Manifestations of oceanic mesoscale, submesoscale, and internal-wave variability in SWOT data

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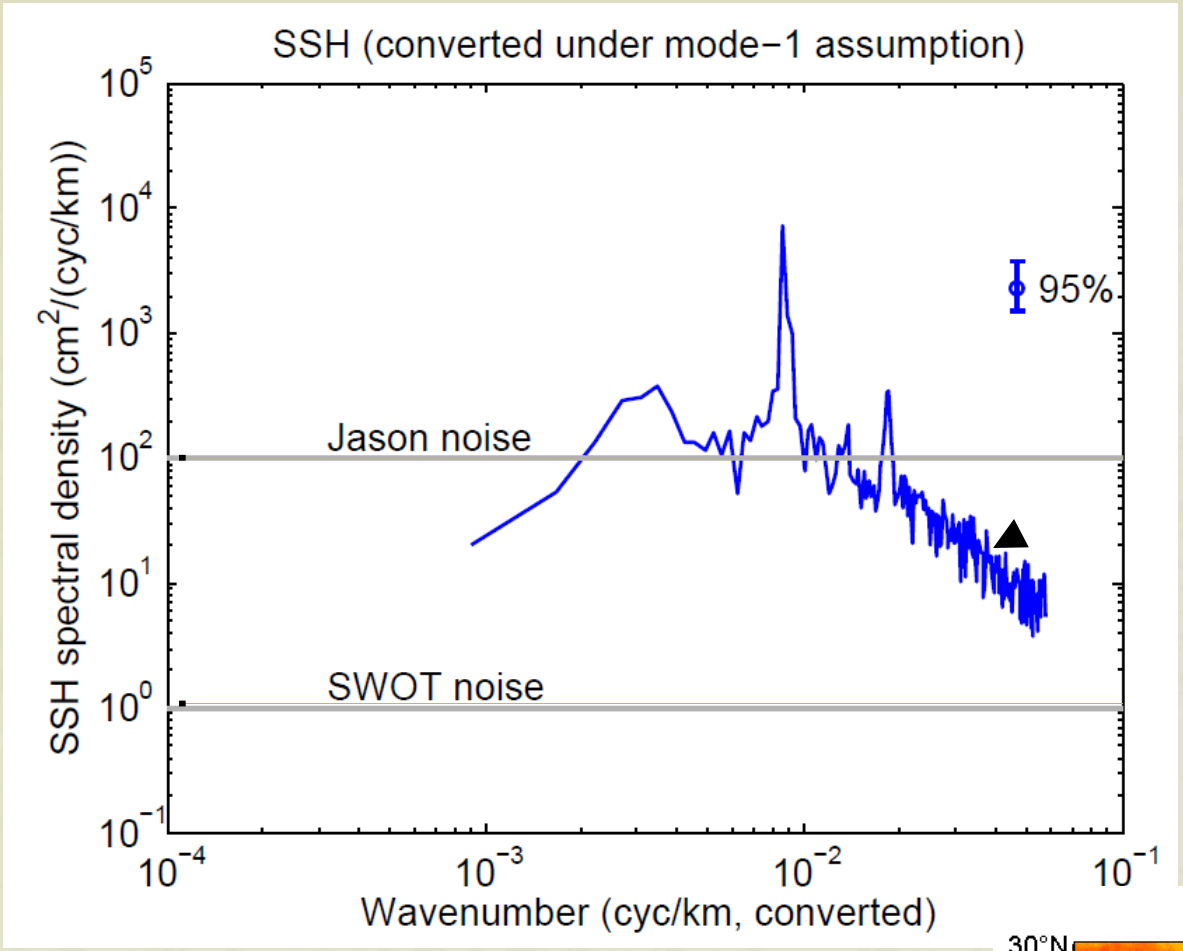
We proposed investigation of:

1) How different sampling schemes (or orbit configurations) will affect our ability to extract useful and reliable information about oceanic dynamics at wavelength scales from 10 km to basin scales.

2) How SWOT data can be interpreted. This includes consideration of how to separate the various dynamical contributions to SSH variability that occur on wavelength scales of 10-300 km. Oceanic internal waves at periods of hours can have an SSH signal at 10-100 km wavelengths that is above the SWOT noise floor.

3) Ways of exploiting SWOT's unprecedented spatial resolution to improve understanding of oceanic mesoscale dynamics, which is presently limited to wavelength scales longer than ~200 km in the AVISO merged dataset (corresponding to an eddy radius of about 40 km).

4) The conditions under which SWOT data can be used together with assumptions about the dynamical balance and other data (e.g., SST) to make inferences about the flow field associated with submesoscale variability



An estimate of the internal-wave signal in SSH (periods <1 day)

→We expect oceanic internal waves to be above the noise floor of SWOT