



## Contents

<b>General Announcements .....</b>	<b>2</b>
<b>CALL FOR PROPOSALS for hosting the Central Bureau of the International Gravity Field Service.....</b>	<b>2</b>
<b>Meeting Announcements .....</b>	<b>5</b>
<b>VII Hotine-Marussi Symposium 2009 on Theoretical Geodesy .....</b>	<b>5</b>
<b>Geodesy for Planet Earth.....</b>	<b>6</b>
<b>2nd International Colloquium - Scientific and Fundamental Aspects of the Galileo Programme.....</b>	<b>6</b>
<b>IAG Sponsored Meetings.....</b>	<b>7</b>
<b>EOGC2009.....</b>	<b>7</b>
<b>VII Hotine-Marussi Symposium 2009 on Theoretical Geodesy .....</b>	<b>7</b>
<b>Geodesy for Planet Earth .....</b>	<b>7</b>
<b>2nd International Colloquium – Scientific and Fundamental Aspects of the Galileo Programme .....</b>	<b>7</b>
<b>IAG Related Meetings .....</b>	<b>8</b>
<b>FIG Working Week 2009.....</b>	<b>8</b>
<b>230th Anniversary of MIIGAiK.....</b>	<b>8</b>
<b>Training School on GIA Modelling .....</b>	<b>8</b>
<b>SGEM 2009.....</b>	<b>8</b>
<b>TRANS-NAV 2009.....</b>	<b>8</b>
<b>CCCT 2009.....</b>	<b>8</b>
<b>SPACOMM 2009.....</b>	<b>8</b>
<b>6th International Symposium on Mobile Mapping Technology – MMT'09 .....</b>	<b>9</b>
<b>Workshop: Changes of the Greenland Cryosphere .....</b>	<b>9</b>
<b>6th International Symposium on LBS &amp; TeleCartography.....</b>	<b>9</b>
<b>GNSS Vulnerabilities and Solutions 2009 Conference.....</b>	<b>9</b>
<b>ION GNSS 2009.....</b>	<b>9</b>
<b>International UN-SPIDER Bonn Workshop .....</b>	<b>9</b>
<b>ACM GIS 2009.....</b>	<b>9</b>
<b>IAG Sister Societies' General Assemblies .....</b>	<b>10</b>
<b>Associations' Scientific Assemblies of the IUGG .....</b>	<b>10</b>
<b>Obituary .....</b>	<b>10</b>
<b>Lubomir Włodzimierz Baran (1937-2009).....</b>	<b>10</b>

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

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## General Announcements

### **CALL FOR PROPOSALS**

**for hosting the Central Bureau of the International Gravity Field Service**



### **INTRODUCTION**

The International Gravity Field Service (IGFS) is a unifying ‘umbrella’ IAG service which coordinates collection, validation, archiving and dissemination of gravity field related data, coordinates exchange of software for gravity field activities, coordinates courses, information materials and general public outreach relating to the Earth’s gravity field.

The IGFS was established by the International Association of Geodesy Executive Committee at the IUGG General Assembly in Sapporo, Japan, August 2003, and is an IAG ‘level-2’ service under IAG Commission 2 – Gravity Field. One of the main arguments for establishing the IGFS was to provide a leading role of the gravity field services, as one of the three fundamental pillars in the IAG’s first project - GGOS, the Global Geodetic Observing System, which now is a major Component of the IAG.

The overall goal of the IGFS is to coordinate the servicing of the geodetic and geophysical community with gravity field related data, software and information. The combined data of the IGFS entities data will include satellite-derived global models, terrestrial, airborne and marine gravity observations, time-dependent gravity data, GPS levelling data, digital models of terrain and bathymetry, as well as ocean gravity field and geoid from satellite altimetry. Thus both the static and the temporal variations of the Earth’s gravity field will be covered by the IGFS.

Another important role of the IGFS is to take new initiatives and coordinate international data collection projects, such as, e.g., Arctic and Antarctic Gravity and Geoid Projects, and the support of development of high and ultra-high resolution global geopotential models, such as NGA’s EGM08 and its evaluation.

