

Steep Bathymetry Changes Close to the Coast as Sensed with Altimetry at the Gavdos Permanent Cal/Val Facility

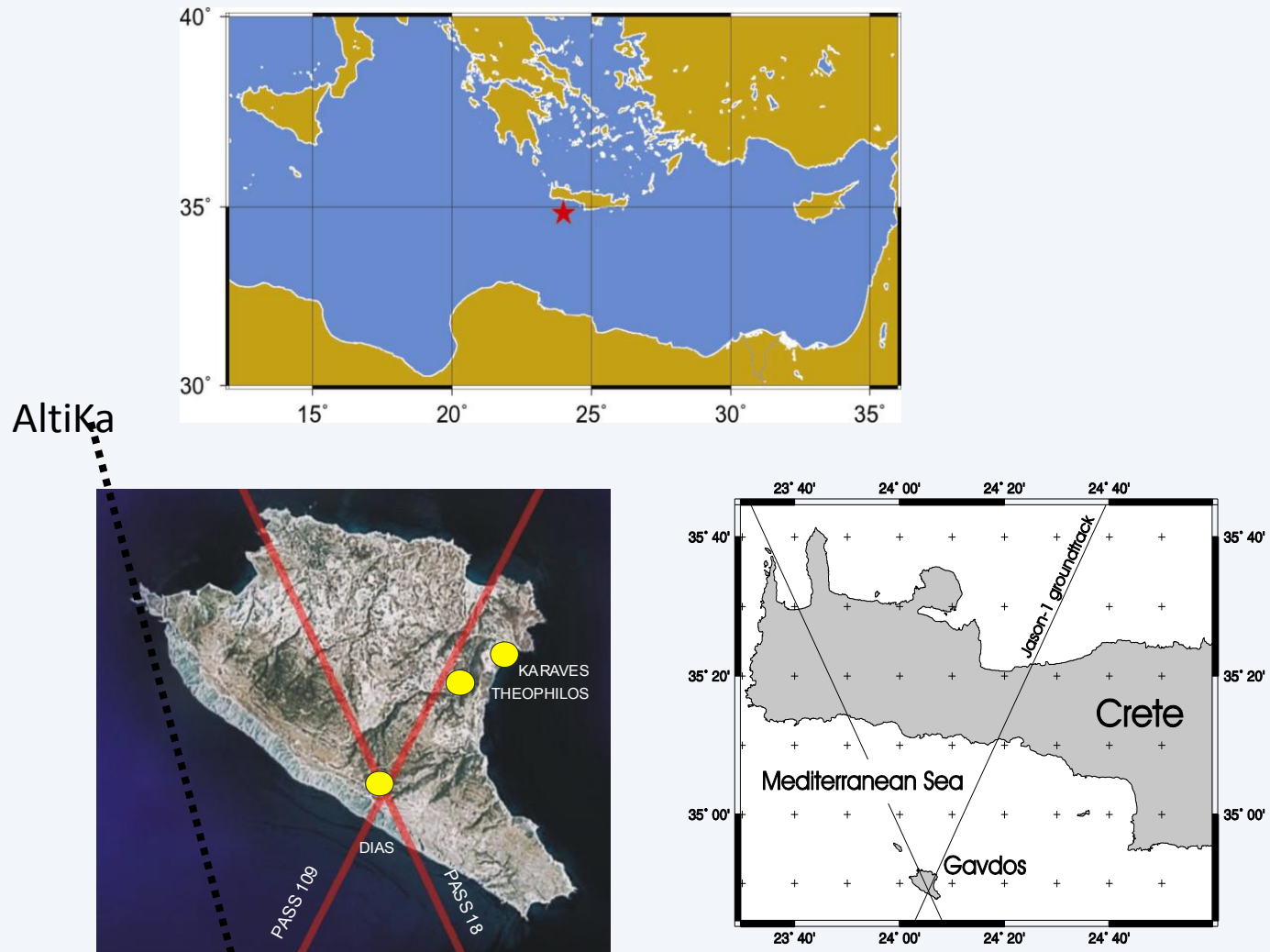
Stelios Mertikas, Technical University of Crete, GR,
Daskalakis, Space Geomatica Ltd

