Geophysical Research Abstracts, Vol. 8, 05036, 2006
SRef-ID: 1607-7962/gra/EGU06-A-05036

Back-arc tectonic motion in western Crete, Greece: Chania and Gavdos vs. stable Eurasia.

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The intense tectonic activity of Eastern Mediterranean has been an attractive research topic for many decades. 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. The Gavdos 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 the Souda Bay tide gauge is only 5 km away from the continuously operating GPS site at TUC, Chania. Gavdos 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. 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. A second visit in the ˜2007 timeframe is now being planned. With additions in 2006, the regional network will provide near-real time information on oceanographic and tectonic signals for evaluation as precursors of natural hazards. We focus here on the tectonic deformation monitoring aspect of the project, relative to the “stable” part of the Eurasian plate. We present our multi-year reanalysis of the GPS time series and we compare the results to those obtained with SLR and DORIS.