

Latest Results for the absolute calibration of Jason and HY-2 using Gavdos/Crete permanent calibration facility

S.P. Mertikas¹, A. Daskalakis¹, H. Peng³, I.N. Tziavos², X. Zhou⁴, G. Vergos², V. Zervakis⁵, O. B. Andersen⁶, D. Ambatzidis¹

1. Technical University of Crete, Greece

2. Aristotle University of Thessaloniki, Greece.

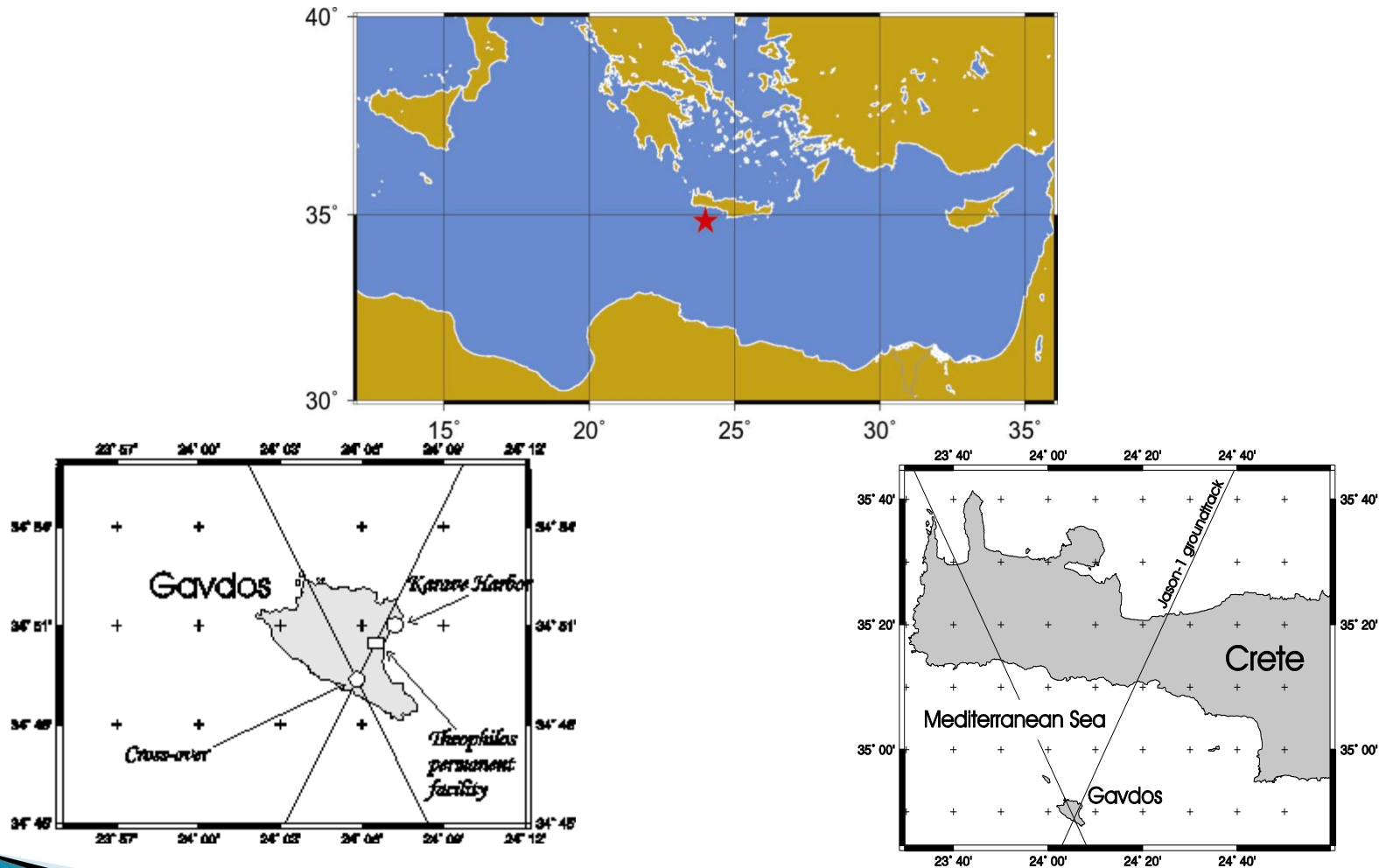
3. National Ocean Satellite Applications Service, Beijing, China.

4. First Institute of Oceanography, State Oceanic Administration, Qingdao, China.

5. University of Aegean, Greece.

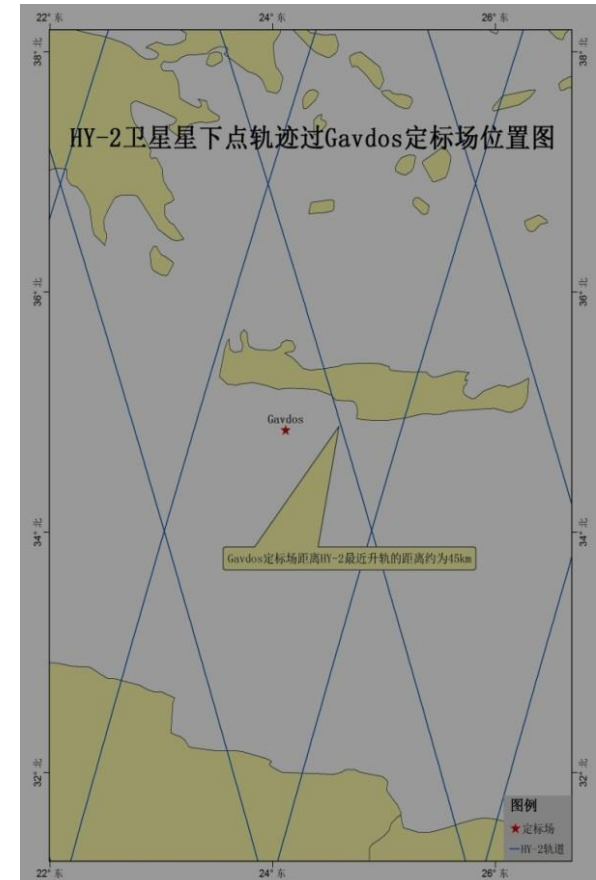
6. Danish Space Centre, Copenhagen, Denmark