I.N. Tziavos, Aristotle University of Thessaloniki, GR,

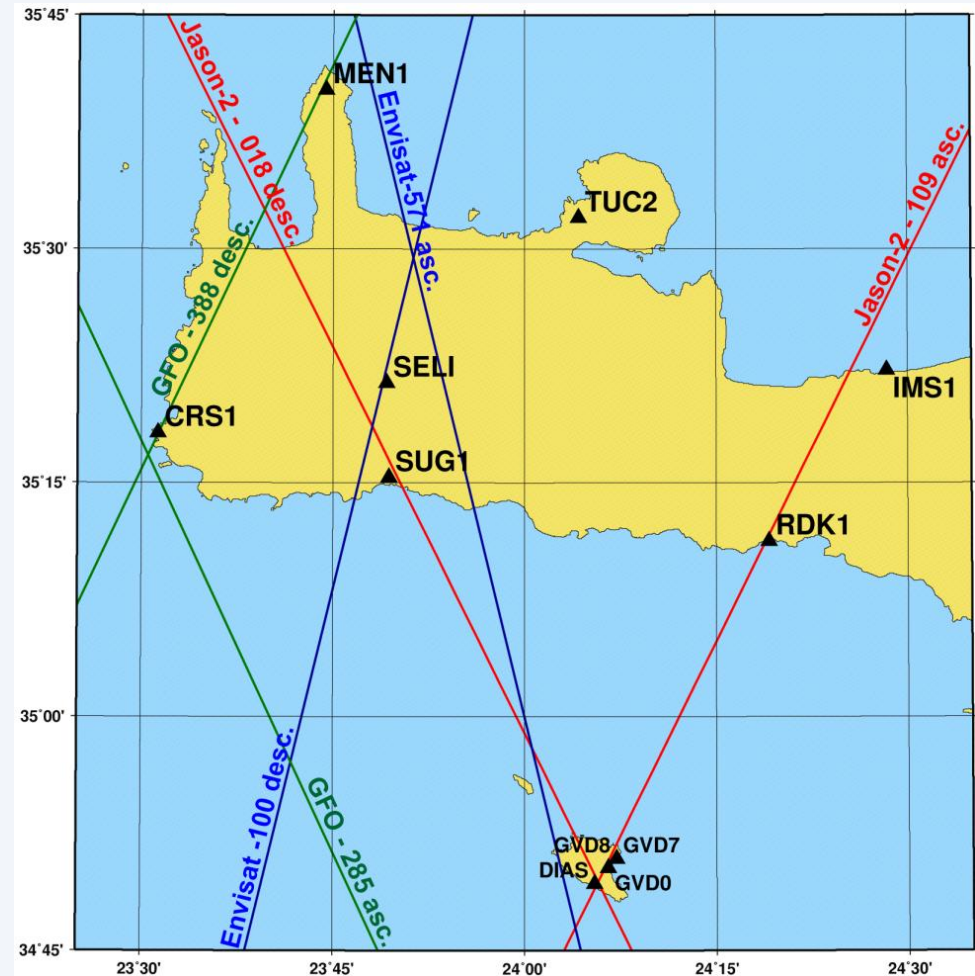
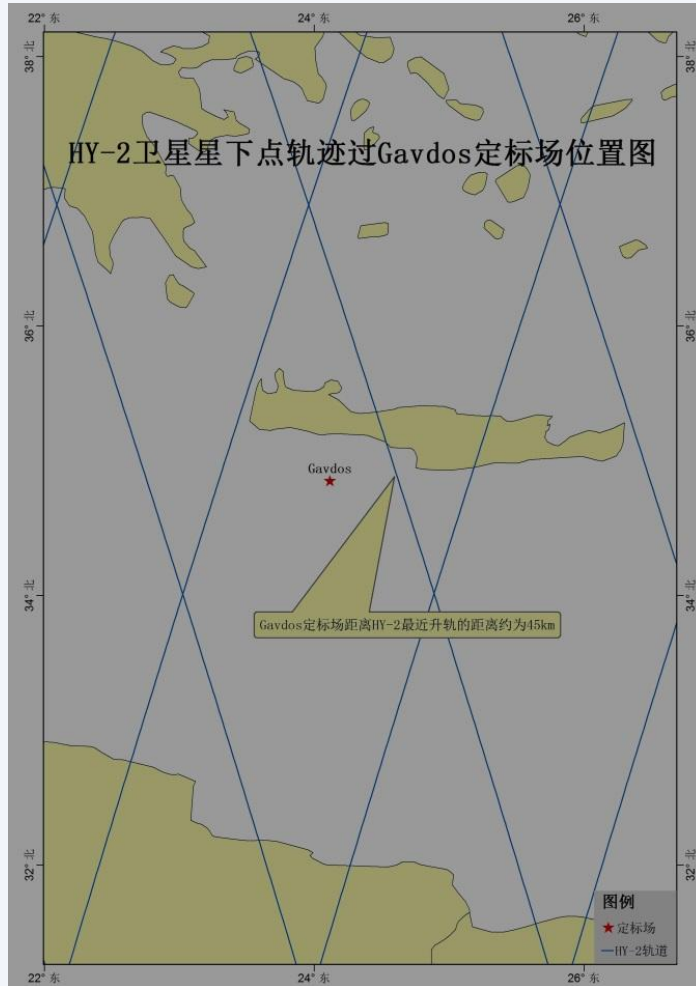
O. B. Andersen, Danish National Space Center, DK,

G. Vergos, Aristotle University of Thessaloniki, GR,

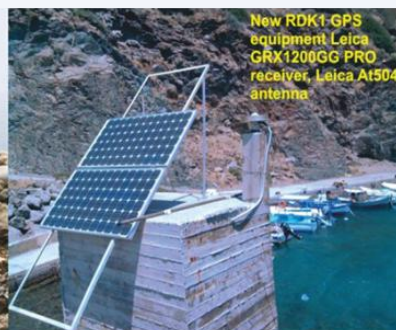
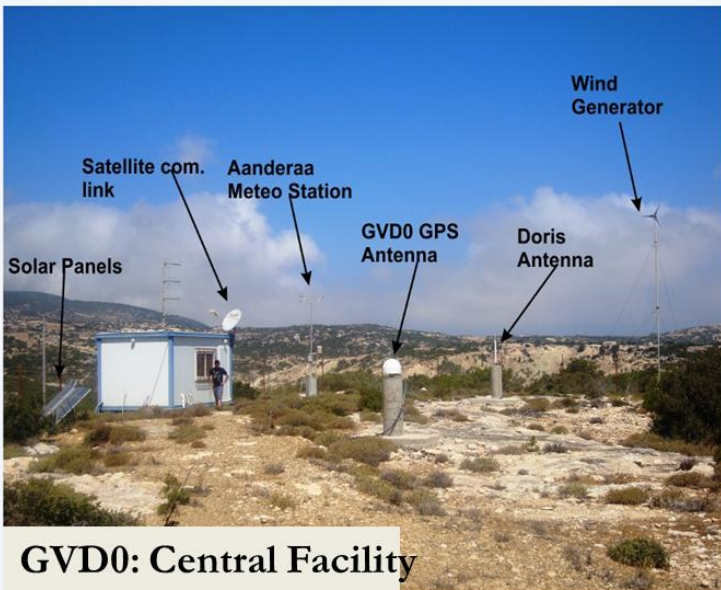
V. Zervakis, University of Aegean, GR.