The IGFS is not handling gravity field data distribution directly. The IGFS will function as a unifying service and contact for the following gravity field related services (IGFS Centres):

- **BGI** – International Gravimetric Bureau – collection, archiving, distribution of gravity data. Hosted by CNES, Toulouse.
- **IGeS** – International Geoid Service – collection and distribution of geoid models and related software, geoid schools – hosted by Politecnico di Milano.
- **ICET** – International Centre for Earth Tides – collection and archiving of global Earth tide data, including data from the Global Geodynamics Project – hosted by the University of French Polynesia.
- **ICGEM** – International Centre for Global Earth Models – distribution of satellite and surface spherical harmonic models – hosted by GFZ Potsdam.
- **IDEMS** – International DEM Service – provision of Global Digital Terrain Models – hosted by DeMontfort University, UK.
- **IGFS Technical Centre** – National Geospatial-Intelligence Agency, USA (G&G dept.) - advises on global models, geoid and gravity, supplementing other services.

The structure of the IGFS centres is shown in Figure 1, and can be seen on [www.igfs.net](http://www.igfs.net).

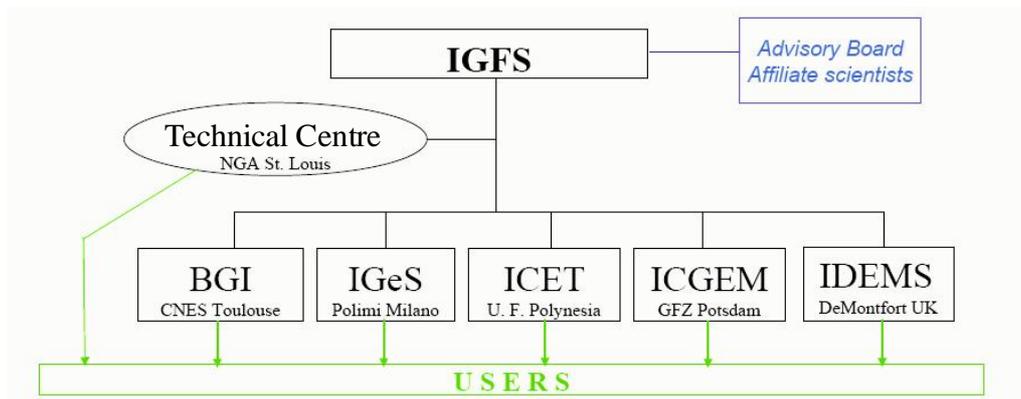


Figure 1: Structure of the IGFS.

Current working groups under the IGFS include

- Working Group on Absolute Gravimetry - Standardization and Networks – chaired by H. Wilmes, BKG, Germany.
- Working Group on Evaluation of Global Earth Gravity Models, chaired by J. Huang, Geodetic Survey Division, Natural Resources Canada.

The IGFS held a Retreat in 2008, and has identified areas such as implementation of a new global vertical datum, coordination of repeated global absolute gravity measurements, and the unification of temporal satellite gravity field solutions, as potential future tasks for the IGFS.

### ***The Role of the Central Bureau***

#### ***Charter***

The Central Bureau of the IGFS serves as the executive arm of the IGFS Directing Board (former Advisory Board). The CB should organize and coordinate task forces to

- Define standards for gravity field data observation procedures, anomaly computations, and associated data corrections (meteorology, hydrology, postglacial rebound, etc.)
- Provide recommendations for data processing methods and reductions
- Establish data exchange and archival formats
- Define and implement fundamental geopotential reference systems
- Evaluate and recommend relevant auxiliary geophysical models
- Facilitate the provision of digital elevation models and density values for gravity field determination and modeling

The CB should coordinate activities related to

- The design and realization of global absolute and superconducting gravimetry networks, with special emphasis on co-located sites for GGOS and regional densifications
- The facilitation and coordination of regional gravity field determination and data exchange projects in order to improve medium to short wavelengths (e.g., Arctic and Antarctica)
- The definition and realization a global vertical datum
- The integration of terrestrial, airborne and satellite measurements in practice
- The improvement of the use of satellite-derived DEMs for gravity field modeling
- The evaluation and calibration of satellite-derived temporal gravity field variations as well as the improvement of processing of satellite data
- Making gravity data, geopotential models (static and time-variable), geoid estimates and other gravity field related products available for general use
- Public outreach on the Earths gravity field by
  - Organizing meetings and schools on gravity, geoid and related geophysics
  - Making software and tutorials for gravity and geoid analysis available.
  - Establishing and maintaining a web site with links to IGFS Centres

## **High Level Tasks**

- Provide link between the IGFS entities, IAG, and external projects, networks or organizations (oceanic, atmospheric, hydrologic, ...).
- Provide link to the GGOS bureau and communicate their requirements and recommendations to the IGFS.
- Implement standards and recommendations related to gravity field observations, secure consistency with geometric standards, and promote their use within the geoscientific community.

