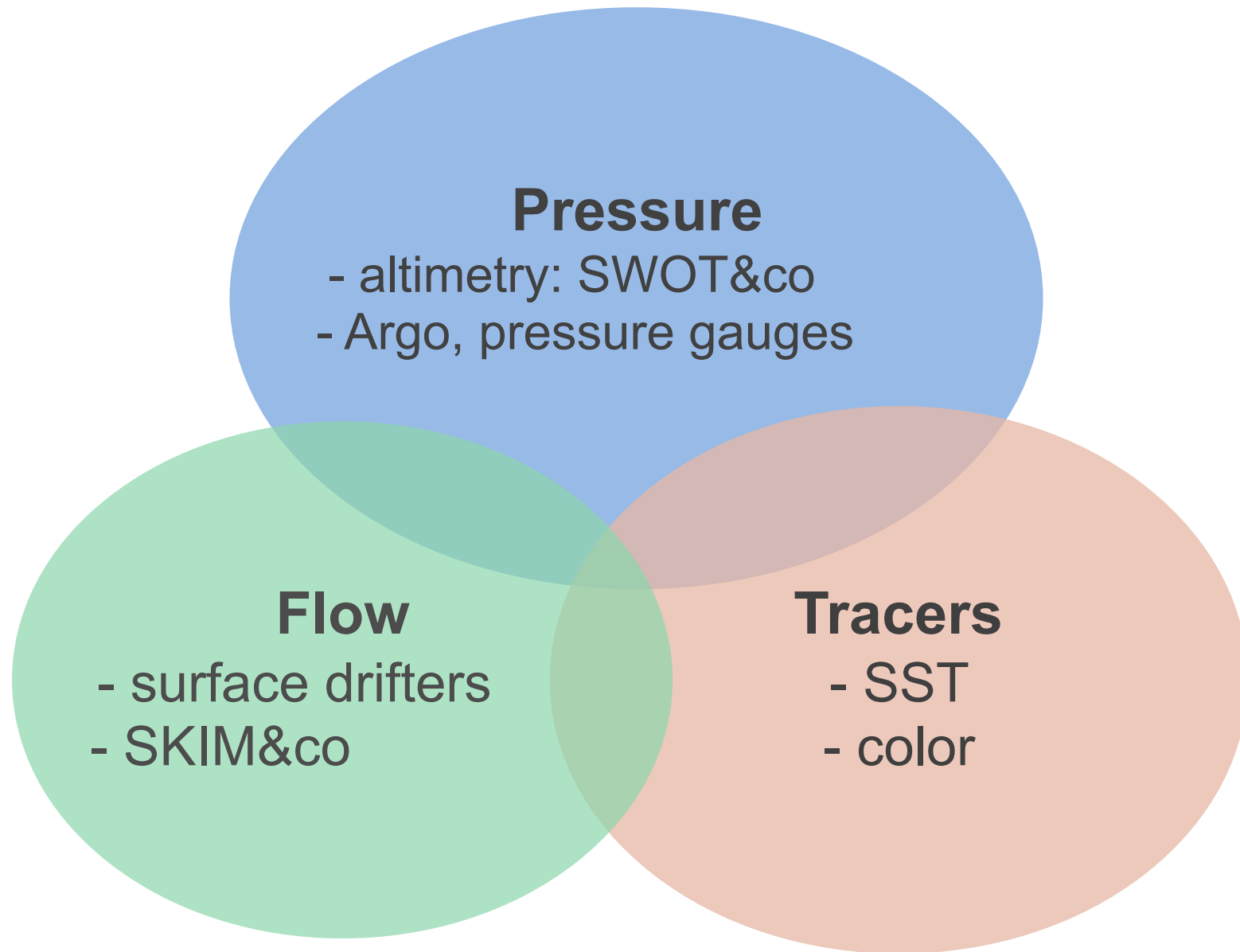


distinguishing internal waves and balanced motions for SWOT: on the relevance of SST

Aurélien Ponte, Cristina Gonzalez-Haro, Xiaolong Yu, Emmanuelle Autret
LOPS (Laboratory for Spatial and Physical Oceanography) - Ifremer

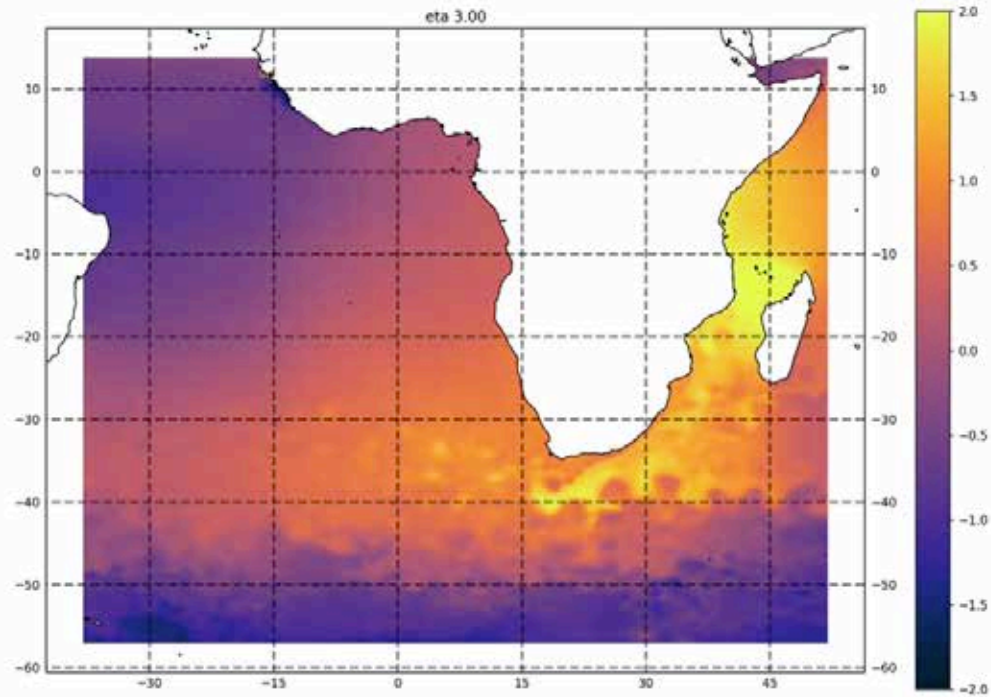


Improving ocean observability at meso- and submesoscale:
data synergies through the interplay between ...