Gavdos Permanent Facility



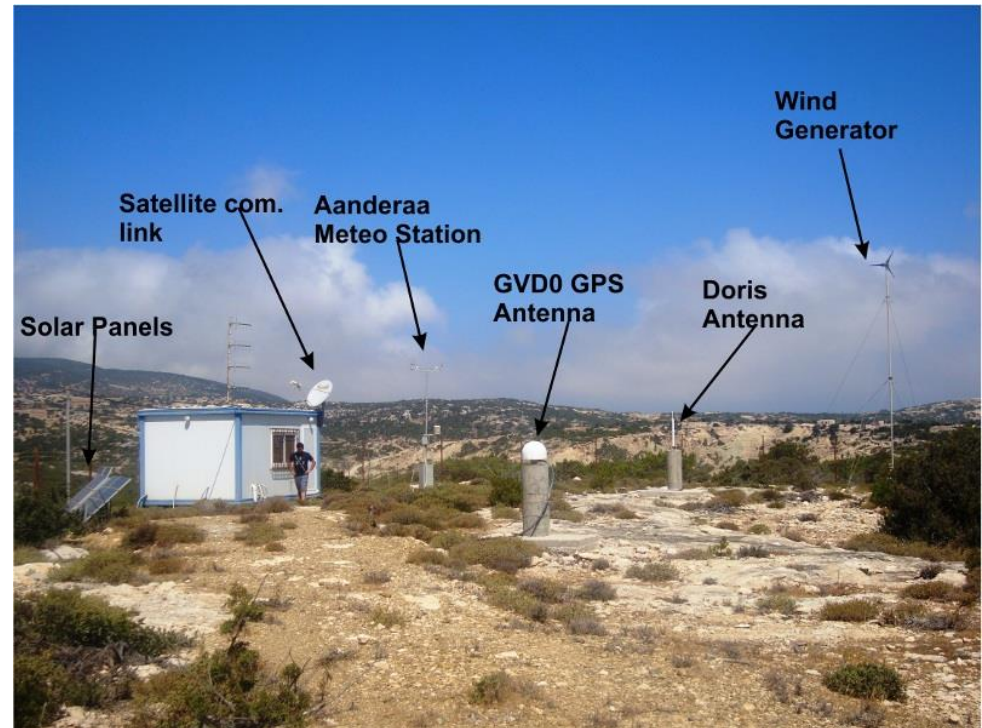
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HY-2 Ground tracks over Crete



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Gavdos and West Crete Facilities



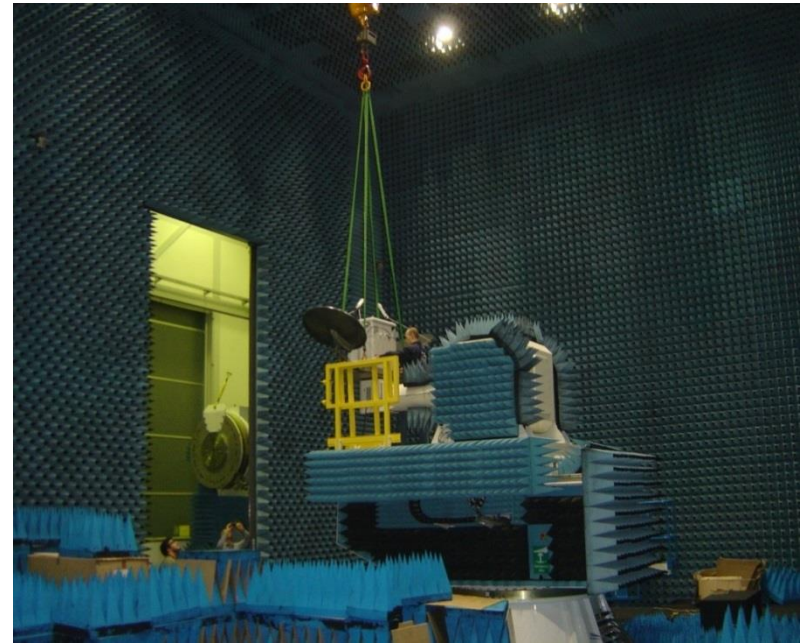
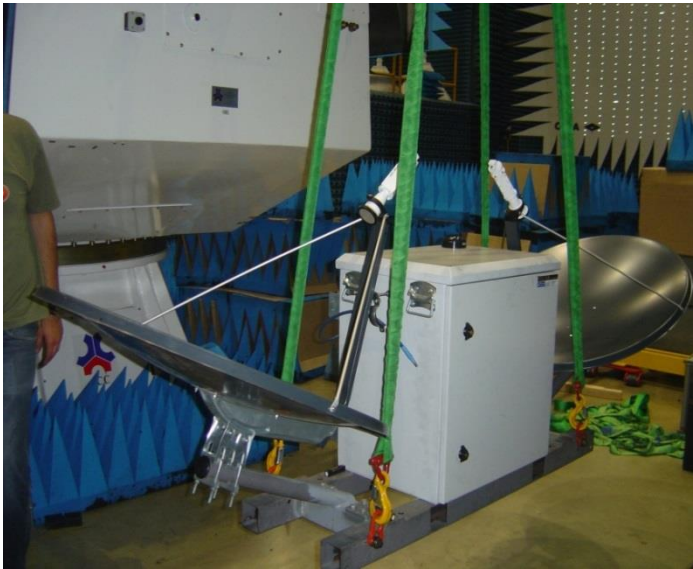
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Contents

