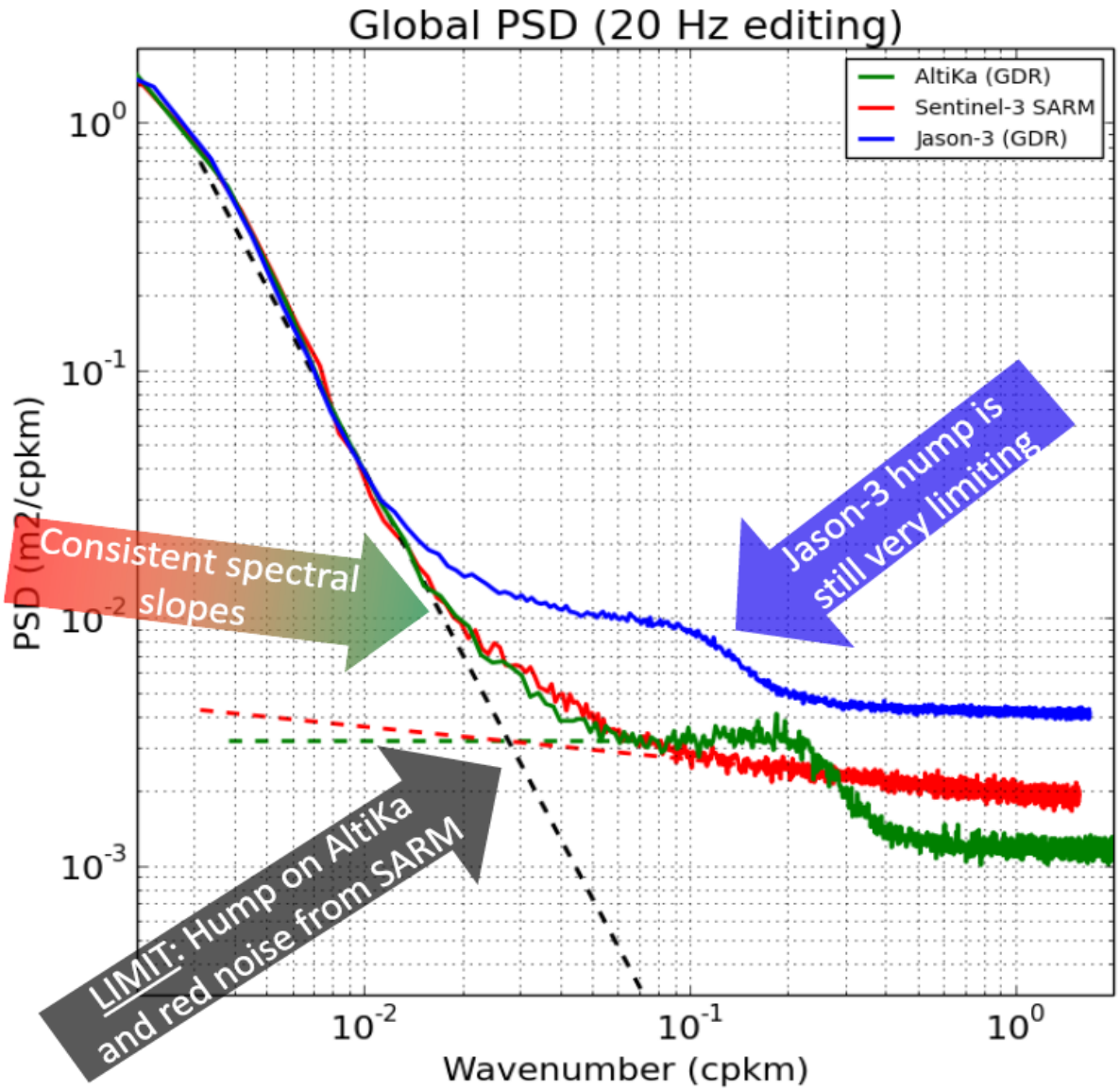
Selection of ocean CalVal site(s)

