



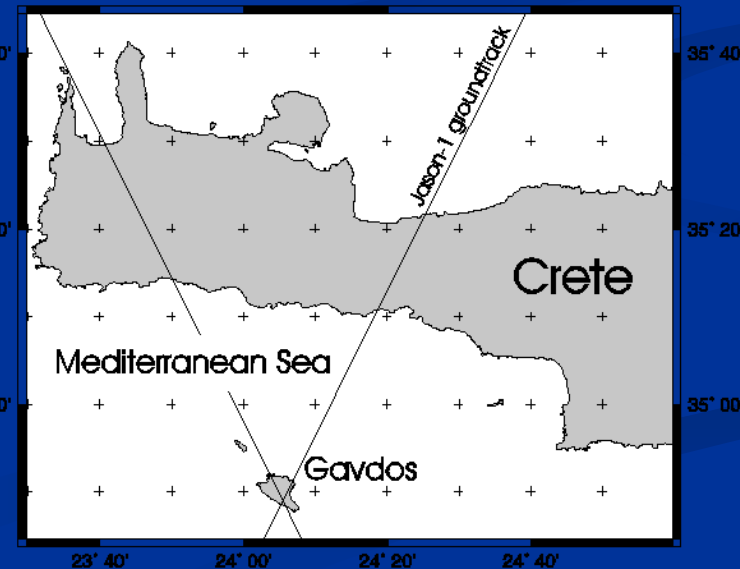
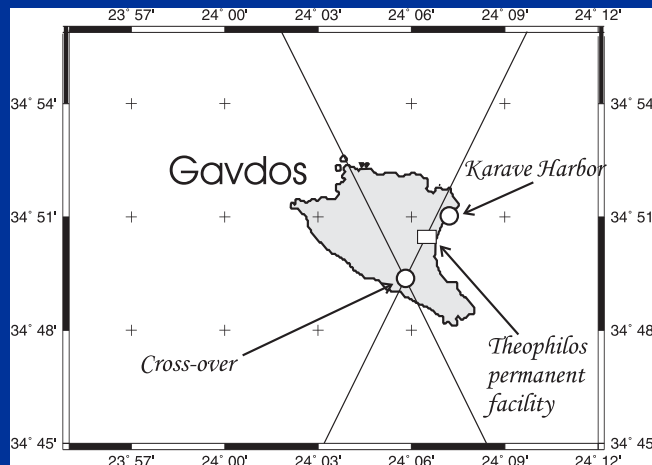
Estimation of the Altimetry Bias for the Jason satellites using Gavdos

