



**International  
Association of  
Geodesy**

**Newsletter**

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The *IAG Newsletter* is under the editorial responsibility of the *Communication and Outreach Branch* (COB) of the IAG.

It is an open forum and contributors are welcome to send material (preferably in electronic form) to the IAG COB ([newsletter@iag-aig.org](mailto:newsletter@iag-aig.org)). These contributions should complement information sent by IAG officials or by IAG symposia organizers (reports and announcements). The *IAG Newsletter* is published monthly. It is available in different formats from the IAG new internet site: <http://www.iag-aig.org>

Each *IAG Newsletter* includes several of the following topics:

- I. news from the Bureau Members
- II. general information
- III. reports of IAG symposia
- IV. reports by commissions, special commissions or study groups
- V. symposia announcements
- VI. book reviews
- VII. fast bibliography

Books for review are the responsibility of:

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## General Announcements

### *IGS Launches Real-time Service*

The International GNSS Service (IGS) has announced the launch of its Real-time Service (RTS). The RTS is a global scale GNSS orbit and clock correction service that enables real-time precise point positioning (PPP) and related applications requiring access to IGS low latency products. The RTS is offered in its GPS-only beta form for the development and testing of applications. The RTS is incorporating the Russian GLONASS initially as an experimental product, and will be integrating it within the service before the end of 2013 – as the RTS reaches its full operating capability. Other GNSS constellations will be added as they become available.

The International GNSS Service (IGS) has ensured open access, high-quality GNSS data products since 1994. These products enable access to the definitive global reference frame for scientific, educational, and commercial applications – a tremendous benefit to the public. Through the Real-time Service (RTS), the IGS extends its capability to support applications requiring real-time access to IGS products. The RTS product streams are available through designated product distribution centers around the world.

The RTS is operated as a public service, and users may register for free access through the IGS Real-time Service website: <http://rts.igs.org>.

ALLISON B. CRADDOCK  
IGS CB

### *IDS 10th Anniversary*

*The International DORIS Service is 10 years old in July 2013. The IDS is celebrating a successful cooperation in the geodetic applications based on the DORIS system.*

The DORIS system (Doppler Orbitography and Radio positioning Integrated by Satellite) was deployed in 1990 for precise (centimeter-level) orbit determination of satellites flying DORIS receivers. DORIS is based on Doppler shift measurements of radio-frequency signals transmitted by a network of terrestrial stations (57 beacons) used as reference points on the Earth's surface. The DORIS system is able to locate ground positions with the same precision. This duality of DORIS is crucial to altimetric oceanography and ice missions, enabling the study of the Earth's shape and movements, and to a large number of localization services.

DORIS receivers have flown on several Earth observation and altimetric missions since 1990: SPOT-2 (1990), TOPEX/Poseidon (1992), SPOT-3 (1993), SPOT-4 (1998), Jason-1 (2001), Envisat (2002), SPOT-5 (2002), Jason-2 (2008), CryoSat-2 (2010), HY-2A (2011), and SARAL/AltiKa (2013). In the future, the Sentinel-3, Jason-3, Jason-CS, and SWOT missions will benefit from DORIS system to well beyond 2028.

Over the years, the system efficiency never ceased to grow: the DORIS instrument is in constant evolution and the global DORIS network is continually renovated and improved.

Thanks to the achieved precision, attributed to the density and homogeneous coverage of the network of beacons, DORIS is one of the precise localization techniques that is participating in the realization of the International Terrestrial Reference System (ITRF).

For that purpose, the IDS service (International DORIS Service, <http://www.ids-doris.org>) was created by the International Association of Geodesy (IAG) ten years ago, in July 2003, during the IUGG in Sapporo, for the dissemination of DORIS data and products to the international scientific community (geodesy, geophysics).

The IDS operates in close cooperation with the International Earth rotation and Reference systems Service (IERS) to support geodetic and geophysical research activities, through DORIS data and products. DORIS has achieved a mature level in 2009, as seven IDS Analysis Centers contributed to a high-quality DORIS combination for the ITRF2008. In 2010, the IDS extended the DORIS product combination process to an operational service and established a Combination Center, which is now fully operational. The IDS is now a well-recognized technique-oriented service for the IERS, and is preparing actively the next ITRF2013 submission.