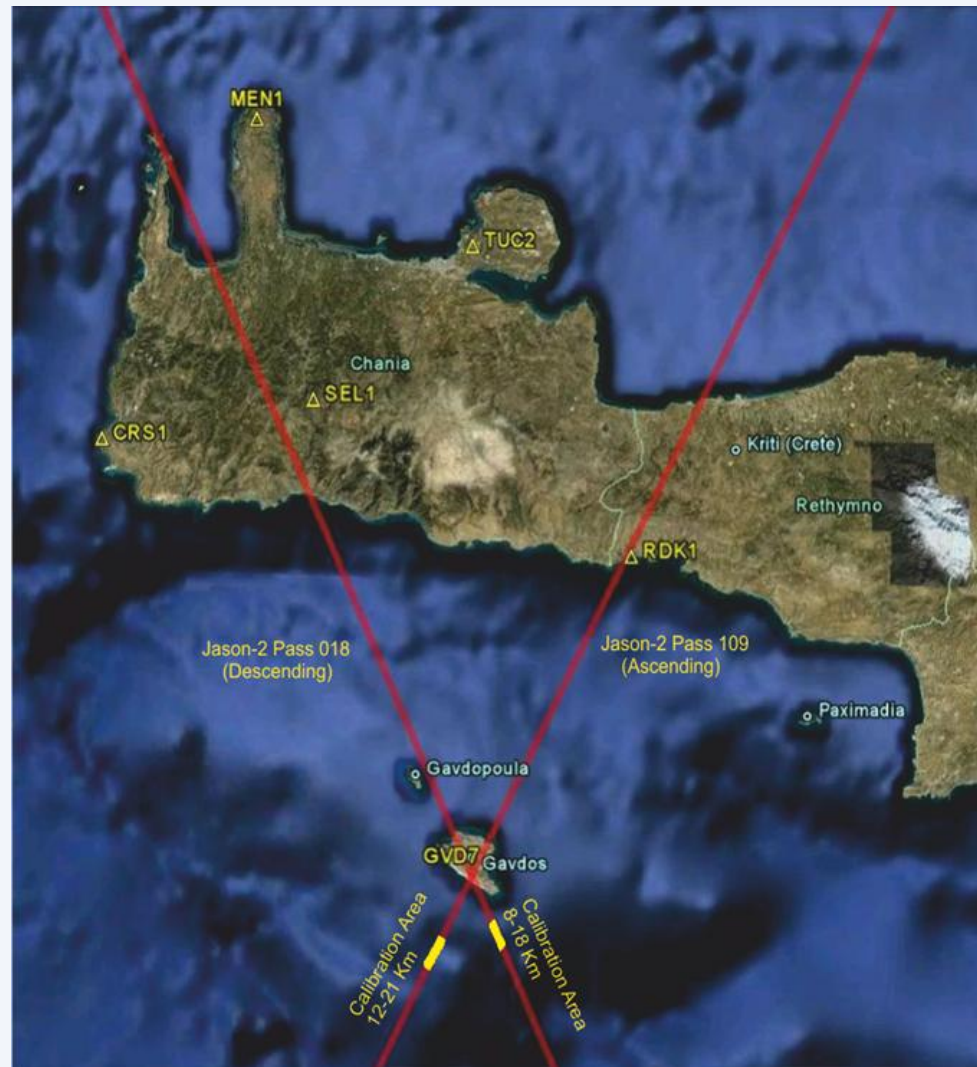
AltiKa, HY-2, Jason tracks

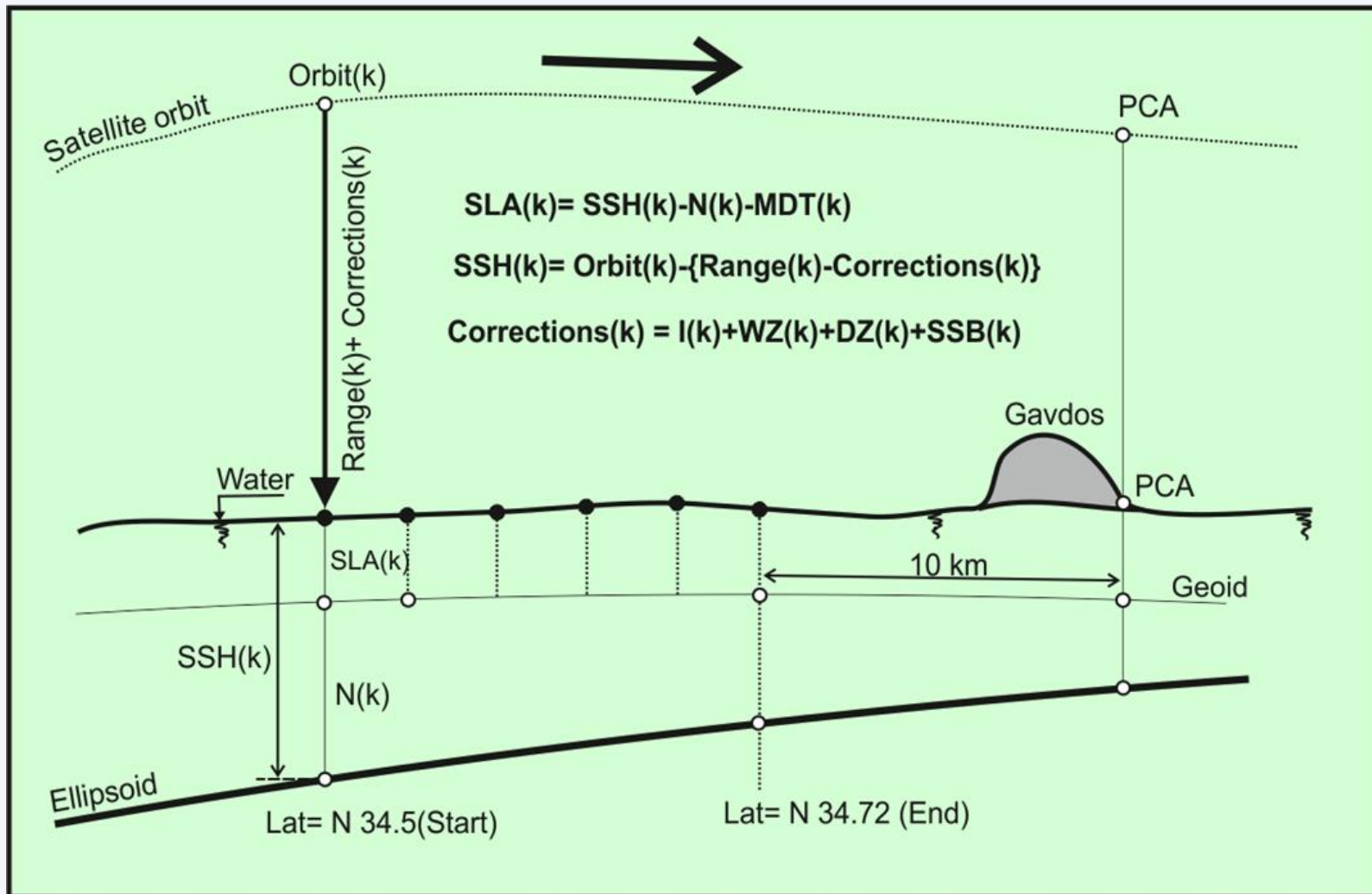


Gavdos & Crete Permanent Facilities