S. P. Mertikas, Ath. Papadopoulos,
X. Frantzis, Ach. Tripolitsiotis
Technical University of Crete

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Ground tracks of Jason



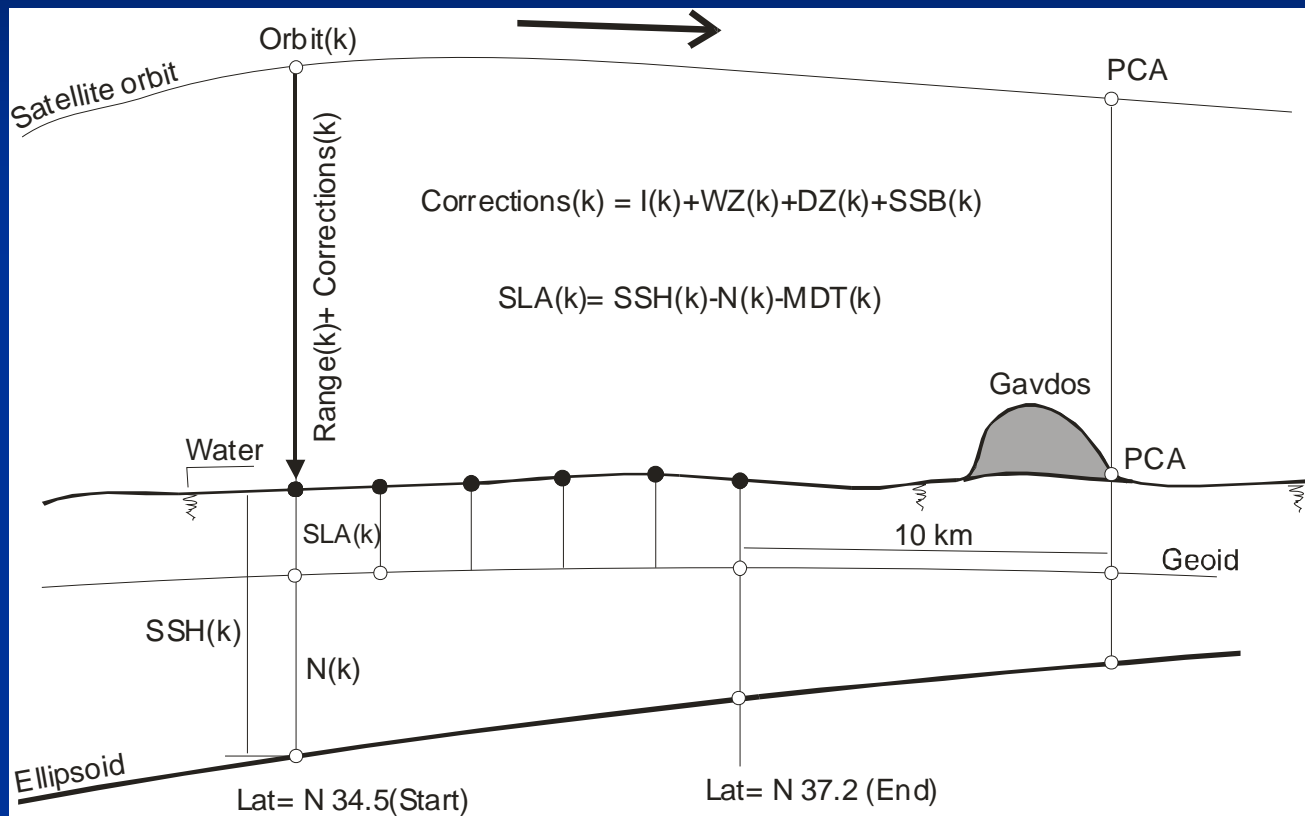


Jason ground tracks



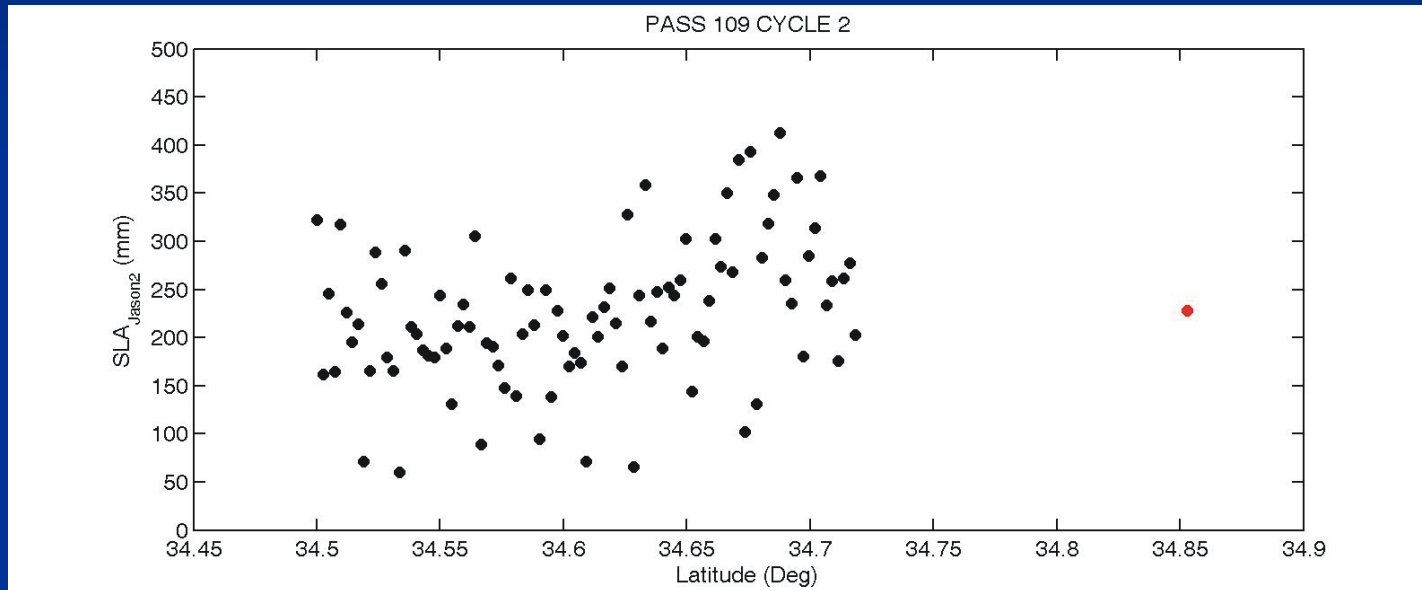


Principle of operation Pass 109



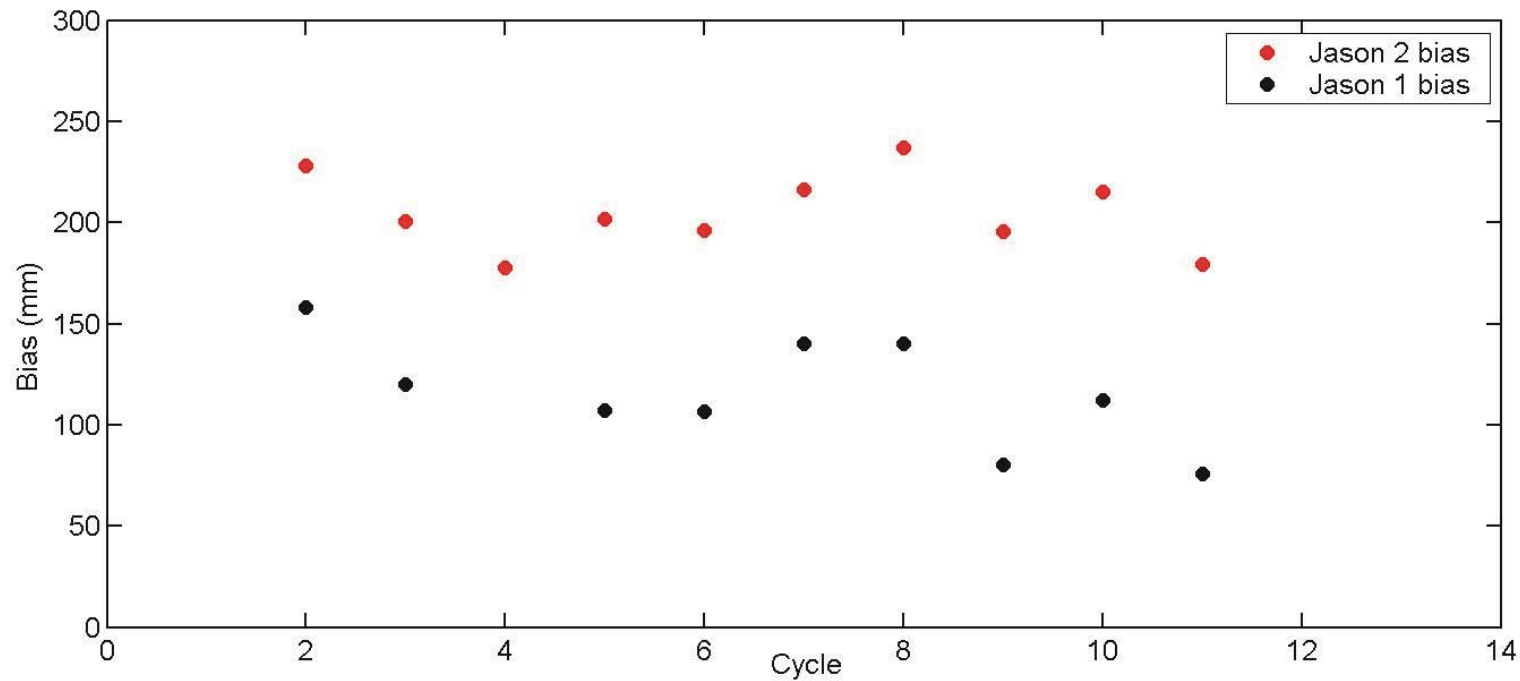


Sea Level Anomalies: Jason-2





Jason-1 & Jason-2 Bias





Conclusions

- The absolute bias of the Jason-2 altimeter between cycles No: 2-11 estimated $B2 = 204.8\text{mm} \pm 19.4\text{mm}$ (20-Hz data).
- For Jason-1: $B1 = 115.6\text{ mm} \pm 42\text{mm}$ (1-Hz data) in the tandem period.
- Procedures have been standardized between Corsica, Harvest Platform and Gavdos.
- Gavdos is enhanced by another site RDK1 on the ground track (No.109) and in south Crete.
- Field surveys are being planned using survey boat, an ultrasound height measuring device, a GPS and along ground tracks.

