

E. Prouteau, M. Gravelle, M. Guichard, G. Wöppelmann
 LIENSS (Université de la Rochelle – CNRS), 2 rue Olympe de Gouges, 17000 La Rochelle, France

CONTEXT: The TIGA Working Group aims at providing an infrastructure built upon the IGS one for high-quality products stemming from the reanalysis of GNSS data at or near tide gauges (GNSS@TG). A basic TIGA activity is thus maintaining and promoting the expansion of the global GNSS@TG network, as well as the provision of its data and metadata. As GNSS Data Assembly Center for TIGA, SONEL collects and distributes GNSS at tide gauges observations, metadata and products, and provides web tools such as graphical daily indicators on the quality of the data delivered by each station or position time series graph.

GPS@TG stations on SONEL



61% of GPS@TG stations are active and delivering data in 2014.
99 of identified GPS@TG stations (blue marked stations) have no information on SONEL – RINEX data and IGS sitelog files (2 TIGA stations).

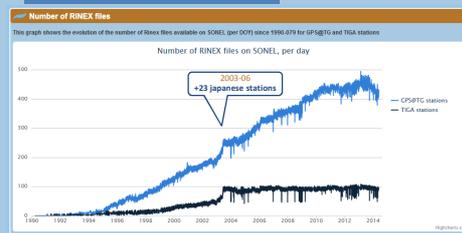
TIGA stations on SONEL



Three requirements to commit to TIGA:
 i. Availability of GNSS data & sitelog at the TDCs
 ii. Tide gauge data being sent to the PSMSL or UHSLC
 iii. Provision of the TOS (TIGA Observing Station) form
4 IGS stations have proposed status for committing to TIGA.

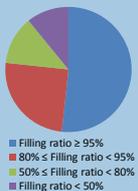
16.4% = TIGA network

Number of RINEX on SONEL



16.4% of GPS@TG stations have committed to TIGA.
 The number of GPS@TG stations grows but the number of stations committed to TIGA doesn't.

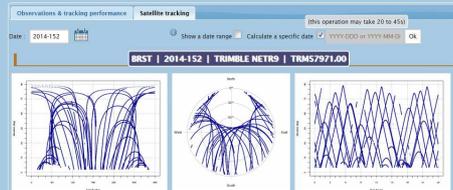
Quality plots on RINEX files



The user customizable quality tools offer graphical views of the quality of the data delivered by each GPS station, through the number of observations, number of cycle slips, RMS due to multipath on L1 & L2 and satellite tracking points of view.

62% of the TIGA stations have a filling ratio of the observations completeness ≥ 95%.

Over 85% of TIGA station have more than 90% of good data.

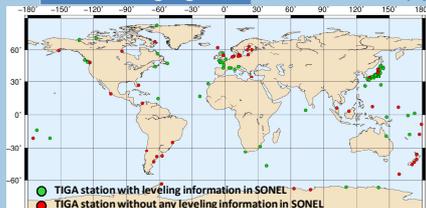


10.8% of TIGA stations have less than 50% of data: BINT, CART, FFTG, FREE, GETI, KLDP, MANZ, OHIG, PALA, RBAY, SIMO, TGCV, VALP.

Acknowledgement: Royal Observatory of Belgium. <http://www.epncb.oma.be/>

GNSS – Tide gauge ties

Status on SONEL: 'Stability of the datums' field

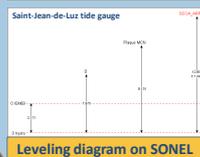


Tie information is really important to know geocentric stability of the tide gauge and get measurements of geocentric sea level.

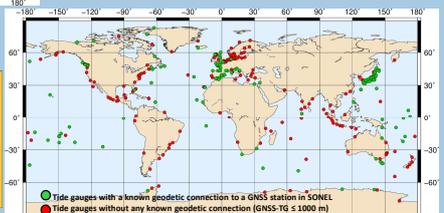
For these reasons, it is required in the TIGA Form (3.4.1 section)



72 TIGA stations have leveling information.
50 TIGA stations have no leveling information.



ON SONEL
129 tide gauges have a known geocentric link to the nearby GNSS station.
207 tide gauges < 1km from the GNSS, without any identified geocentric tie.



Identified problems with TIGA stations

- No TIGA Form: BUDP, FFTG, GARI, GVDO, MARN, PLUZ
- No TIGA Form, but GPS station on the same site for which TIGA Form exists:
 - AUCK, AUKT (TAKL).
 - BORJ (BORK).
 - MNZO (MANZ).
 - MPL2 (MPLA).
 - NSLG (NSTG).
 - OH12, OH13 (OHIG).
- Problems with data:
 - PALA -> no data since 2002-224
 - FREE -> no data since 2001-294
 - BINT, FREE, GETI, PALA, TGCV -> less than 20% data
- No information & no data:
 - DEGE
 - GVDO

In the TIGA Form, please fill in the Tide Gauge information geocentric (2. section) and the leveling information (TGBM to GNSS Survey Marker – 3. section)



Main limitations and perspectives

- A map with only green or orange stations. Reduce the number of blue stations (with no information available).
- Operator management: give the station operators the access to the stations management and the facilities offered by the TDC's tools.
- Undertake repeated leveling connections for at least 5 years, for satellite altimetry comparisons or calibrations.
- Display global quality indicators for each station.