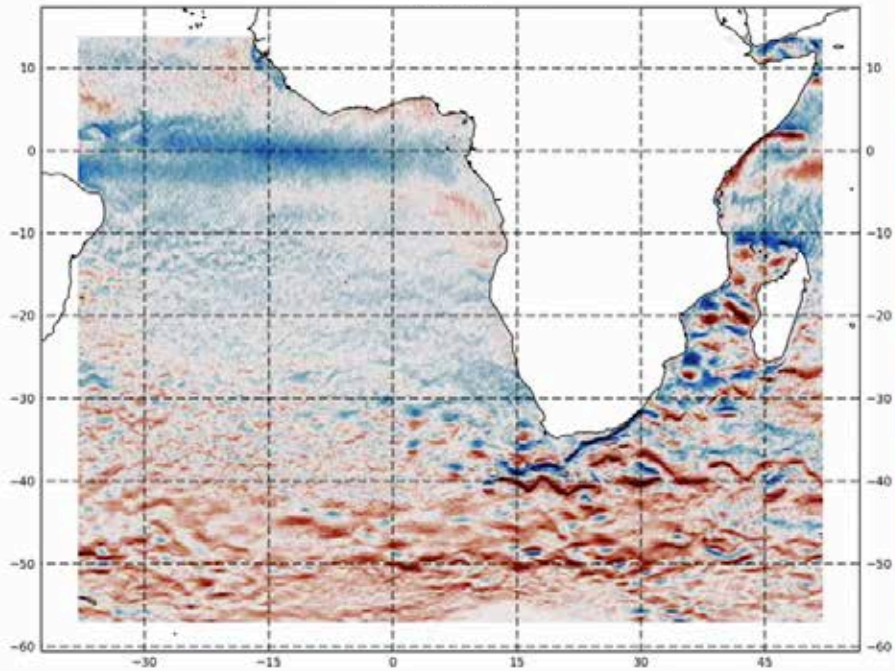


fast/slow motions have different imprints: a lever for disentanglement

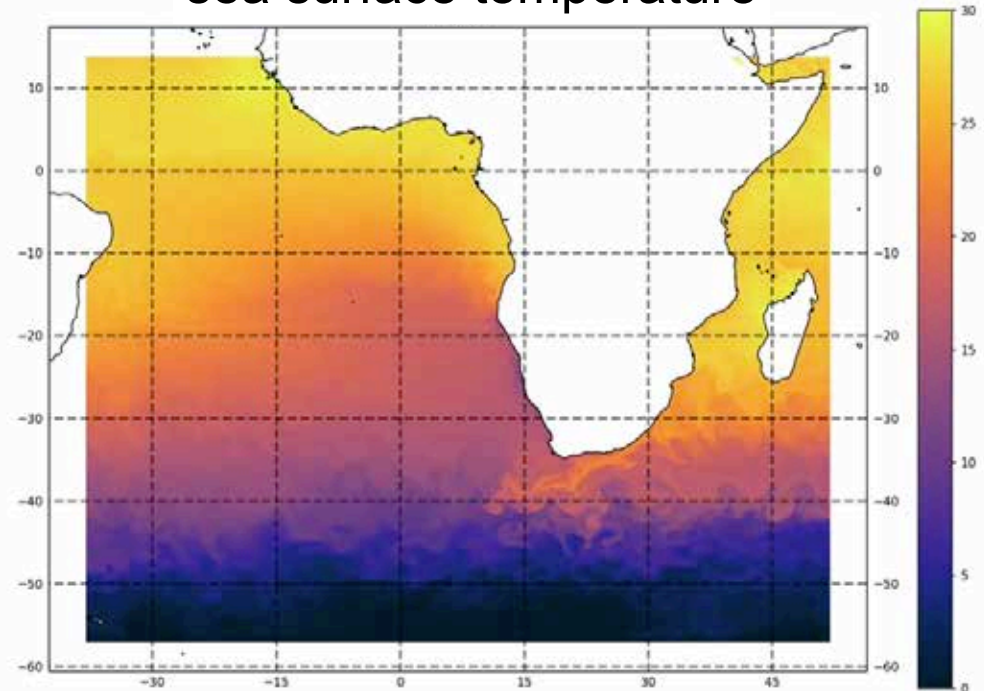
sea level



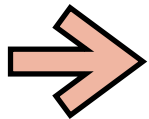
u



sea surface temperature



Internal waves and SST



Weakness of iwaves on SST
But how weak?

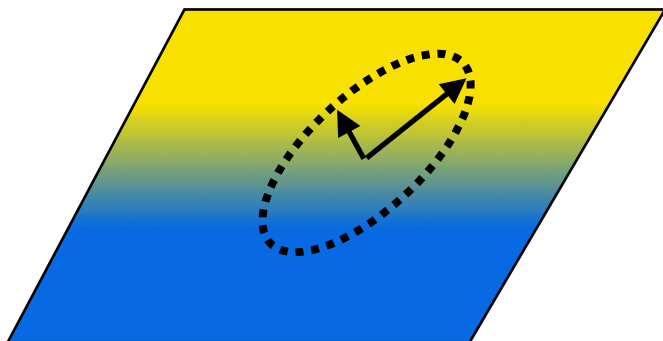
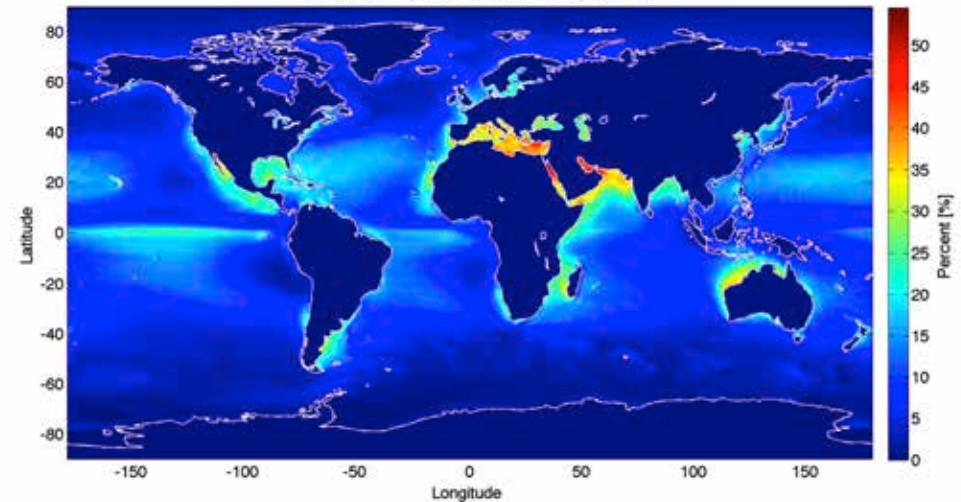
Linking SST with SSH or u/v

