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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 (<u>newsletter@iag-aig.org</u>). 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: <u>http://www.iag-aig.org</u>

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**

# CALL FOR PROPOSALS for hosting the Central Bureau of the International Gravity Field Service



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 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.

#### *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 **July 15**, 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.

The detailed Call for Proposal can be downloaded from the IAG website www.iag-aig.org.

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

with a copy to the IGFS Chair Rene Forsberg at DTU-Space, National Space Institute of Denmark (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), Chair of the IGFS, or to Steve Kenyon (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.

IGFS, APRIL 28, 2009

### IAG Commission 4 SG 4.2's Announcement of an ASR Special Issue on GNSS

Papers are invited for a special topical issue of Advances in Space Research (ASR, SCI journal) entitled "GNSS Remote Sensing: New Roles and Progresses".

This topical issue is not a conference proceeding but is open to all scientists who may have an appropriate scientific paper related to the title of the issue. Manuscripts on both scientific research results and programmatic issues are appropriate for this special publication. Particularly new GNSS theory, algorithm and models, GNSS remote sensing capabilities, progresses and future directions for the snow/soil moisture, ionospheric and atmospheric sounding, ocean surface characteristics, GPS-seismometer and tsunami warning systems and integrated approaches/results in synthesizing various remote-sensing measurements (GPS, in-situ tide-gauge observations, SAR, scatterometry, satellite altimetry and satellite gravimetry) are welcome as well as new GNSS receivers/systems design and opportunities for future missions. Attendees of the IEEE International Geoscience & Remote Sensing Symposium in Cape Town from 12-17 July 2009, IAG Scientific Assembly, Argentina, 31 August-4 September 2009 and ION GNSS in Georgia from September 22-25, 2009 are especially encouraged to submit their papers.

Papers must be submitted electronically to <u>ees.elsevier.com/asr</u>. To ensure that all manuscripts are correctly identified for inclusion into the special issue, **authors must select "S.I.: GNSS Remote Sensing"** when they reach the "Article Type" step in the submission process.

Submitted papers must be written in English and should include full affiliation addresses for all authors. Only full-length papers will be considered for publication, subject to peer review by two reviewers. There are no page limits although the length of the paper should be appropriate for the material being presented. While the **deadline for submissions is 1 November 2009**, papers will be published electronically as soon as they are accepted. The printed issue will be assembled within a reasonable time with late papers being printed in regular issues of ASR. Contributors to this issue will have an opportunity to purchase individual issues at 40 Euro per issue. All articles will be typeset at no cost to the author; there is a nominal charge for printing color figures although there is no charge for color figures on the electronic version.

Dr. Shuanggen Jin (UT-CSR, sg.jin@yahoo.com) is the Managing Guest Editor for this special issue as well as Dr. Attila Komjathy (Attila.Komjathy@jpl.nasa.gov). They will be assisted by Drs. Alexi Glover, Mike Hapgood and Ronald Van der Linden. Questions can be directed to Dr. Jin (sg.jin@yahoo.com) or to the Editor-in-Chief of ASR, Peggy Ann Shea (sssrc@msn.com).

We ask authors who plan on submitting papers to provide Dr. Jin with the following information as soon as possible:

Name of corresponding author Approximate Title Expected submission date

The general format for submission of papers is on the ASR Elsevier web site; format questions can be directed to Peggy Ann Shea.

SHUANGGEN G. JIN President of the IAG SG 4.2

# **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.
 The
 website
 http://w3.uniroma1.it/Hotine 

 marussi\_Symposium\_2009/
 have been set up with additional information on the Symposium. The Scientific

 Programme
 is also available online.

SCIENTIFIC AND LOCAL ORGANIZING COMMITTEE

# Geodesy for Planet Earth

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



 $2^{nd}$  Circular is reachable through the webpage of the conference <u>www.iag2009.com.ar</u>.

# Important Dates

- Third Circular: June, 2009
- Deadline for Submission of Full-Papers Manuscripts: September 30th, 2009

LOCAL ORGANIZING COMMITTEE

# 2009 ILRS Technical Workshop on SLR Tracking of GNSS Constellations

Metsovo, Greece, Sept. 14-19, 2009

Dear Colleagues,

We have the pleasure to announce that the International Laser Ranging Service (ILRS) in collaboration with the National Technical University of Athens, Greece (NTUA) is organizing an ILRS Technical Workshop entitled:

# **SLR Tracking of GNSS Constellations** 50 Years of Satellite Geodesy and Geodynamics

in Metsovo, Greece, from September 14 to 19, 2009, on the occasion of Prof George Veis  $80^{\text{th}}$  birthday and the  $50^{\text{th}}$  anniversary of his doctoral thesis, a document that laid the foundations of satellite geodesy. Details and the Second Circular are available from the workshop web page <u>http://www.ntua.gr/MIRC/ILRS\_W2009</u>.

