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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). 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

ILRS News

The ILRS has recently been accepted as a network member of the International Council for Science (ICSU) World Data System (WDS, http://icsu-wds.org). The WDS strives to enable open access to multidisciplinary scientific data, data services, products and information. The WDS works to ensure long-term stewardship of data and data services to a global scientific user community. The ILRS is a network member of the WDS, representing its two data centers and coordinating their activities within the WDS. ILRS membership in the WDS will promote the Service to new user communities and show its commitment to the quality of ILRS data and services.

CAREY NOLL
Secretary, ILRS Central Bureau

Meeting Announcements

IAG Scientific Assembly 2013

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. For further conference information, please visit our homepage http://www.iag2013.org.

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

Third International School on “The KTH Approach to Modeling the Geoid”

March 31 to 4 April 2014, Johor Bahru, Malaysia

After the successful experiences in the determinations and evaluations of precise local geoid models indifferent countries, we plan to arrange the third International Geoid School based on the KTH approach. (KTH is a Swedish abbreviation for Royal Institute of Technology, Stockholm, Sweden.). The school will be arranged at UTM from 31 March to 4 April, 2014, to be hosted again by the Department of Geomatic Engineering, Faculty of Geoinformation and & Real Estate, Universiti Teknologi Malaysia (UTM), Johor Bahru, Malaysia.

The geoid school is lead by

Prof. Lars E. Sjöberg
Royal Institute of Technology
Division of Geodesy
Stockholm, Sweden

Detailed information and registration form can be downloaded from the following webpage:
http://www.infra.kth.se/geo/events/IGS2014.pdf

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Meetings Calendar

**International Symposium on Mobile Mapping Technology 2013**
April 30 - May 2, 2013, Tainan, Taiwan
URL: [http://conf.ncku.edu.tw/mmt2013/wm02.htm](http://conf.ncku.edu.tw/mmt2013/wm02.htm)

**Seventh IVS Technical Operations Workshop**
May 6-9, 2013, Westford, MA, USA

**FIG Working Week 2013**
May 6-10, 2013, Abuja, Nigeria
URL: [http://www.fig.net/fig2013/](http://www.fig.net/fig2013/)

**IERS Workshop on Local Surveys and Co-locations**
May 21-22, 2013, Paris, France

**EUREF Symposium 2013**
May 29-31, 2013, Budapest, Hungary
URL: [http://euref2013.fomi.hu/](http://euref2013.fomi.hu/)

**5th International Conference on Spacecraft Formation Flying Missions and Technologies (SFFMT)**
May 29-31, 2013, Munich, Germany

**International Symposium: Reconciling Observations and Models of Elastic and Viscoelastic Deformation due to Ice Mass Change**
May 30 – June 2, 2013, Ilulissat, Greenland
URL: [http://www.dtu.dk/subsites/iag.aspx](http://www.dtu.dk/subsites/iag.aspx)

**EOGC 2013**
June 5-7, 2013, Toronto, Canada
International Conference on Earth Observation for Global Changes
URL: [http://eogc2013.blog.ryerson.ca/](http://eogc2013.blog.ryerson.ca/)

**GNSS PPP Workshop**
June 12-14, 2013, Ottawa, Canada
URL: [http://www.yorku.ca/pppworkshop2013](http://www.yorku.ca/pppworkshop2013)

**SGEM 2013**
June 16-22, 2013, Albena, Bulgaria
URL: [http://www.sgem.org](http://www.sgem.org)

**VIII Hotine-Marussi Symposium**
June 17-21, 2013, Rome, Italy
URL: [http://w3.dicea.uniroma1.it/hotine-marussi-2013/](http://w3.dicea.uniroma1.it/hotine-marussi-2013/)

**TransNav 2013**
June 19-21, 2013, Gdynia, Poland
URL: [http://transnav2013.am.gdynia.pl](http://transnav2013.am.gdynia.pl)
ICEO-SI 2013
June 23-25, 2013, Tainan City, Taiwan
International Conference on Earth Observations and Societal Impacts
URL: http://2013.iceo-si.org.tw/

IRI-2013 Workshop "IRI and GNSS"
June 24-28, 2013, Olsztyn, Poland
URL: http://www.uwm.edu.pl/kaig/iri_workshop_2013/

AOGS2013
June 24-28, 2013, Brisbane, Australia
URL: http://www.asiaoceania.org/aogs2013/

UN-SPIDER Bonn Expert Meeting on Space-based Information for Early Warning Systems
June 25-26, 2013, Bonn, Germany
URL: http://www.un-spider.org/earlywarning

International Symposium on Planetary Sciences (IAPS2013)
July 1-4, 2013, Shanghai, China
URL: http://2013.iaps.conf.cn/meetings/iaps2013/

GI Forum 2013 – Creating the GISociety
July 2-5, 2013, Salzburg, Austria
URL: www.daca-13.org

2013 Beacon Satellite Symposium
July 8-12, 2013, Bath, UK
URL: http://people.bath.ac.uk/ee3jarr/beaconsatellite2013/

Joint IAMAS-IACS Assembly
July 8-12, 2013, Davos, Switzerland
Davos Atmosphere and Cryosphere Assembly 2013, Ice & Air – Process Interactions
URL: www.gi-forum.org