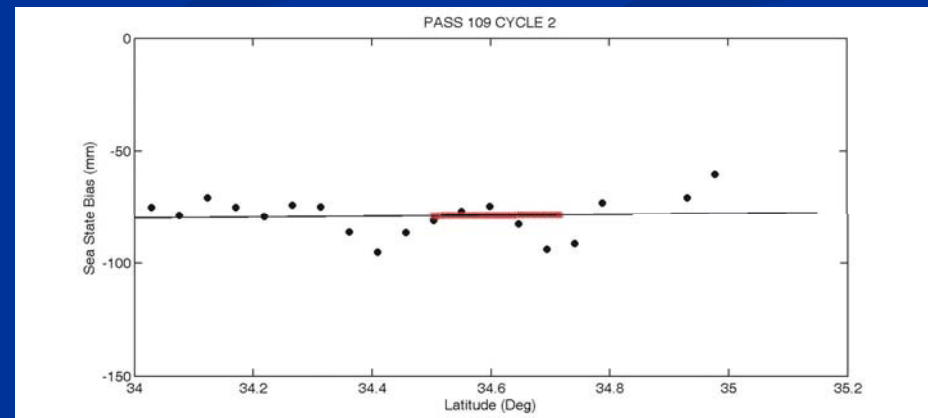
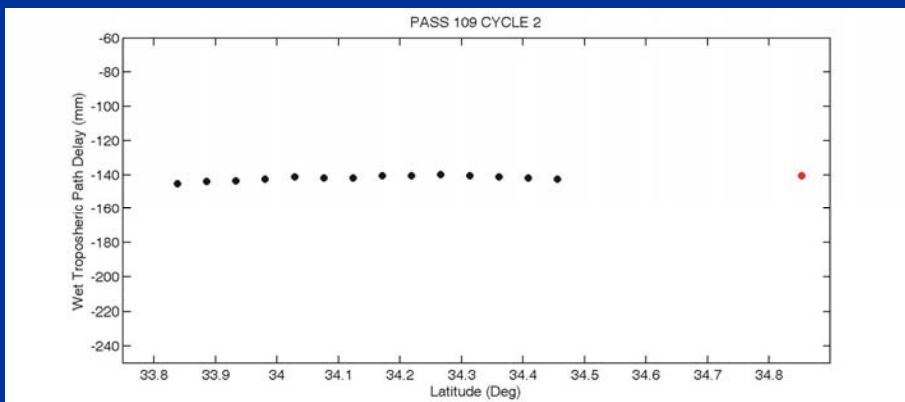
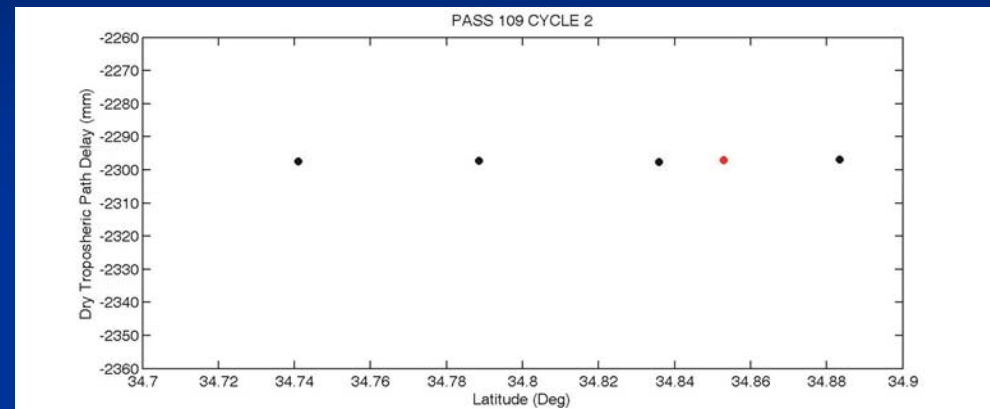
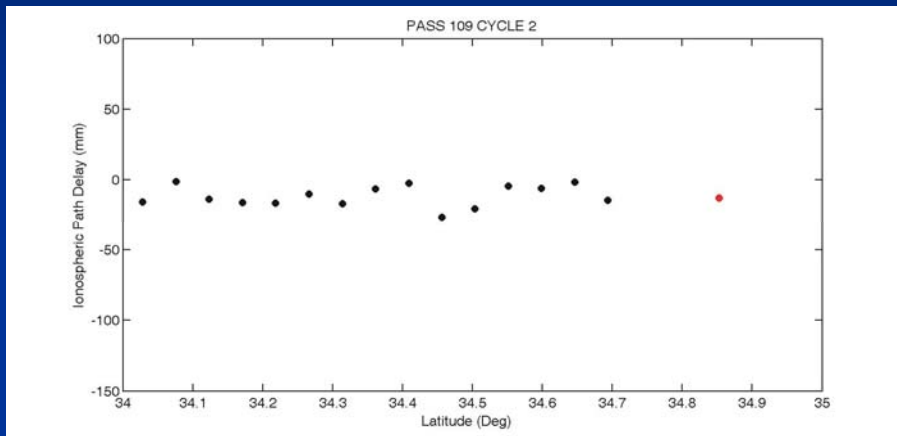