Understanding the SSH noise in alongtrack altimetry – different technology, different noise



First global SARM spectrum from Sentinel-3

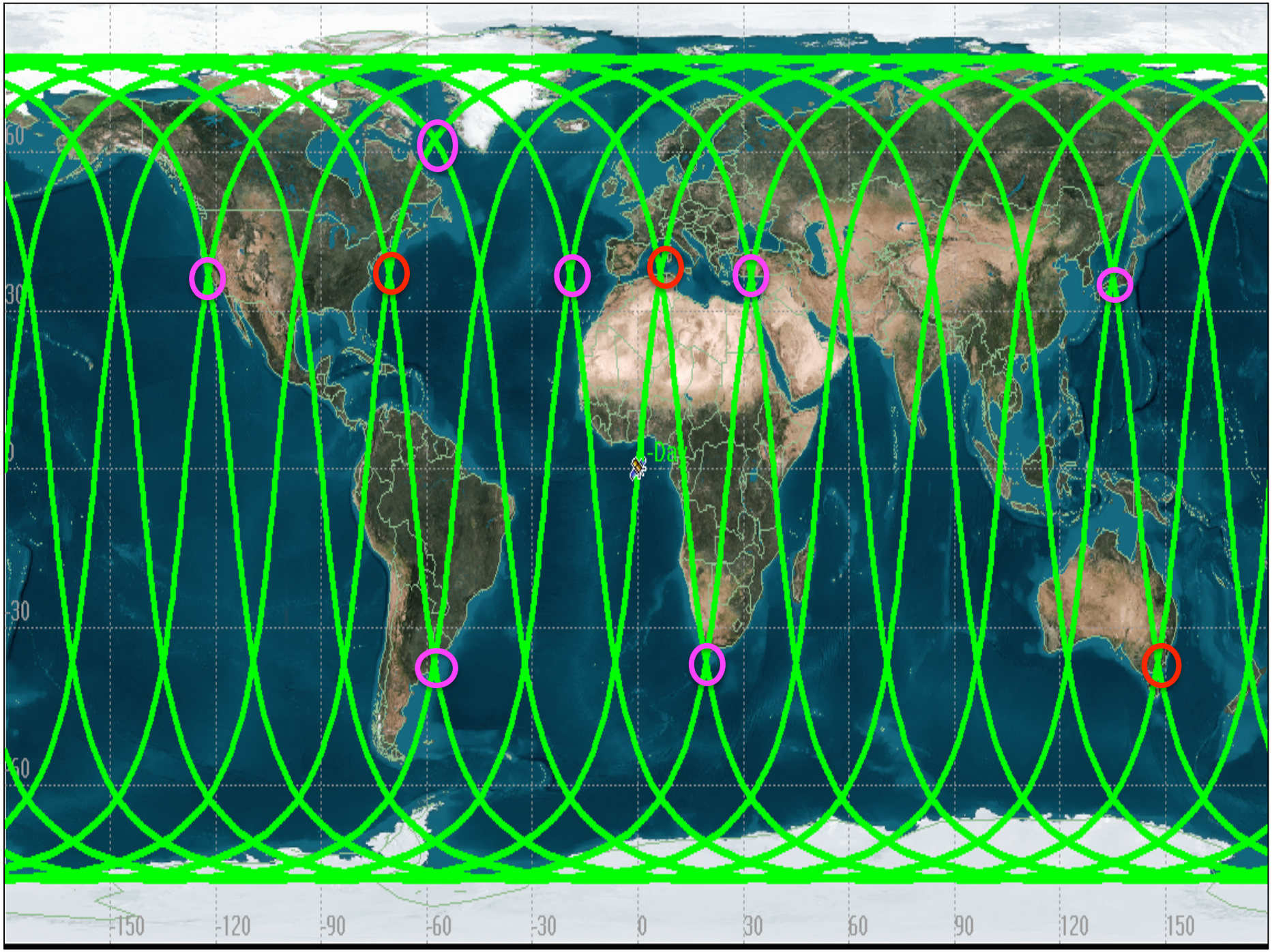
Experimental processor from Cal/Val phase