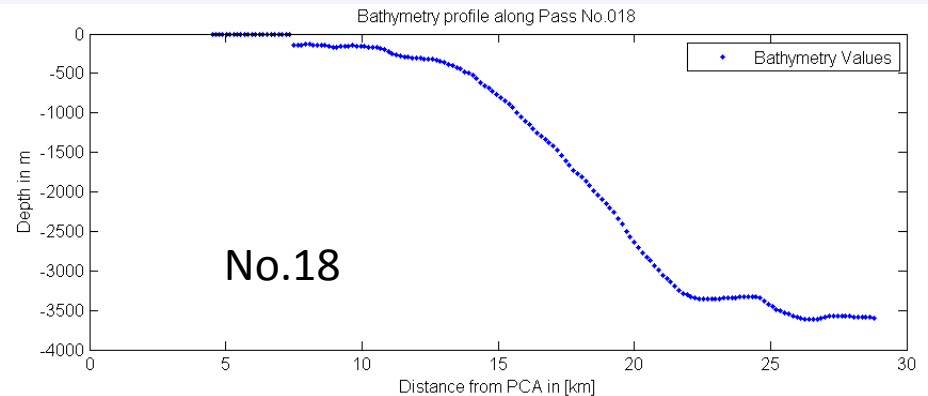
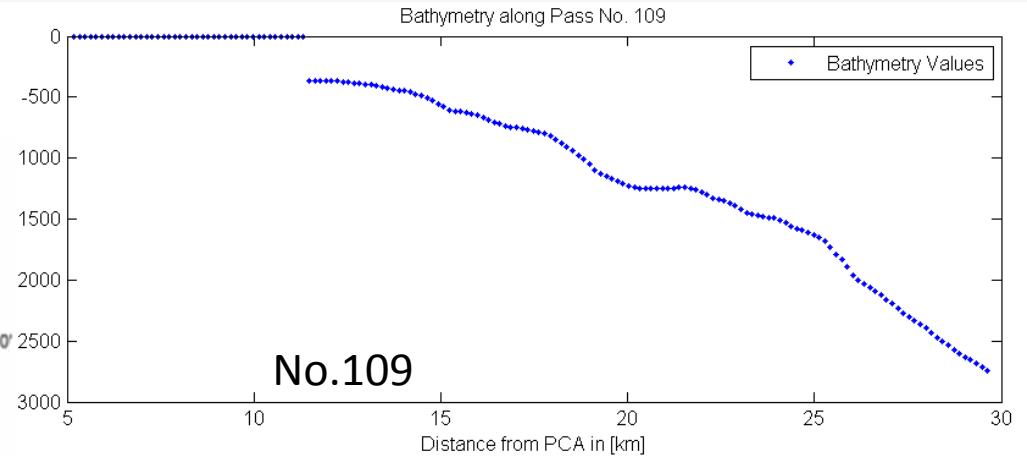
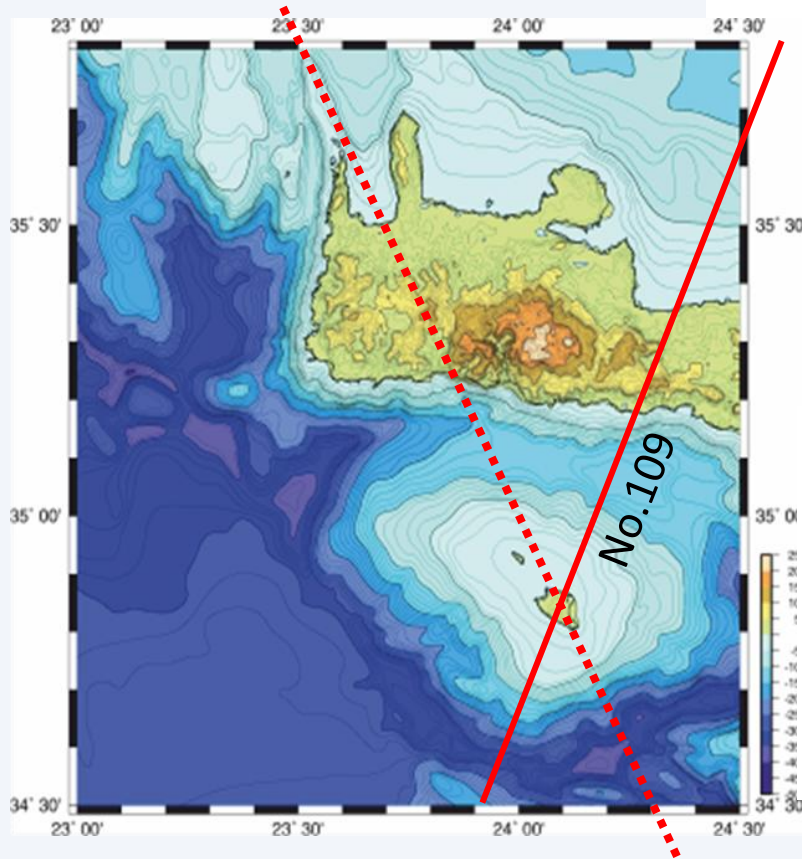
Jason-2 Calibrating regions

