

# 地球科学輻合ゼミナール (2014年度 後期 第8回)のご案内

## Satellite Altimeter Calibration, Sea Level Changes, and Ground Subsidence in Crete, Greece

Stelios Mertikas

Geodesy & Geomatics Engineering Lab, School of Mineral Resources  
Engineering, Technical University of Crete, Greece

Accurate determination and monitoring of sea-level changes are of fundamental value and crucial in understanding the ocean's influence on our weather patterns and long-term climate changes of our planet. Satellite altimetry provides the only means for monitoring changes in sea level, unequivocally, over regional to global scales with [mm/yr] accuracy and with respect to the center of mass of the Earth. Absolute monitoring of earth and ocean changes could be achieved only if satellite altimeter measurements of homogeneous quality and reliability are maintained over long periods of time, and in the same reference system. Thus, altimetry products, such as sea-surface heights, sea-anomaly fields, etc., need to be continuously and independently connected on a common and reliable reference system, which has to be maintained definitely. Such absolute bias of satellite altimetry measurements is, primarily, determined by permanent calibration facilities established at dedicated sites, distributed all over the globe. Four such permanent facilities for the satellite altimetry calibration exist in the world. Two of those sites are located in Europe (Gavdos/Crete in Greece operated by the Technical University of Crete; Corsica in France operated by Centre National d' Etudes Spatiales), one in the USA (Harvest Oil Platform, California, operated by the Jet Propulsion Lab/NASA) and one in Australia (Bass Strait, operated by the University of Tasmania). The Gavdos Cal/Val permanent infrastructure has been operating and providing absolute biases for altimetry satellites for more than a decade. It was established in 2001 and has been on continuous operation as of 2014. This seminar will describe its operation, and the calibration for Jason-2, SARAL/AltiKa and the Chinese HY-2 satellite missions. Results for absolute sea level will be given.

In addition, some results for mapping ground subsidence induced by over-pumping groundwater will be presented. Crete is one of the most productive agriculture regions in Greece. Over the last 20 years, extensive exploitation of its aquifers mainly for irrigation has led to a 40-meter decrease in the level of groundwater. This seminar will also describe ground subsidence as monitored by radar interferometry. Finally, some results for the tectonic motions of Crete, observed by an array of 13 permanent GNSS stations (GPS, GLONASS, BeiDou and EGNOS), will be given.

The background image is a composite. On the left, there is a map of Crete with a grid overlay. In the center, a large, glowing yellow and orange globe is shown. To the right, a traditional building with a tiled roof is visible at night, illuminated from within. The overall scene is set against a dark, starry sky with some nebulae.

12月10日(水) 午後4:30～午後6:00  
場所: 理学研究科6号館 303号室