Geophysical Research Abstracts, Vol. 8, 09087, 2006
SRef-ID: 1607-7962/gra/EGU06-A-09087

Absolute calibration of radar (Jason, Topex-Poseidon, GFO and Envisat) and laser (ICESat) altimeters using GPS mobiles on Issykkul lake and Caspian Sea

S. Calmant, J-F. Cretaux, V. Romanovski, R. Mamedov, F. Lyard and M. bergé-Nguyen

LEGOS/OMP/IRD, stephane.calmant@cnes.fr

The Topex /Poseidon satellite launched in 1992 and the following altimetry mission (Jason, Envisat), has been designed to study the ocean variability. Since few years this technic is also widely used in continental area: lakes, rivers and wetland. Due to the high precision of the current altimeters, and thanks to progress in orbitography, altimetry became a fundamental tool to study ocean and continental water bodies. It however highlighted the need of knowledge of the instrumental bias. Numerous calibration site in the ocean field (Harvest offshore platform in California, Corsica, Bass strait in Australia) has been used for this purpose. Recently a calibration site on Lake Erie (USA) has also been used to evaluate altimeter bias of Topex Poseidon and Jason over continental area. 2 new sites of calibration are presented. One in the region of Baku in Azerbaidjan (Caspian Sea), the second one over the lake Issykkul in Kirgistan. These sites have been chosen because they present some interesting characteristics: the dynamic variability is low, those lakes are fully covered by all current altimetry satellites (Jason, Topex Poseidon, GFO and Envisat), in-situ water level are available in the vicinity of the calibration site, they allow to densify in continental area the pool of existing calibration site. 2 campaigns with GPS receivers have been conducted on Issykkul lake (2004 and 2005), with roving receivers installed on a boat, and fixed receivers on the shore. One campaign was conducted in 2005 on Caspian Sea. Cruise with GPS data along the ground track of each satellite were conducted. They allow to estimate absolute bias of each altimeter, and relative bias between them. Cruise also allowed to map the profil of the mean lake surface which is very steep in the case of ther Issykkul lake.