SPURS-2 synthesis workshop

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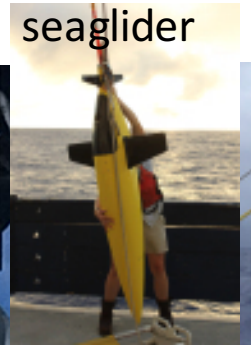
My postdoc research focus (with collaborators): near-surface density stratification by rain and diurnal warming; the potentially delayed and displaced mixing of freshwater into ocean mixed layer

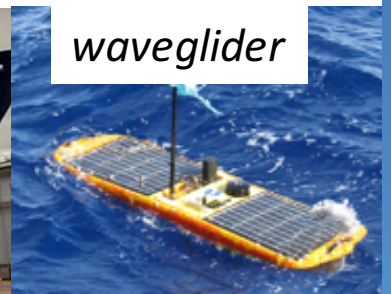
Rain Rate from multiple sources:

- X-band RAINMOS radar (Thompson)
- C-band SEA-POL radar (Rutledge)
- Ship rain rate (Edson/Clayson)
- Satellite IMERG rain rate (Thompson)
- PAL (Yang, Rainville)

Density stratification from multiple sources:

- Underway salinity profiling system TSGs
  - Snake 0.1, 2, 3, 5 from *Revelle*
  - *(Asher, Schanze)*
- SSP TSGs to double check USPS data
  - 0, 0.1, 0.2, 0.5, 1.0 m
- Seagliders (Rainville)
- Mixed layer float (D'Asaro, Shcherbina)
- Wave gliders (Hodges)
- uCTD (Sprintall)





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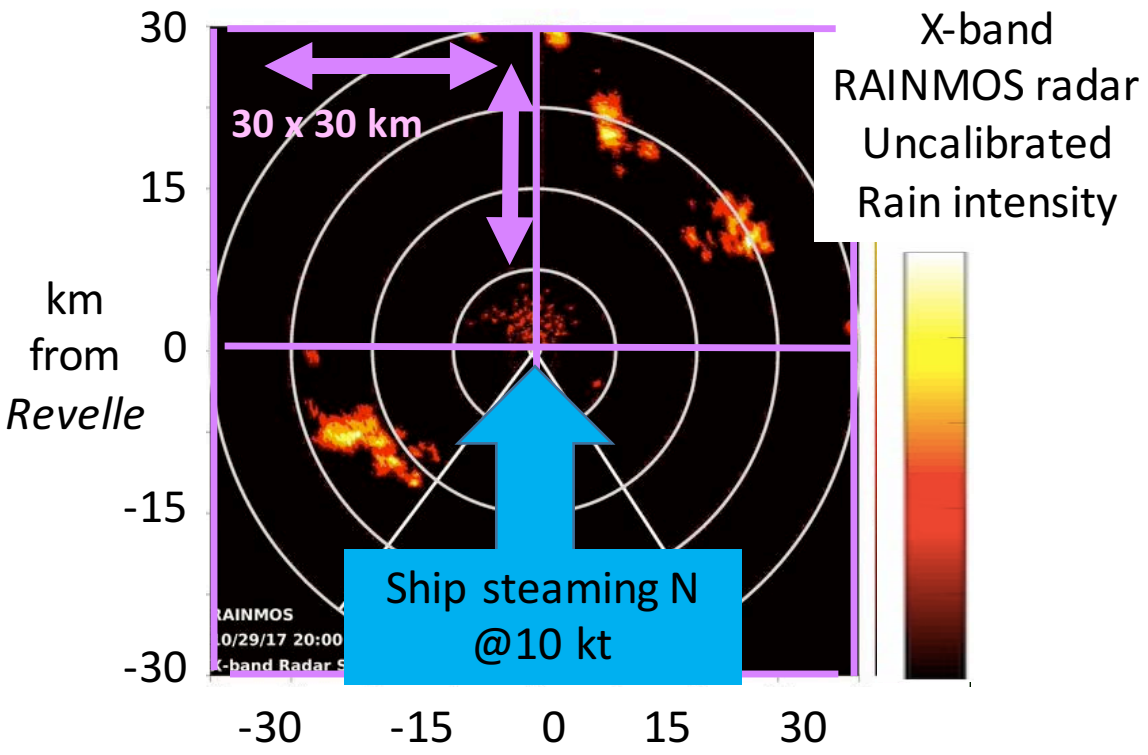
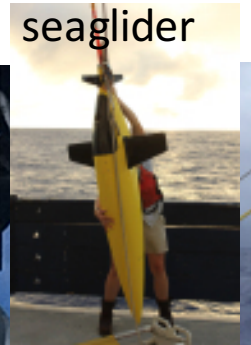
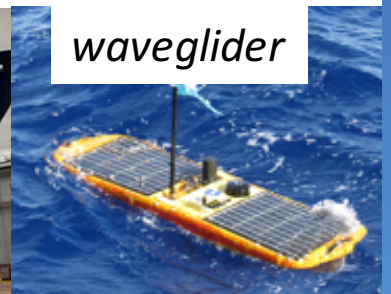
Preliminary Results:

1. Rain events narrower than 30 km are missing from IMERG (microwave satellite products)
   - How do we interpret in-situ salinity vs. satellite rain?