- ▶ Transponder Status;
- ▶ Selection of Site Location, Setting;
- ▶ Infrastructures & Instrumentation;
- ▶ Transponder Hardware Upgrades;
- ▶ Work Plan for July–August 2013.

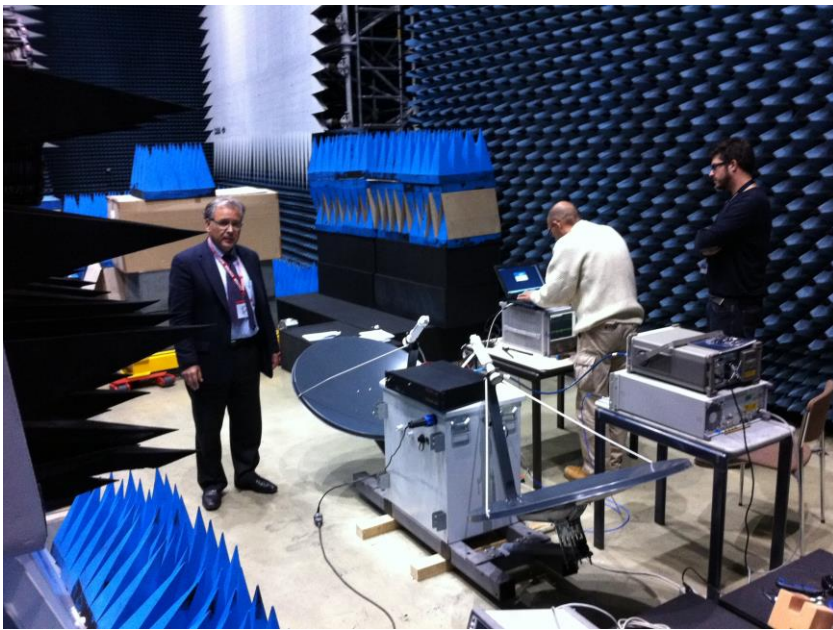
Transponder Status

- ▶ Fully characterized, March–July, 2012 in ESTEC;
- ▶ Transponder is already operational now for Cryosat-2.



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Transponder in ESTEC, 2012



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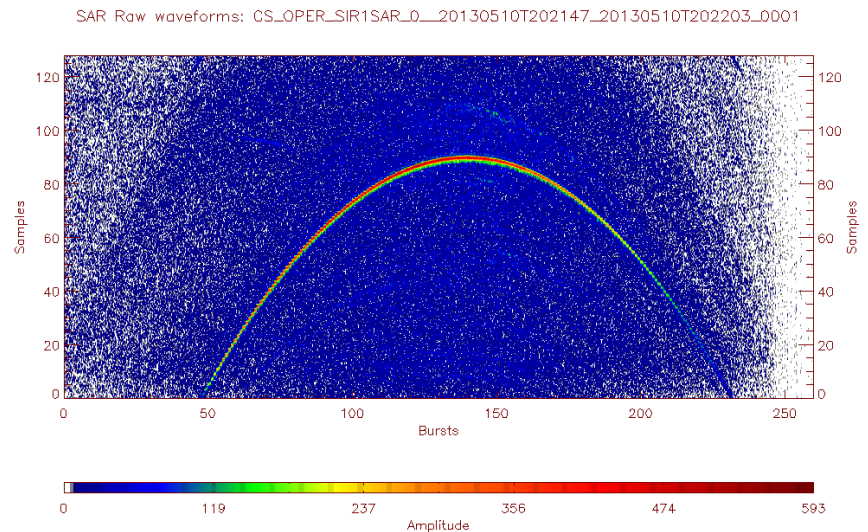
Crysoat-2 calibration successful