Future plans

- Continue monitoring satellite altimetry for calibration/Validation.
- Transmit reliably, securely and immediately Cal/Val data.
- Develop procedures for automatic analysis and archiving of data.
- Extend capabilities to Cryosat-2, Sentinel-3, etc.

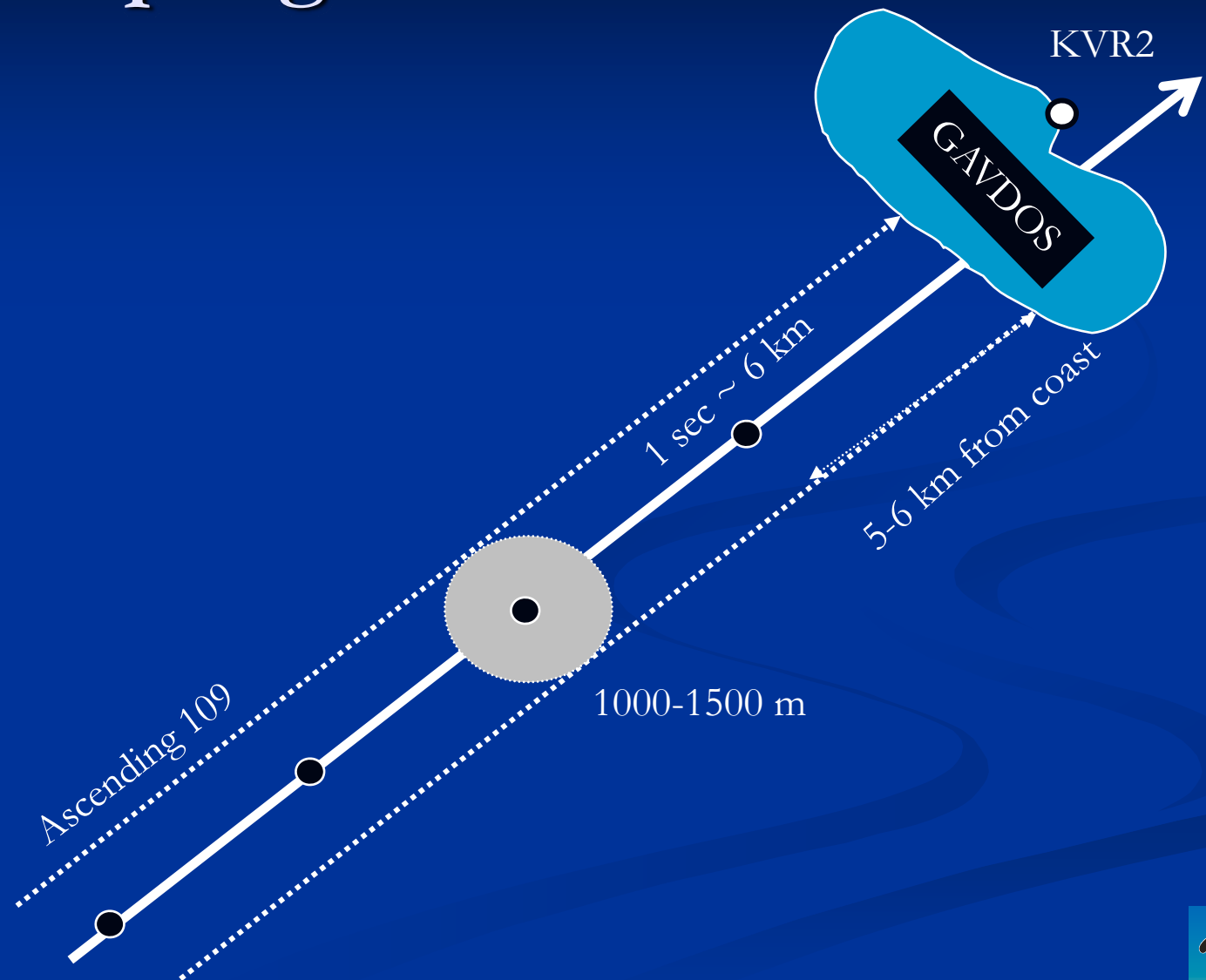


Back up slides





When sampling for calibration starts?





Methodology for applied corrections

- $I(k)$: **Mean** over -21sec to -1ssec around the TCA.
- $DZ(k)$: **Linear fit** over -5 to +2s around TCA.
- $WZ(k)$:
 - Linear fit over -5s to -5s of TCA (avoid land contamination ~ 30 km),
