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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

### ***IAG correspondent changes***

The following is a list of changes among IAG National Correspondents.

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IAG CENTRAL BUREAU

### ***IERS Annual Report 2003***

The IERS Annual Report 2003 has been issued as online publication (PDF files) at <http://www.iers.org/iers/publications/reports/2003/>. It contains an overview of the IERS, reports of its components, summaries of meetings and updated contact addresses. The printed version will be distributed to subscribers at the beginning of next year.

IERS CENTRAL BUREAU

## ***IERS Global Geophysical Fluids Center (GGFC) in changing guard***

After 7 years of service and at the turn of the 4-year term for the IERS infrastructure, Ben Chao (of NASA Goddard Space Flight Center) is stepping down from the position of the Head of IERS' Global Geophysical Fluids Center (GGFC). The IERS Directing Board approved his recommendation that a new Head would be selected within GGFC among the existing Special Bureau (SB) members, effective January 1, 2005.

A component of IERS, the GGFC has been providing data services to the Earth sciences community since its establishment on January 1, 1998. Coordinated by GGFC, eight SBs have become in operation since then; they are SBs for Atmosphere (David Salstein, Chair), for Oceans (Richard Gross), for Hydrology (Clark Wilson), for Tides (Richard Ray), for Mantle (Ben Chao), for Cores (Tim van Hoolst), for Gravity/Geocenter (Mike Watkins), for Loading (Tonie van Dam, Hans-Peter Plag, co-Chairs).

After some productive deliberation in GGFC, Tonie van Dam (of the European Center for Geodynamics and Seismology, Luxembourg) was appointed unanimously as the new GGFC Head. She will continue to serve as the co-Chair for the SB for Loading; while Ben Chao will continue to serve as the Chair of the SB for Mantle.

We would like to commend Tonie for stepping to the plate, congratulate her, and wish her the best!

Meanwhile, major activities that are underway under GGFC include:

- (1) New format and interactive web services using XML is being developed and implemented at Goddard, in parallel and in full interaction with similar activities in IERS Central Bureau at BKG, Frankfurt.
- (2) A "renovation" of the data format, documentation, and computing algorithm is to improve the accuracy of the data products and service functions now existing at the SBs, especially the SB for Atmosphere, but certainly including SBs for Oceans and Hydrology. This activity is supported by a postdoctoral fellowship from the Descartes grant under Veronique Dehant.
- (3) A pilot project is being spearheaded by the SB for Loading to compute and model the vertical motions at the geodetic stations, initially for the seasonal mass loading terms. This project has the goal of contributing to an improvement or a next level of sophistication in the next implementation of the International Terrestrial Reference Frame.