Site: SLR2 in North West Crete

Time: 10-May-2013, 20 21 47 UTC

Lat=N 35 32 ' 05.05 ' ' , Long= E24 04 ' 03.6962386 ' ' ,

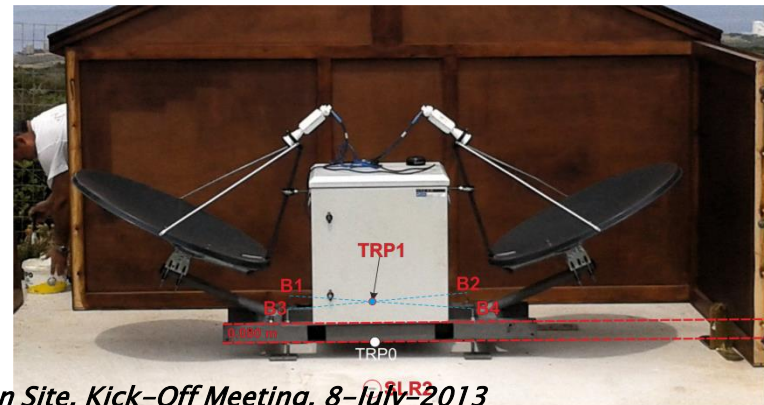
Ellipsoid Height= 156.275 m



Marco Fornari - Sat May 11 09:05:19 2013

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Transponder Cal/Val at SLR2

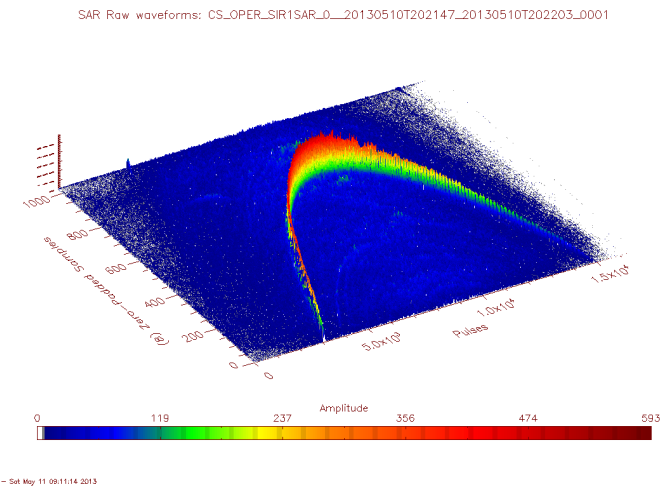
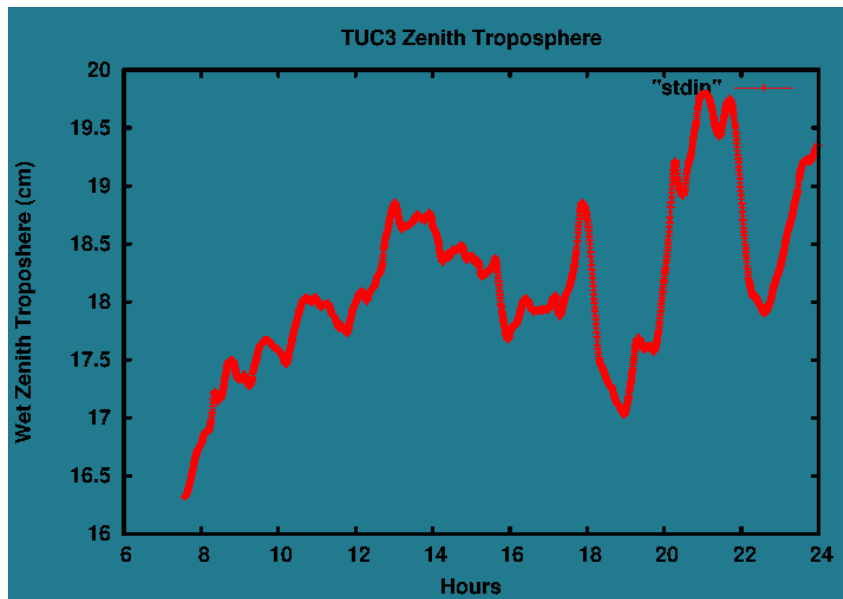


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Transponder reference points for the measurements made for Cryosat-2 calibration, using the SLR2 site in Crete, Greece, on 10-May-2013 20:21:40 UTC.