## **Organization**

- Tasks of permanent nature concerning all IGFS shall reside within the Central Bureau. Tasks of temporary nature may be delegated to ad-hoc committees.
- The Central Bureau will be headed by a Director, and will have a secretariat to provide administrative, communication and web support.
- The Central Bureau will include such expertise as is necessary to conduct Bureau business and provide guidance and oversight to the supporting entities.
- Dedicated working groups and analysis may be set up for specific issues dealing with particular aspects of gravity field related issues.
- The Director will report to the IGFS Directing Board and the IAG Executive Committee. The Director forms together with the IGFS Chairman and the head of the Technical Centre the IGFS management group.
- The Director of the Central Bureau will be a member of the GGOS Steering Committee on behalf of the IGFS.

## **Interfaces with Internal and External Entities**

The Central Bureau acts essentially as representative of the IGFS and is liaison to other geodetic and geophysical services, especially to the GGOS entities. There must be a routine exchange of information and regular meetings with representatives of the IGFS. A close contact has to be kept to the GGOS Bureaus for 'Standards and Conventions', 'Networks and Communications' and 'Satellite Missions' as well as the 'Coordination Office'.

## **IGFS CENTRAL BUREAU - CALL FOR PROPOSALS**

On behalf of the International Association of Geodesy, the IGFS and its member services hereby request proposals for the operation of the IGFS Central Bureau. An organizational structure to operate the Central Bureau and an operational plan must be provided in the proposal. The proposal should clearly address the capabilities being offered by the institution, its financial ability and commitment to carry them out, and appropriate points of contact.

The funds required for the IGFS Central Bureau have to be provided by the proposing institution. Proposers may also solicit support from external entities in terms of financial contributions and expertise. From the proposal it should become clear that the proposing institution has the expertise, capabilities and financial background to perform the proposed tasks.

The initial term of this appointment will be 4 years. It may be terminated by either party with a 6 months notice. The term will be automatically renewed subject to satisfactory performance, unless either party gives notice 6 months prior to the end of the term.

## **PROPOSAL STRUCTURE, DEADLINE AND SUBMISSION**

The proposal should contain the following parts: title, proposing institution and its address, designated head of the bureau, abstract, goals, expertise, work and schedule and allocated resources. Proposals should be concise, no more than 4 – 5 pages in length. Proposals should be submitted electronically and by mail not later than April, 30, 2009. A pdf (or mailed-in) letter by the responsible head of the proposing institution, with the authority for the commitment of human and financial resources, should be enclosed.

Applications to be send to the IAG General Secretary:

International Association of Geodesy (IAG)  
c/o Deutsches Geodaetisches Forschungsinstitut (DGFI)  
Alfons-Goppel-Straße 11

D - 80 539 Muenchen, Germany  
Tel +49 - 89 - 23 031 -1113  
Fax +49 - 89 - 23 031 -1283  
E-mail [iag@dgfi.badw.de](mailto:iag@dgfi.badw.de)

with a copy to the IGFS Chair Rene Forsberg at DTU-Space, National Space Institute of Denmark ([rf@space.dtu.dk](mailto:rf@space.dtu.dk); DTU-Space will not bid for the CB).

Questions to the present call can be directed to Rene Forsberg ([rf@space.dtu.dk](mailto:rf@space.dtu.dk)), Chair of the IGFS, or to Steve Kenyon ([Steve.C.Kenyon@nga.mil](mailto:Steve.C.Kenyon@nga.mil)), member of the IAG Executive Committee and head of the IGFS Technical Centre.

The proposals will be evaluated and ranked by an independent evaluation committee. The decision for awarding the IGFS CB is expected to be taken by the IAG Executive Committee during the IAG Scientific Assembly in Buenos Aires, September 2009. The successful proposer will be notified by September 15, 2009 with the goal to start the IGFS Central Bureau activities no later than the end of 2009.

