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Absolute calibration of the JASON-1 altimeter from the GAVDOS project

E. C. Pavlis (1) and S. P. Mertikas

(1) Joint Center for Earth Systems Technology, UMBC and NASA Goddard/698, Greenbelt, MD 20771, USA, (epavlis@umbc.edu/Fax: +1-410-455-5868), (2) Technical University of Crete (TUC), Chania, Crete, Greece

The Gavdos permanent absolute calibration facility, initially established with joint EU, NASA, and Swiss Federal Government funding in 2002, while fully operational at the moment, it is also being expanded to a regional absolute sea level monitoring and altimeter calibration facility applicable to many missions, in the Eastern Mediterranean. The main site is still at Karave, located under a crossing point of the Jason-1 ground-tracks (passes 018 and 109), and adjacent to an ENVISAT pass, on the isle of Gavdos, about 50 km to the south of the main island of Crete, Greece. The project is now continuing under the OSTM program with funding from NASA and the Greek government. The current plans include the relocation of the Gavdos “Karave” facility to the final and originally intended location on a new pier, a move that will improve vastly the protection of the facility from heavy winter storms and minimize the need for maintenance. The Karave GPS receiver operated continuously since 2003, the tide gauges however were placed in storage to avoid damage during the construction period, and they have been redeployed as of late 2006. The facility now operates with “off the wall” electric power and it is connected via an ISDN line and a computer, so that we can download all of the data, including GPS observations, on a hourly/daily basis. An identical facility at a site on the main island of Crete, at Kastelli, near the TUC site (60 km west of TUC), on a TUC-owned area and situated exactly under the descending Jason-1 pass 018 is now nearly complete. We purchased a radar gauge and modern GNSS receivers for the new location. Once tested and calibrated, we plan to replace the Karave system with one of these since they are much less demanding

in terms of maintenance, always a concern during the winter months. This gives us access to a second site and use of the altimeter measurements made to the north of Crete, in the Aegean Sea. It will thus allow the collection of additional information on the circulation and currents of the area between the Cape Maleas and Western Crete (e.g. Cretan cyclone). The project is now producing results on the basis of the new GDRs, version B, and extending our efforts to include the ENVISAT and GFO missions. We are planning to repeat the co-location at the TUC facility site with the French Transportable Laser Ranging System (FTLRS) that established an initial link of the entire GAVDOS network of sites with the ITRF frame, in order to update the link to the global TRF. This is contingent on FTLRS' availability, which in turn is tied to its deployment in Australia and the launch of JASON-2 later this year. Finally, we are planning the deployment of an open-sea buoy south of Gavdos and under the JASON groundtrack for improved calibration results as well as a contribution to the Mediterranean Tsunami Warning System.