



Jason-1 altimeter calibration results from the GAVDOS project

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GAVDOS was jointly funded by the EU, NASA and the Swiss Federal Government as an infrastructure research project, intended to fill a recognized gap in the region of South-eastern Mediterranean. The main objective was the establishment of an absolute sea level monitoring and altimeter calibration facility applicable to many missions. The calibration facility is under a crossing point of the original ground-tracks of TOPEX/POSEIDON (T/P) which are also the current ones for Jason-1 (passes 018 and 109), and adjacent to an ENVISAT pass. The location of the island Gavdos is about 50 km to the south of the main island of Crete, Greece. The facility hosts in addition to two tide gauges, multiple GPS receivers, a DORIS beacon, a transponder for direct calibration, and is visited periodically by additional systems that collect data to control and validate the operational results. A collocation at the TUC facility site in 2003 with the French transportable laser ranging system (FTLRS) established a link and referenced the entire network of GAVDOS sites in the ITRF2000 frame. The facility has been fully operational since October of 2003. The comparison of tide gauge data collected over that period and until recently (Jason cycles 70 through 90), resulted in a Jason altimeter bias best estimate of 144.7 ± 15 mm, where the quoted standard error is three times the statistical formal error. Future plans of the project include the relocation to the final and originally intended location, on a new pier (finally under construction!), a move that will improve vastly the protection of the facility from heavy winter storms and minimize the need for maintenance. As a result of this move, with minor additions for increased power at the tide gauge site, we will have the ability to obtain regularly the GPS observations on a daily basis. In addition to the altimeter calibration, the project has so far performed two calibration tests for JMR,

using WVRs and a solar spectrometer instrument. Our plans include now the repeat of these experiments in the near future, and additionally, the utilization of AIRS data for a global calibration of the JMR in general, based on the encouraging results for cycles 37 and 62, which indicated a 1-2 mm agreement. Finally, we are extending our efforts to include the ENVISAT and GFO missions regularly.