

The Future of Altimetry - Discussion

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Ocean Surface Topography Science Team Meeting (OSTST)
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Chicago, Illinois

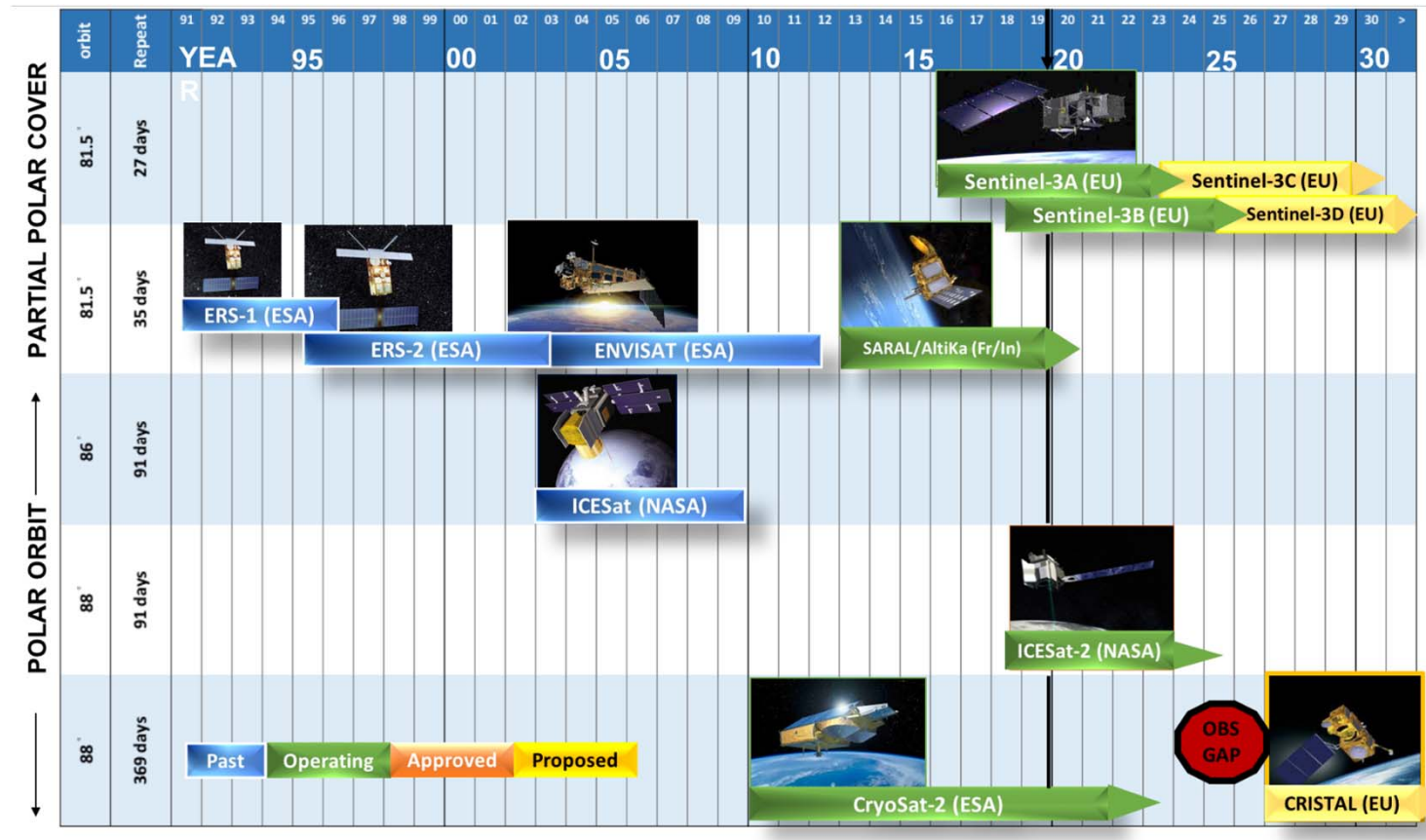
TOPEX/Poseidon 1992-2006
Jason 1 2001-2013
OSTM/Jason 2 2008
Jason 3 2014
Sentinel-6A 2020
Sentinel-6B 2025

cnes NOAA NASA EUMETSAT esa

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The banner features a dark blue background with a view of Earth and the Moon. A series of satellite altimetry missions are depicted in a curved path across the sky, each labeled with its name and operational period. The logos of the participating agencies (CNES, NOAA, NASA, EUMETSAT, and ESA) are displayed at the bottom.