Cloud sensitivity (infrared)
Diurnal cycle

Cristina Gonzalez-Haro:

Quantification of the strength of SST tidal variations

Clear sky probability (1982-2011) Univ. Rhodes Island



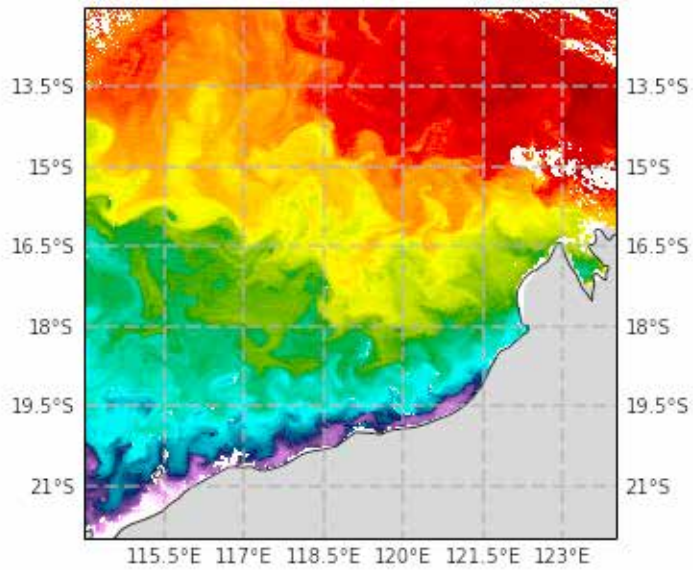
Assumption: $T_{\text{tide}} = u_{\text{tide}} \cdot \nabla SST / T_{\text{tide}}$

Atlases:
Barotropic tide: FES
Baroclinic tide: HRET

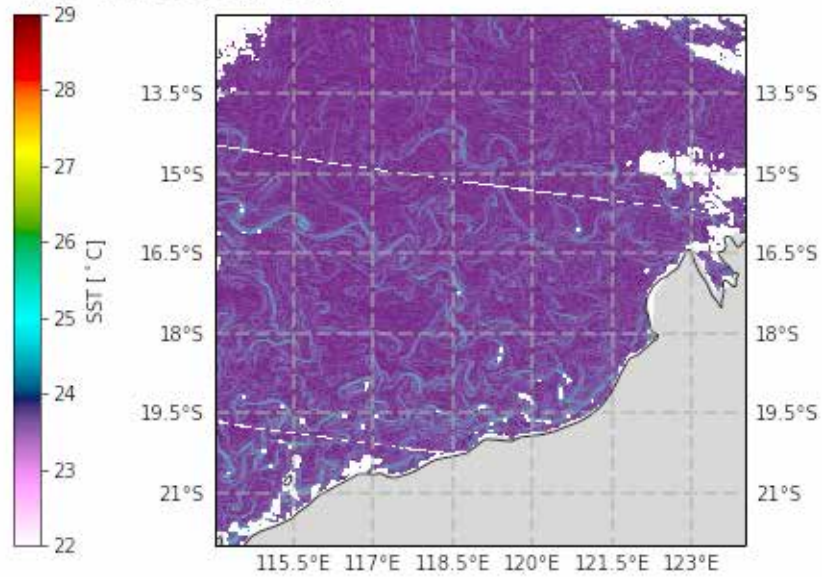
Observed SST
(infrared)

M2 baroclinic tide

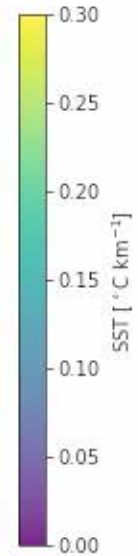
SST



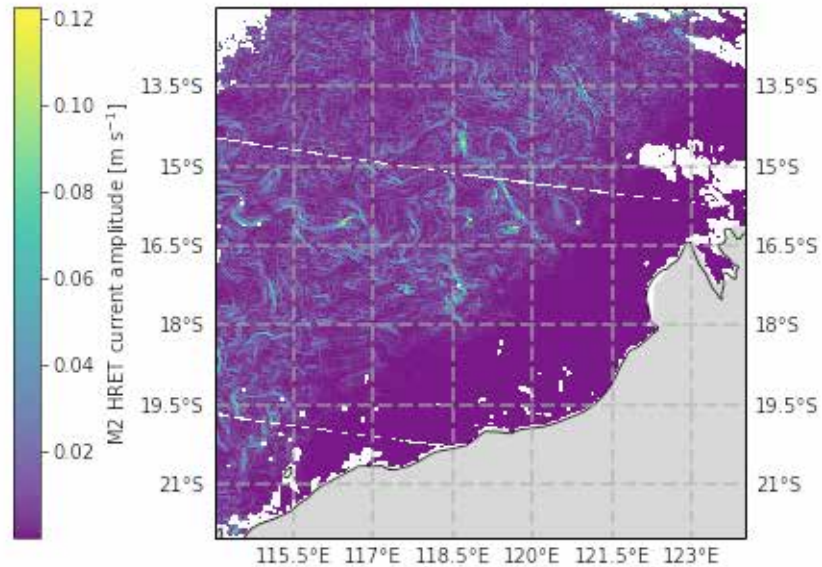
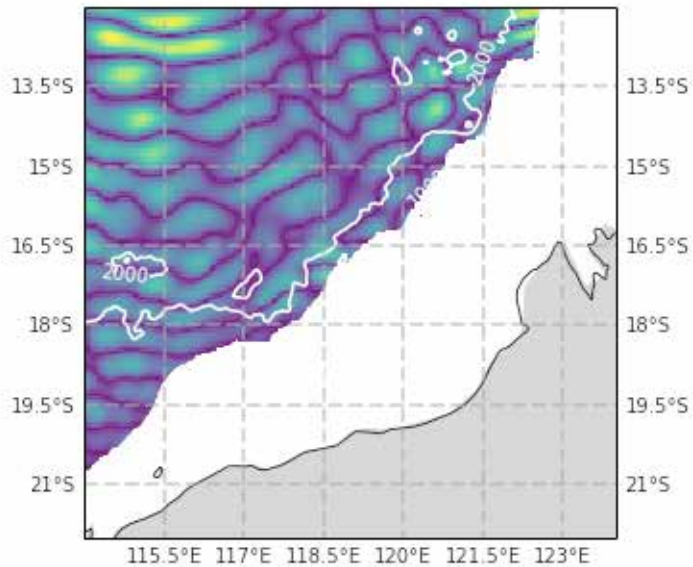
viirs 20160908174014