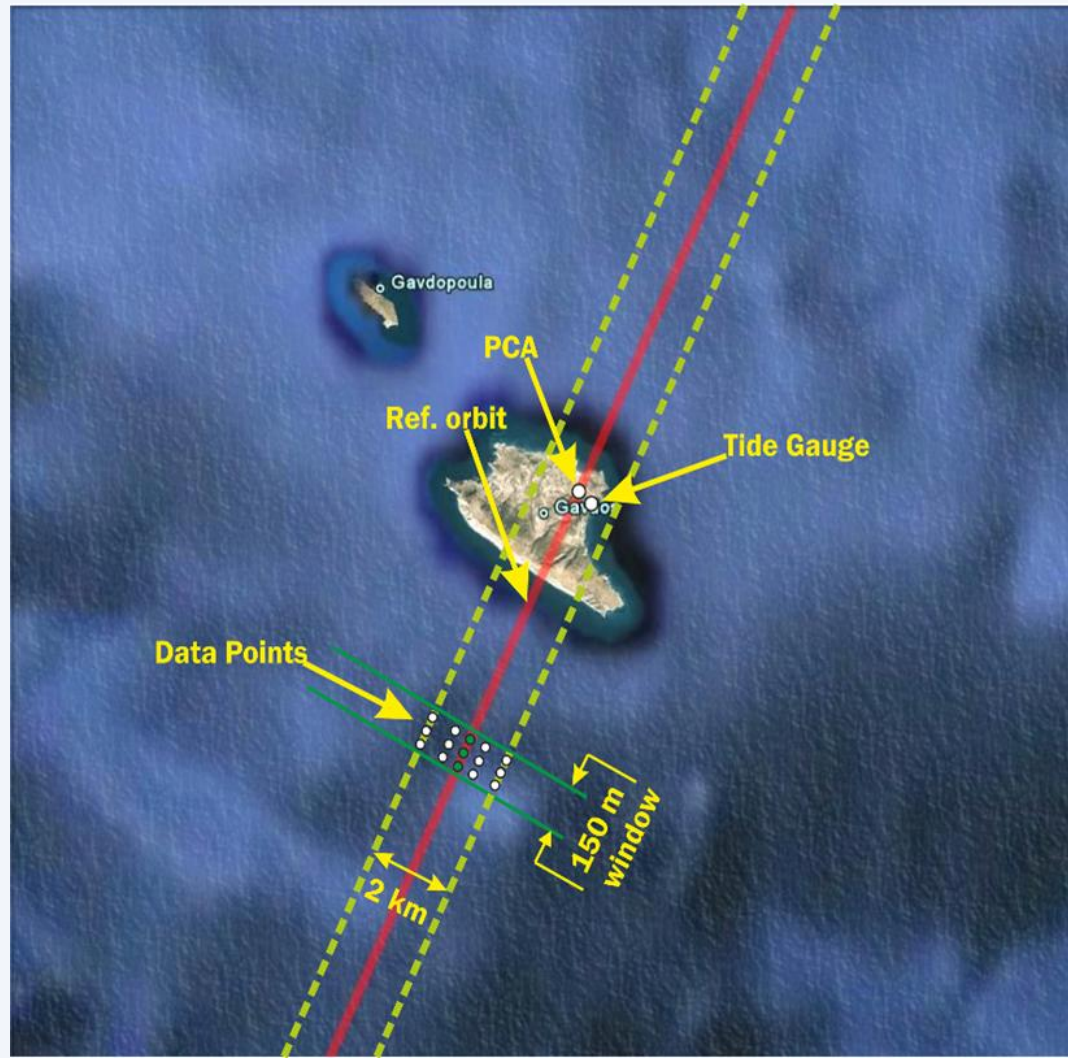




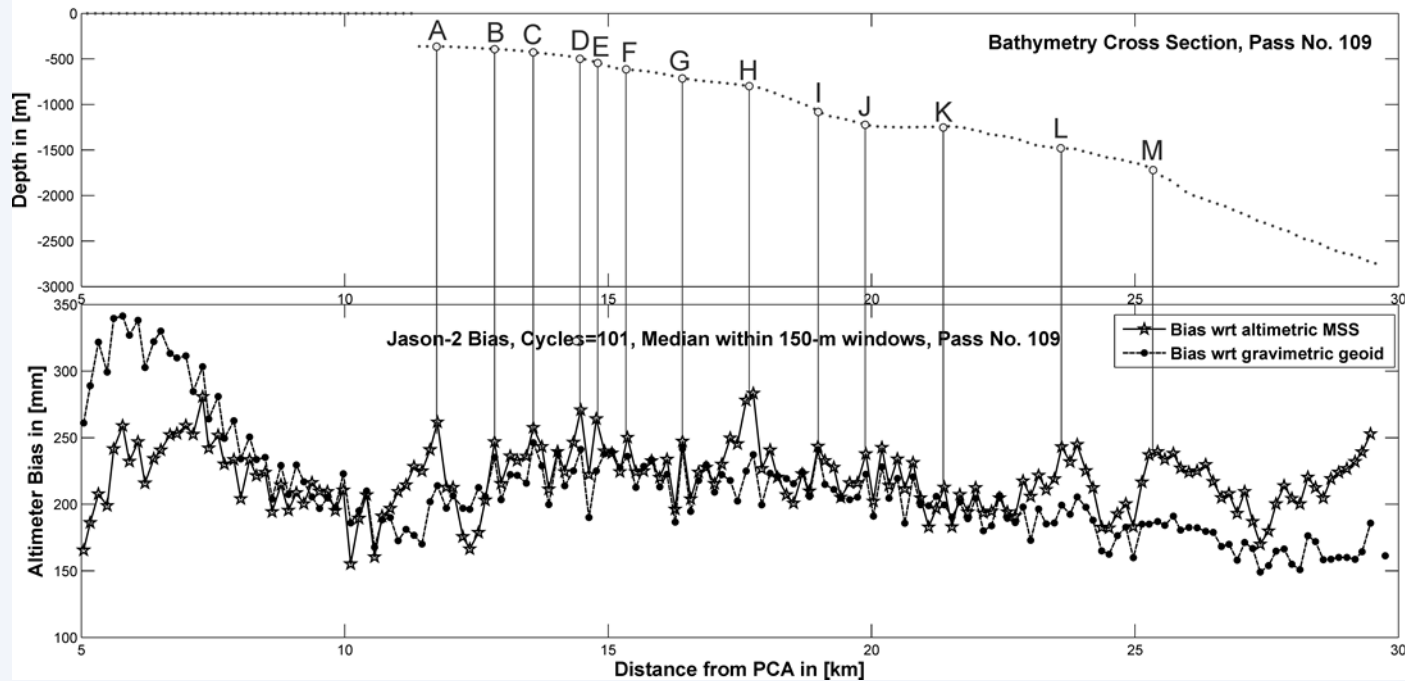
- Over 4 years of Jason-2 calibration:
 - Bias systematically higher (1-3 cm) at certain locations;
 - Slight slope, but systematic, at other places.
- Is resolution of geoid adequate in all regions?
- Any correlation of bias with:
 - Steep bathymetry,
 - Marine geoid model,
 - Applied altimetric corrections/reductions,
 - Mean Dynamic Topography?