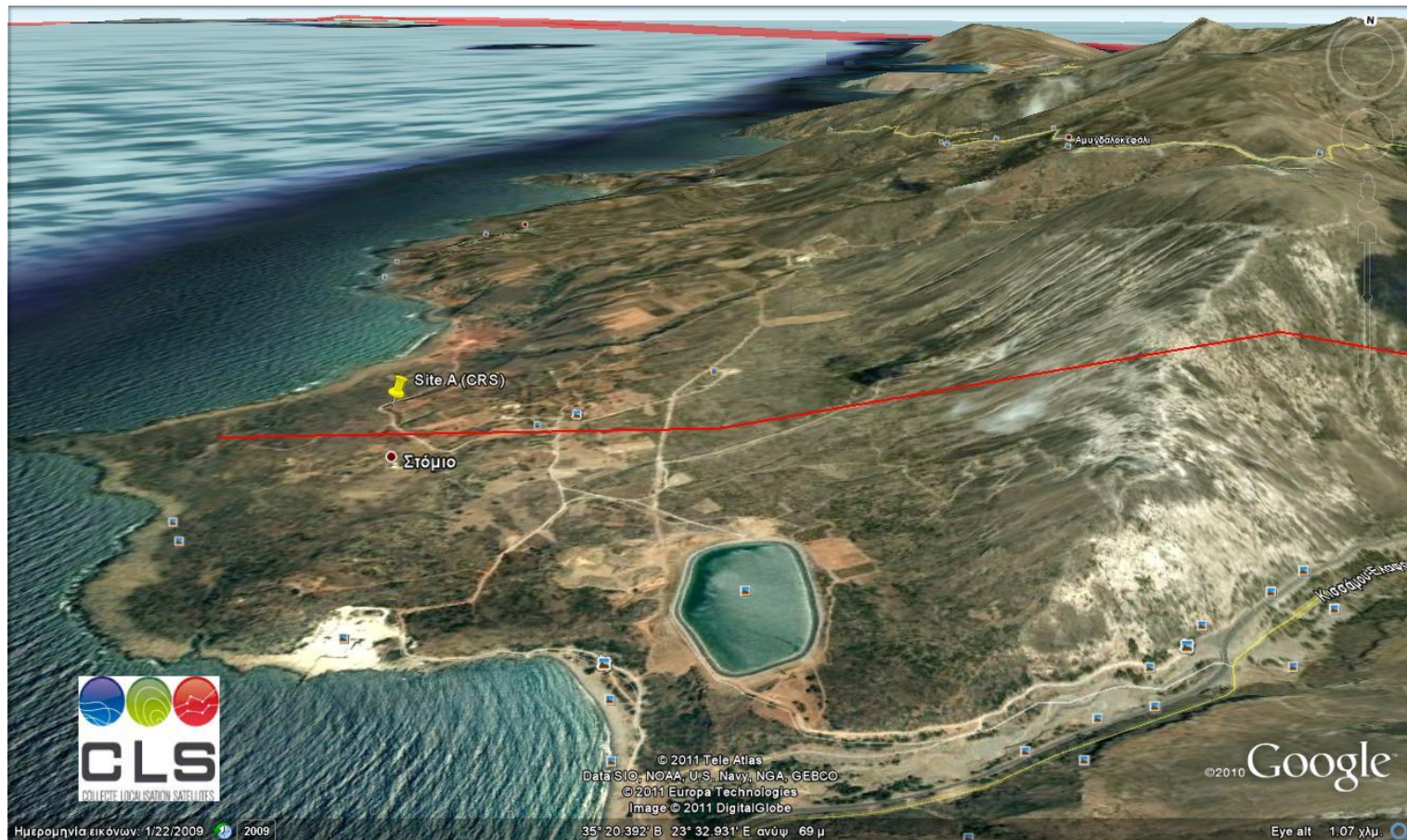
Cryosat-2 transponder Cal/Val

- ▶ Wet & Dry troposphere delays,
- ▶ Ionosphere delays,
- ▶ Earth tides.



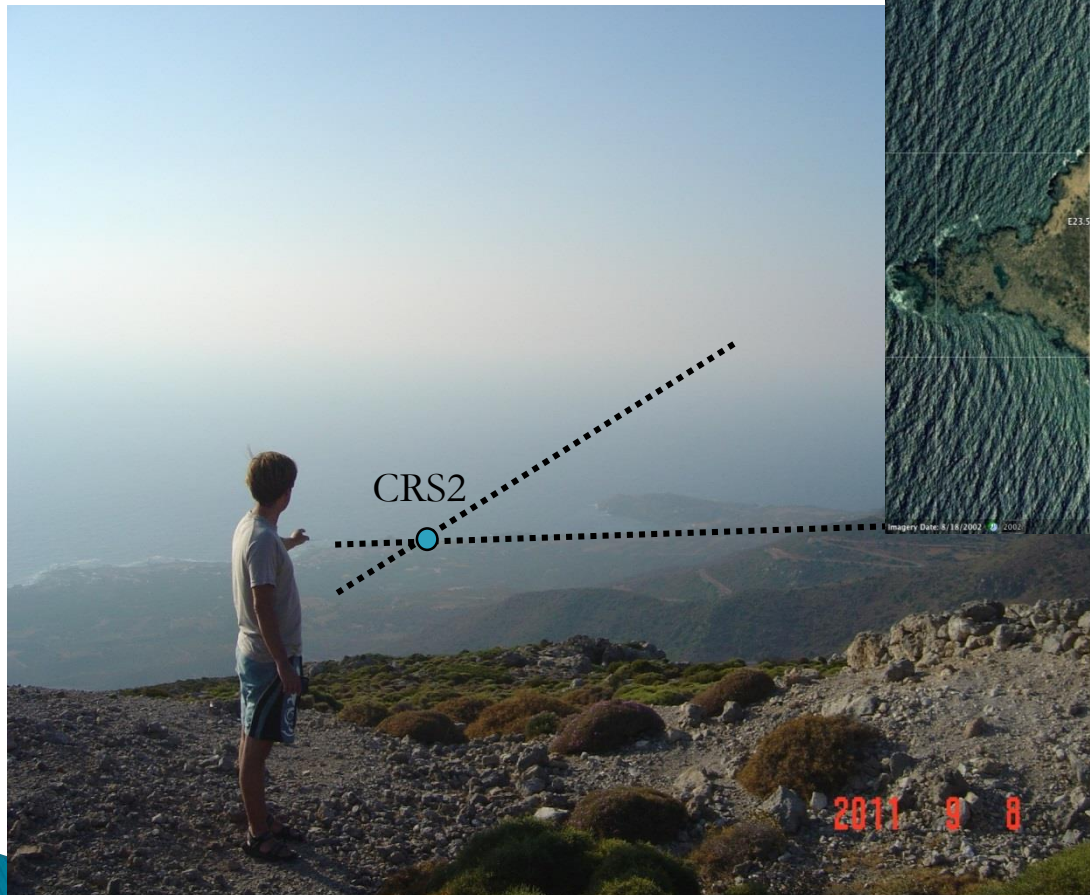
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Field Work for site selection



