SPURS-2 Wave Glider observations

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March 12, 2018
SPURS-2 Analysis and Synthesis Meeting
SPURS-2 Wave Glider sampling

- 3 SV-2 Wave Gliders
  - “Red”
  - “Yellow”
  - “Green”
- 200-km transect
- 14+ months
- Sea-Bird GPCTDs
  - 30 cm/6.5 m
  - 2-minute sampling (~100 m)
  - ~1.5 M samples
- Wind (Airmar WX200)
- Surface current
- SBE-56
  (5-s sub temperature, first 8 months)
- Salinity rake
  (3 deployments ~5 days each)
Lagrangian experiment

"Green" spent >3 months with Lagrangian array
- Followed MLF ~1600 km east
- Attempted to repeatedly intercept MLF along O(10km) transects with varying headings
- Planned and piloted mainly by Andrey S.
- Whisked back to SPURS-2 site by R/V Lady Amber
Performance

- 1 early failure ("Red")
- Data return otherwise good: 32 Wave Glider months total
- Endurance (Red aside) better than anticipated
- Some difficulty overcoming current at times
- After completion of Lagrangian experiment, monthly or better repeats of transect from 9°N to 11°N
Statistics

With a record spanning a full year, we can make robust statistics of the properties of fresh puddles—frequency, size, intensity, duration, seasonality, horizontal structure, etc.

Some evidence that intense surface freshening is most frequent within a few hours of dawn.
Salinity rake

- 10 NBOSI CT sensors
  - 10-cm spacing over upper meter
  - 1-Hz sampling
  - UV antifouling
  - On-board data logging
- 5 days of sampling in 2016, 10 days in 2017
  (some with reduced vertical resolution)
- Intended to resolve structure of shallow "fresh puddles"
Rake observations

Asymmetrical "sawtooth" internal waves on the diurnal pycnocline

- ~40 m wavelength
- Amplitude increases with depth
- Tight TS coupling