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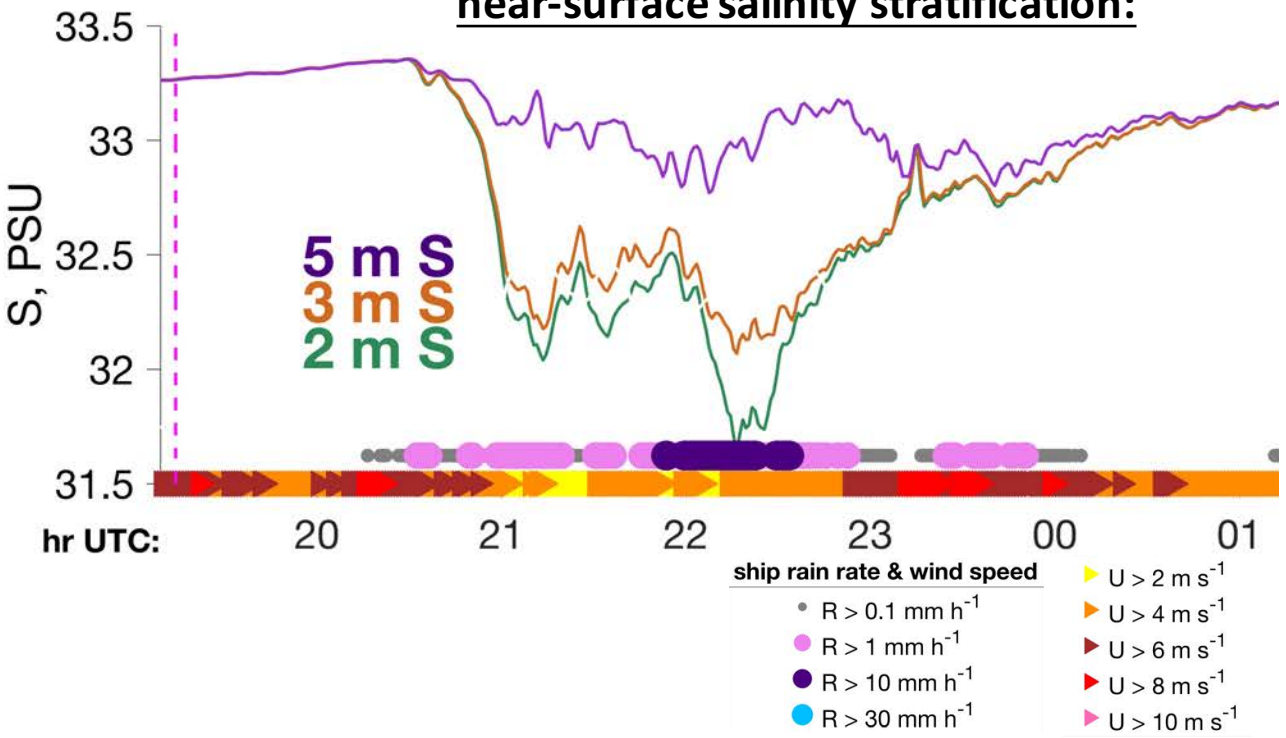
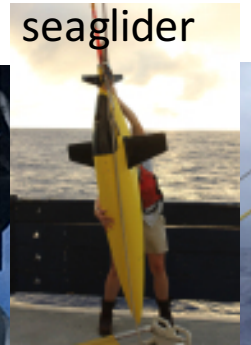
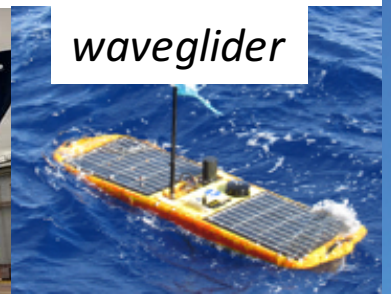
Preliminary Results:

2. Older rain puddles are deeper
   - rain radars allow assessment of puddle age
   - SST and SSS less variable than in young puddles
   - which oceanic and atmospheric conditions tend to allow puddles to survive hours after rain?
   - Relative to the ITCZ, where do puddles tend to last longer?

near-surface salinity stratification:







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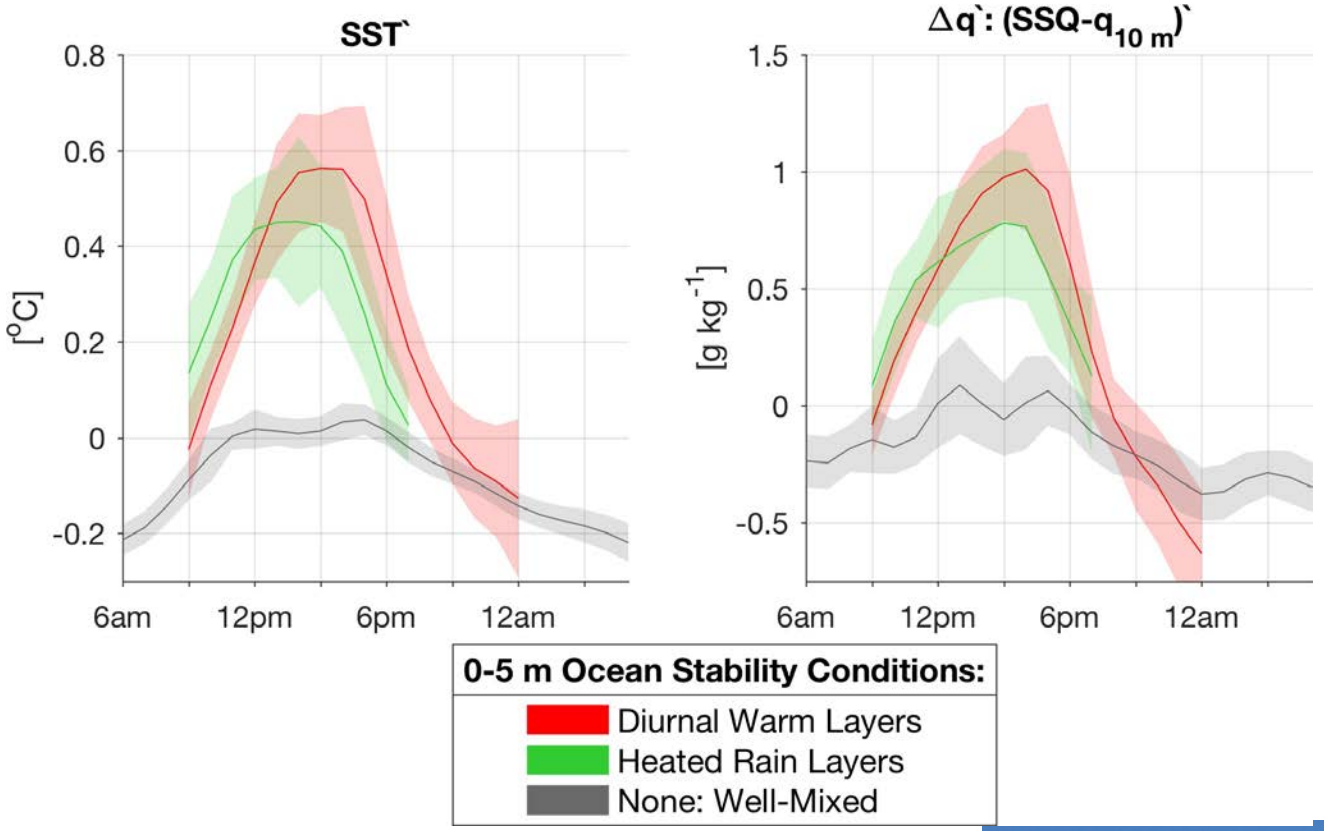
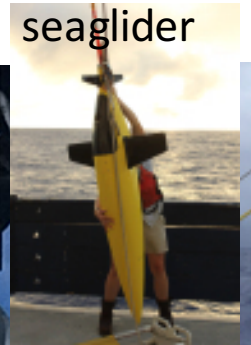
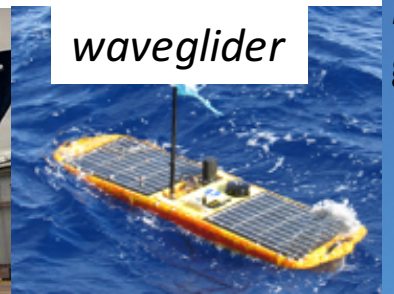
Preliminary Results:

3. Compared to well-mixed ocean conditions, rain lenses, heated rain lenses, and diurnal warm layers modify SST and the surface fluxes







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Preliminary Results:

1. Remote sensing of rainfall
2. Salinity stratification evolution relative to rain and wind
3. Impact of stratification on air-sea fluxes

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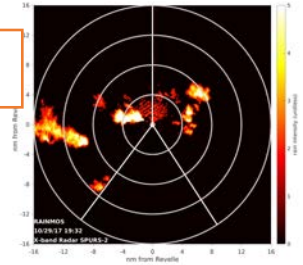

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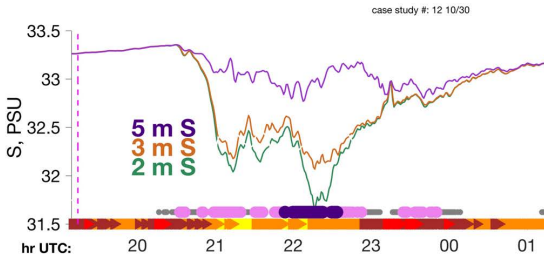

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