No.18



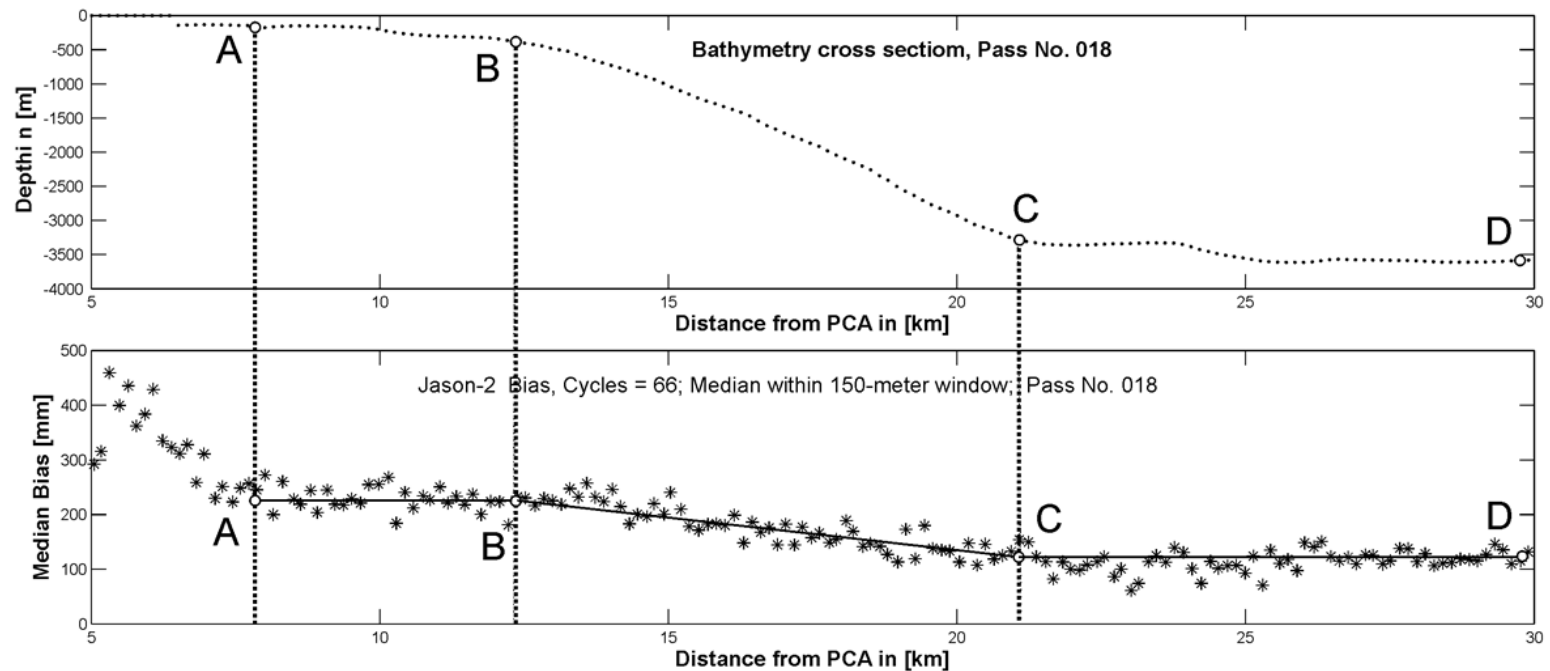


Bias variations along Pass wrt distance

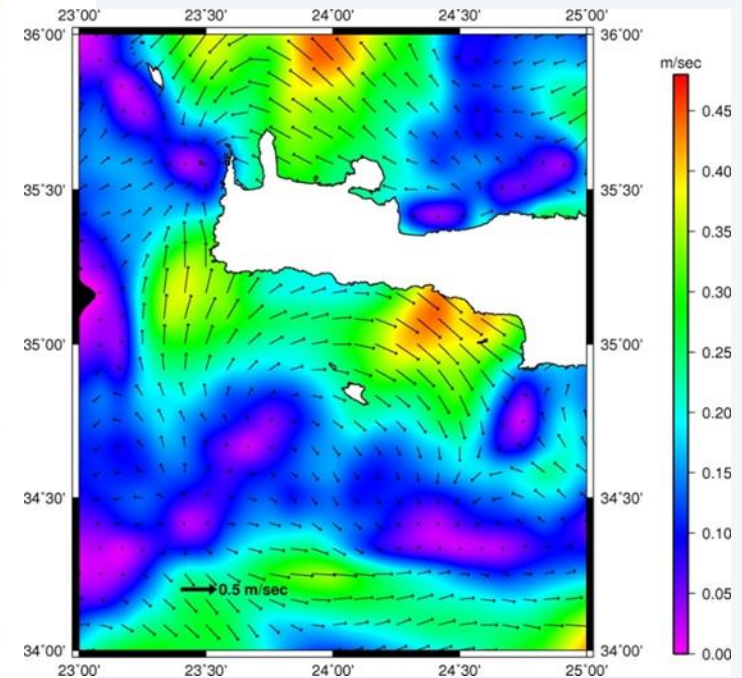
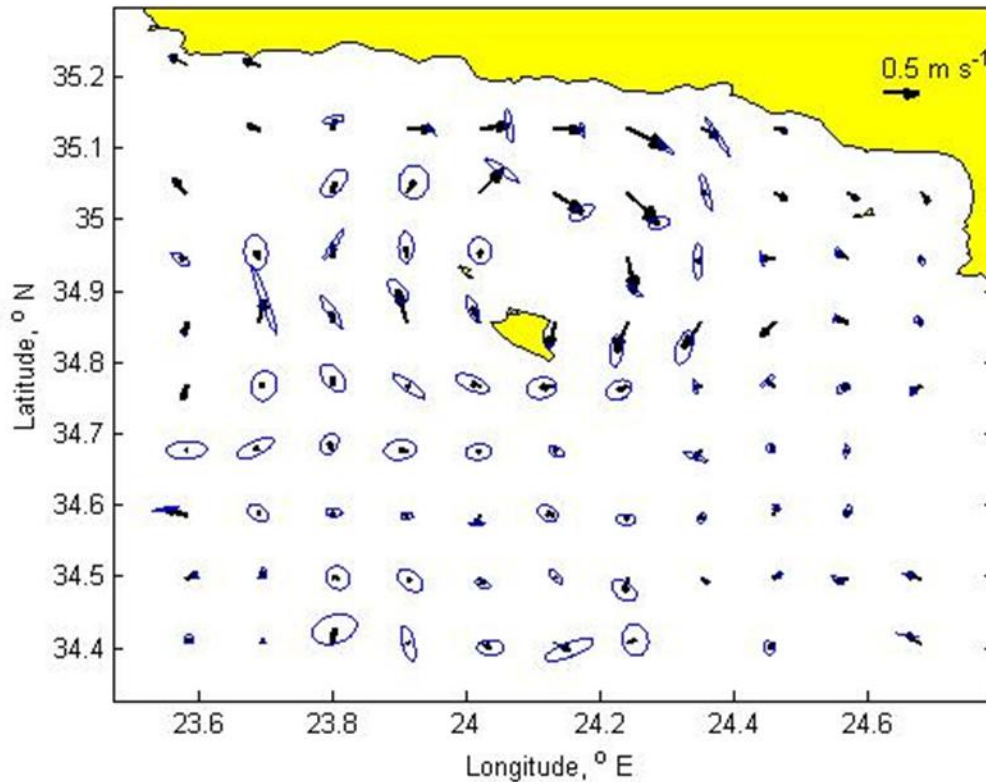


