



## Mean Lake Surface by Satellite Altimetry

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Lakes are possibly overflowed by several satellite missions and/or several tracks of each missions. Taking into account all the tracks enables a subsequent increase of the time sampling of the lake level (for example, 1 measurement every 2 days is available for lake Victoria) compared to one-track series. However, including all the tracks in a one time series implies correcting the heights for gravity (geoidal) spatial height variations over the Lake surfaces that are not fully reproduced by the current global geoid models such as GRACE or EGM96. We present a methodology (cross-over adjustment + collocation) to compute mean lake surfaces, taking advantage of the spatial coverage of altogether laser (ICESat) and radar missions, either on ERM (GFO, JASON, T/P, ENVISAT) or GM (GEOSAT, T/P transit) orbits. Such surfaces can be used afterwards as a reference to compute high rate time series of lake level. Noteworthy, we also present a calibration of the ICESat measurements that has been preliminarily performed by comparison with GPS profiles over Lake Issyk-kul (Khrgyzstan).