### **SCHEDULE**

July 15, 2009:	Due date for proposals
August 15, 2009:	Report by evaluation committee to IAG
September 15, 2009:	Decision by the IAG and the IGFS Advisory Board.
October 1, 2009:	Notification of proposer on proposal acceptance
January 1, 2010:	Start of Central Bureau activities

IGFS, APRIL 28, 2009

## **Meeting Announcements**

### ***VII Hotine-Marussi Symposium 2009 on Theoretical Geodesy***

*6–10 July 2009, Rome, Italy, Sapienza Università di Roma*

Scientific Organization Committee:

- Nico Sneeuw
- Pavel Novák
- Fernando Sansò
- Study group chairs and steering committee members of IAG InterCommission Committee on Theory (IAG-ICCT)

Local Organization Committee:

- Mattia Crespi, G. Colosimo, F. Fratarcangeli, A. Mazzoni, F. Pieralice

The main goals of the Symposium are aligned with the objectives of the ICCT:

- advances in theoretical geodesy
- developments in geodetic modelling and data processing, in the light of the recent advances of the geodetic observing systems
- connections and contribution exchanges between geodesy and other Earth sciences

In particular, **all the topics regarding the activities of the ICCT Study Groups are of interest** and related papers are strongly encouraged:

- theory, implementation and quality assessment of geodetic reference frames
- quality of geodetic multi-sensor systems and networks
- configuration analysis of Earth oriented space techniques
- inverse theory and global optimization
- satellite gravity theory
- InSAR for tectonophysics
- temporal variations of deformation and gravity
- towards cm-accurate geoid - theories, computational methods and validation

- application of time-series analysis in geodesy

The first circular letter is available from [http://w3.uniroma1.it/Hotine-marussi\\_Symposium\\_2009/Circulars.asp](http://w3.uniroma1.it/Hotine-marussi_Symposium_2009/Circulars.asp). The website [http://w3.uniroma1.it/Hotine-marussi\\_Symposium\\_2009/](http://w3.uniroma1.it/Hotine-marussi_Symposium_2009/) have been set up with additional information on the Symposium.

SCIENTIFIC AND LOCAL ORGANIZING COMMITTEE

### **Geodesy for Planet Earth**

*IAG 2009 Scientific Assembly, Buenos Aires, Argentine, August 31 to September 4, 2009*



2<sup>nd</sup> Circular is reachable through the webpage of the conference [www.iag2009.com.ar](http://www.iag2009.com.ar).

#### *Important Dates*

- Deadline for accommodation booking at Intercontinental Hotel (Special Rate): May 1st, 2009
- Third Circular: June, 2009
- Deadline for Submission of Full-Papers Manuscripts: September 30th, 2009

LOCAL ORGANIZING COMMITTEE

### **2nd International Colloquium - Scientific and Fundamental Aspects of the Galileo Programme**

*October 14-16, 2009, Padua, Italy*

<http://www.congrex.nl/09c10/>

#### *General Information*

The second international colloquium on fundamental aspects and scientific applications of Galileo and GNSS will be held in Padua October 2009. The Aula Magna of the University, the very place where Galileo Galilei was lecturing will be the venue of this event which coincides with the 400th anniversary of the first recorded astronomical observations with a telescope by Galileo Galilei.

The colloquium will address three major areas of research:

- The fundamental aspects of navigation by satellites and Galileo: geodetic and temporal reference frames, relativistic frame, on board and ground clocks, orbits, radiation environment in orbit, inter-satellite links, fundamental aspects of propagation, tropospheric and ionospheric corrections, calibration / validation and relations with international organisations (BIPM, IGS).
- Scientific applications in meteorology, geodesy, geophysics, space physics, oceanography, land surface and ecosystem studies, using either direct or reflected signals, differential measurements, phase measurements, radio occultation measurements, using receivers placed on the ground, in airplanes or on satellites.
- Scientific developments in physics and dealing with future systems, particularly in testing fundamental laws, in astronomy, in quantum communication, and in developing clocks or experiments based on GNSS.

#### *Objectives of the Colloquium*

This colloquium intends to bring together leading members of the European scientific community and their international partners. One of its aims is to propose to Galileo partners means of enhancing the scientific use of Galileo and to contribute to GNSS development based on scientific approaches.

The purpose of this colloquium is to review the various possibilities to use navigation satellites such as Galileo for scientific purposes, and to investigate how these scientific requirements can contribute to make the most of the present systems, and define their future evolutions. The conference will be organized as a series of plenary talks and two parallel half day sessions.