Gravimetric geoid and altimetric MSS

Bias & bathymetry relation, No.18

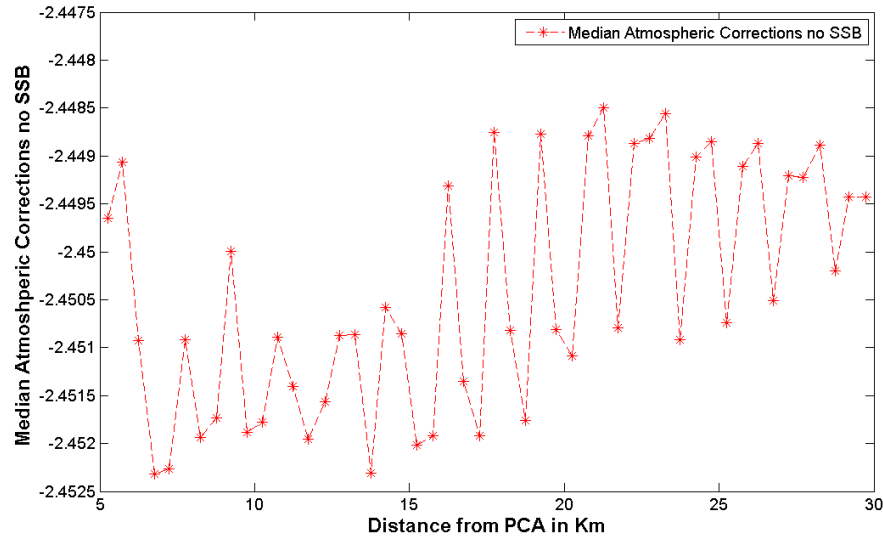


- Strong circulation between Crete and Gavdos (0.5m/sec, eastwards);
- Drifters cover a monitoring period of 1990-2008.
- Right: As produced using the GOCO02S model. (Gravity Combination Project