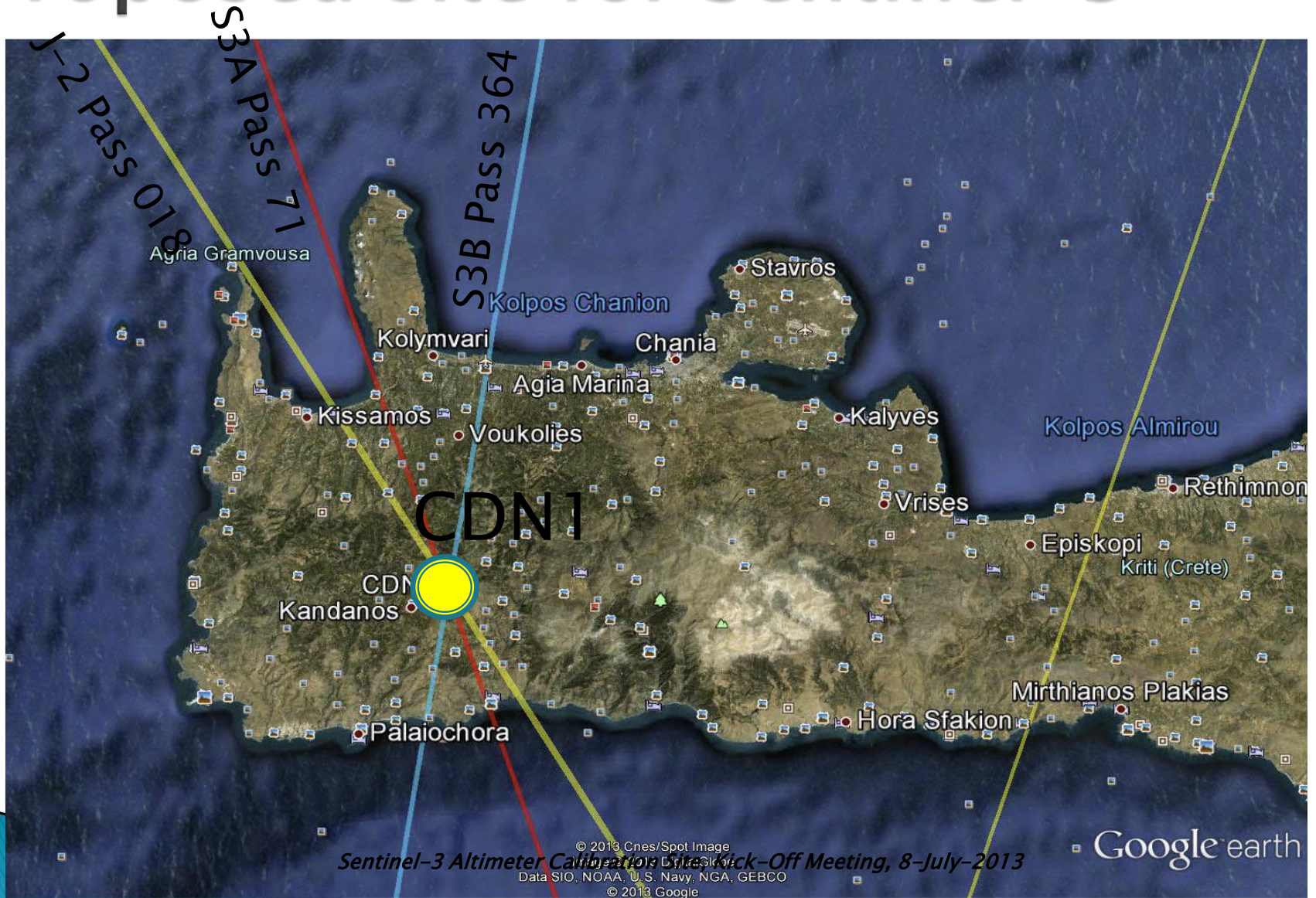
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Field Work for S3 Cal/Val Site



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Proposed site for Sentinel-3



