



April 2004

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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. general information
- II. reports of IAG symposia
- III. reports by commissions, special commissions or study groups
- IV. symposia announcements
- V. book reviews
- VI. fast bibliography

Books for review are the responsibility of:

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General Announcements

IUGG Booth at EGU 2004

With the kind help of the Secretary General of IUGG, Jo Ann Joselyn, IAG related information could be displayed at the IUGG Booth at EGU 2004, Nice. Posters, information materials, brochures are welcomed from

the field of geodesy. The aforementioned materials can be taken to the IUGG Booth (Booth No. 60) personally, or can be posted to the address of the IAG Communication and Outreach Branch. For details, please visit http://www.iag-aig.org/index.php?tpl=text&id_c=6&id_t=191.

Meeting Announcements

IAG Sponsored Meetings

EGU 1st General Assembly

25-30 April 2004 Nice, France

The 1st General Assembly of the European Geosciences Union (EGU) is held at the Nice - Acropolis Congress Centre in Nice, France, from 25 - 30 April 2004.

visit <http://www.copernicus.org/EGU/ga/egu04/index.html> for more information.

EUREF - 2004, The EUREF 2004 Symposium of the IAG Subcommittee for Europe

2-5 June 2004, Bratislava, Slovakia

visit <http://web.gku.sk/euref2004/> for more information.

15th International Symposium on Earth Tides

2-6 August 2004, Ottawa, Canada

The website has been updated with "Call for Session Proposals," "Registration," "Accommodation" and "Travel" information. visit <http://www.yorku.ca/ets/ets.html> for more information.

Gravity, Geoid and Space Missions – GGSM2004

30 August –3 September 2004, Porto, Portugal

IAG International Symposium

visit <http://www.fc.up.pt/ggsm2004/> for more information.

12th General Assembly of the WEGENER project

21-23 September 2004, Tangier, Morocco

For details, please visit: <http://www.fstt.ac.ma/wegener2004/>.

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

6-8 December 2004, Sydney, Australia

Internet: www.gnss2004.org.

IAG Related Meetings

14th Workshop on Laser Ranging

07-11 June 2004, San Fernando, Cadiz, Spain

The 14th International Workshop on Laser Ranging and International Laser Ranging Service General Assembly will be held at San Fernando (Cadiz, Spain) between June 07-11 2004. The Workshop is organized by "Real Instituto y Observatorio de la Armada" (ROA) and International Laser Ranging Service" (ILRS). For more information please visit the workshop web site at <http://www.roa.es/14workshop-laser>.

CCCT '04 Conference

14-17 August 2004, Austin, Texas, USA

2nd. International Conference on Computing, Communication and Control Technologies: CCCT '04. For details, please visit: <http://www.iiisci.org/ccct2004/WebSite/Default.asp> .

Map Asia 2004 Conference

26 – 29 August 2004, Beijing, China

Visit <http://www.mapasia.org> for more information.

Laser Scanner Conference

3 - 6 October 2004, Freiburg im Breisgau, Germany

International Conference "Laser-Scanners for Forest and Landscape Assessment - Instruments, Processing Methods and Applications". For details, visit: <http://www.natscan.de/conference/>.

3rd conference on Geodesy, GIS and Real Estate

13. – 14 October 2004, Herľany, Slovakia

Detailed information you can find at: http://www.fberg.tuke.sk/fakulta/konf_herľany/html/indexen.htm

19th CODATA International Conference

7-10 November 2004, Berlin, Germany

CODATA - Committee on Data for Science and Technology of the International Council of Science – ICSU
Title: "The Information Society: New Horizons for Science". Visit <http://www.CODATA.org/04conf> for more information.

IAG Sister Societies' General Assemblies

FIG Working Week and General Assembly

22-27 May Athens, Greece

The next FIG General Assembly will be held in conjunction to the FIG Working Week in Athens. For details, please visit <http://www.fig2004.gr>.

1st FIG International Symposium on Engineering Surveys for Construction Works and Structural Engineering

28 June –1 July 2004, Nottingham, United Kingdom

This Symposium is organized by FIG Commission 6 and includes a workshop "Measurements and Analysis of Cyclic deformations and Structural Vibrations". More information available at:

<http://www.fig.net/figtree/nottingham>.

XXth Congress of the ISPRS

12-23 July 2004, Istanbul, Turkey

The XXth Congress of the International Society for Photogrammetry and Remote Sensing will be held in Istanbul, Turkey. Visit <http://www.isprs2004-istanbul.com> for more information.

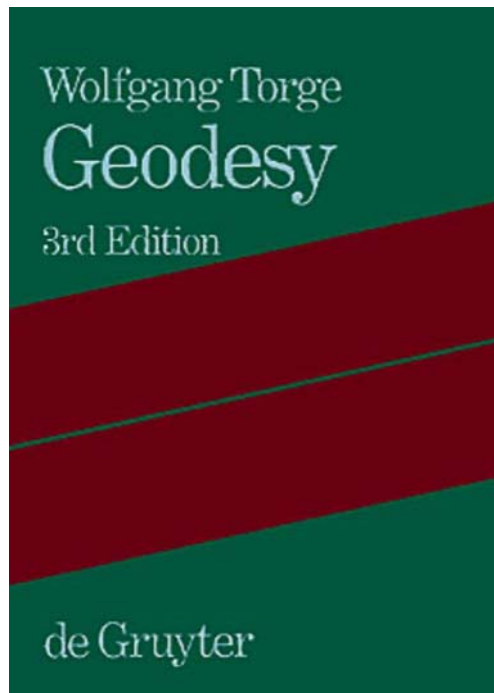
ICC2005 Conference

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.