 - Last fit value is used for all over-flight data.
- $SSB(k)$: Cubic fit over -10s to -1 s of TCA used for all over-flight data till TCA-1s.
- Geophysical Corrections: GDR corrections for Ocean loading, solid/permanent/pole tides, etc.
- Tide gauge: liner fit over 30 min centered on TCA (6-min sampling).



Back up: GPS buoys experiment



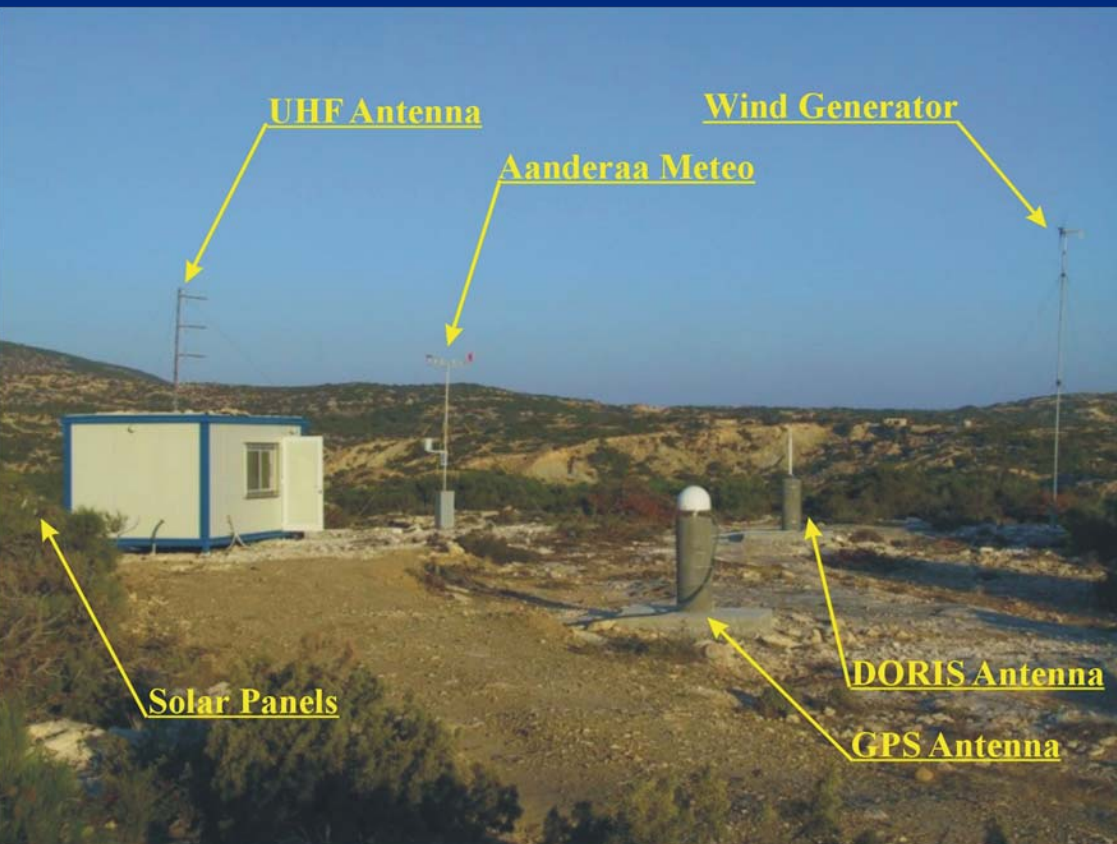


GVD6 and KVR2





Central permanent site



- Normal operation,
- DORIS beacon as IDS station
- GPS Leica RS500
- Weather Station
- Sat communications links