TBC with official products

Regional analyses ongoing

Colocated Alongtrack SAR altimetry S3, J-CS with SWOT should allow SSH spectral analyses down to 30-50 km

Credits : CNES/CLS


-150
-120
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-60
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CalVal site selection issues (1)

- **Proposed Tier1 sites** : Gulf Stream, Mediterranean Sea,
- **Multiple Tier2 sites** have been proposed by science partners to validate different conditions – choose between mid to high energy sites : Agulhas, tropics, high latitude, internal tide site?
- Fast-sampling phase Jul-Sep 2021 – may slide in case of unplanned launch delays

CalVal site selection issues (2)

- In-situ calVal support should be close to coastal sites (rapid deployment of small ships with towed instruments & aircraft & repeated drifter deployments?)
- Weather conditions (fog, cloud) or military zones
- High energy sites (eg Gulf Stream) have strong SNR – more difficult to estimate the noise? Risk of mooring blowover/weather/strong drifter dispersion over 60 days
- Sites to minimise or validate internal wave/internal tide signals?
- Sites to minimise or validate different surface wave/swell conditions?
- Including instrumenting altimeter tracks/crossovers (SWOT-altimetry SSH validation)
- Pool our ressources for supporting Tier1 or Tier2 US/FR/UK/Can sites?

Questions ?

Do we choose sites where the geostrophic sampling dominates the internal wave field ?

What is the cost of bringing aircraft/equipment to different sites (eg Azores?)

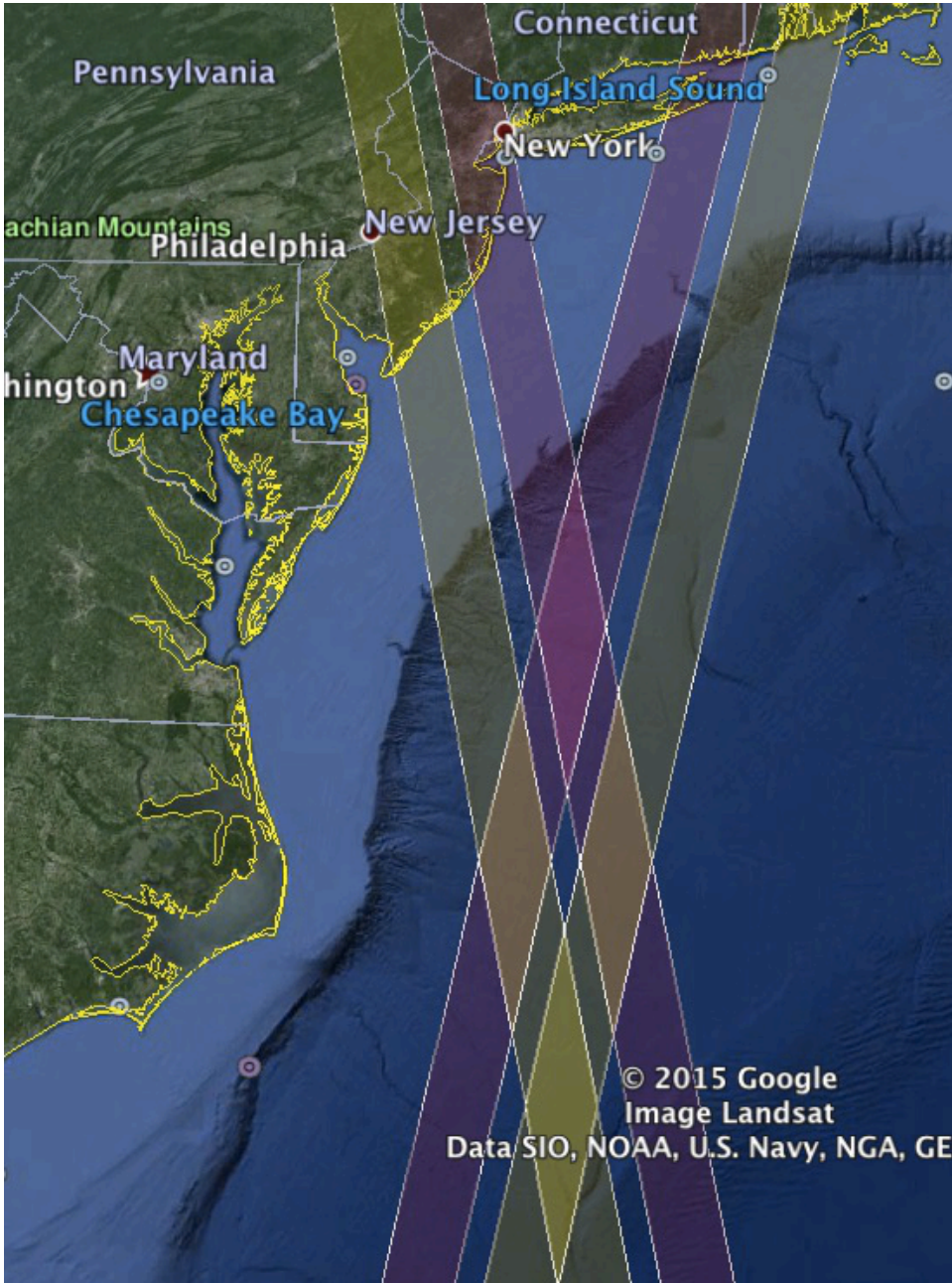
Super site : East coast US Fast sampling regions

