

EGU23-14669, updated on 06 Dec 2023

<https://doi.org/10.5194/egusphere-egu23-14669>

EGU General Assembly 2023

© Author(s) 2023. This work is distributed under the Creative Commons Attribution 4.0 License.



Geodetic instrumentation to validate altimetry sea-level measurements in the Noumea Lagoon – New results from the GEOCEAN-NC 2019 field mission

Clémence Chupin¹, Valérie Ballu², Laurent Testut², and Yann-Treden Tranchant²

¹Lab-STICC, ENSTA Bretagne, Brest, France (clemence.chupin@ensta-bretagne.fr)

²LIENSs, UMR CNRS - La Rochelle Université, La Rochelle, France

The Lagoon surrounding New Caledonia is a site of high interest for satellite altimetry, both for classical nadir missions and for the new SWOT wide swath mission, with dedicated calibration/validation (Cal/Val) experiments planned in 2023 during its 1-D repeat orbit.

This poster provides updated results from the 3-weeks campaign GEOCEAN-NC 2019, where various geodetic sea-level observing systems were deployed in the Lagoon (e.g. GNSS Buoy, pressure sensor, CalNaGeo GNSS towed carpet). By combining these data, we reconstruct the dynamics of the lagoon at a point of interest where 3 altimetric tracks intersect (i.e. 1 Jason and 2 Sentinel-3a tracks), and then virtually transfer the Noumea tide gauge records at this particular location.

With this approach, we reconstruct two long sea-level time series (i.e. in-situ and altimetry) in the heart of the Lagoon, enabling us to compute altimetry biases and inter-mission biases comparable to those of historical Cal/Val sites for the whole Jason 1/2/3 period and for Sentinel-3a. This update of our results allows us to extend the comparison with new data from year 2022, and consolidate the vertical reference frame used to link our sensors. It is also an opportunity to try to reconcile sea-level rise trends with vertical land movements of permanent GNSS stations, which remains an issue in this area.