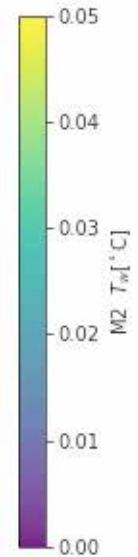
grad SST



u tide

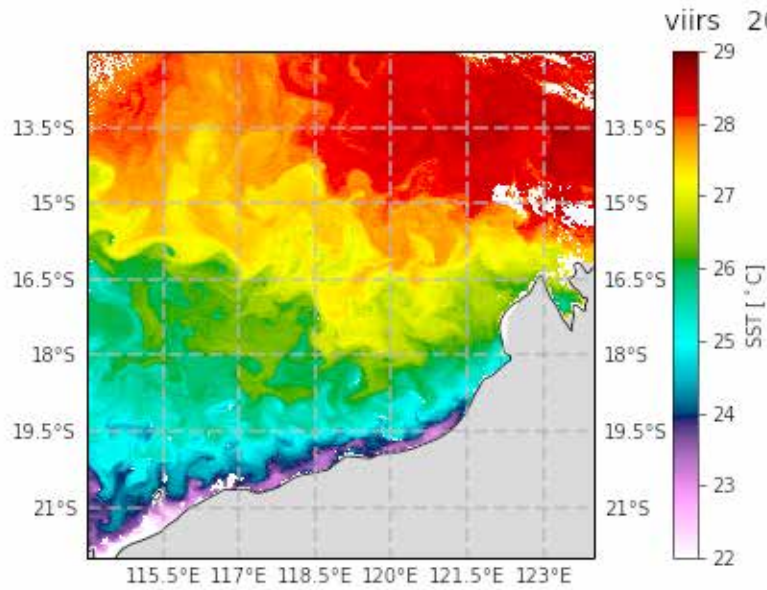


SST tide

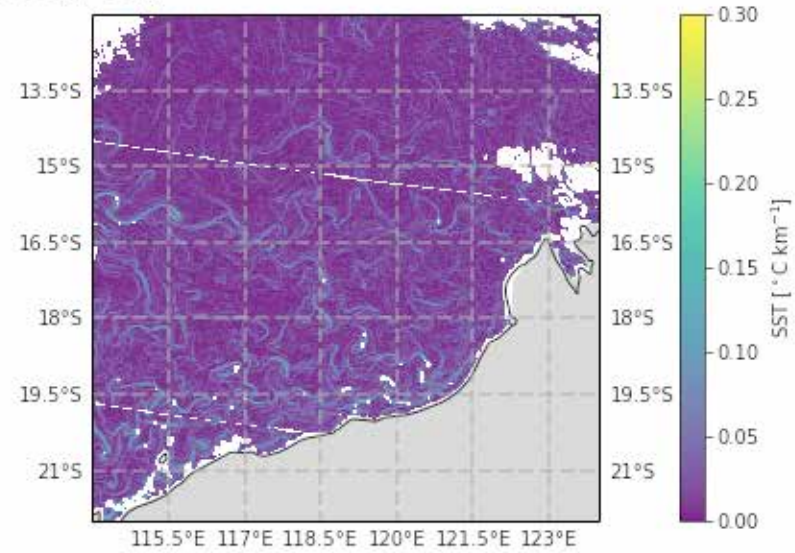


M2 barotropic tide

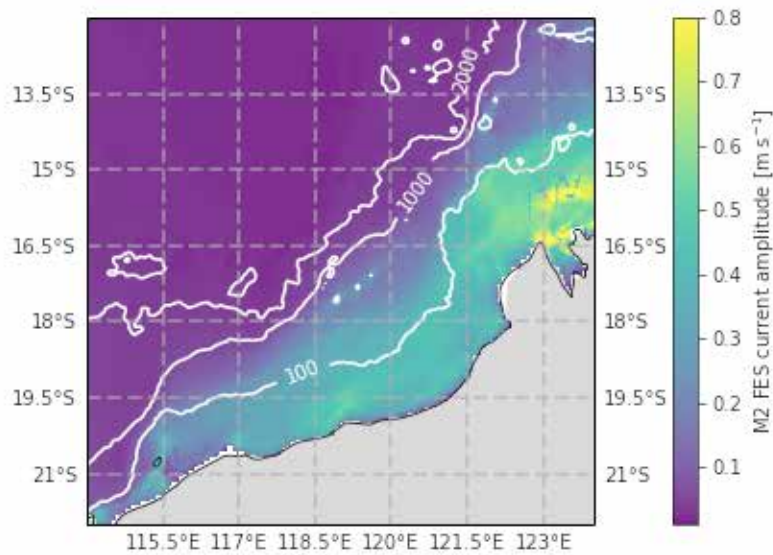
SST



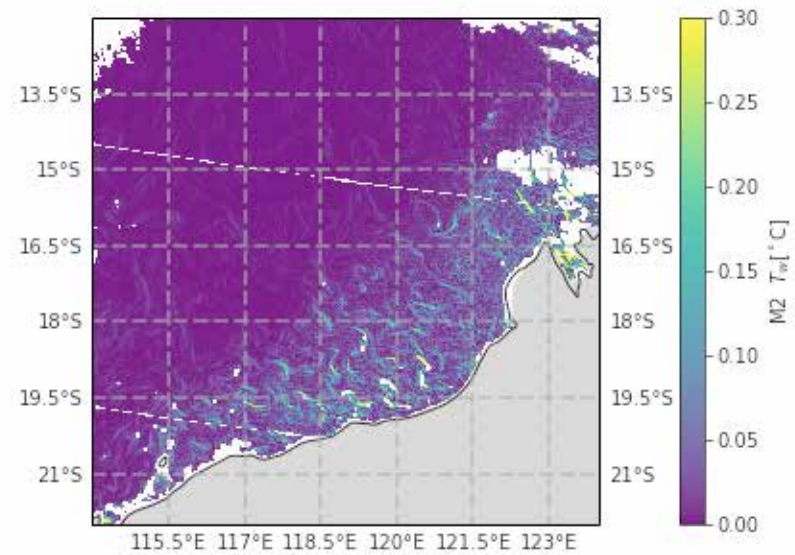
grad SST



u tide

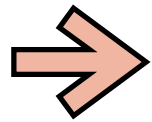


SST tide



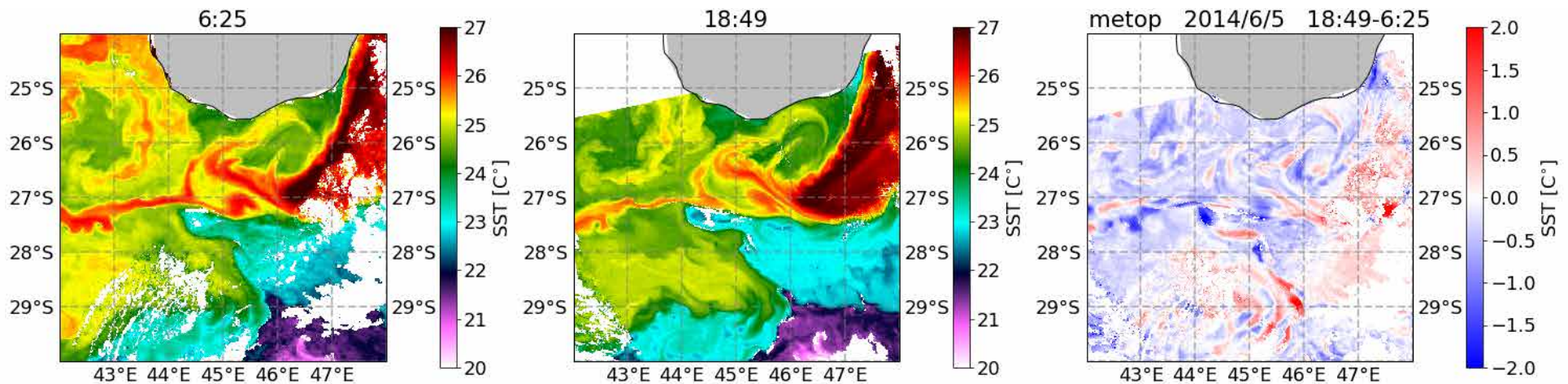
Relevance of SST

Weakness of waves on SST
But how weak?