The conference is organised by ESA, the University of Padova and COSPAR. The meeting is supported by the Académie de l'Air et de l'Espace, Bureau des Longitudes, IAG, IGS, URSI and ASI. Companies and organisations interested in becoming Sponsors, please contact: Prof. Cesare Barbieri, e-mail: [Cesare Barbieri](mailto:Cesare.Barbieri)

JOSÉ STOOP

## ***IAG Sponsored Meetings***

### **EOGC2009**

*May 25-29, 2009, Chengdu, China*

The Second International Conference on Earth Observation for Global Changes (EOGC2009) will take place in Chengdu, China, 25-29 May 2009. Knowledge about changes to the Earth's surface and the underlying processes that induce them has enormous impacts on how society responds to these changes. With its remarkable progress in the past decade, Earth observation technology has been playing a crucial role in studies on global changes. EOGC2009 promises to bring together a broad range of scientists, researchers, students, and practitioners worldwide in leading academic institutions and government and industrial laboratories, to enjoy a week of technical sessions, tutorials, exhibits and social activities. Please visit <http://www.eogc2009.com.cn/> for details.

### **VII Hotine-Marussi Symposium 2009 on Theoretical Geodesy**

*6–10 July 2009, Rome, Italy, Sapienza Università di Roma*

The main goals of the Symposium are advances in theoretical geodesy, developments in geodetic modelling and data processing in the light of the recent advances of the geodetic observing systems, connections and contribution exchanges between geodesy and other Earth sciences. The first circular letter is available from [http://w3.uniroma1.it/Hotine-marussi\\_Symposium\\_2009/Circulars.asp](http://w3.uniroma1.it/Hotine-marussi_Symposium_2009/Circulars.asp). The website [http://w3.uniroma1.it/Hotine-marussi\\_Symposium\\_2009/](http://w3.uniroma1.it/Hotine-marussi_Symposium_2009/) have been set up with additional information on the Symposium.

### **Geodesy for Planet Earth**

*IAG 2009 Buenos Aires*

*August 31 to September 4, 2009*

The International Association of Geodesy Scientific Assembly IAG2009 that will be hosted by the IUGG National Committee together with the Argentine Association of Geophysics and Geodesy, will take place in the city of Buenos Aires. IAG2009 will be an event that covers the whole of geodesy in an exciting social environment that extends our knowledge, improves our practice, and widens our friendship networks. Following the long outstanding tradition of these scientific assemblies, IAG2009 will be a major scientific event, bringing together geodesists from all over the world, and demonstrating the vital role that geodesy plays in our society. This will be the main geodetic meeting in 2009. 2<sup>nd</sup> Circular is reachable through the webpage of the conference [www.iag2009.com.ar](http://www.iag2009.com.ar).

### **2nd International Colloquium – Scientific and Fundamental Aspects of the Galileo Programme**

*October 14-16, 2009, Padua, Italy*

The second international colloquium on fundamental aspects and scientific applications of Galileo and GNSS will be held in Padua October 2009. The colloquium will address three major areas of research. The fundamental aspects of navigation by satellites and Galileo. Scientific applications in meteorology, geodesy, geophysics, space physics, oceanography, land surface and ecosystem studies, using either direct or reflected signals, differential measurements, phase measurements, radio occultation measurements, using receivers placed on the ground, in airplanes or on satellites. Scientific developments in physics and dealing with future systems, particularly in testing fundamental laws, in astronomy, in quantum communication, and in developing clocks or experiments based on GNSS. To find more information, please visit the conference website <http://www.congrex.nl/09c10/>.

## ***IAG Related Meetings***

### **FIG Working Week 2009**

*May 3-8, 2009, Eilat, Israel*

The FIG Working Week 2009 will take place in Eilat, a resort city at the southernmost edge of Israel, on the shores of the Red Sea. The Working Week be held on 3-8 May 2009. The Working Week will gather international professionals and academia members from the fields of land surveying, land and real-estate appraisal, GIS, spatial planning, environmental awareness, and civil engineering. Please visit [www.fig.net/fig2009](http://www.fig.net/fig2009) for details.

### **230th Anniversary of MIAGiK**

*May 25-29, 2009, Moscow, Russia*

An International Conference on Geodesy, Cartography and Cadastre in the 21<sup>st</sup> century is to be held within the framework of celebrating the 230<sup>th</sup> Anniversary of Moscow State University of Geodesy and Cartography (MIAGiK) on May 25-29, 2009, Moscow, Russia. The webpage of the Conference is <http://230.miiigaik.ru/>.

