A. The SWOT BT tide models at launch - all good?

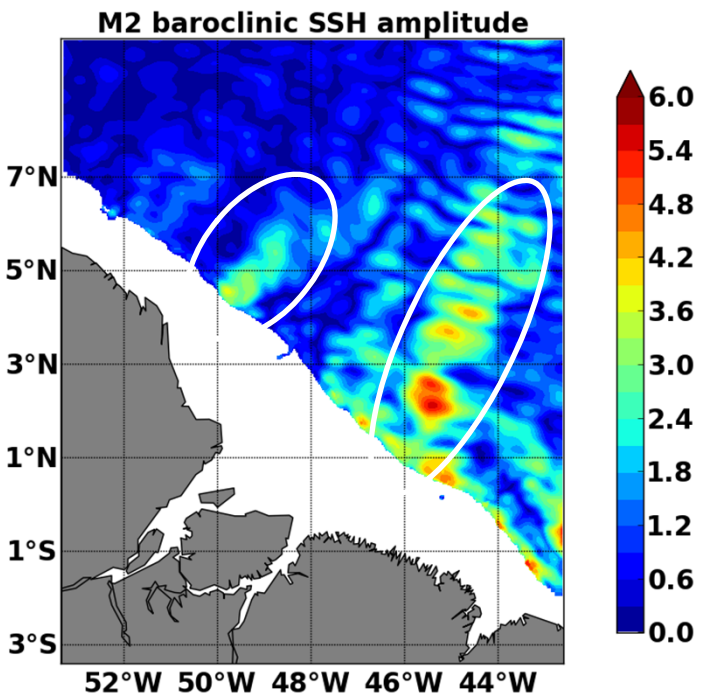
B. The coherent/incoherent internal tides

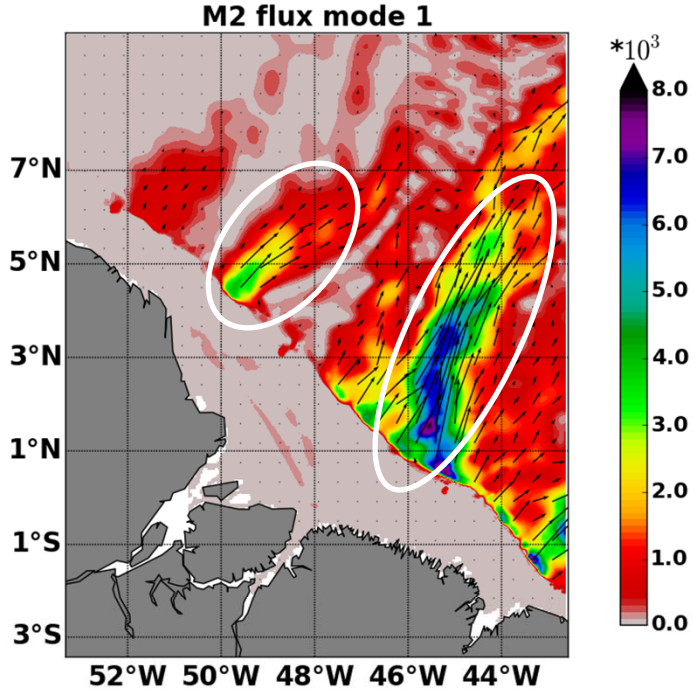
    1. If we have a coherent correction internal tide correction available at launch, which constituents/modes?
    2. Other techniques for separating the incoherent part?
    3. At what stage do the incoherent tides become turbulent dynamics?
    4. Do data assimilators want a SSH corrected for the tides, or if their models include tides, do they take the whole SSH signal now?

C. Is the old way of calculating a DAC suitable for the scales of SWOT (< 21 days), or do we need something new (combined tide & DAC from one model?)

Why do internal tides look like that?