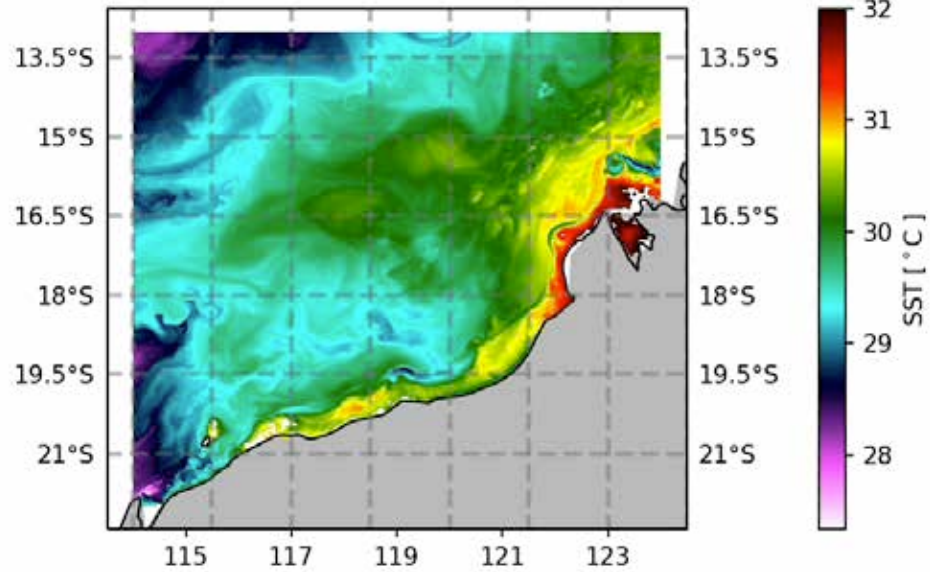


Linking SST with SSH or u/v: $dSST/dt$

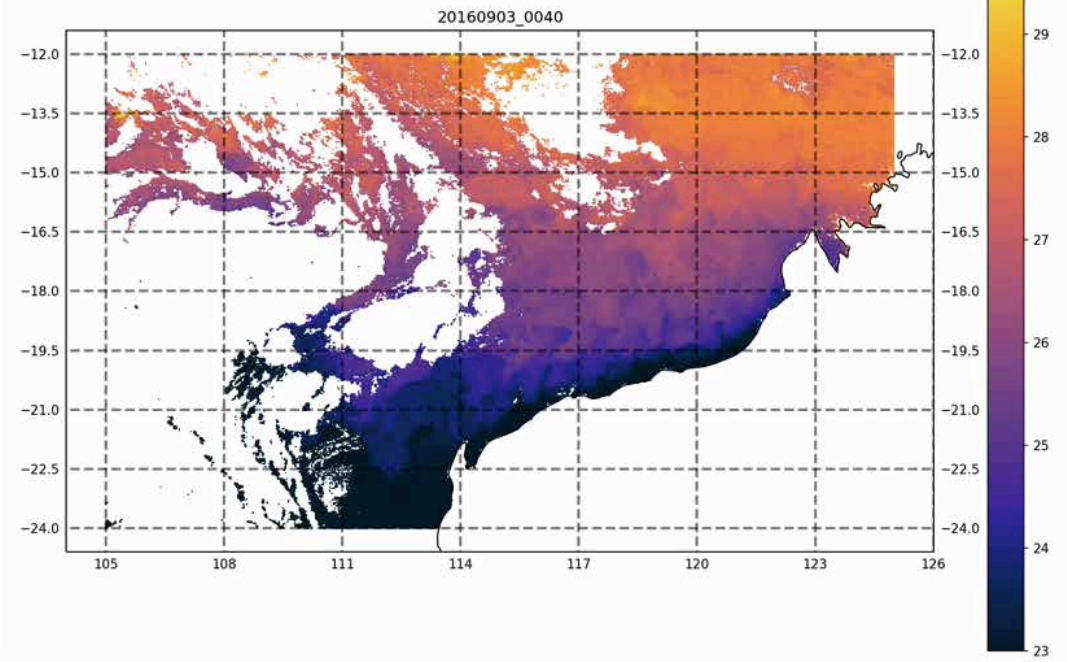