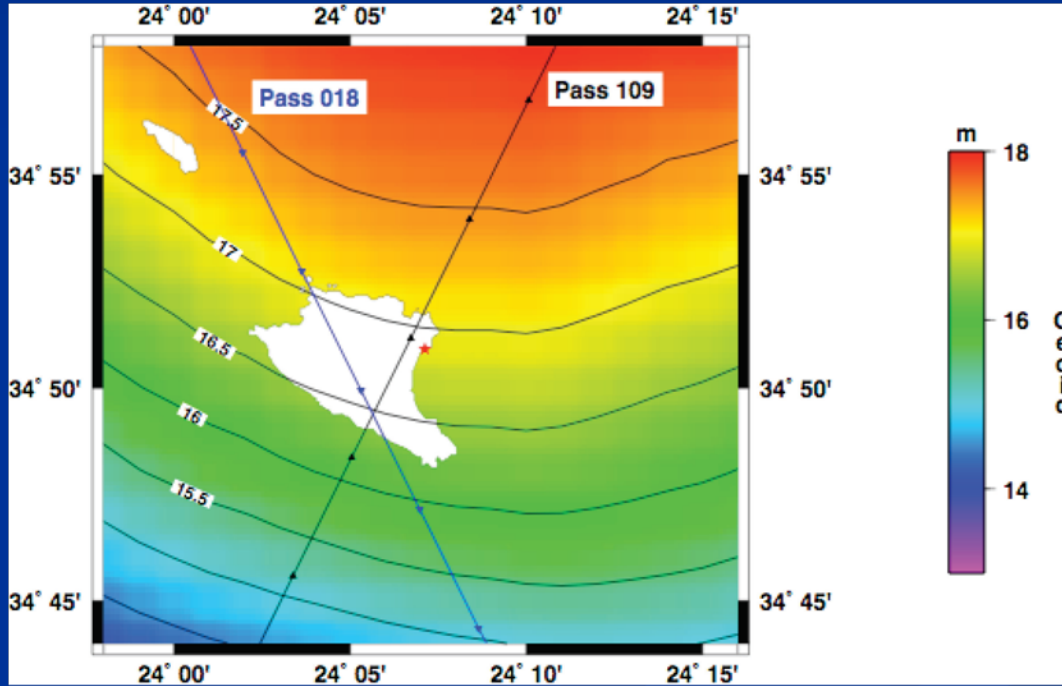
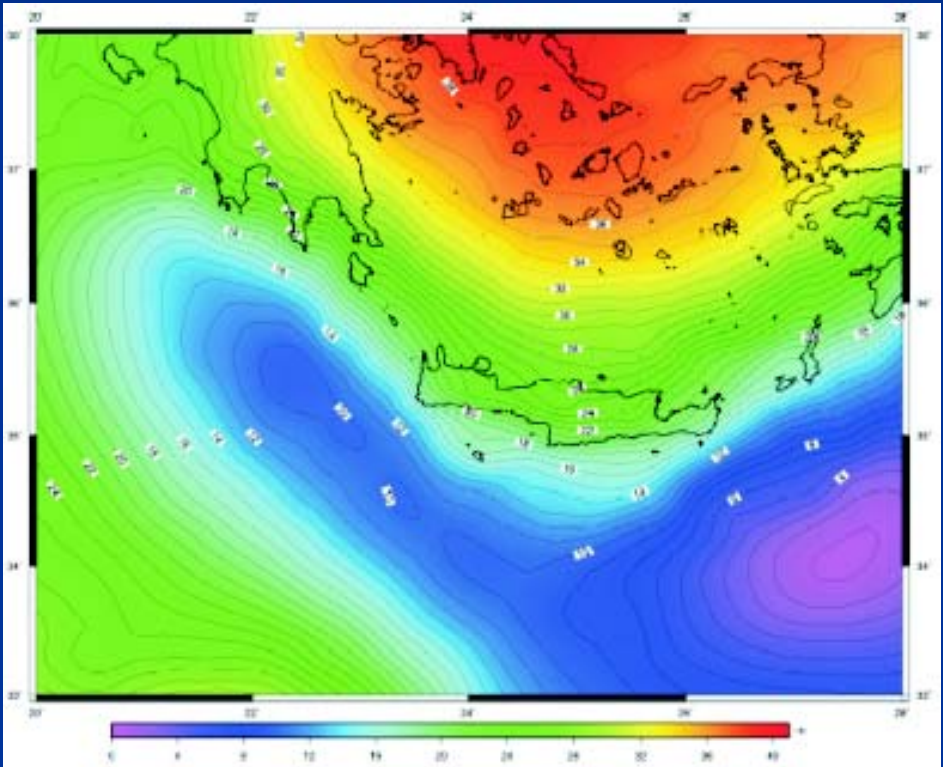
Data Processing