The IDS service has been expanding rapidly over the last few years thanks to the excellent performance of the DORIS system available on an increased number of contributing satellites. The IDS is also a participant in the Global Geodetic Observing System (GGOS).

### *IDS data & products*

The IDS collects, archives and distributes DORIS observation data sets as well as the following derived products: coordinates and velocities of the IDS tracking stations, geocenter and scale of the Terrestrial Reference Frame, ionospheric information, high accuracy ephemerides of DORIS satellites, and Earth rotation parameters.

### Milestones

DORIS has been part of the IERS (as an observer) since 1994. Other significant DORIS-related events include:

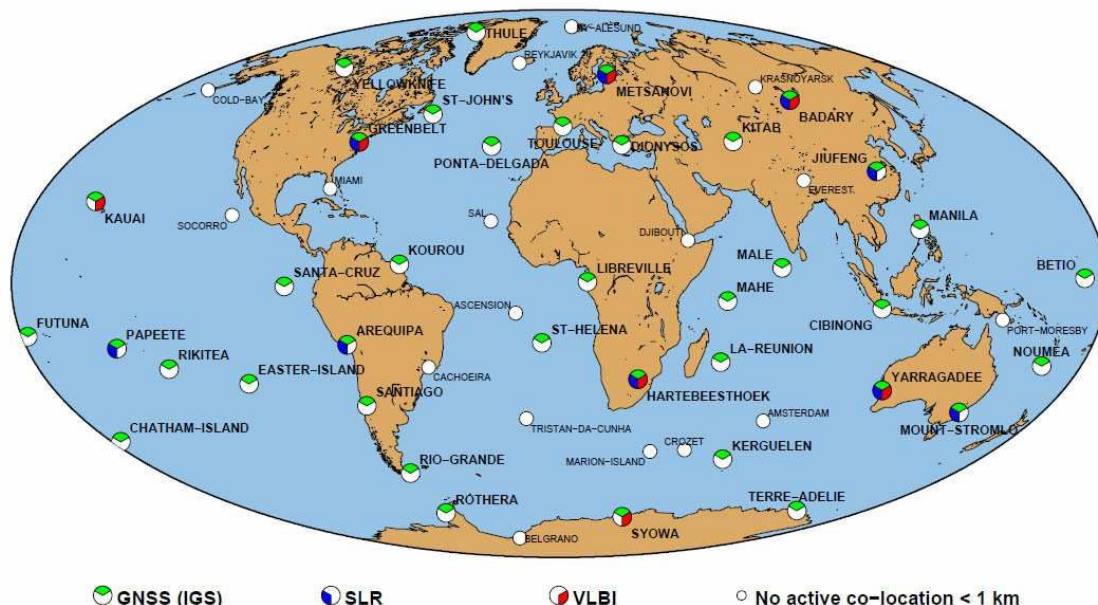
- July 1999, creation of the DORIS Pilot Project by the International Association of Geodesy (IAG) to foster international cooperation
- July 2003, formalization of the International DORIS Service as a service of the IAG during the IUGG in Sapporo
- Since 2002, IDS Workshop every 2 years coupled with OSTST: Biarritz (2002), Marne Valley (2003), Paris (2004), Venice (2006), Nice (2008), Lisbon (2010), Venice (2012)
- 2005 3 analysis centers respond to the call of participation to ITRF2005,
- 2009-2010: maturity: IDS official contributor to ITRF2008 (solutions with an accuracy of 1cm 3D), seven IDS Analysis Center participated. Initialization of the routine combination by the Combination Center.
- 2013 active preparation for contribution to ITRF2013, expected significant improvements.

### Robust and reliable DORIS network

The DORIS network of 57 stations is distributed uniformly across the globe. Most of the stations were installed between 1986 and 1990 in order to make the system operational with the first DORIS equipped satellite SPOT2, and are operated through partnerships with local national agencies. Co- location with GNSS, SLR, VLBI stations, and tide gauges is one of the key points in DORIS site selection.

Continuous DORIS integrity monitoring ensures the immediate detection of a faulty beacon or the first signs of aging, well before system performance is affected. Homogeneity, maintenance and ongoing monitoring make the network of DORIS stations a major asset of the system and guarantee stable performance. Maintenance and renovation of the stations is a joint CNES-IGN effort.