CRISTAL mission: Dual-band radar for polar altimetry

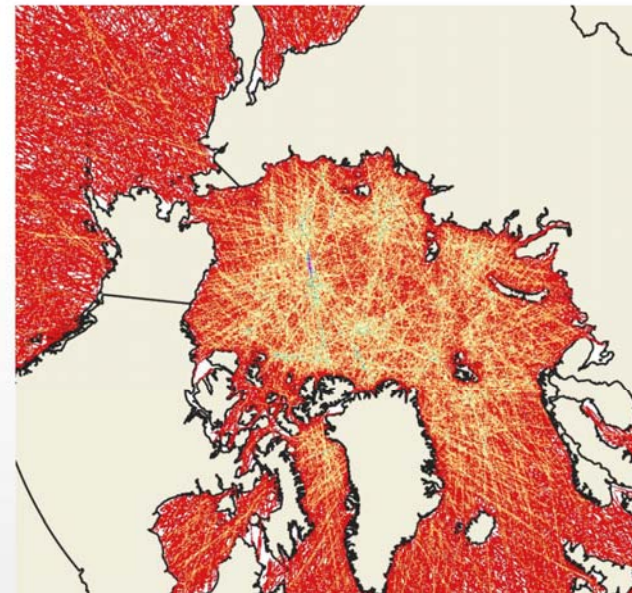


GNSS Reflections – CubeSat Spire satellites

Initial results demonstrated < 10 cm RMSE height retrieval over sea ice and < 20 cm oceans

Coverage Analysis: Spire fleet, 1 day

12 km gridded cells with number of observations in each grid cell in 1 day from current Spire RO sats



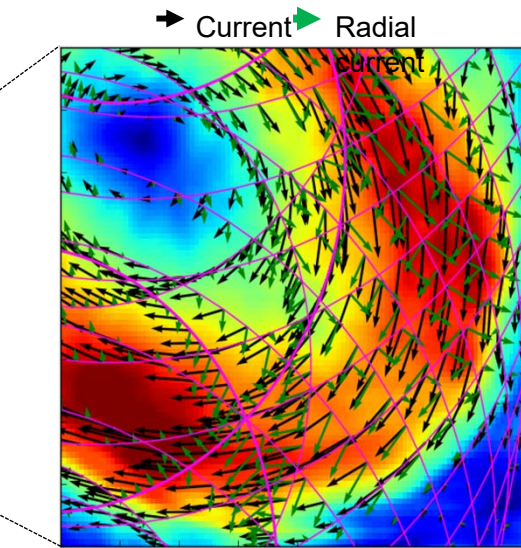
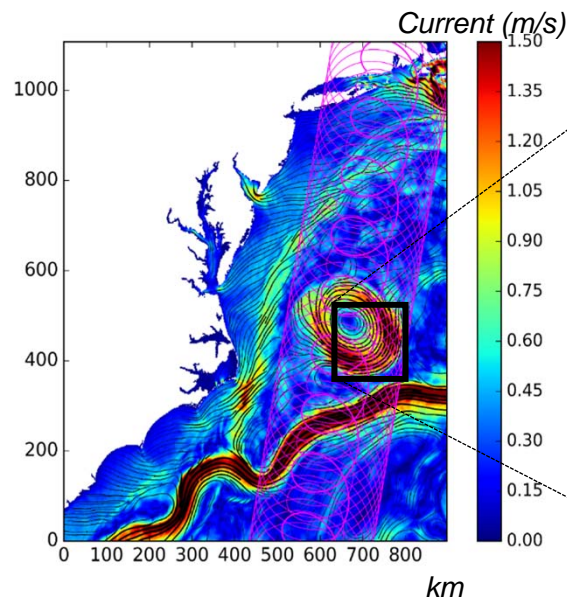
Num. of Obs.

Red	1 - 8
Orange	8 - 16
Yellow	16 - 24
Green	24 - 32
Blue	34 - 40
Magenta	> 40

SKIM: a successful phase A at ESA

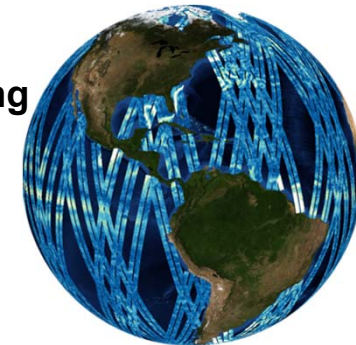


SKIM is designed to measure surface currents, ice drift and waves, using a Doppler Ka-band radar : <https://www.skim-ee9.org/>

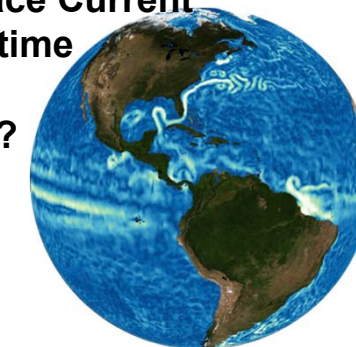


SKIM-L2B simulated observations (radial current)

SKIM-L2C spatial mapping (swath)



Mapping surface Current in space and time while merging with Altimetry?





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Swath Altimeter definition

Preliminary Definition of Wide Swath Instruments

- Based on the satellite/mission definition achieved in the frame of ESA study, called Swath Altimetry for Operational Oceanography (SAOO) [1]
- Coordinated with other ESA related activities such as TRP Multibeam Wide Swath Altimetry
- Preliminary Definition of WiSA instruments
 - ✓ Instrument Architecture definition
 - ✓ Sub-system definition / Specification of the sub-systems
 - ✓ Budgets: performances, mass, volume, electrical consumption, telemetry
 - ✓ Validation plan
 - ✓ European Technologies
 - ✓ Vega-C fairing compatibility



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Recommendations?

- For Sentinel-6 L2P product should be provided so that LRM data users have continuity with earlier Jason and TOPEX data record.
- CRISTAL launch target should be early 2020s to avoid gap between ICESAT/Cryosat/AltiKa – CRISTAL polar ocean & ice sheet coverage. (borrow slide with satellite timelines)