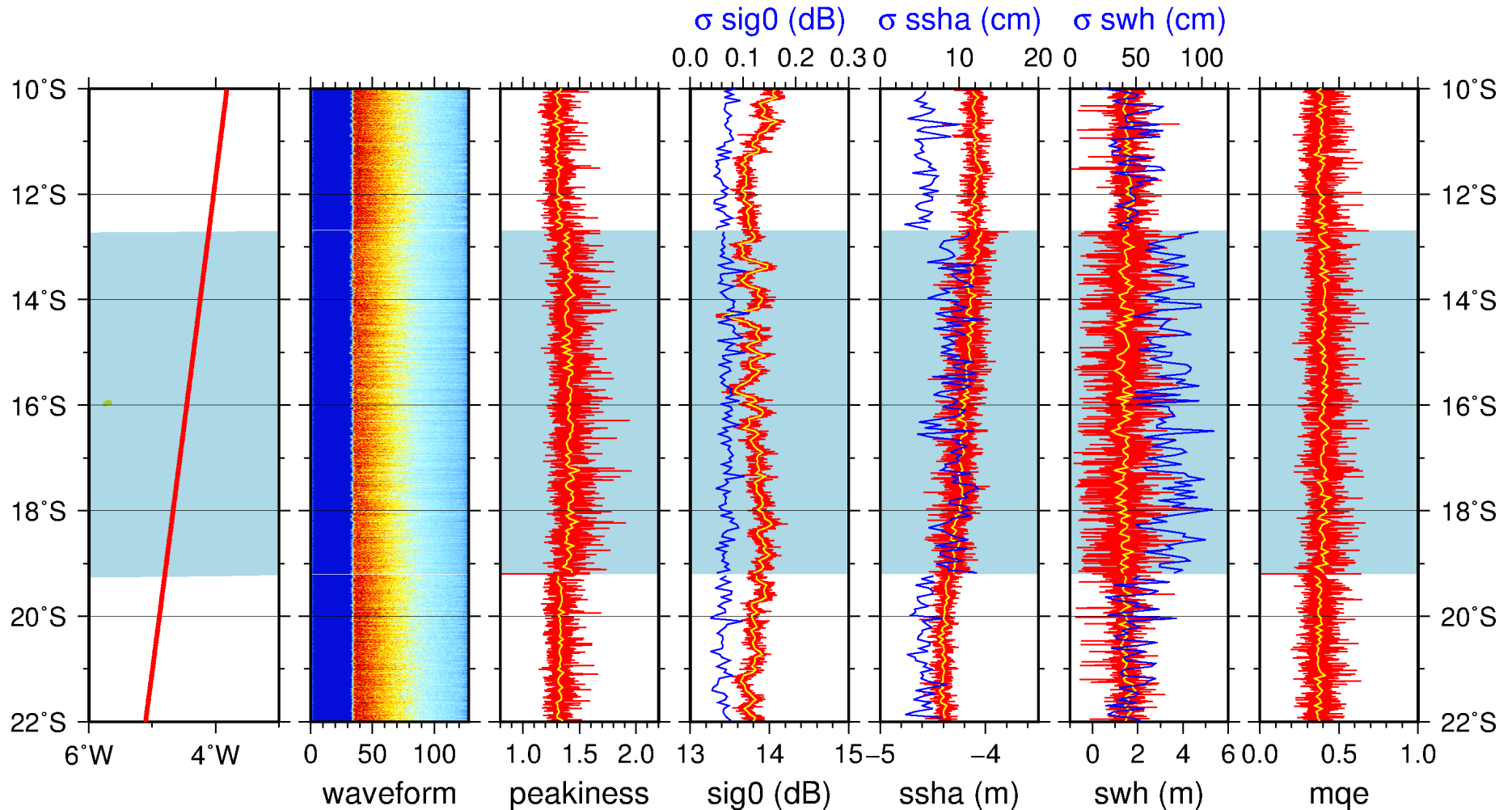


PLRM processed conventionally





PLRM with resampling





Conclusions



Jason-CS writers: please give your audience a non-technical and intuitively grasped illustration of why they **need** the interleaved mode. (They may think it is a luxury add-on.)

I remain interested/concerned about trade-offs between coherent/incoherent processing and between narrower/wider multi-looking. **We need S-3 and J-CS to provide FBR-like and multilooked stack data products.**

CS2 Baseline B for SAR was implemented because it was better for sea ice (specular echoes). We have shown you today that zero-padding (like Baseline B) is also good for conventional LRM altimeters when the surface roughness (SWH) is small. That is, **conventional waveforms are, in fact, aliased over fairly flat surfaces.**