

iSLR18 – Impacts of sea-level rise from past to present
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ABSTRACT

Felipe Geremia-Nievinski
felipe.nievinski@ufrgs.br

Department of Geodesy – Institute of Geosciences
Federal University of Rio Grande do Sul

Monitoring present sea level is paramount given ensuing climate change. The challenge is especially difficult along the coastline, because of limitations of current spaceborne altimeters. There is also the possibility that land uplift and subsidence be mistaken for sea-level rise or fall. Geodetic positioning using GPS and other similar Global Navigation Satellite Systems (GNSS) is well established for the vertical control of tide gauges. Additionally, GNSS reflectometry (GNSS-R) has emerged as an option for ground-based coastal sea-level altimetry. GNSS-R is a remote sensing technique that exploits fortuitous surface reflections of radio waves broadcast by GNSS satellites. A working group on GNSS-R was created in 2015 under the auspices of the International Association of Geodesy. In 2017 we ran a one-year inter-comparison campaign involving independent research groups worldwide. In general, good agreement was found between a co-located tide gauge and GNSS-R sea-level retrievals from different groups. While GNSS-R has been successfully demonstrated using professional-grade instrumentation, more recently we have experimented with mass-market and open-source hardware to offer a lower-cost alternative. Our goal is to enable a massive improvement in the stability and spacing of coastal sea-level change monitoring networks.