DORIS stations co-located with other IERS techniques (VLBI, SLR or GNSS)



GNSS 2012 Nov 29 16:17:56

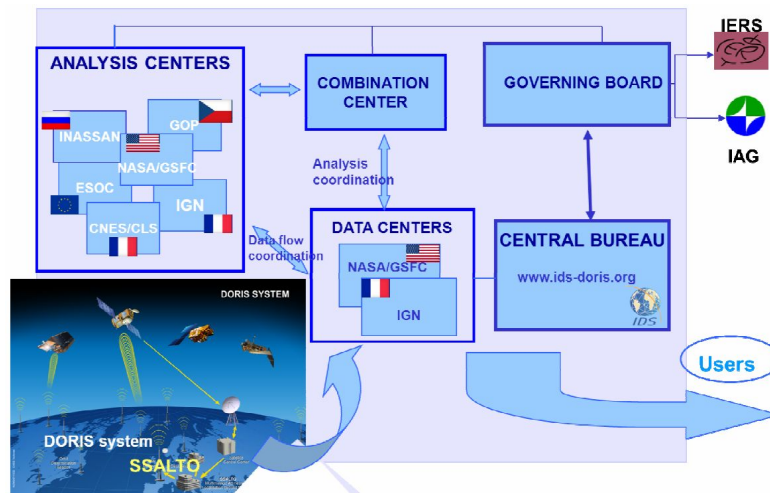
### Recent IDS analysis

In line with the successful DORIS contribution to ITRF2008, the IDS decided to extend the combination process to an operational service. Thus, in early 2010, the IDS Combination Center (IDS CC) was opened and is now fully operational. The IDS CC aims to i) evaluate all the ACs' weekly solutions, ii) perform the IDS multi-AC

weekly combined solution, iii) support the ACs in the continued improvements of the DORIS products, and iv) compute and deliver the DORIS contribution to the next version of the ITRF, ITRF2013.

*Current IDS organization (similar to other IAG Services)*

- 1 Governing Board (Pascal Willis, IGN/France + 4 other elected members + 6 appointed members)
- 1 Central Bureau (Laurent Soudarin, CNES/CLS + 4 other members)
- 2 Data Centers (Carey Noll, CDDIS/USA, Bruno Garayt, IGN/France)
- 1 Combination Center (Guilhem Moreaux, CNES/CLS + 2 other members), Analysis Coordinator (Frank Lemoine, NASA)
- 6 Analysis Centers: ESA (Germany), GSC (USA), IGN (France), INASAN (Russia), GOP (Czech Rep.), LCA (France)



PASCALE FERRAGE  
IDS CB

*IAG monthly news for GIM – IAG page in the GIM International June 2013*

The IAG became a partner with the magazine GIM International from the start of 2012. We would join sister geospatial organisations such as the FIG, ISPRS, ICA, GSDI & OGC in having a monthly page of news. The article titled “IAG Commission 3, ‘Earth Rotation and Geodynamics’ ” for the June 2013 issue of GIM is available from the webpage [http://www.gim-international.com/issues/articles/id2001-IAG\\_Commission\\_Earth\\_Rotation\\_and\\_Geodynamics.html](http://www.gim-international.com/issues/articles/id2001-IAG_Commission_Earth_Rotation_and_Geodynamics.html).

CHRIS RIZOS  
President of IAG

## Meeting Announcements

### *IAG Scientific Assembly 2013*

Online registration is now possible via the link on the webpage [http://www.iag2013.org/IAG\\_2013/Registr.html](http://www.iag2013.org/IAG_2013/Registr.html). The online registration will be closed on **28 August 2013**, 23:59 h. After that, only on-site registration in Potsdam and the (more expensive) on-site payment will be possible. Themes as well as detailed description of themes of the IAG Scientific Assembly 2013 are available from the webpage [http://www.iag2013.org/IAG\\_2013/Themes.html](http://www.iag2013.org/IAG_2013/Themes.html). For further conference information, please visit our homepage <http://www.iag2013.org>.

The IAG Committees would like to thank cordially all authors for their scientific contributions. Nearly 500 abstracts were received. Notifications of acceptance will be sent to all authors per e-mail at the end of May. All

abstracts accepted and presented at the Assembly (oral or poster) may be submitted as papers for publication in the peer-reviewed IAG Symposia Series at Springer Publisher within one month after the Assembly.

IAG 2013 will offer you an interesting and comprehensive scientific program together with a variety of unique cultural events.