# Objectives

- Overview of the two techniques with emphasis on their synergism
- Review of GNSS and SLR constellations & networks and current stale of the art
- Satellite geodesy applied in geodynamics, POD, positioning, gravity, etc.
- Survey of the likely gains in science from SLR tracking of GNSS constellations
- Examine approaches to help accomplish the goals set by GGOS, investigating options such as:
  - higher repetition rates,
  - optimal normal point formulation,
  - interleaving tracking of targets, better sampling of orbits,
  - allocating targets to sub-networks, etc.
- Optimization of the network design and deployment of the appropriate space segment
- Discussion of the fundamental differences, geometric and dynamic, between geodetic cannonball type targets (LAGEOS) and the complicated GNSS spacecraft
- Discussion of applications specifically enabled through the synergism of the two techniques. e.g. the likely improvement of LEO POD with the improved GNSS orbital products and their impact on Earth Observation products relying on these orbits (radar and laser altimetry, geopotential missions, atmospheric lidar and sounding missions, topography missions, SAR and InSAR missions, etc.).

We would like to invite you to participate in the workshop and submit presentations to the sessions of your choice.

We look forward to seeing you all in Metsovo!

ERRICOS C. PAVLIS AND DEMITRIS PARADISSIS

# IAG Sponsored Meetings

# 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 <a href="http://w3.uniroma1.it/Hotine-marussi\_Symposium\_2009/Circulars.asp">http://w3.uniroma1.it/Hotine-marussi\_Symposium\_2009/Circulars.asp</a>. The website <a href="http://w3.uniroma1.it/Hotine-marussi\_Symposium\_2009/Circulars.asp">http://w3.uniroma1.it/Hotine-marussi\_Symposium\_2009/Circulars.asp</a>. The website <a href="http://w3.uniroma1.it/Hotine-marussi\_Symposium\_2009/Circulars.asp">http://w3.uniroma1.it/Hotine-marussi\_Symposium\_2009/Circulars.asp</a>. The website <a href="http://w3.uniroma1.it/Hotine-marussi\_Symposium\_2009/Circulars.asp">http://w3.uniroma1.it/Hotine-marussi\_Symposium\_2009/Circulars.asp</a>. The website <a href="http://w3.uniroma1.it/Hotine-marussi\_Symposium\_2009/">http://w3.uniroma1.it/Hotine-marussi\_Symposium\_2009/Circulars.asp</a>. The website <a href="http://w3.uniroma1.it/Hotine-marussi\_Symposium\_2009/">http://w3.uniroma1.it/Hotine-marussi\_Symposium\_2009/</a> have been set up with additional information on the Symposium.

# 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. Registration with reduced rates was extended until 12 July 2009. You may want to check out the website http://www.fct.unesp.br/eventos/simposio/mmt09/ingles to get information on MMT'09.

# **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 <u>www.iag2009.com.ar</u>.

### 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

### <u>CCCT 2009</u>

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

The 7th International Conference on Computing, Communications and Control Technologies: CCCT 2009 (<u>http://www.2009iiisconferences.org/CCCT</u>) 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<br/>Colmar, France, July 20-25, 2009. The Conference webpageConferenceWebpagehttp://www.iaria.org/conferences2009/SPACOMM09.htmlprovides further details.

### 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 Meterological Institute, Greenland Institute of Natural Resources, and Asiaq-Greenland Survey. Deadline for abstracts: June 1. Web site: 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: <a href="http://www.lbs2009.org/">http://www.lbs2009.org/</a>.

# 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/ulnerabilitiesAndSolutions2009\_CallForPapers.pdf.

### 2009 ILRS Technical Workshop on SLR Tracking of GNSS Constellations

### Metsovo, Greece, Sept. 14-19, 2009

The International Laser Ranging Service (ILRS) in collaboration with the National Technical University of Athens, Greece (NTUA) is organizing an ILRS Technical Workshop entitled: "SLR Tracking of GNSS Constellations – 50 Years of Satellite Geodesy and Geodynamics" in Metsovo, Greece, from September 14 to 19, 2009. Details and the Second Circular are available from the workshop web page http://www.ntua.gr/MIRC/ILRS W2009.