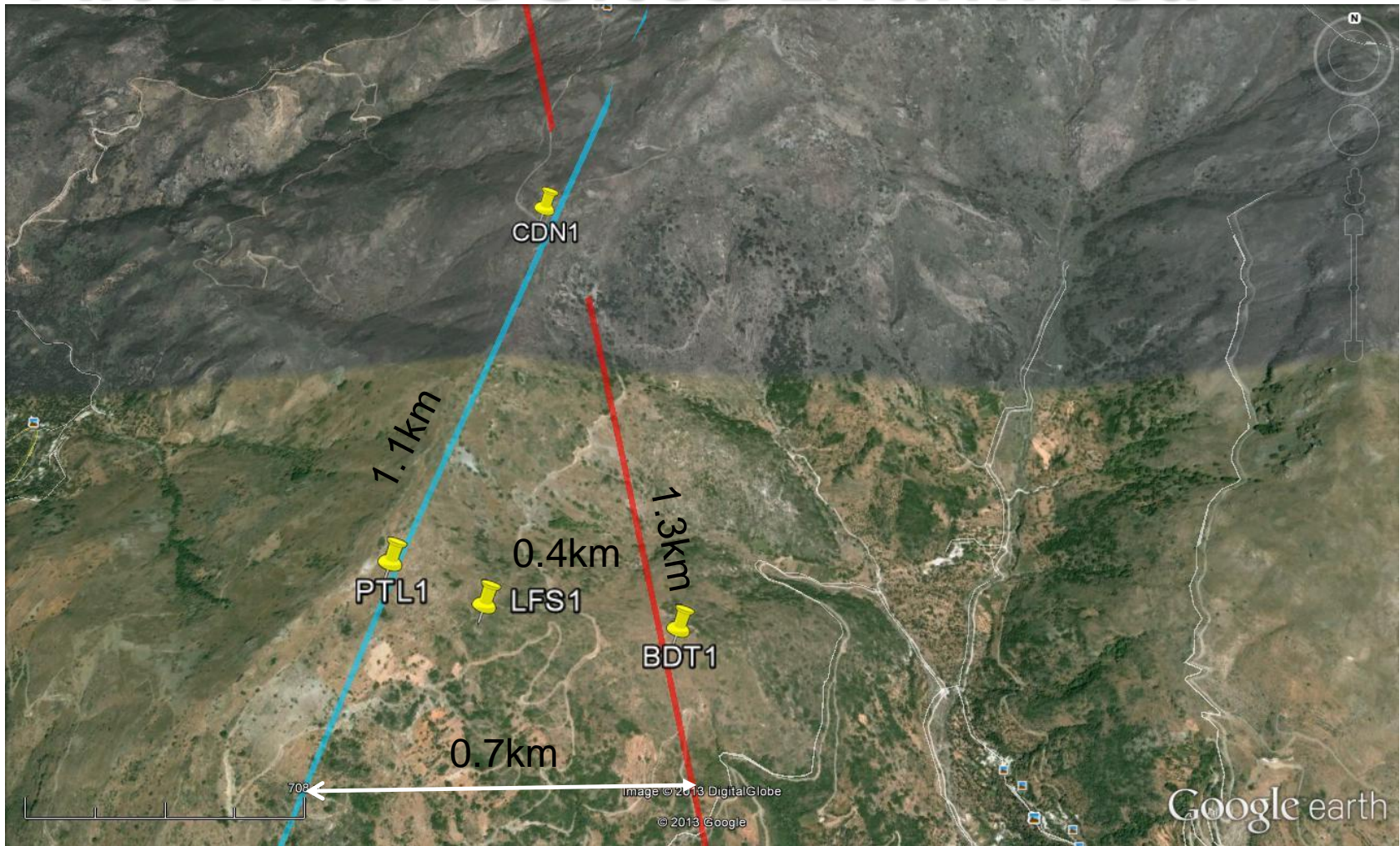
Proposed Site CDN1

- Lat= N35 20.274', Long= E 23 46.611;
- Triple cross-over location;
- Difficult access over the mountains ($H > 1000\text{m}$);
- Unclear ownership rights.



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Alternative Sites Examined



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Proposed CDN2 site

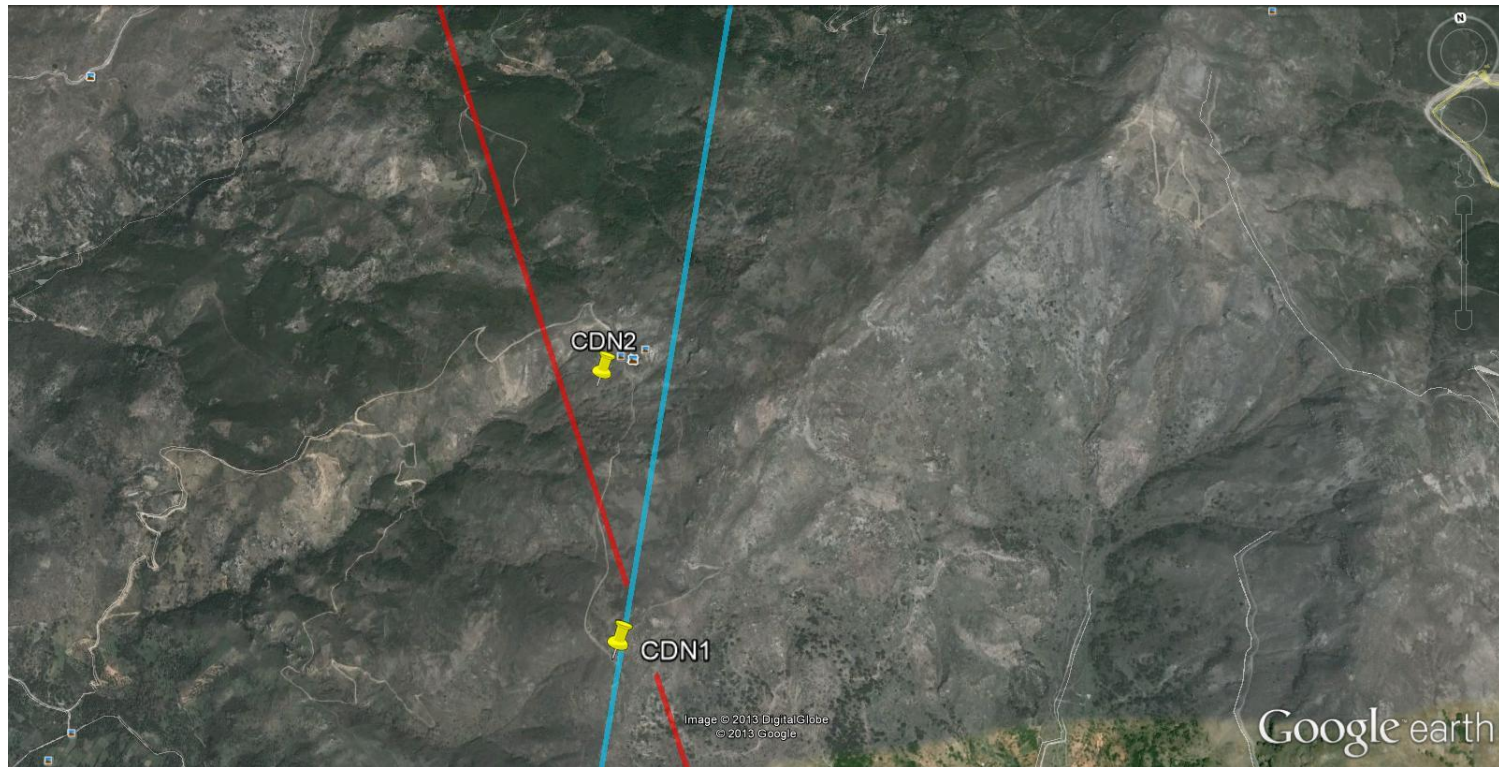
- ▶ Clear ownership rights;
- ▶ Better weather protection,
- ▶ 100m east of S3A ground tracks,
- ▶ exactly on J2, and
- ▶ 300 m west of S3B.
- ▶ Protected from wind,
- ▶ $\text{CDN2} = \text{N } 35^{\circ}20'43.76'', \text{ E } 23^{\circ}46'34.62''$
- ▶ Height= 984 meters.