IAG 2013 LOC

### *G016 Session at the 2013 AGU Fall Meeting*

*Pushing the frontiers of geodesy: Detection of new phenomena through advances in geodetic time series analysis and corrections*

Appropriate numerical methods and understanding of environmental effects allow researchers to study signals of smaller magnitudes than ever before. Use of geodetic data is complicated by the fact that many processes are convolved with other signals due to seasonal hydrologic loads, anthropogenic effects or atmospheric and ionospheric structure. We welcome contributions on studies of phenomena that have recently become observable through the development of the appropriate time series analysis tools and correction protocols, such as hydrological effects on GPS and gravity data or atmospheric influences on GNSS or InSAR time series.

MICHEL VAN CAMP

### *G012 Session at the 2013 AGU Fall Meeting*

Dear Colleagues

I would like to call your attention to the following e-mail session at the Fall AGU that will focus on GIA and related geodetic and geophysical observations.

Abstract submission is now open at:

<http://fallmeeting.agu.org/2013/scientific-program/session-search/sessions/g012-inference-of-glacial-dynamics-and-earth-rheology-from-geodetic-and-geophysical-observations-gia-2/>

Best regards

Erik Ivins, Volker Klemann, Pippa Whitehouse and Holger Steffen

*Session G012: Inference of glacial dynamics and earth rheology from geodetic and geophysical observations (GIA)*

*Description:*

Glacial isostatic adjustment (GIA) is one of the geodynamic processes that has been embraced geodesy during the last decades due to the great advances in satellite observation systems like GRACE and GPS. The quantification of GIA signals is demanded for corrections of geodetic signals and requires an accurate understanding of the process in terms of ice and earth rheology as with respect to their interaction with climate parameters from ocean and atmosphere. This session invites contributions that address GIA related geodetic observations, and physical aspects from solid-earth, ocean, climatological and cryosphere sciences in order to illuminate more accurate understanding and predictions of GIA.

*Conveners:* Erik Ivins(1), Volker Klemann(2), Pippa Whitehouse(3), Holger Steffen(4)

(1) Jet Propulsion Lab California Institute of Technology, Pasadena, US

(2) GFZ German Research Centre, Potsdam, Germany

(3) Durham University, Durham, UK

(4) Landmaetiriet, Gaevle, Sweden

ERIK R. IVINS

## Meetings Calendar

### Workshop on Mathematics of climate change, related hazards and risks

July 29 – August 2, 2013, Guanajuato, Mexico

URL: <http://www.mca2013.org/en/programme/satelite-activities/workshop-on-mathematics-of-climate-change.html>

### 26th International Cartographic Conference

August 25-30, 2013, Dresden, Germany

URL: <http://www.icc2013.org/>

### ISDE 2013

August 26-29, 2013, Kuching, Sarawak, Malaysia

8<sup>th</sup> International Symposium on Digital Earth 2013

URL: <http://isde2013.utm.my/>

### 12th IAGA Scientific Assembly

August 26-31, 2013, Mérida, Mexico

URL: [www.iaga2013.org.mx](http://www.iaga2013.org.mx)

### IC-MSQUARE 2013

September 1-5, 2013, Prague, Czech Republic

2<sup>nd</sup> International Conference on Mathematical Modeling in Physical Sciences

URL: <http://www.icmsquare.net>

### IAG Scientific Assembly

September 1-6, 2013, Potsdam, Germany

URL: <http://www.iag2013.org>

### 2nd Joint International Symposium on Deformation Monitoring (JISDM)

September 9-11, 2013, Nottingham, UK

URL: [www.nottingham.ac.uk/ngi/documents/events-pdfs/jisdms2013.pdf](http://www.nottingham.ac.uk/ngi/documents/events-pdfs/jisdms2013.pdf)

### ESA Living Planet Symposium 2013

September 9-13, 2013, Edinburgh, UK

URL: <http://www.livingplanet2013.org/>

### TGSMM 2013

September 11-20, 2013, St Petersburg, Russian Federation

IAG Third Symposium "Terrestrial Gravimetry: Static and Mobile Measurements - TGSMM-2013"