# 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) 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 <u>http://acmgis09.cs.umn.edu</u> for details.

# IAG 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

# Reports

**Report on the 19th Symposium of the IAG Reference Frame Sub-commission for Europe (EUREF)** *May 27-30, 2009 in Florence/Italy*  At invitation of the Italian Military Geographic Institute (Istituto Geografico Militare - IGM), the IAG Reference Frame Sub-commission for Europe (EUREF) held its <u>19th Symposium</u> from May 27-30, 2009 in Florence/Italy. The EUREF Technical Working Group (TWG) met as usual the day before the beginning of the symposium, i.e. on May 26.

The symposium took place in the conference hall of the Istituto Geografico Militare. Nearly 190 geodesists representing 29 countries met for this 2009 annual EUREF symposium. The attendees mainly represent universities, research centres and the NMCA's (national napping and cadastre agencies). The EUREF Symposia are an open forum and may be attended by any person interested in the work of the Sub-commission. The symposium was opened by General C. Colella, Commander of the Italian Geographic Military Institute, further welcome addresses of the hosting institutions were presented by Prof. L. Surace, President of ASITA and General R. Panunzi, Commander of the Italian Army Logistic. On behalf of the IAG, Z. Altamimi, President IAG Commission 1 "Reference Frames" and J. Torres, President IAG sub-commission 1.3 "Regional Reference Frames" as well as J. Ihde, Chairman of the EUREF Sub-commission expressed their good wishes for a successful conference.

EUREF is the Reference Frame Sub-commission for Europe of the IAG (International Association of Geodesy), a component of the Regional Reference Frames Sub-commission, integrated in Commission 1-Reference Frames. The long-term objective of EUREF, as defined in its Terms of Reference, "is the definition, realization and maintenance of the European Reference Systems, in close cooperation with the pertinent IAG components (Services, Commissions, and Inter-Commission projects) as well as EuroGeographics".

The results and recommendations proceeding from EUREF support the use of the European Reference Systems in all scientific and practical activities related to precise geo-referencing and navigation, Earth sciences research and multi-disciplinary applications. EUREF makes use of the most accurate and reliable terrestrial and space-borne techniques available, and develops the necessary scientific background and methodology.

Its activities are focussed on a continuous innovation and on the changing user needs, as well as on the maintenance of an active network of people and organizations, and may be summarized as follows:

- to maintain the ETRS89 (European Terrestrial Reference System) and the EVRS (European Vertical Reference System) and upgrade the respective realizations;
- to refine the EUREF Permanent Network (EPN) in close cooperation with the IGS;
- to improve the Unified European Levelling Network (UELN);
- to contribute to the IAG Project GGOS (Global Geodetic Observing System) using the installed infrastructures managed by the EUREF members.

These activities are reported and discussed at the EUREF Symposia, an event that occurs every year since 1990, with an attendance of numerous participants coming from nearly all countries in Europe and other continents, representing universities, research centres and the NMCA (National Mapping and Cadastre Agencies). It's an open forum, and may be attended by any person interested in the work of the Sub-Commission.

The organization of the EUREF Symposia has been and will be supported by EuroGeographics, the consortium of the European NMCA, reflecting the importance of the EUREF work for practical purposes. This involvement is consolidated by a formal liaison between EUREF and EuroGeographics.

For the year 2009 we had the kind invitation from the Italian Istituto Geografico Militare (IGM), to hold the 2009 Symposium in Florence, from 27 to 30 May.

The scientific programme covered the following topics:

- Activities of the EUREF Technical Working Group (TWG)
- New Developments in GNSS Networks
- Modelling the Earth with GNSS
- Mitigation of GNSS Error Sources
- Height, Gravity, Geoid, and Combination of Techniques
- Improvements and Densifications of the ETRS89
- National Reports

In about 60 oral presentations (including National Reports) as well as 20 posters various aspects of EUREF and neighbouring topics were treated. The available texts will be published as usual in the EUREF Proceedings within the publications series of the German Bundesamt für Kartographie und Geodäsie (BKG). By courtesy of our colleague Carl Calvert, UK, a "Best Student Poster Award" was handed over again to a young scientist. This award was give to A. Graziani, Università di Bologna, for the submission of a poster by him together with R. Bertacia and P. Tortora entitled 'Detection of the Multipath Effect in the ING2 GPS station with a new developed software'.

