



Tectonic motion monitoring at the altimeter calibration facility on Gavdos, Crete, Greece

E. C. Pavlis (1), K. Evans (1), and S. P. Mertikas (2)

(1) Joint Center for Earth Systems Technology, UMBC and NASA Goddard, epavlis@JCET.umbc.edu/Fax: +1-410-455-5868, (2) Tech. Univ. of Crete (TUC), Chania, Greece

The intense tectonic activity of Eastern Mediterranean has been an attractive research topic for many decades. The recent events in Indonesia however have generated new interest and raised questions about the effectiveness of the existing infrastructure and observational record. The sea-level and environmental monitoring project GAVDOS, an activity funded by the EU, NASA and the Swiss federal government, focused primarily on regional oceanography and radar altimeter calibration studies. The project is now continuing at the facilities already in-place, with funding from NASA, under the Ocean Surface Topography Mission, to support the JASON follow-on mission. In addition to continuing to serve the oceanographic community as an absolute calibration site for current and future missions (e.g. on TOPEX/POSEIDON, GFO, JASON-1, ENVISAT, etc.), the project is also contributing sea-level, GPS positioning and environmental data to international and regional organizations (e.g. IOC-GLOSS and MedGLOSS). Crete is host to two of the oldest tide gauges in the regional network, at Souda Bay and Heraklion, now extended with this third, state-of-the-art MSL monitoring facility in southwestern Crete, on the isle of Gavdos. The facility hosts in addition to two tide gauges, multiple GPS receivers, a DORIS beacon for positioning and orbit control, and a transponder for direct radar calibration. The site at Souda Bay is only 5 km away from the continuously operating GPS site at TUC, Chania (over seven years). Gavdos in addition to being an excellently equipped altimeter calibration facility, it is also an excellent deformation control site in the vicinity of the Hellenic trench, with the local tectonic motions monitored precisely and continuously with two techniques, GPS and DORIS. With new additions in 2005, the facility will provide near-real time information on oceanographic and tectonic signals for evaluation as precursors of nat-

ural hazards. This presentation focuses on the tectonic deformation monitoring aspect of the project, the local and regional tectonic motions relative to the “stable” part of the Eurasian plate. During 2003, the French Transportable Laser Ranging System (FTLRS) completed a co-location campaign at Chania, Crete, for improved orbit control over the site, and to ensure the best possible and most reliable results in connecting the regional sites to the global reference frame ITRF2000.