- Range for altimeter: $D=10 \text{ km} : 30 \text{ km}$.
- $N(\text{KVR2})=16.7187 \text{ m}$ (alt6km).
- Ionosphere 140-km footprint in diameter .
- Wet troposphere 50 km footprint (30 km away from coast.
- Satellite speed $v=6 \text{ km/sec}$.

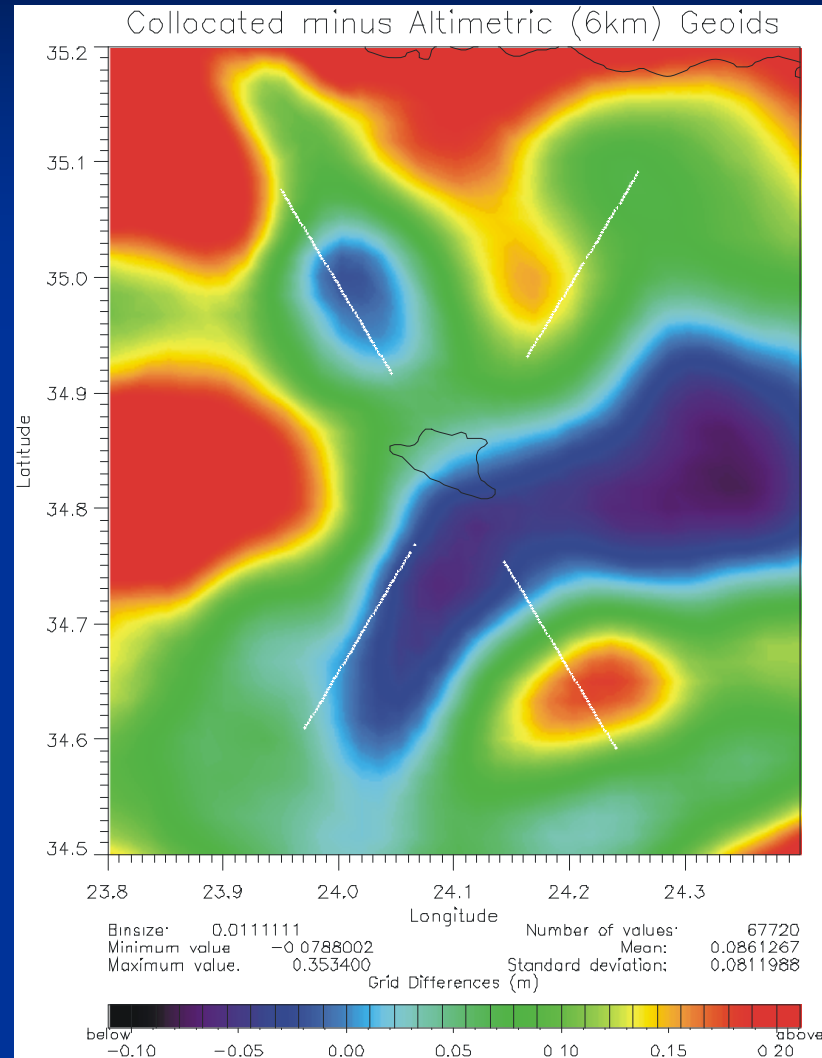


Geoid map





Geoid differences discovered





Transponder site @ cross-over





Harbour site in April 2005



- Ashtech GPS receiver operates
- EUMETSAT antenna.
- Site sends data to Central Facility,
- Pressure tide gauge transmits every **20 minutes**,
- Acoustic tide gauge transmits every **6 minutes**.