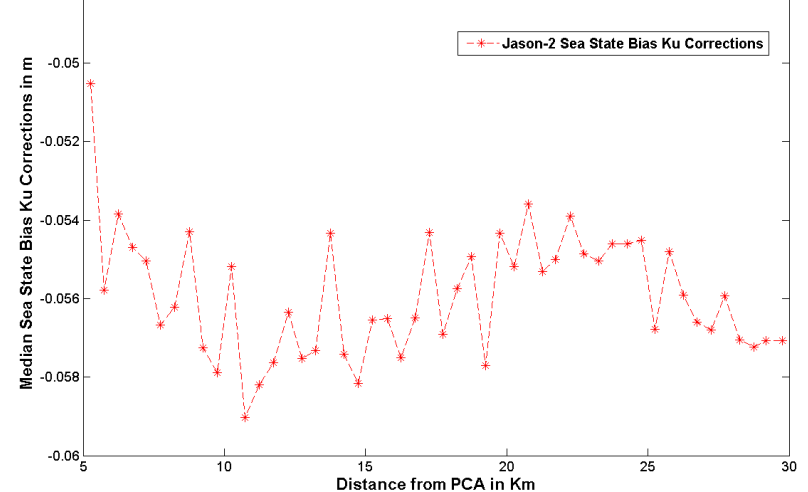


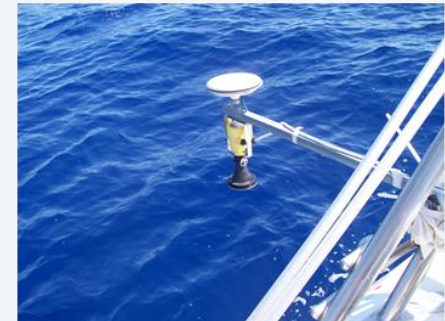
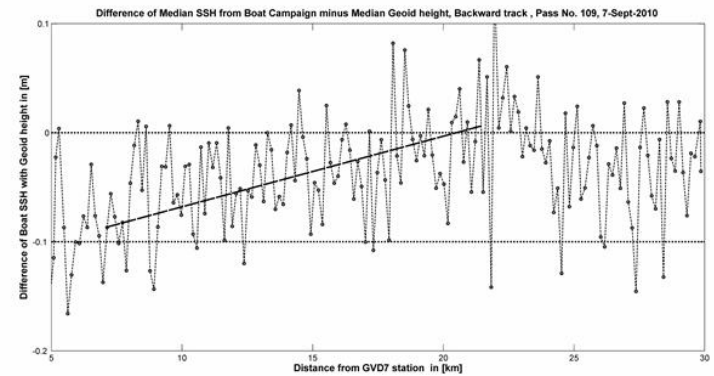
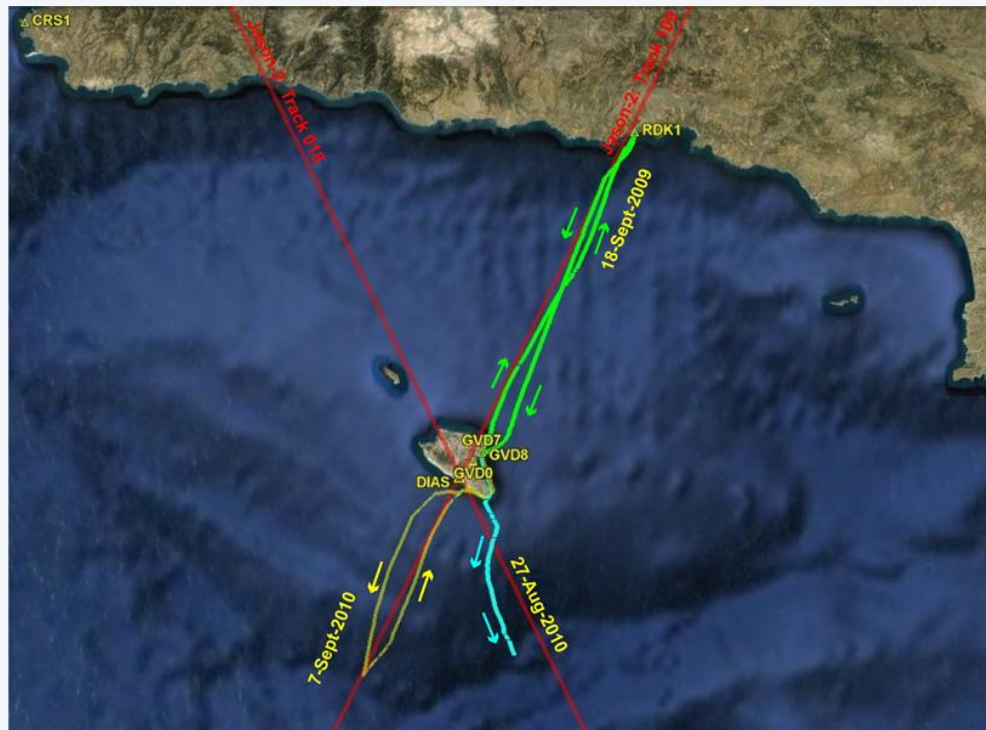
Credit: Italian Institute Nazionale di Oceanografia e Geofisica Sperimentale

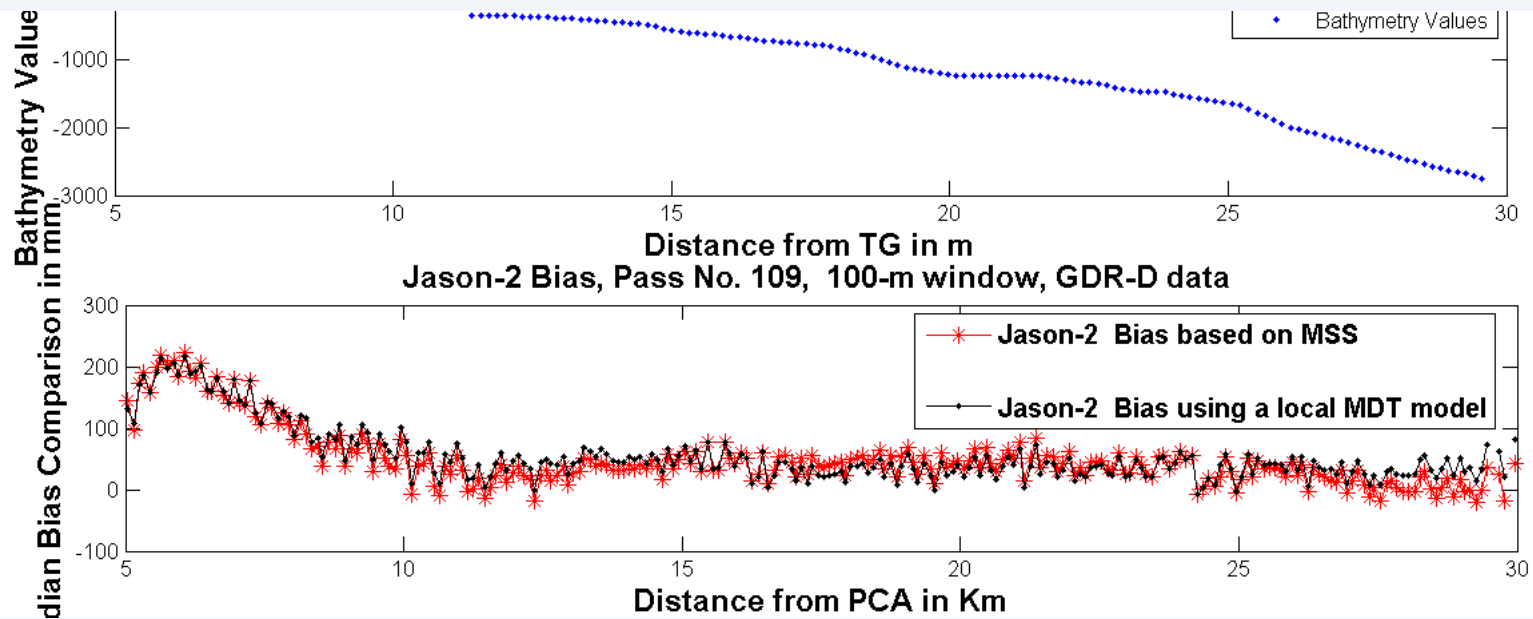
Jason-2 Atmospheric Corrections, no SSB, for 177 Cycles, with 500m window



Jason-2 Sea State Bias corrections, window 500 m







- Variations of bias as a function of distance from PCA, along ground track for Jason-2 calibrations, reveal:
- Riddles on sea surface of short-wavelength features (1-3 cm over 1-2 km),
- Reflecting clearly changes in the topography of sea floor at 3000 m depths below;.
- Geoid gravimetric model required minor adjustments (refinements) in certain regions within the calibrating region;
- Plans for installing a HF radar to verify ocean circulation.
- Improved altimetric/gravimetric geoid models have emerged for extending the calibrating regions.