Proposed CDN2 site



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Proposed CDN2 Site



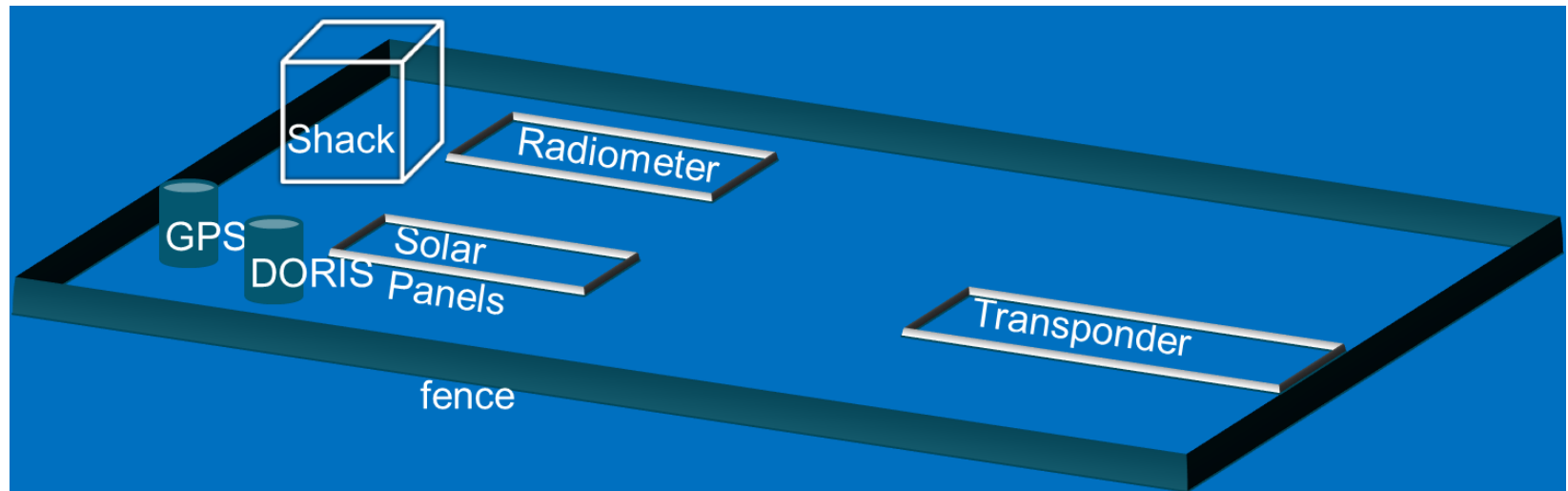
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Facility Infrastructure

- ▶ Minimum instrumentation
 - GNSS receiver (GPS, Glonass, Galileo),
 - Pressure, temp, humidity, wind speed sensors,
 - Hybrid power supply (Solar, Wind, Batteries),
 - Communications links (GPRS, satellite comms),
 - Field computer for remote control and operations,
- ▶ Ancillary instrumentation (loaned):
 - DORIS beacon,
 - Microwave radiometer.

Facility infrastructure

- ▶ Calibration site fencing (wood, non-metallic),
- ▶ Weather-proof equipment shacks,
- ▶ Wooden transponder protection.



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Transponder hardware upgrades

- ▶ Discussion on:
 - Alignment verification device specs,
- ▶ Schedule:
 - Isolation improvement in summer 2013,
 - Proposal for phase monitoring in 2 months.

Next period Work Plan

- ▶ Decision of site locations for S3 Cal/Val,
- ▶ Execution of Surveying works,
- ▶ Phase monitoring proposal for transponder,
- ▶ Infrastructure & Instrumentation Technical Note,
- ▶ Next meeting before ESA Living Planet Venue.

Acknowledgements

- ▶ Part of this work has been performed under the framework of the “Cooperation 2011” project ISTRIA (11_SYN_9_1389) funded from the Operational Program “Competitiveness and Entrepreneurship” (co-funded by the European Regional Development Fund (ERDF)) and managed by the Greek General Secretariat for Research and Technology.



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