ESA International Summerschool on GNSS 2013
July 15-25, 2013, Davos, Switzerland
URL: http://www.congrexprojects.com/13m07

Joint IAHS-IAPSO-IASPEI Scientific Assembly
July 22-26, 2013, Gothenburg, Sweden
URL: http://www.iaspei.org/meetings/forthcoming.html#iaspei2013

26th International Cartographic Conference
August 25-30, 2013, Dresden, Germany
URL: http://www.icc2013.org/

ISDE 2013
August 26-29, 2013, Kuching, Sarawak, Malaysia
8th 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
IC-MSQUARE 2013
September 1-5, 2013, Prague, Czech Republic
2nd 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/ng/documents/events-pdfs/jisdm2013.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://syrte.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/

Geodatische 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/ostscienteam/scienceteammeetings/

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.bauv.unibw.de/gnss-signals-workshop/

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/

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

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/
The book is about navigation: what the author has in mind is mainly ocean navigation as explained by himself in Chapter 5.2 “Navigation is all about applying knowledge of the world around us to get a particular destination through unknown or featureless territory”. In other words to determine the position of a point on the earth sphere independently of what you see, for instance when you are in the mid of the ocean, is very much at the heart of the book. Funny enough this is the contrary of what suggested by the figure on the front page that is alluding to car navigation by visual inspection of the surroundings and the help of a map.

The perspective of the author is quite clearly historical, in each of the different sections, or better quadrants as the author calls them, in which the book is divided. However the scientific reasoning is not at all extraneous to the setting of the book, as it was to be expected from a theoretical physicist as M.Denny is. Only the tools used, basically an intuitive spherical geometry, are such as to make the reading understandable to any person with a typical high school background.

The first quadrant is “Geodesy”. The author wants to describe the Earth, the object that we want to navigate, its physical behaviour, including the motion with respect to a celestial reference system, the tides of the ocean, its magnetic field and specially its gravity field and its shape, namely the central chapter of physical geodesy. Naturally the shape of the Earth is an argument calling for its historical development, which is seen in a comprehensive way; not only the Greeks Pytagoras, Erastotenes and Posidonius, and Romans as Ptolemy, but also Chinese and Arabian scientists, like Al Birumi that in the xth century estimated the radius of the Earth to within 17 km of its actual mean value.

Next quadrant is “Cartography”. It is about surveying, namely determining the coordinates of points, and mapping, i.e. representing the geographic information. The interesting point about this quadrant is the use of the historical line of thought as tool to show how the improvement of the technique has been modifying the image of
our world. Namely the accuracy of measurements also shapes the physical model of the world. A point of view this, that is very much in the spirit of modern geodesy.

The third quadrant is about navigation in action, namely “Early exploitation and navigation”. The historical view of the matter here is essential one again the author is not limited by a eurocentric vision. So together with Greeks and Phoenicians we find the Pacific Saga with the spread of sailing populations from the coast of Taiwan through the many island areas of that ocean, to reach Easter Island (Rapa Nui) and possibly the shores of South America. And then the area of the great geographical discoveries from Colombo, to Drake and Magellan.

Interesting to learn is that Portugal, under the indicative of Prince Henry the Navigator, was first to set up a regular school of navigation at Sagres. In this quadrant we learn how by ancient instruments marines could measure azimuth and velocity of their vessels in open sea. Reconstructing the trajectory from this information, i.e. what we could call nowadays traversing, is what is named traditionally as dead reckoning.

The last quadrant is “Navigation in modern times”. Here we read the evolution of navigation capability from the use of measurements to points on the coast of known coordinates from maps, to the astronomical measurements to the sun, to the moon and stars to determine geographic coordinates of a ship. Not to be forgotten the history of the measurement of the longitude, with its first attempts of using celestial bodies as clocks (Galileo already suggested the use of the four moons of Jupiter), to come finally to the accurate marine chronometers, that superseded all the other methods.

Finally the electronic era takes over with its beacons, the Lorenz system used during the second world war to guide German borders and finally the LORAN system (LOng RAnge Navigation) that by employing long wavelengths could issue waves travelling as far as 5.000 km, well over the horizon, thanks to the waveguide effect of the ionosphere.

Last in time come the GPS and the modern navigation coupled with inertial navigation systems, which are explained in a plane, understandable fashion.

The book is closed by a very enjoyable chapter on Nature's Navigation, describing the analogy of human navigation (and its achievements) with that of different animals. Piloting, namely returning on the same route by identifying benchmarks, is used for instance by some species of digger wasps. Compass, indicating the magnetic northing, is used by birds in their navigation. Dead Reckoning is used by ants in the Sahara to trace trajectories to travel forth and back. Celestial Navigation is used by birds that are nocturnal migrants. Radar or better something close to it, like sonar, is used by bats, dolphins and whales.

All in all let me claim that when I started reading the book I was a little skeptic as I'm often (not always) in front of a “popular science”; when I finished my reading I was happy I did it.

FERNANDO SANSO