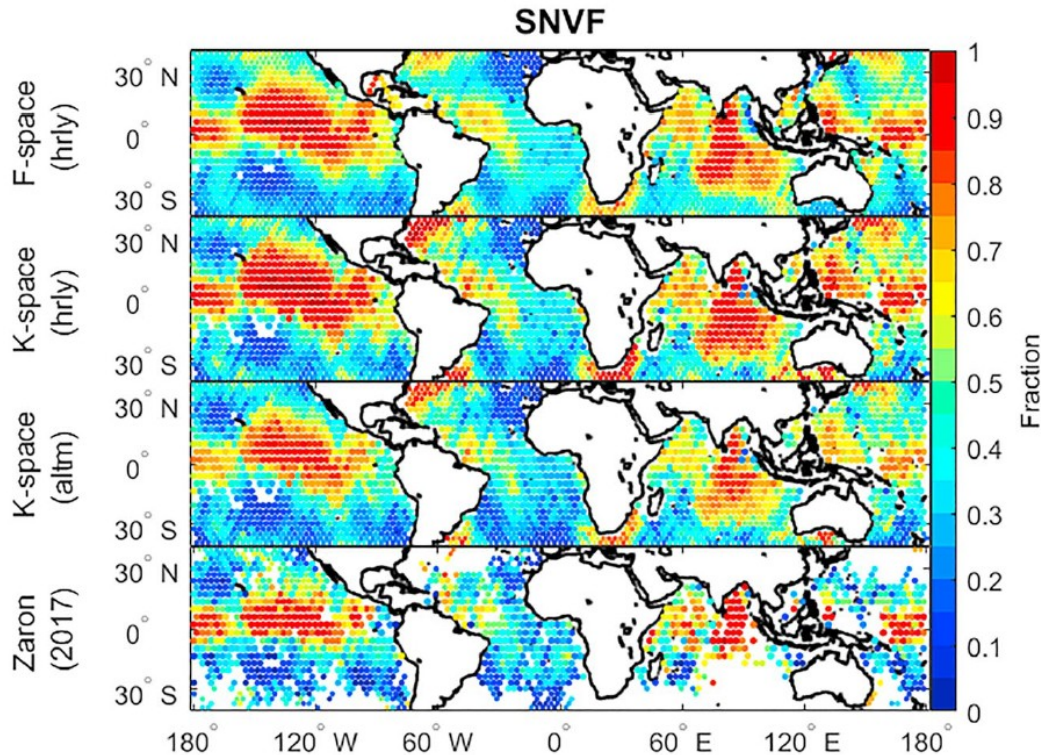


Highlights from:

Nelson, A. and Arbic, B. et al. (2019) Toward Realistic Nonstationarity of Semidiurnal Baroclinic Tides in a Hydrodynamic Model. *Journal of Geophysical Research: Oceans*, 124, 6632–6642. DOI: 10.1029/2018JC01473



Semidiurnal nonstationary variance fraction (SNVF) of steric ssh from HYCOM 1/12.5o, 5-year run, computed in frequency (F) space, horizontal wavenumber (K) space from HYCOM's hourly output (hrly) and altimeter-based 10-day sampling (altm), plotted alongside SNVF computed from altimetry in a previous work (Zaron 2017).

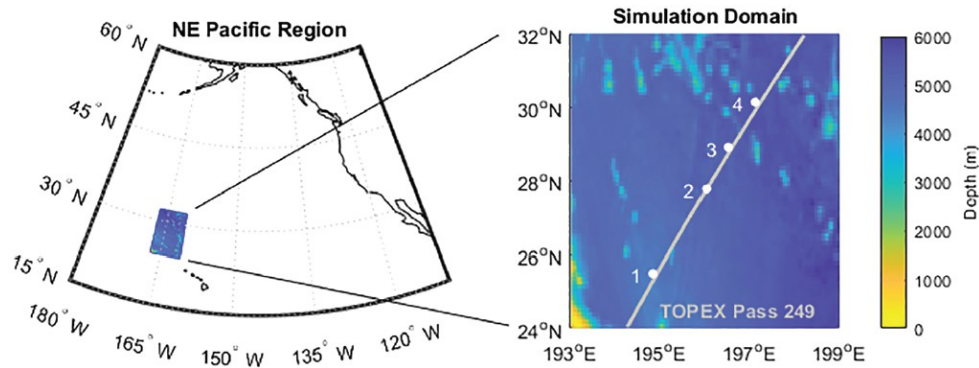
Correlations between methodologies is about 80%

Correlations between HYCOM and altimetry (K-space, 10-day sampling) is about 60%

Altimetry results biased low by a factor of 0.92, found to be due to ambiguity in separation of tidal and mesoscale signals in K-space.

Highlights from:

Nelson, A. and Arbic, B. et al. (2020) Improved Internal Wave Spectral Continuum in a Regional Ocean Model. *Journal of Geophysical Research: Oceans*, 125, e2019JC015974. DOI: 10.1029/2019JC015974



High-resolution regional MITgcm simulations near Hawaii for Spring 2006 forced at boundaries by global 2km simulation (MITgcm 1/48°) containing partial internal wave (IW) spectrum.

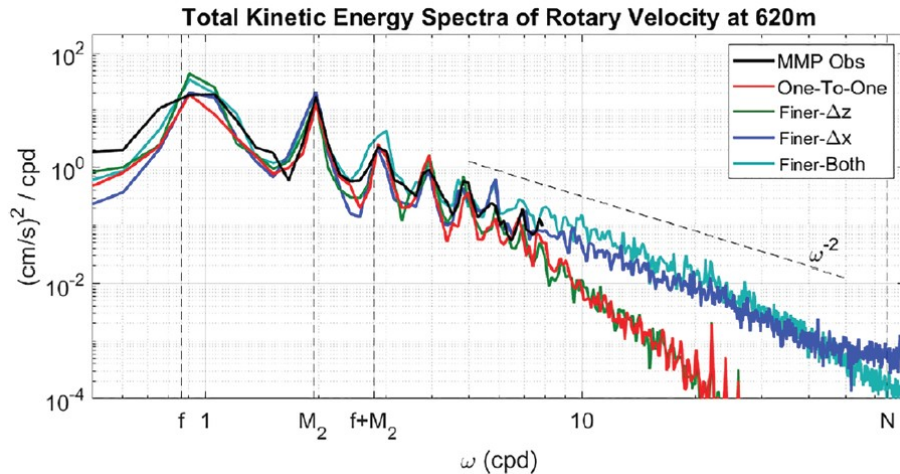
Regional simulation configurations:

One-to-One: Same resolution as global run

Finer- Δz : Tripled number of depth levels

Finer- Δx : Increased horizontal resolution to 0.25km

Finer-Both: (included both Δx and Δz increases)



Total kinetic energy spectra at 620m plotted alongside results from observations by McLane Moored Profilers (MMP Obs) located at MMP location #1 (see top right)

Increasing horizontal resolution filled out spectrum (following theoretical Garrett-Munk slope of -2) from about 5 cycles per day (cpd) to about 60 cpd.

Increasing both filled spectrum out to Nyquist (72 cpd)