Amazon shelf, NEMO simulations, 1°/36

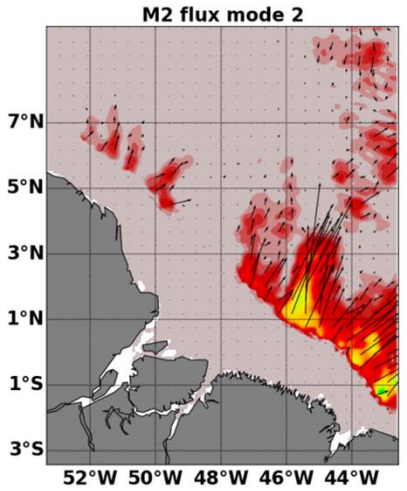


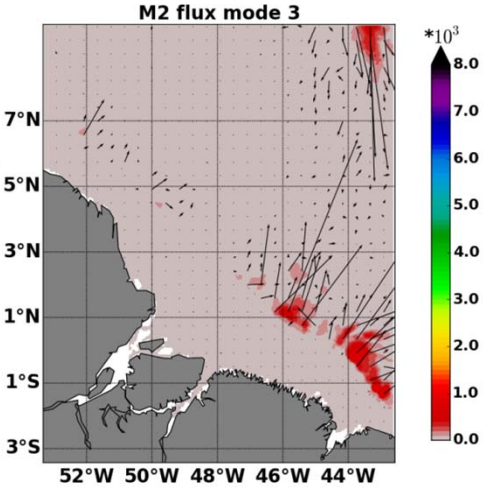


in harmonic world

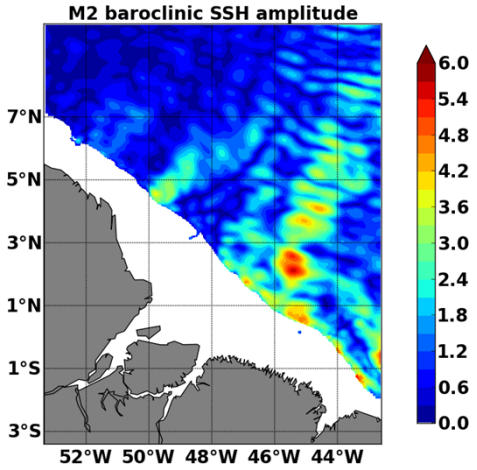
Significant energy flux found where significant amplitude found…

Or reverse?