Cloud sensitivity (infrared)
Diurnal cycle



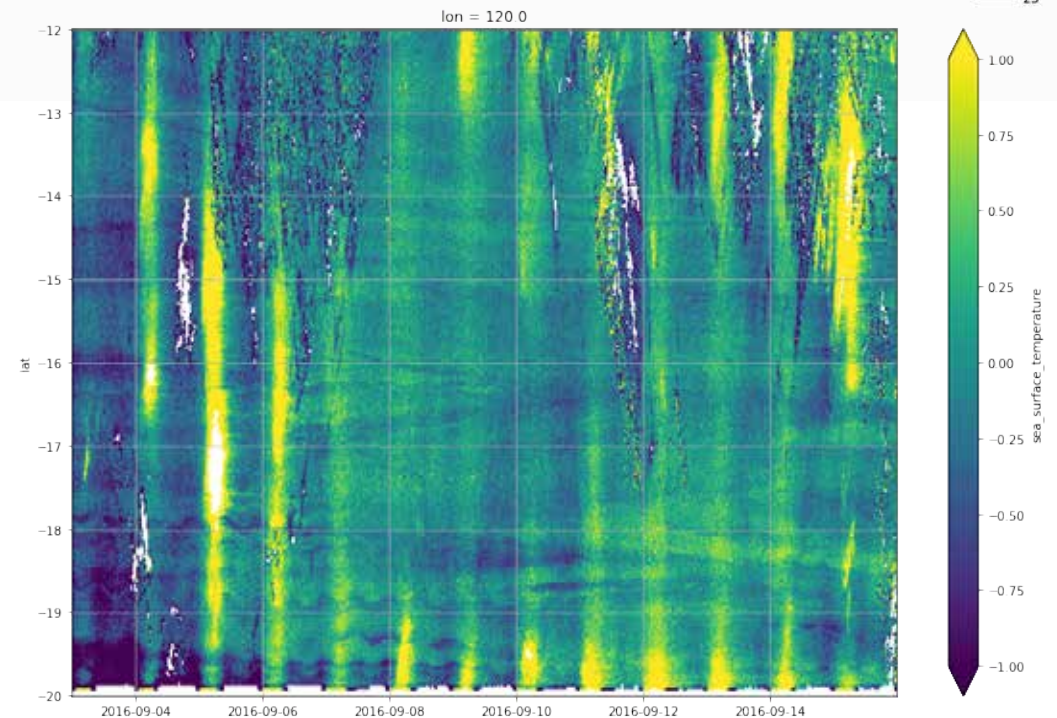
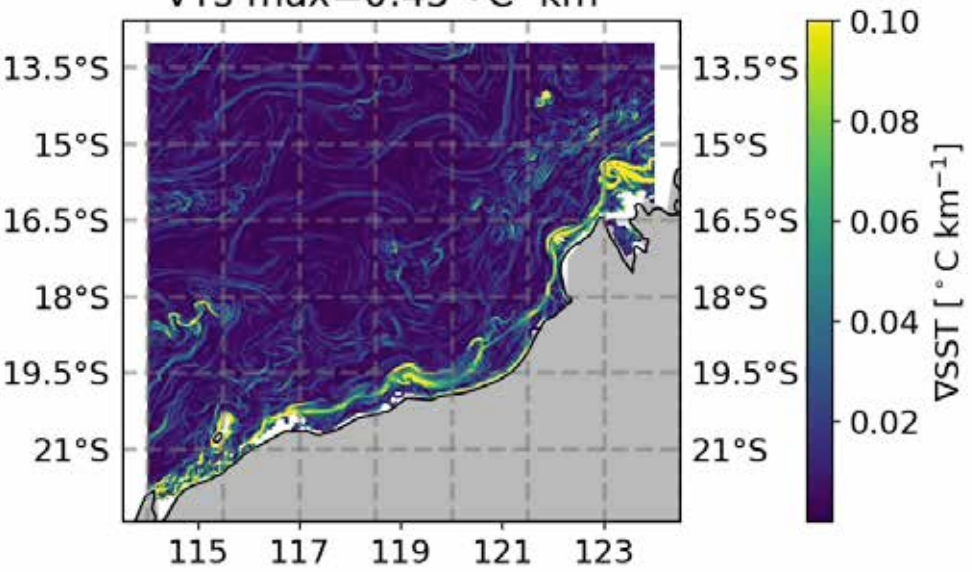
Model (llc4320)