### **Training School on GIA Modelling**

*June 1-5, 2009, Gaevle, Sveden*

The main objective of this Training School is to give early-stage researchers whose principal area of expertise is not in Glacial Isostatic Adjustment (GIA) modeling an intensive training on numerical GIA modeling. The training will not be limited to the solid-earth deformation process of GIA only, but will also involve glaciological modeling of the disappearing Late-Pleistocene ice sheets on the one hand and GIA-induced sea-level change on the other hand. The school is organized by the COST action ES0701 "improved constraints on models of GIA" but is open to everyone with relevant interest and background.

See <http://www.cost-es0701.gcparks.com/index.php/activities/training-schools> for further information and registration.

### **SGEM 2009**

*June 14-20, 2009, Albena Resort, Bulgaria*

The International Multidisciplinary Scientific Geo-Conference & EXPO – SGEM 2009 will bring together researchers, educators, and practitioners representing research and educational institutions, companies, government agencies and consulting organizations from all over the world to exchange ideas, to define the research priorities and to propose potential solutions of the problems related to the new reality of global changes. The webpage <http://www.sgem.org> contains additional information.

### **TRANS-NAV 2009**

*June 17-19, 2009, Gdynia, Poland*

The upcoming 8<sup>th</sup> International Navigational Symposium on "Marine Navigation and Safety of Sea Transportation" TRANS-NAV 2009 is organised jointly by the Faculty of Navigation, Gdynia Maritime University and The Nautical Institute from 17 to 19 June 2009 in Gdynia, Poland. The Conference website is <http://transnav.am.gdynia.pl>. The Symposium is addressed to scientists and professionals in order to share their expert knowledge, experience and research results concerning all aspects of navigation, safety of navigation and sea transportation.

### **CCCT 2009**

*July 10-13, 2009, Orlando, Florida, USA*

The 7th International Conference on Computing, Communications and Control Technologies: CCCT 2009 (<http://www.2009iisconferences.org/CCCT>) will take place in Orlando, Florida, USA, on July 10th - 13th, 2009. CCCT Conferences are yearly events intended to serve as an encounter point for Computer, Communications and Control Technologies researchers, practitioners, consultants and users who have been interchanging ideas, research results and innovations in the mentioned areas and other related topics. The deadline to submit a paper/abstract is November 12<sup>th</sup>, 2008.

### **SPACOMM 2009**

*July 20-25, 2009, Colmar, France*

The First International Conference on Advances in Satellite and Space Communications will be held in Colmar, France, July 20-25, 2009. The Conference webpage <http://www.iaria.org/conferences2009/SPACOMM09.html> provides further details.

### **6th International Symposium on Mobile Mapping Technology – MMT'09**

*July 21-24, 2009, Presidente Prudente, São Paulo, Brazil*

The 6<sup>th</sup> International Symposium on Mobile Mapping Technology “Mobile Mapping Serving the Information Society” will take place in Presidente Prudente, São Paulo, Brazil, July 21-24, 2009. The main objective of the conference is to discuss the most recent technology and its application, to exchange experiences and to promote future research aiming at the development and the production in the fields related to mobile mapping. You may want to check out the website <http://www.fct.unesp.br/eventos/simposio/mmt09/ingles> to get preliminary information on MMT'09.

### **Workshop: Changes of the Greenland Cryosphere**

*August 25-27, 2009, Katuaq, Nuuk, Greenland*

The CGC workshop is an interdisciplinary workshop on the current changes of the Greenland ice sheet, sea-ice and permafrost, and presents an opportunity for in-depth discussions of the observed changes as measured by satellite, airborne and in-situ networks (climate stations and GPS), the modelling of the changes, and future projections of change. Geodesy has a special role to play in the monitoring of the Greenland ice sheet, especially due to GRACE and geodynamic uplift studies by GPS and absolute gravity. The workshop is part of the Nuuk Climate Days, with a parallel workshop on the Arctic Freshwater Budget (FreshNor), and a joint event on the impact of effects of climate changes on the Greenland society, arranged in cooperation with the Danish Meteorological Institute, Greenland Institute of Natural Resources, and Asiaq-Greenland Survey. Deadline for abstracts: June 1. Web site: [www.space.dtu.dk/nuuk2009](http://www.space.dtu.dk/nuuk2009).