IERS CENTRAL BUREAU

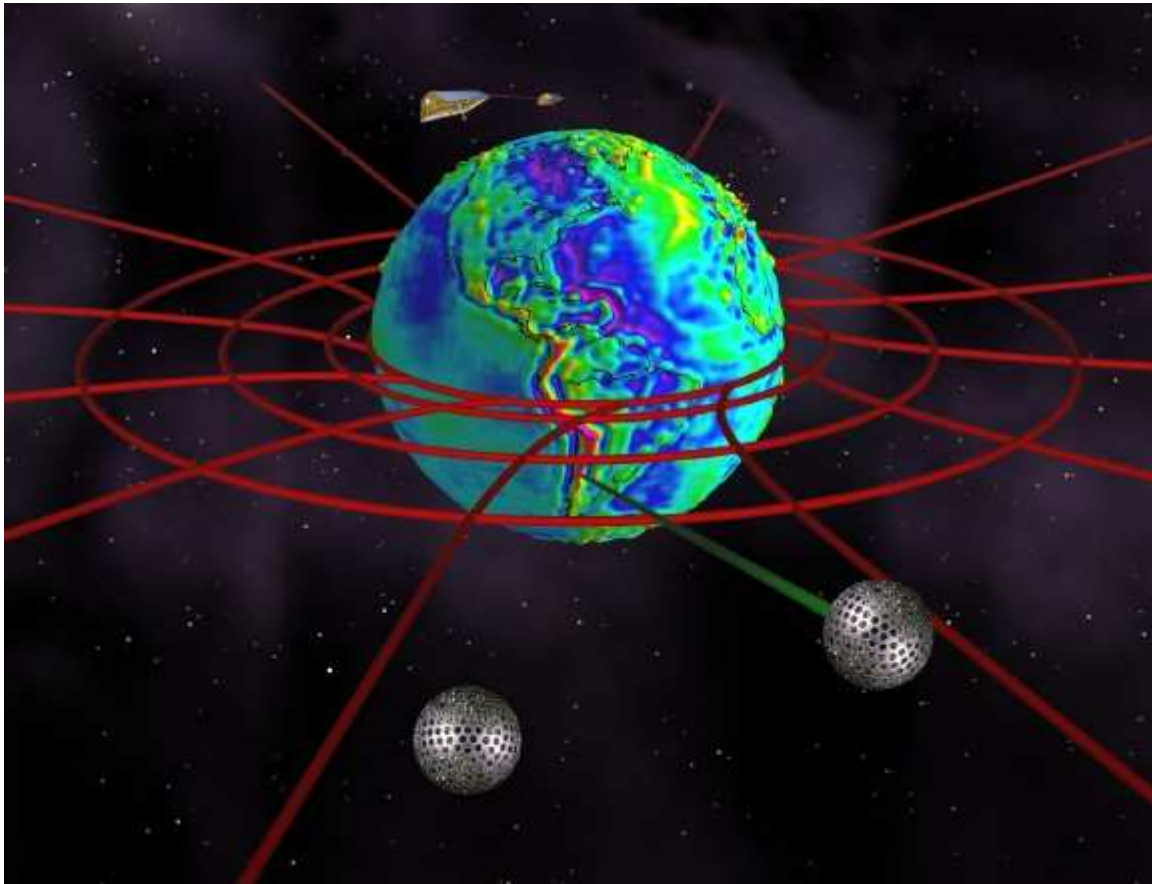
## ***International Polar Year 2007-2008***

ICSU and WMO have established a Joint Committee for an International Polar Year 2007-2008. The official observing period will be from 1 March 2007 until 1 March 2009. The main geographic focus will be the Earth's high latitudes, but studies in any region relevant to the understanding of polar processes or phenomena will be encouraged. The Joint Committee now seeks information on "IPY projects that will be proposed by self-organizing groups of researchers, their parent organization, existing bodies with a role in polar regions research and monitoring, and consortia of such bodies."

To this end, expressions of intent are invited to be received by 14 January 2005 using the format and criteria given in the website <http://www.ipy.org/concept/framework/index.html>. Please visit the reference web site for more information: <http://www.ipy.org>.

## ***Einstein's "Frame-dragging" Prediction Verified with SLR Observations***

NASA's Goddard Space Flight Center has been involved in the analysis of Satellite Laser Ranging (SLR) observations since the dawn of this powerful tracking technique. Now, with the help of recently developed high resolution and exceptional accuracy gravitational models from NASA's GRACE mission, the precise determination of the orbital evolution of LAGEOS and LAGEOS 2, allowed an international team of Code 926 scientists from the Joint Center for Earth Systems Technology (Erricos C. Pavlis, JCET) and the University of Lecce, Italy (Ignazio Ciufolini), to use the "Int. Laser Ranging Service--ILRS"-collected data to verify one of the few remaining tests of Einstein's theory of general relativity (GR). The particular effect, called Lense-Thirring effect (L-T), after the two Austrian physicists who originally predicted it on the basis of Einstein's GR theory, manifests itself as a precession of the satellite's node on the equatorial plane, in the same direction as Earth's rotation. The magnitude of the effect for the LAGEOS-type orbits is about 31 mas per year.



The effect of a rotating massive body (Earth) on space-time. (Artwork: F. Ricci, Univ. of Roma, and I. Ciufolini, Univ. of Lecce. Earth model courtesy GFZ-Potsdam, Germany).