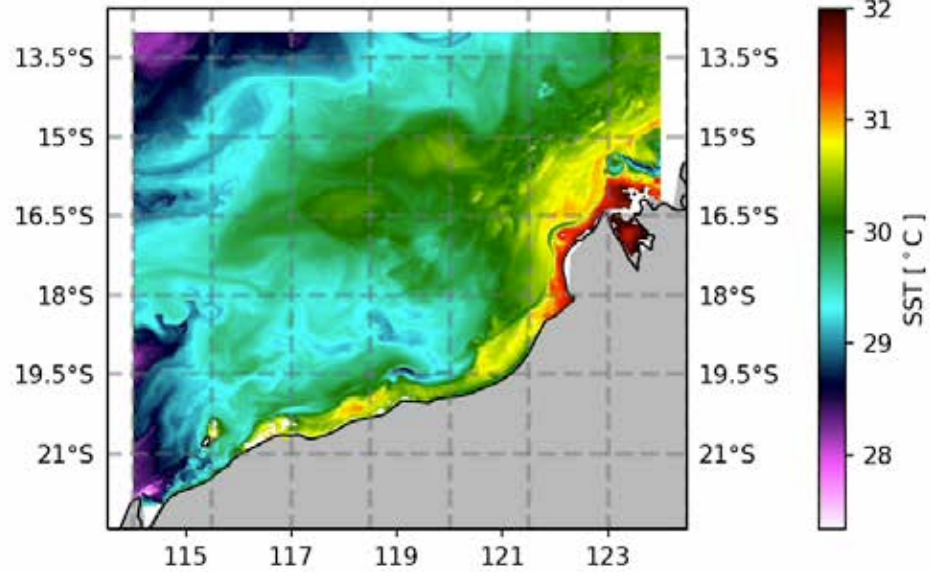
Data: geostationary infrared



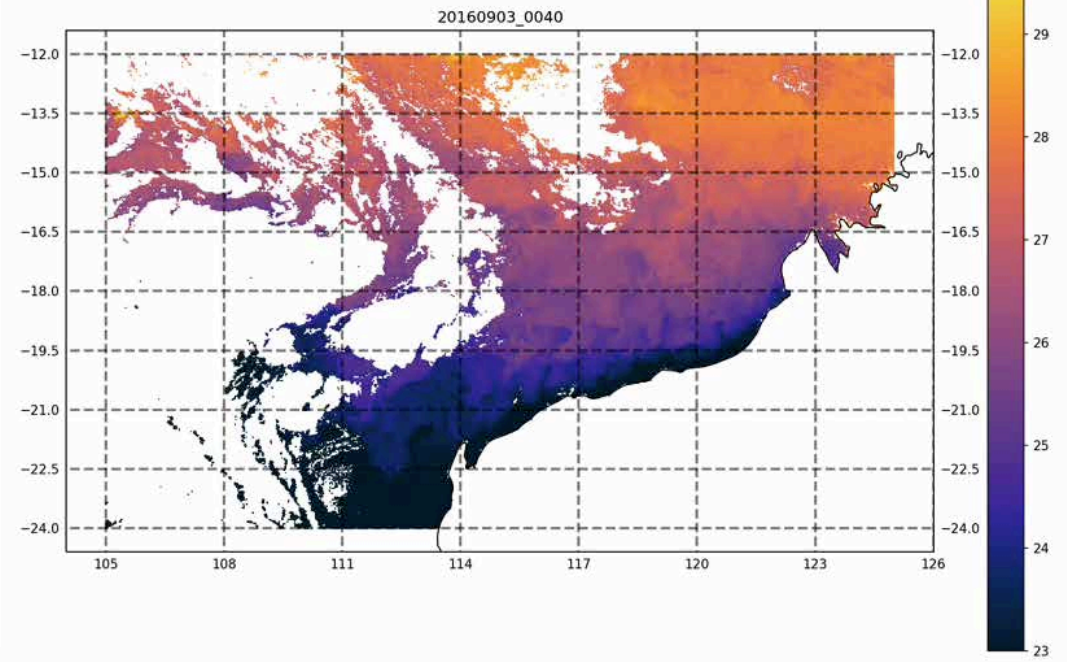
time=152.00 day
 $\nabla T_s \text{ max} = 0.45 \text{ } ^\circ\text{C km}^{-1}$



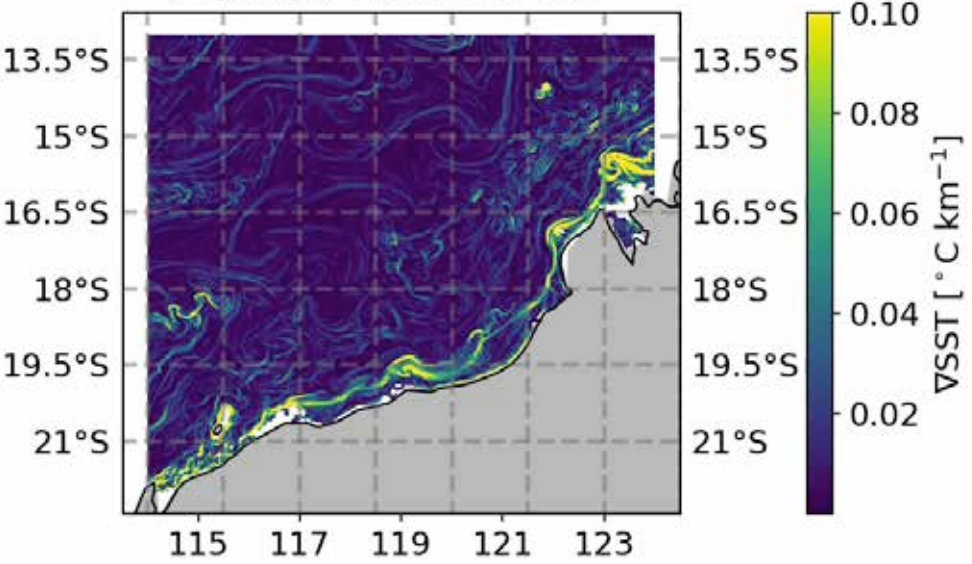
Model (llc4320)