The scientific sessions were accompanied by a social programme with impressive arrangements of Italian hospitality and culture.

A detailed overview on this symposium (programme, participants, ppt-files of presentations, photo gallery

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etc.) can be found in the <u>EUREF homepage</u> – see symposia. There also the previous symposia are documented.

The EUREF Sub-commission acknowledges the financial support given by EuroGeographics for the enabling the participation of delegates from economical weak countries.

By courtesy of the Swedish colleagues the EUREF Sub-commission is invited to hold its 2010 Symposium in Sweden. Details will be published in the EUREF homepage in time.

# Resolutions of the EUREF Symposium in Florence, May 27-30, 2009

### **Resolution no. 1**

The IAG Reference Frame Sub-commission for Europe (EUREF) recognising that

- From December 2007 to January 2008 the Italian Rete Dinamica Nazionale (RDN) was observed and
- all the results were submitted to the EUREF Technical Working Group, where they were accepted as Class B standard
- endorses the set of points for Italy submitted to the Technical Working Group as an improvement and extension of ETRS89.

# Resolution no. 2

The IAG Reference Frame Sub-commission for Europe (EUREF) recognising

- the importance of the INSPIRE Directive,
- and the importance of ETRS89 and EVRS to this Directive,
- and the requirement to implement this Directive by 2011/2016

and considering NMAs are responsible for their national realisations of ETRS89 and EVRS

encourages NMAs to make their expertise in these systems available to the other participants in the INSPIRE implementation process.

# Resolution no. 3

The IAG Reference Frame Sub-commission for Europe (EUREF)

considering

- the importance of ETRS89 and its future maintenance
- and the importance of the national realisations of ETRS89 in use today
- invites the member countries of EUREF to submit coordinates of EPN stations in their national realisation of ETRS89 to the TWG before September 15, 2009.

### Resolution no. 4

The IAG Reference Frame Sub-commission for Europe (EUREF)

noting that past EPN data analysis was based on different reference frame realisations, orbits, Earth orientation parameters, standards and analysis strategies

- and recognising that, therefore, the historic coordinates and tropospheric parameters are not consistent with the most recent analysis
- encourages the EPN Special Project on Reprocessing to start the re-computations of the EPN in order to provide a long time span of consistent coordinates and tropospheric parameters.

### Resolution no. 5

The IAG Reference Frame Sub-commission for Europe (EUREF)

recognising the advantage of combining gravity field parameters with geometric observations to stabilise geodetic reference systems

and considering

- the availability of the new realisation of the European Vertical Reference System EVRF2007 and the advanced status of the EUVN-DA project
- and the continuation of the EUREF project "European Combined Geodetic Network" (ECGN)

asks the TWG to contact the European Geoid Project in order to develop a combined European geoid to link ETRS89 and the EVRS.

# **Resolution no. 6**

Considering the need for a wider understanding of EUREF products

and recognising the establishment of the "EUREF Working Group on the Future Development of ETRS89" requests that the Working Group considers ways to foster the science and the methods employed by EUREF to a

broader group of users.

# **Resolution no. 7**

The IAG Reference Frame Sub-commission for Europe (EUREF)

which held its nineteenth symposium in Florence from May 27 - 30, 2009

expresses its heartfelt thanks to the Local Organising Committee especially Renzo Maseroli, Elena Torretta, Silvio Capaldo, Alessandra Naso, Lucia Baroni and Federica Cauli for organising the symposium and for the excellent arrangements resulting in a very successful meeting and for the support given by:

- Istituto Geografico Militare
- Regione Toscanna; Provincia de Firenze; Comune de Firenze; Agenzia del Territorio; CISIS
- ASITA; SIFET; Consiglio Nazionale Geometri e Geometri Laureati; Associazione Geometri Liberi, Professionisti della Provincia di Modena; APT; Istituto e Museo di Storia della Scienza
- Luigi Rossi; Leica Geosystems; Helica; Topcon Geotop; ESRI Italia; BLOM; Intergraph; Planetek Italia; Trimble; Litografia Artistica Cartografica.

JOHANNES IHDE, EUREF Chair HELMUT HORNIK, EUREF Secretary