The recent test, reported in the journal of Nature (Ciufolini and Pavlis, 2004), is an update of the result obtained earlier, and reported in the journal of Science (Ciufolini et al., 1998). The new result is far more accurate than the first one, primarily due to the increased accuracy of the gravitational model used: EIGEN-GRACE02S, (Reigber et al., in press), the increased data record (eleven versus four years), and the careful evaluation of the commission and omission errors that are associated with the new estimated. The new result agrees with the GR theory to  $99\% \pm 5\%$ . For more details please visit [http://bowie.gsfc.nasa.gov/926/highlight/Highlight\\_Sept2004.html](http://bowie.gsfc.nasa.gov/926/highlight/Highlight_Sept2004.html).

SOURCE: BOWIE.GSFC.NASA.GOV

### ***International GPS Service (IGS) 2001-2002 Annual And Technical Reports***

The IGS 2001-2002 Annual and Technical Report series are available online, please see:

<http://igs.cb.jpl.nasa.gov/overview/pubs.html>.

The Annual Report is available in hardcopy and is in the process of being mailed to all people in the IGS Directory. The technical reports for 2000 and 2001-2002 will be published in hardcopy in limited quantities.

At the meeting of the Governing Board on September, it was agreed to send out the call for a combined 2003-2004 report series now in order to get back on track with annual editions.

IGS CENTRAL BUREAU

### ***IVS-Directing Board Meeting held in Makuhari/Japan, October 8, 2004***

The IVS holds its Directing Board meetings every 6 months. The last meeting was held on October 8, 2004 in Makuhari/Japan. It was organized in combination with the 3<sup>rd</sup> e-VLBI Workshop and a Working Meeting of the IVS Working Group 3, which is tasked to prepare a report on visions for VLBI future planning.

IVS provides time series of Earth Orientation Parameters (EOP) – a complete set of EOPs twice a week and daily DUT1, describing the irregularities in Earth rotation – and parameters which are required for the

maintenance of TRF and CRF. After the implementation of the IVS observing program in 2002, recommended by the IVS WG2 [<http://ivscc.gsfc.nasa.gov>], the use of IVS resources was optimised to its current limits. The transition from tape- or cassette-data recording system (Mark IV, K4 and S2) to disk-based recording systems Mark 5 and K5 leads to improved rapid turn around for product provision, which is of importance for the EOPs. Mark 5 also increased the throughput at the correlators. At the 12<sup>th</sup> board meeting it was stated that the transition from tape to the new digital recording system has been made for most of the IVS stations (92%) and is completed at the correlators.

The new data recording systems Mark 5 and K5 are the basis for employing data transmission via Internet, realizing e-VLBI in the near future. e-VLBI tests are successfully ongoing. The daily 1-hour Intensive observing program for determination of DUT1 is being set up routinely as e-VLBI. The significant benefit of e-VLBI is the faster availability of the data at the correlator and the acceleration of the provision of the final products.

With some concern it was recognized the some IVS station has to reduce their observing capacity due to technical problems and/or due to financial restrictions. Highly appreciated was that a new station has been established, the Russian Quasar station Zelenchukskaja operated by the Institute for Applied Astronomy, St. Petersburg. A new station in Peru, sponsored by the national Astronomical Observatory Japan and Metsähovi station in Finland is under consideration. More new stations are expected to come along in the future e.g. the Korean VLBI Network (KVN).

As many IVS components were developed some decades ago, some concern has led to the established of the WG3, which is tasked to develop ideas for future VLBI systems and to prepare a "vision 2010" report. Such a report should support and help to coordinate the development of future components for VLBI. A new generation of VLBI-observing components and new observation and analysis strategies are required to meet future service requirements e.g. supporting GGOS. Many components have been built decades ago and need upgrades or even replacements.

IVS will strongly support GGOS. The products derived by the various IVS Analysis Centers were combined internally to generate the unique IVS VLBI solution. The IVS products were evaluated and released in SINEX for combination with other techniques. The routine products are extended to include the troposphere parameters zenith path delays which are calculated from all IVS rapid turn around observing session (IVS R1 and R4). The results are comparable to the IGS results in accuracy.