### **6th International Symposium on LBS & TeleCartography**

*September 2-4, 2009, Centre for Geospatial Science, University of Nottingham, UK*

The symposium will bring together experts from around the world to present the latest research results and developments with focus on Location Based Services in the fields of Cartography, Geoinformation, Computer Sciences, Telecommunication, Geodesy, and Geomedia Techniques. For further information see: <http://www.lbs2009.org/>.

### **GNSS Vulnerabilities and Solutions 2009 Conference**

*September 2-5, 2009, Baska, Krk Island, Croatia*

The 2<sup>nd</sup> GNSS Vulnerabilities and Solutions 2009 Conference is to be held on 2-5 September 2009 in Baska, Krk Island, Croatia. This four-day event aims to gather GNSS experts and focuses on GNSS problems and vulnerabilities, as well as to developments aiming to improve the accuracy and reliability of GNSS. For further information please refer to the Call for Papers, which can be downloaded from [http://www.rin.org.uk/files/POOL/vulnerabilitiesAndSolutions2009\\_CallForPapers.pdf](http://www.rin.org.uk/files/POOL/vulnerabilitiesAndSolutions2009_CallForPapers.pdf).

### **ION GNSS 2009**

*September 22-25, 2009, Georgia, USA*

The Institute of Navigation's GNSS 2009 (technical sessions and exhibits) will be held at the Savannah International Convention Center, Savannah, Georgia. Pre-conference tutorials will be held in Savannah on September 21-22. See the ION website ([www.ion.org](http://www.ion.org)) for details.

### **International UN-SPIDER Bonn Workshop**

*October 21 – 23, 2009, Bonn, Germany*

The Third United Nations International UN-SPIDER Bonn Workshop: Disaster Management and Space Technology From Concepts to Applications is being jointly organized by the United Nations Office for Outer Space Affairs (UNOOSA) and the German Aerospace Center (DLR). The workshop will be held in Bonn, Germany, from 21 – 23 October 2009 in the UN Building in Bonn. Please check out: <http://www.unoosa.org/oosa/en/unspider/workshops.html>.

### **ACM GIS 2009**

*November 4-6, 2009, Seattle, USA*

The ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems 2009 (ACM GIS 2009) is the seventeenth event of a series of symposia and workshops that began in 1993 with the aim of bringing together researchers, developers, users, and practitioners carrying out research and development in novel systems based on geo-spatial data and knowledge, and fostering interdisciplinary discussions and research in all aspects of geographic information systems. Visit <http://acmgis09.cs.umn.edu> for details.

## **IGG Sister Societies' General Assemblies**

### **Associations' Scientific Assemblies of the IUGG**

- IUGG/IAGA, August 23-30, 2009, Sopron, Hungary
- IUGG/IAHS, September 7-12, 2009, Hyderabad, India
- IUGG/IAG, August 31-September 4, 2009, Buenos Aires, Argentina
- IUGG/IACS-IAMAS-IAPSO, July 19-29, 2009, Montreal, Canada

## **Obituary**

### **Lubomir Włodzimierz Baran (1937-2009)**



Lubomir Włodzimierz Baran, age 71, passed away in Olsztyn, on 3rd April 2009, after a serious illness. He was to become one of the outstanding geodesists of his generation, with the wide international reputation in the community of Earth's sciences.

Lubomir W. Baran was born on 27th September 1937 in Żniatyn, in south-eastern Poland. He received his early education in Elk, where he graduated from high school in 1955. Then he attended Warsaw University of Technology, where at the Faculty of Geodesy and Cartography he received the degree of Master of Science in geodesy in 1960. At the same faculty he received his PhD in 1966 and habilitation (Doctor of Science) in 1972. In 1976 Lubomir W. Baran was awarded a title of professor by the President of Poland with, and in 1987 – a title of full professor.

His scientific career Lubomir W. Baran started in 1960 at the Agriculture Higher School in Olsztyn (transformed later into the Agriculture-Technical Academy, and finally into the University of Warmia and Mazury) as one of the founders in 1960 of a recent Faculty of Geodesy and Land Management. With the advent of satellite geodesy he was deeply involved in the development of this field, that became later one of the major fields of his expertise. In 1961 he established in Olsztyn the station No 1151 of optical observations of satellites and ran it together with a group of students, affected with his enthusiasm. 18 years later, in 1978 he founded and headed for more than two decades the satellite Observatory at Lamkówko, north-east of Olsztyn, that in 1994 became a station LAMA of IGS network.