Advantages

- Gulf Stream … high-energy mesoscale eddies and moderate tides & moderate swell
- Good access for airborne overflights
- Long history of studies – Latmix, etc
- New Jersey shelf studies? Coastal processes, in-situ monitoring, HFradars

Disadvantages

- Strong currents – pb mooring blowover ?
- Weather constraints for airborne programs?



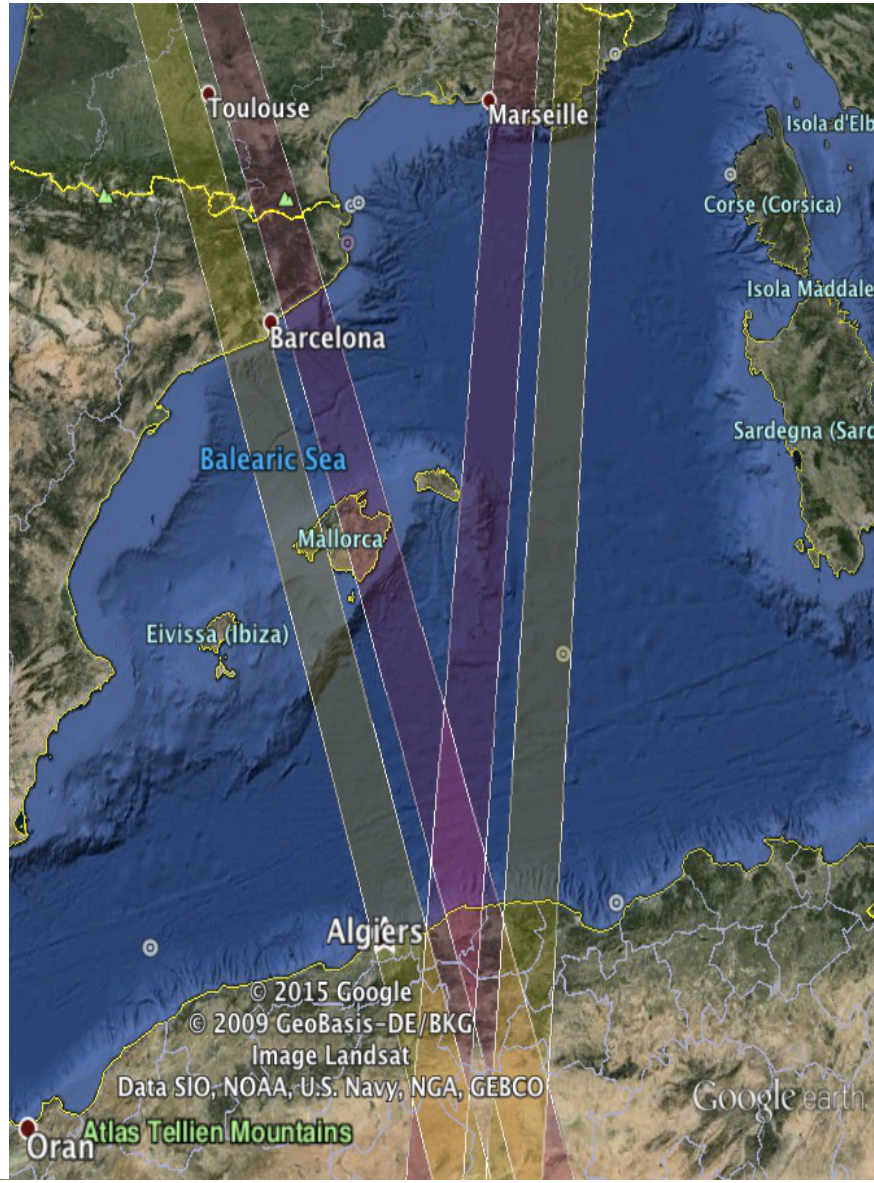
Super site FR : W Mediterranean Validation Site