### Scientific developments from highly accurate space-time reference systems

September 16-18, 2013, Observatoire de Paris, Paris, France

URL: <http://syrtre.obspm.fr/jsr/journees2013/>

### ION GNSS 2013

September 16-20, 2013, Nashville, TN, USA

URL: <http://www.ion.org/meetings/?conf=gnss>

### ITU/BIPM Workshop on the Future of the International Time Scale

September 19-20, 2013, Geneva, Switzerland

URL: <http://www.itu.int/ITU-R/go/itu-bipm-workshop-13/>

### Statusseminar der DFG-Forschergruppe Referenzsysteme (FOR1503)

September 19-20, 2013, Berlin, Germany

URL: <http://www.referenzsysteme.de/>

7th Coastal Altimetry Workshop

October 7-8, 2013, Boulder, USA

URL: <http://www.coastalaltimetry.org/>

11th International School of Geoid Service: Heights and Height Datum

October 7-11, 2013, Loja, Ecuador

URL: <http://www.11iges.utpl.edu.ec/>

Geodätische Woche and INTERGEO

October 8-10, 2013, Essen, Germany

URL: <http://www.intergeo.de/>

Ocean Surface Topography Science Team (OSTST) Meeting

October 8-11, 2013, Boulder, USA

URL: <http://sealevel.jpl.nasa.gov/science/ostscienceteam/scienceteammeetings/>

2013 Asia-Pacific Space Geodynamics Symposium

Ohio State University, Oct 17-19, 2013

URL: <http://apsg2013.geodeticscience.osu.edu> (available soon)

School on Reference Systems, Crustal Deformation and Ionosphere Monitoring

October 21-23, 2013, Panama City, Panama

URL: <http://www.sirgas.org/index.php?id=233&L=0>

SIRGAS Meeting 2013

October 24-26, 2013, Panama City, Panama

URL: <http://www.sirgas.org/index.php?id=193&L=2>

ICAG 2013

November 5-13, 2013, Walferdange Underground Laboratory, Luxembourg

International Comparison of Absolute Gravimeters

GRMSE2013

November 8-10, 2013, Wuhan, China

International Conference on Geo-Informatics in Resource Management & Sustainable Ecosystem

URL: <http://www.ggers.org/>

18th International Workshop on Laser Ranging

November 11-15, 2013, Fujiyoshida, Japan

URL: <http://geo.science.hit-u.ac.jp/lw18>

6th European Workshop on GNSS Signals and Signal Processing

December 5-6, 2013, Munich, Germany

URL: <http://ifen.bauw.unibw.de/gnss-signals-workshop/>

Gi4DM 2013

December 9-11, 2013, Hanoi, Vietnam

9th International Conference on GeoInformation for Disaster Management; Theme: Earth Observation for Disaster Management.

URL: <http://www.gi4dm2013.com>

AGU 2013 Fall Meeting

December 9-13, 2013, San Francisco, CA, USA

URL: <http://sites.agu.org/meetings/>



17. Internationaler Ingenieurvermessungskurs

January 14-17, 2014, Zurich, Switzerland

URL: <http://www.igp.ethz.ch/iv2014/>

ION International Technical Meeting (ITM) 2014

January 27-29, 2014, San Diego, CA, USA

URL: <http://www.ion.org/meetings/?conf=itm>

SPACOMM 2014

February 23-27, 2014, Nice, France

URL: <http://www.iaria.org/conferences2014/SPACOMM14.html>

IVS General Meeting

March 2-7, 2014, Shanghai, China

URL: <http://ivs2014.csp.escience.cn/>

Munich Satellite Navigation Summit 2014

March 25-27, 2014, Munich, Germany

URL: <http://www.munich-satellite-navigation-summit.org/>

Third International School on "The KTH Approach to Modeling the Geoid"

March 31-April 4, 2014, Johor Bahru, Malaysia

URL: <http://www.infra.kth.se/geo/events/geoidschool.html>

European Geosciences Union General Assembly 2014

April 27 – May 2, 2014, Vienna, Austria

URL: <http://www.egu2014.eu/>

40th COSPAR Scientific Assembly

August 2-10, 2014, Moscow, Russia

URL: <http://www.cospar-assembly.org/>

AGU 2014 Fall Meeting

December 15-19, 2014, San Francisco, CA, USA

URL: <http://sites.agu.org/meetings/>

XXVI IUGG General Assembly

June 22 – July 2, 2015, Prague, Czech Republic

URL: <http://www.iugg.org/assemblies/>