



## **Absolute Calibration of radar altimeter over lakes**

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The Topex /Poseidon satellite launched in 1992 and the following altimetry mission (Jason, GFO, Envisat) are widely used in the continental domain: 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 continental water bodies. However the knowledge of the instrumental bias is also a key issue. Numerous calibration sites in the ocean field (Harvest offshore platform in California, Corsica, Bass strait in Australia) have been used for this purpose last years. Recently a calibration site on Lake Erie (USA) has also been used to evaluate altimeter bias of Topex Poseidon and Jason over continental area. few new sites of calibration are presented: the lake Issykkul, The Caspian Sea and some Andean lakes. Thoss site have been chosen because they presents some interesting characteristics: the dynamic variability and wave are low, those lakes are fully covered by all current altimetry satellites (Jason, Topex Poseidon, GFO, ERS1, ERS2, Icesat and Envisat), in-situ water level are available in the vicinity of the calibration sites, and it allows to increase the pool of existing calibration site in continental area. Two GPS campaigns have been conducted on Issykkul Lake in 2004 and in 2005, with receivers installed on a boat, and receivers on the shore. Cruise with GPS data along the ground track of each satellite were conducted. They allow estimating absolute bias of each altimeter, and relative bias between them. Cruise also allowed to map the profile of the mean lake surface along the different satellite tracks that is very steep near the shore. Based on the first results obtained during these two field campaigns, the Issykkul Lake may be further used in the frame of the new altimetry mission as calibration site (Cryosat-2, Altika, Jason-2). One similar camapign has been conducted on Caspian Sea near Baku in 2005 and in 3lakes in central Chili: Lake Ranco, Llanquihe and Todos los Santos.