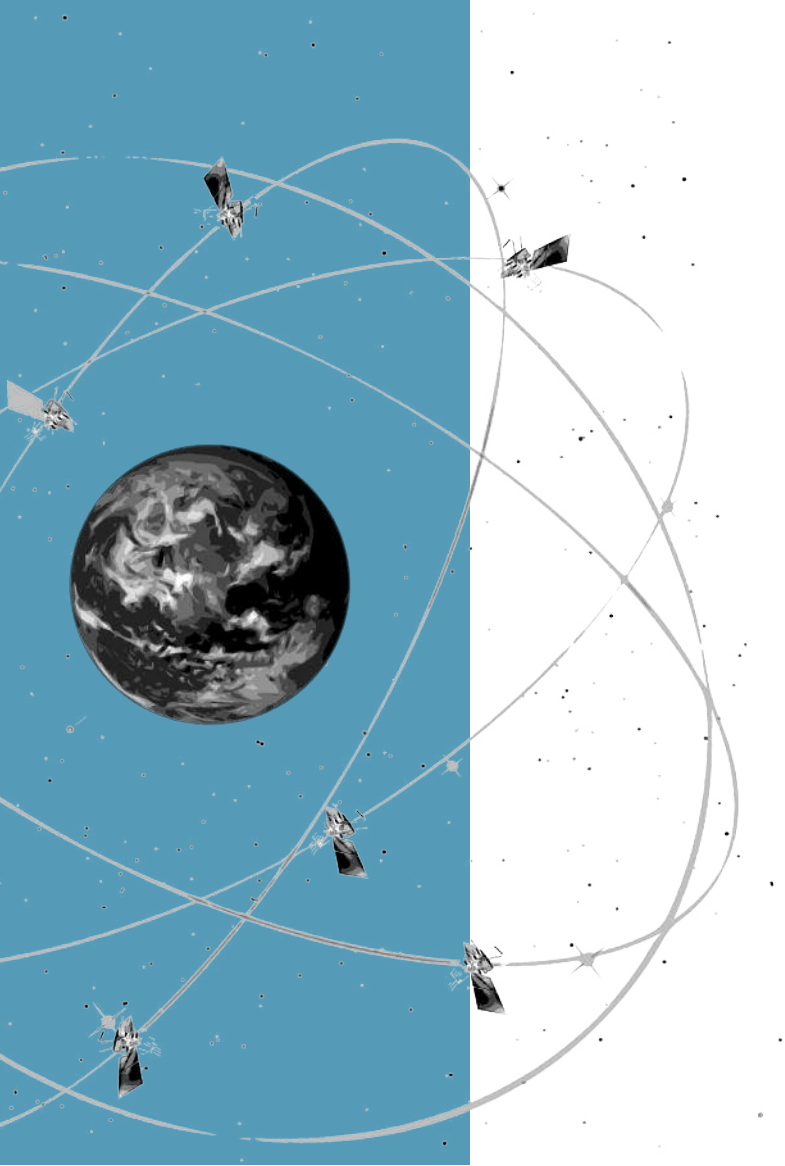
IGS INTERNATIONAL GNSS SERVICE

TECHNICAL REPORT 2016



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Tide Gauge Benchmark Monitoring Working Group Technical Report 2016

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May 11, 2017

1 Introduction

The Tide Gauge Benchmark Monitoring Working Group (TIGA) of the IGS continues its support for climate and sea level related studies and organizations concerned herewith (e.g., GGOS, OSTST, UNESCO/IOC). The TIGA WG provides vertical geocentric positions, vertical motion and displacements of GNSS stations at or near a global network of tide gauges and works towards establishing local geodetic ties between the GNSS stations and tide gauges. To a large extend the TIGA Working Group uses the infrastructure and expertise of the IGS.

The main aims of the TIGA Working Group are:

1. Maintain a global virtual continuous GNSS @ Tide Gauge network
2. Compute precise coordinates and velocities of GNSS stations at or near tide gauges. Provide a combined solution as the IGS-TIGA official product.
3. Study the impacts of corrections and new models on the GNSS processing of the vertical coordinate. Encourage other groups to establish complementary sensors to improve the GNSS results, e.g., absolute gravity sites or DORIS.
4. Provide advice to new applications and installations.

2 Main Progress in 2016

- TIGA Working Group members actively participated in the IGS Workshop in Sydney/Australia with several posters (see http://kb.igs.org/hc/en-us/sections/200763007-2016-IGS-Workshop-Sydney-Australia)
- Working group meeting during the IGS Workshop in Sydney/Australia
- TIGA reprocessing period was extended by all TIGA analysis Centers to cover all data to the end of 2015.
- GeoScience Australia is now contribution to the TIGA reprocessing
- TIGA Network operator works with Tide Gauge and GNSS station operators to make existing stations available to TIGA, a main (ongoing) task is to update the current database of existing local ties between GNSS and tide gauge benchmarks. By the end of 2016 about 173 local ties information are available at http://www.sonel.org/-Stability-of-the-datums-.html?lang=en. For the stations directly committed to TIGA the number of ties raised to 76. The current number of GNSS@TG stations is 820 stations (with 119 stations decommissioned).
- The TIGA-WG carried forward the GLOSS-Task "Priorities for installation of continuous Global Navigation Satellite System (GNSS) near to tide gauges. Report to Global Sea Level Observing System (GLOSS)" by King, M.A. (2014) for the densification and extension of the TIGA Observing Network to GGOS. The response by the GGOS Coordinating Board was received early 2017.

3 Current data holding of TIGA reprocessed individual solutions

Table 1: Current data holding of TIGA reprocessed individual solutions.

TIGA Analysis Center (TAC)	Start GPS week	End GPS week
AUT (Geoscience Australia)	0834	1891
BLT (University of Nottingham , University of Luxembourg)	0782	1722
DG2 (DGFI/TUM Germany)	0887	1824
GT2 (GFZ Potsdam TIGA Solution)	0730	1877
UL2 (University La Rochelle)	0782	1773

4 TIGA Working Group Members in 2016

Working group members are listed in Table 2.

Table 2: TIGA Working Group Members in 2016

Name	Entity	Host Institution, Country
Guy Wöppelmann	TAC, TNC, TDC	University La Rochelle, France
Laura Sánchez	TAC	DGFI TU Munich, Germany
Heinz Habrich	TAC	BGK, Frankfurt, Germany
Minghai Jia		GeoScience Australia, Australia
Paul Tregoning		ANU, Australia
Zhiguo Deng	TAC	GFZ Potsdam, Germany
Daniela Thaller	Combination	BGK, Frankfurt, Switzerland
Norman Teferle	TAC/Combination	University of Luxembourg, Luxembourg
Richard Bingley	TAC	University of Nottingham, UK
Ruth Neilan	IGS Central Bureau	ex officio, USA
Tom Herring	IGS AC coordinator	ex officio, USA
Michael Moore	IGS AC coordinator	ex officio, Australia
Carey Noll	TDC	CDDIS, NASA, USA
Tilo Schöne	Chair TIGA-WG	GFZ Potsdam, Germany
Simon Williams	PSMSL	PSMSL, NOC Liverpool, UK
Gary Mitchum	GLOSS GE (current chair).	University of South Florida, USA
Mark Merrifield	GLOSS GE (past chair)	UHSLC, Hawaii, USA
Matt King		University of Tasmania, Australia