Professor Lubomir W. Baran developed numerous methods of adjustment of geodetic networks with the use of satellite data. Following the progress in the development of artificial Earth satellites observation techniques, his first investigations concerned photographic observations of satellites. Then he developed methods of adjusting trilateration networks based on SLR data. His research interest also focused on the adjustment of satellite triangulation networks on regional and continental scale, on the use of satellite techniques for quality control and strengthening the terrestrial geodetic control networks, and on multigroup as well as sequential adjustment of geodetic networks with large number of parameters to be determined.

Professor Lubomir W. Baran's later research concentrated on the use of global positioning systems in geodesy and geodynamics, especially on error propagation in GNSS networks, and on the application of GNSS to studying ionosphere and its impact on GNSS positioning. He initiated works on the establishment in 1990. of the integrated geodetic control network in Poland in the ETRS system. He also substantially contributed to the development of the ASG-EUPOS network of active multifunctional permanently operating GNSS stations in Poland, that became fully operational in 2008.

The results of Professor Lubomir W. Baran's research were presented in more than 260 publications, that include almost 100 monographs and original papers and 7 academic books. They also were presented at almost 250 symposia, of them 130 international ones.

Besides providing continuous education to undergraduate and graduate students for 48 years at the university level, Professor Lubomir W. Baran successfully supervised 8 PhD students. He was also very active as a reviewer. Besides reviewing a few hundred articles and research projects he was involved as a referee in almost 150 processes of promotions concerning scientific degrees and titles.

Professor Lubomir W. Baran's talents were quickly recognized by the academic society. He was a Dean of the Faculty of Geodesy and Land Management (1969-1975, 1978-1981, 1992-1999), a Deputy Dean (1975-1978). He also was a Vice-Rector (1981-1984) and then a Rector (1984-1987) of the Agriculture-Technical Academy in Olsztyn. He was also a Head of the Chair of Geodesy and Photogrammetry (1969-1970), a Head of the Chair of Geodesy (1970-1976), deputy Director (1983-1984) and Director (1976-1983, 1989-1993) of the Institute of Geodesy and Photogrammetry.

Professor Lubomir W. Baran was honoured in many ways. In 1994 he became a corresponding member of the Polish Academy of Sciences, in 2007 – an ordinary member of PAS and since 2003 – a member of the Presidium of the Polish Academy of Sciences. He was elected to numerous scientific committees of the Polish Academy of Sciences, e.g. Committee on Geodesy (President since 2003), Committee on Astronomy, Committee on Geophysics, Committee on Space and Satellite Research, National Committee for the International Union of Geodesy and Geophysics (President since 1996). He was also elected to numerous research councils, e.g. at the Institute of Geodesy and Cartography, Institute of Geophysics of PAS, Space Research Centre of PAS, Olsztyn Planetarium and Astronomical Observatory. Since 1991 he was a member of the Polish Central Commission for Scientific Degrees and Titles.

Talents of Professor Lubomir W. Baran had also been recognized by the international scientific community. He was an active member of numerous international scientific organizations, e.g. American Geophysical Union, COSPAR, European Geosciences Union, IAG, IUGG. In 1983-1987 he was a President of the IAG Special Study Group No 1.59 Computer Assisted Design of Geodetic Networks, and later in 1992-95 - a President of the IAG Special Study Group No 1.127 Error Propagation in GPS Networks. In 1991 he was honoured with a fellowship of the International Association of Geodesy. In 2003 he became a member of IAG. Since 1988 he was a national representative to the IAG Sub-commission EUREF, since 1995 he was an accredited delegate of Poland to the Council of the IUGG and in 1995-2000 national correspondent of the IAG.

In 2000 the Agriculture Academy in Wrocław honoured Prof. Lubomir W. Baran awarding him an honorary doctor degree. In 2005 Rector and the Senate of the Warsaw University of Technology honoured him by electing him to be Honorary Professor of the Faculty of Geodesy and Cartography. He also awarded over 20 research awards and was decorated with numerous medal including a few highest state medals.

Professor Lubomir W. Baran was recognized as a respected scientist, involved in international cooperation in geodesy, always supporting interdisciplinary cooperation in research. He was an unquestionable authority, he brought up a few generations of engineers, and he was a wonderful Man, Man of tact, warm and kind, extremely popular among his collaborators, students and alumni. He will be missed very much by many of his friends and collaborators. He will be remembered in the academic community as unattainable model, outstanding scientist, honourable man and a true friend.

JAN KRYNSKI