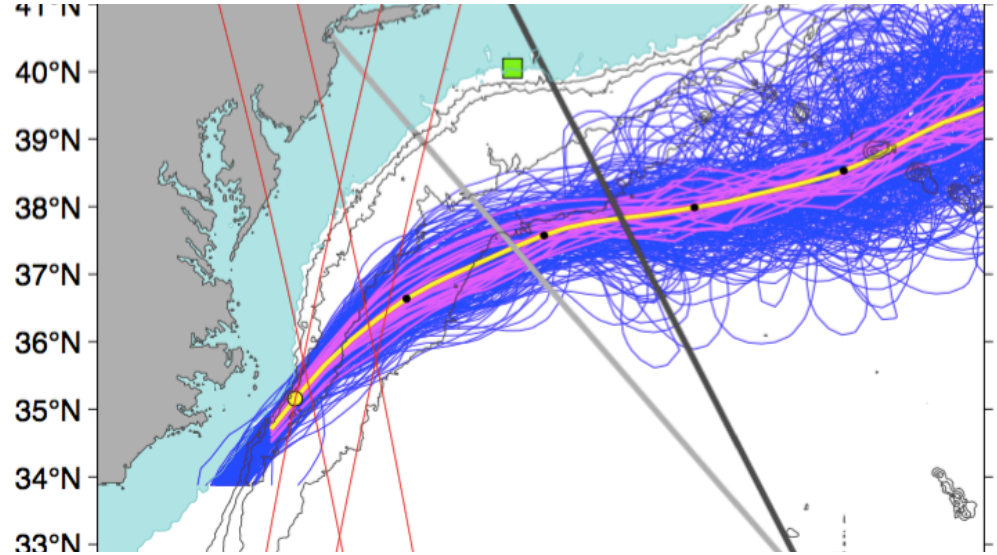
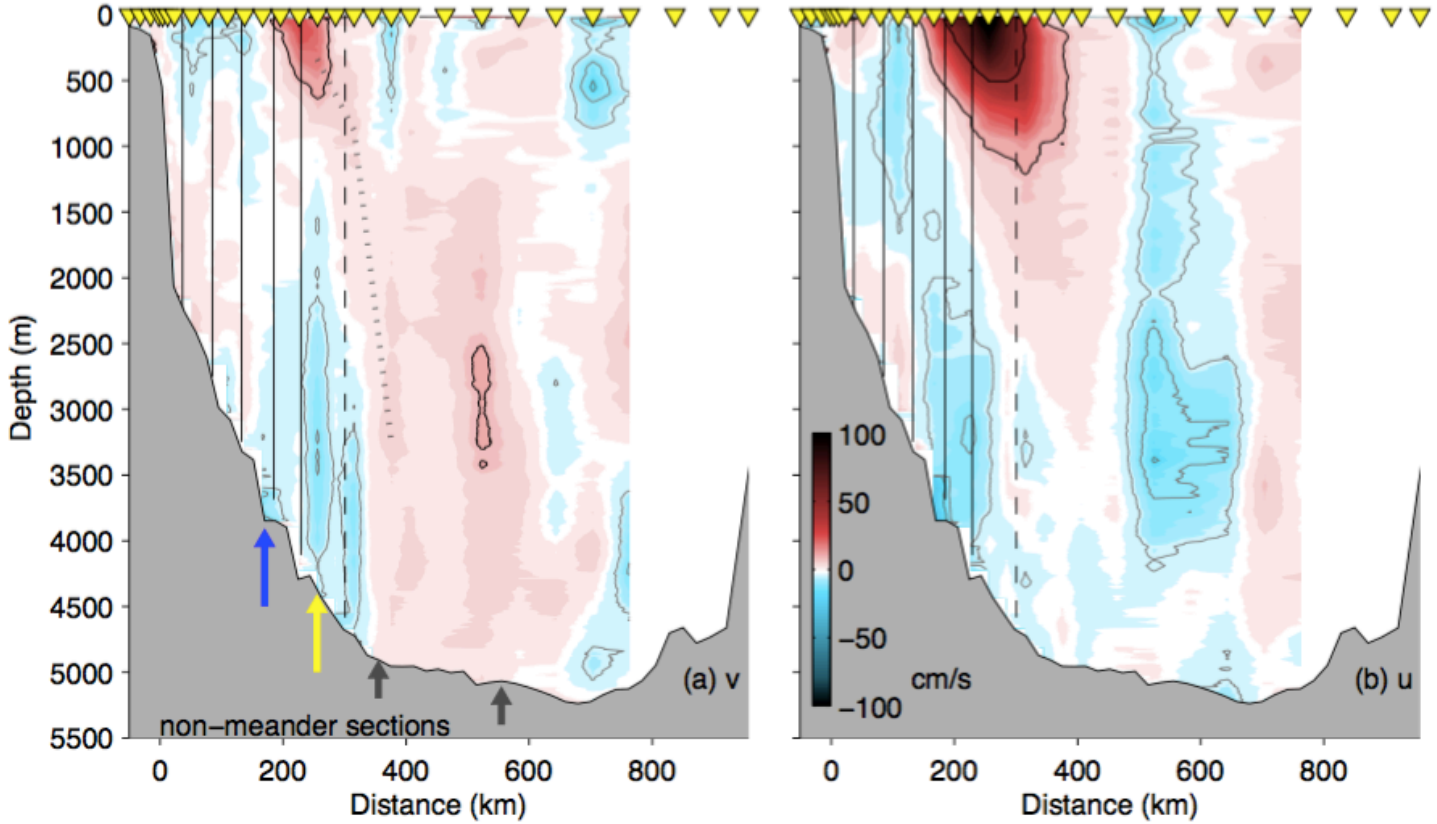
Advantages

- low tides, mid-energy dynamics with small radius eddies, low swell
- Rapid deployment of in-situ data for fast phase
- Historical mesoscale altimetric CalVal (Spain, France)
- HFradar off Toulon

Disadvantages

- Only ½ SWOT crossover



Gulf Stream

-rapid drifter dispersion
Strong currents – mooring blowover