It has to be mentioned that a mid term election is ongoing. The terms of the representatives for the Technology Development Centers and for the Analysis and Data Centers and three At Large Positions expire. An election committee was established for the voting procedure.

During the meeting an earthquake occurred of magnitude 5.8, approximately 20 km away from the meeting location and a typhoon rapidly moved towards Tokyo (Mahuhari), arriving on Saturday afternoon. Most of the board member were not faced with these kinds of events, but felt high respect for those natural events.

WOLFGANG SCHLÜTER  
NANCY VANDENBERG

## Meeting Announcements

### *Dynamic Planet 2005*

#### *"Monitoring and Understanding a Dynamic Planet with Geodetic and Oceanographic Tools"*

*A Joint Assembly of the IAG, IAPSO and IABO  
22 - 26 August 2005 Cairns, Australia*

Scientists from all countries are invited to participate in this unique conference – a joint assembly of the International Association of Geodesy (IAG), International Association for Physical Sciences of the Oceans (IAPSO), and the International Association for Biological Oceanography (IBO). Under the program theme "Monitoring and Understanding a Dynamic Planet with Geodetic and Oceanographic Tools", the emphasis will be on the interaction of the earth and oceanographic sciences, as well as providing an opportunity to hear the latest research in the disciplines of geodesy and oceanography. The location for 2005 will be Cairns, Australia - A vibrant city, fringed by the world famous Great Barrier Reef and Coastal Rainforest. No other city in the



world lies next to two World Heritage Listed sites - offering the perfect setting for Dynamic Planet 2005. Registrations and Call for Papers are now open! For further information, please visit the Dynamic Planet website <http://www.dynamicplanet2005.com>.

MELISSA CROWLE  
EVENT COORDINATOR

## ***IAG Sponsored Meetings***

### **The 2004 International Symposium on GPS/GNSS (GNSS 2004)**

6-8 December 2004, Sydney, Australia  
Internet: [www.gnss2004.org](http://www.gnss2004.org).

### **IAG-IASPEI Joint Capacity Building Workshop**

17-23 January 2005, Miramare-Trieste, Italy

The Abdus Salam International Centre for Theoretical Physics (ICTP), will organize a Workshop on Deformation Measurements and Understanding Natural Hazards in Developing Countries. The Workshop will be co-sponsored by IAG, IASPEI and IUGG. Please visit <http://agenda.ictp.trieste.it/smr.php?1642> for more information.

### **International IGeS Geoid School**

31 January- 5 February 2005, Budapest, Hungary

The next International IGeS School on "The Determination and Use of the Geoid" will be at Budapest, Hungary. The preliminary program and related information is available at <http://www.iag-aig.org>.

### **International Symposium on Geodetic Deformation Monitoring - From Geophysical to Engineering Roles**

17-19 March, 2005, Jaén (Spain)

The International Symposium on Geodetic Deformation Monitoring: From Geophysical to Geodetic Roles will be held at the University of Jaén (Spain) from 17th to 19th March 2005. The Symposium will be hosted by the Geodesy Research Group of the University of Jaén. For more information please visit the workshop web site at <http://www.ujaen.es/huesped/gdeforma/>.

### **International Workshop on "Deformation and Gravity Change: Indicators of Isostasy, Tectonics, Volcanism and Climate Change"**

1-4 March 2005, Lanzarote, Canary Islands, Spain

The International Workshop on "Deformation and Gravity Change: Indicators of Isostasy, Tectonics, Volcanism and Climate Change" will be held at Casa de los Volcanes (a scientific and cultural meeting place) on Lanzarote, Canary Islands, Spain. Organizers are José Fernández ([jose.fernandez@mat.ucm.es](mailto:jose.fernandez@mat.ucm.es)) and Detlef Wolf ([dasca@gfz-potsdam.de](mailto:dasca@gfz-potsdam.de)).

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## ***IAG Sister Societies' General Assemblies***

### **ICC2005 Conference**

9-16 July 2005, A Coruña, Spain

The XXII International Cartographic Conference (ICC) is the most important event in the International Cartographic Association (ICA) calendar. Please visit <http://www.icc2005.org> for details.