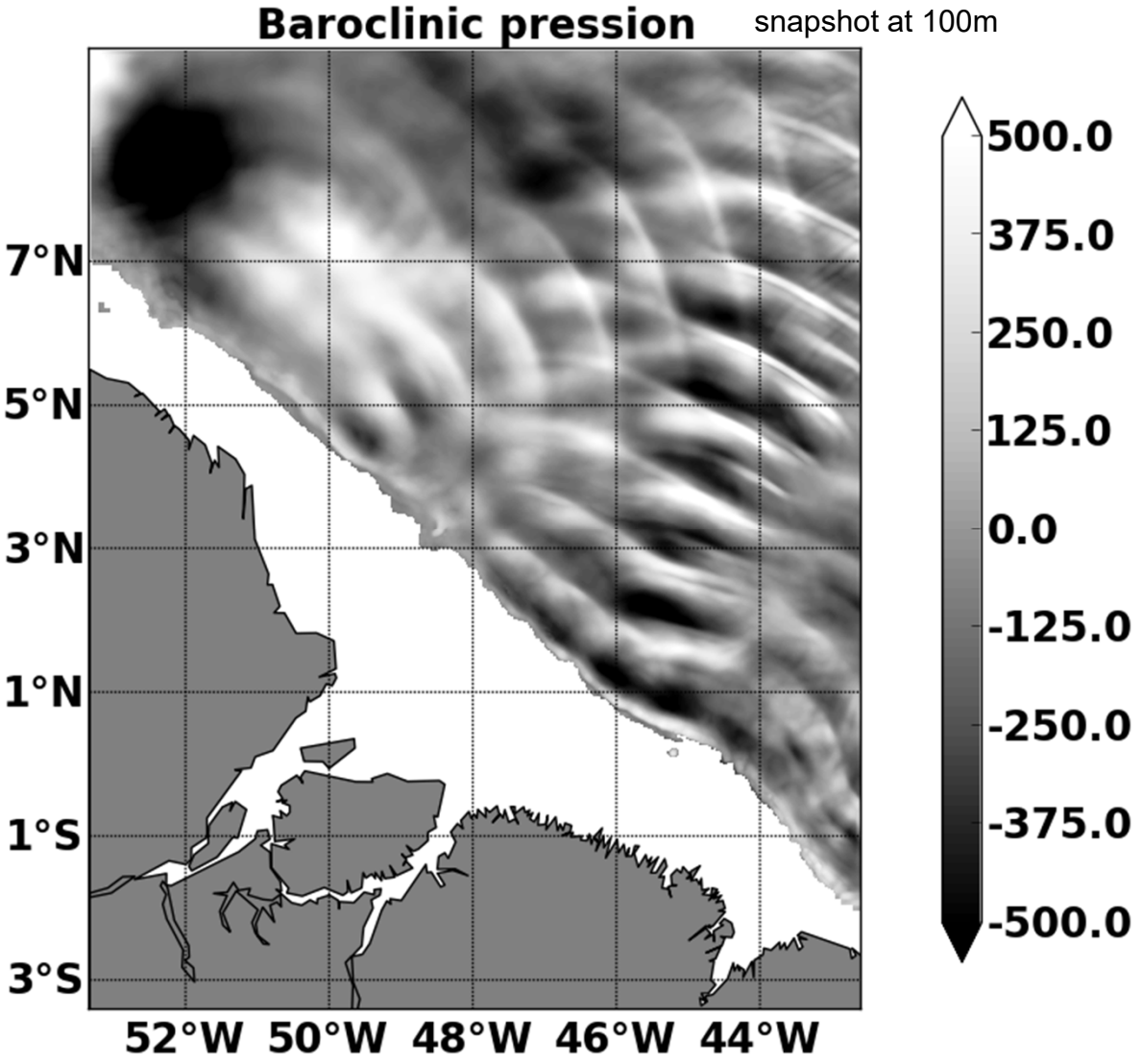




Why do internal tides look like that?



Amazon shelf, NEMO simulations, 1°/36



in real world

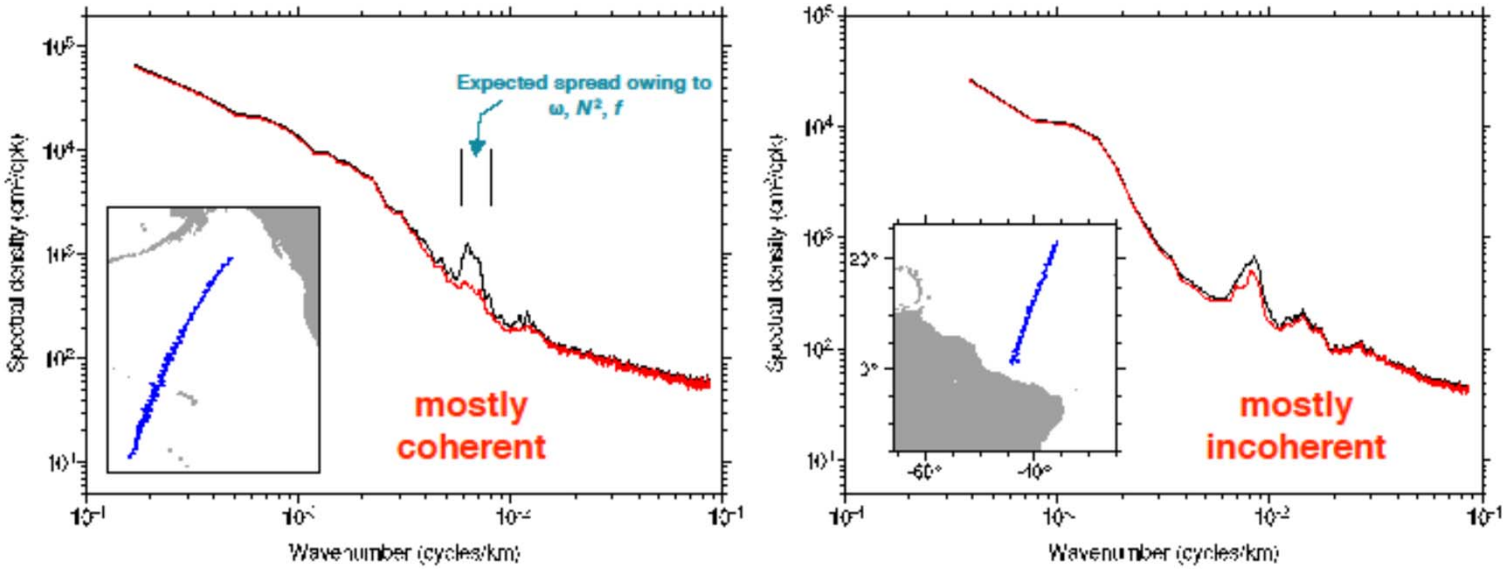
Internal tides of significant energy can be found nearly everywhere but

Internal tides need to be fed by energy fluxes to keep coherent…

If not the case, will be quickly distorded, diffused, damped… hence not captured by harmonic analysis

Wavenumber Spectrum of Altimetric Sea-Surface Heights

Spectral peaks in SSH from internal tides
(mostly semidiurnal mode-1)



Black curves: spectra using barotropic tide model
Red curves: spectra after removing estimated along-track tides (coherent over 17 y)

Is the ocean mostly like left panel, or right panel? Why?

Ray & Zaron, *GRL*, 2011.

If correct:

- Harmonic methods usable for large/coherent internal patches
- Need for (filtered) OGCM ssh outputs elsewhere

Filtering: vertical mode filtering on snapshots, + frequency band filtering ?

Validation: variance reduction in along-track products

Sea Level Spectrum at Canton Island