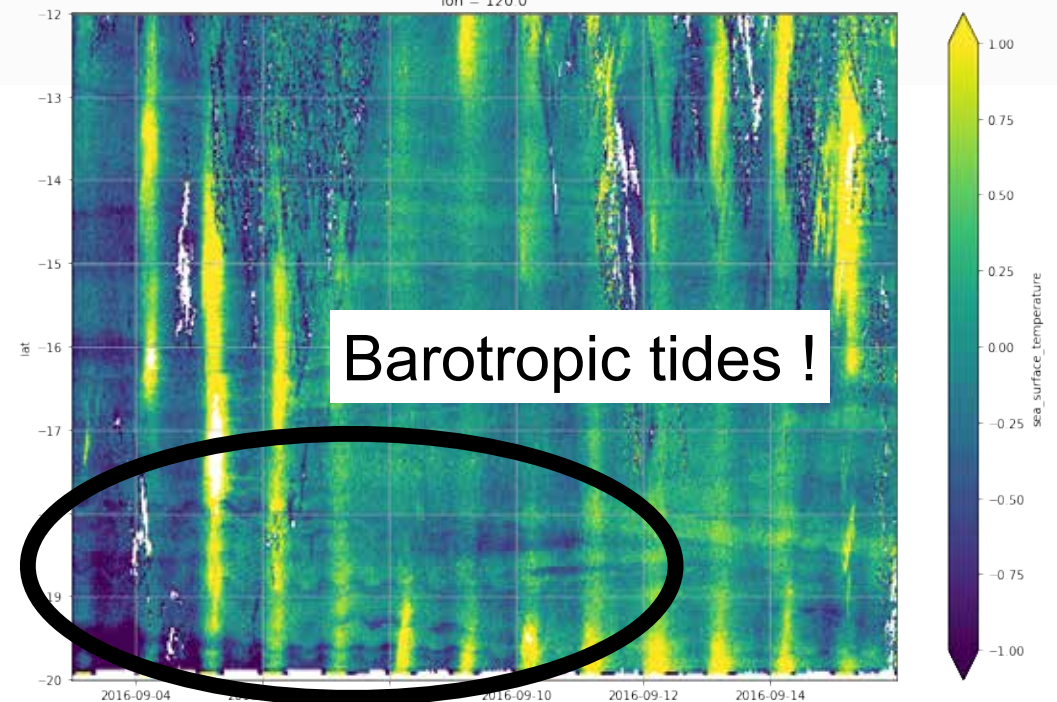
Data: geostationary infrared



time=152.00 day
 $\nabla T_s \text{ max} = 0.45 \text{ } ^\circ\text{C km}^{-1}$



lon = 120.0



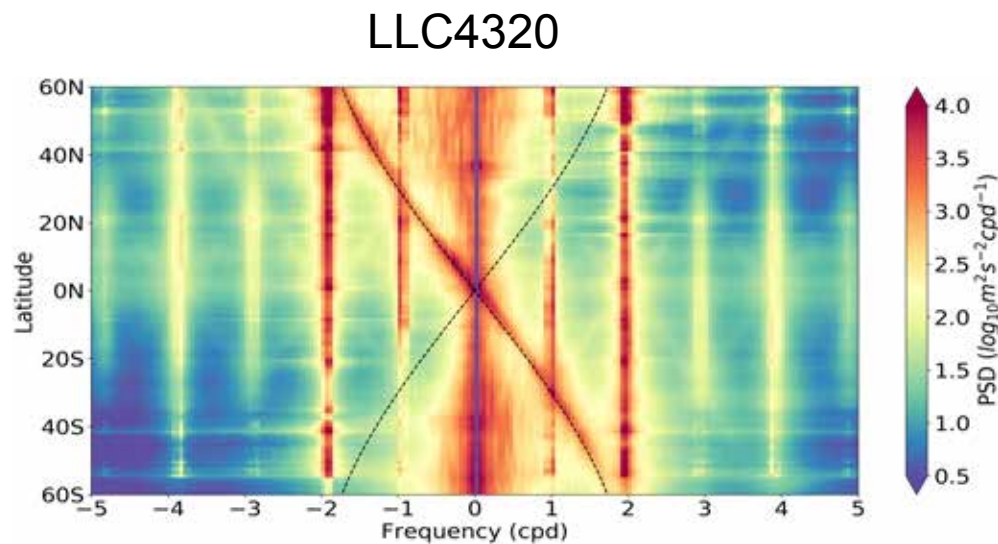
Flow, pressure & tracers

Postdoc Xiaolong Yu (started April 2018)

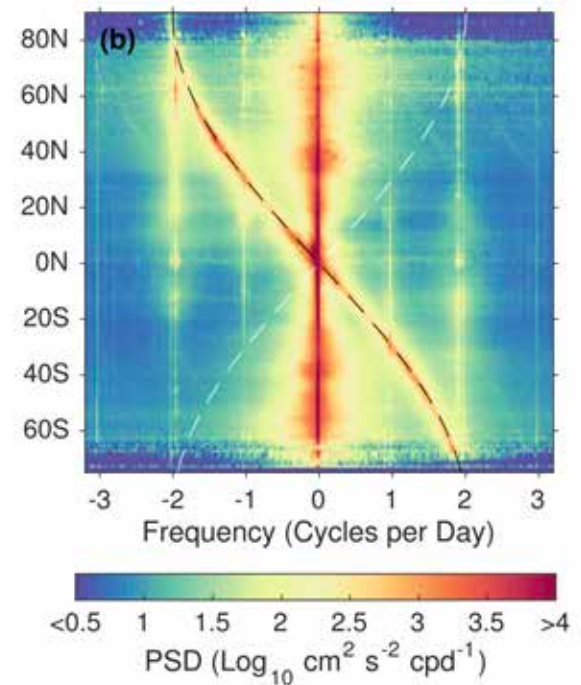
In collab. with Shane Elipot, Ed Zaron, Ryan Abernathey

Toward reconstruction of surface equations for conservation of momentum & tracers

First: validation of LLC4320 frequency content (rotary spectra):



Observed
surface drifters



Elipot et al.
2016