Book Review

Wolfgang Torge: Geodesy 3rd Edition



Title:	Geodesy, 3rd Edition
Author:	Wolfgang Torge
Publisher:	Walter de Gruyter
ISBN:	3 11 017072 8
Year:	2001
Price:	US\$ 49.95 (€ 38.95)
Pages:	xv + 416
Size:	17 x 24
Details:	paperback

Geodesy has undergone a profound change during the past thirty years. In particular, space techniques, i.e. the geodetic use of satellites and of astronomical radio interferometry have affected almost all parts of geodesy. Geodetic techniques became much more accurate and truly global. As a consequence the role of reference systems became more prominent because they are the common link of the various campaigns and techniques as well as the connection between measurement and mathematical models. Classical geodetic techniques were exchanged by modern and more efficient ones; at the same time geodesy became more and more relevant for Earth sciences. In the third edition of his textbook “geodesy” Wolfgang Torge succeeds to unfold this new face of geodesy to the reader and to make him understand the underlying structures. Already the previous editions of this well-known textbook, published in 1980 and in 1991 contained some contours of these new trends. Now in the new edition they form the very core, magnificently presented, well structured and easily accessible. Style and approach are similar to the old editions, however emphasis and content of the various parts has changed profoundly.

It is a real challenge to cover geodesy as a whole in only 400 pages. The chosen structure and way of presentation allowed Wolfgang Torge to achieve this goal. He does not dwell on detailed derivations of formulas (for this purpose the reader is referred to the classics “physical geodesy” by Heiskanen and Moritz and “satellite geodesy” by Kaula). However, all essential equations are there, in a consistent notation and easily understandable – and many formulas are based on elegant and original derivations of the author himself. So much about the style of the book; the structure is consequent and logical. The first part deals with the foundations, with reference systems, theoretical fundamentals of the gravity field and of geodetic Earth models

(chapters 2, 3 and 4). The central part contains measurement techniques and processing methods. Finally, chapters seven and eight cover geodetic networks and geodynamics.

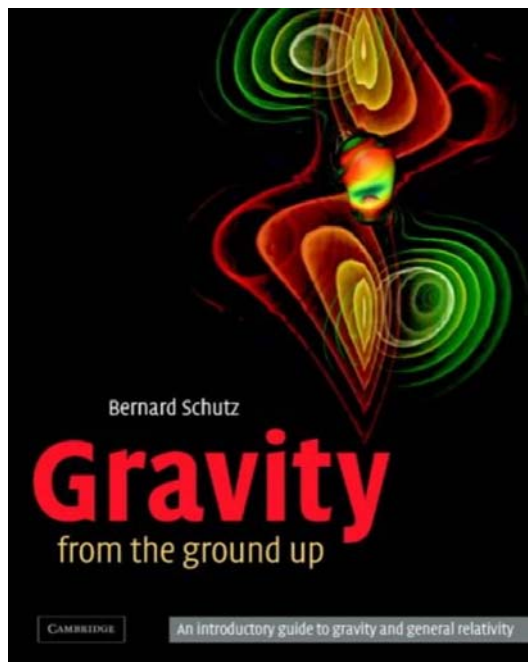
As in the previous editions the book starts with an introduction into geodesy. It describes geodesy's fundamental objectives, national and international organizations and all relevant periodicals and publication series. This is very useful, in particular for students. It is followed by reference systems. They are the foundation of any consistent treatment of the basic geodetic pillars geometry, gravity and Earth rotation. The reference systems are presented in hierarchical order, beginning with the space-fixed system, followed by Earth-fixed systems and ending with local coordinate triads, that are tied to the gravity field. Before the reference systems time and time systems are introduced. This may be somewhat surprising but it emphasises the important and all-encompassing role of time measurement and time keeping for all geodetic measurement techniques and data processing. It also reflects the fact that modern geodesy is the measurement of the Earth in space and time. The chapter on the fundamentals of the gravity field contains apart from the classical treatment also its geometric representation and temporal variations of gravity. The part on measurement techniques gives broad room to satellite methods. The author succeeds to guide the reader – so-to-say along a geodesic – from the well-known theoretical foundation of an unperturbed orbit, via the basics of GPS, laser ranging and altimetry to the most advanced aspects of satellite gravimetry. Torge's book still contains the basic elements of geodetic astronomy. This allows the author to establish the link between space and Earth fixed reference systems and to include very-long-baseline interferometry. This part also covers gravimetry and terrestrial geodetic measurements. The chapter on processing models presents in systematic order one-, two- and three-dimensional geodesy, local and global gravity field determination as well as combination methods. The emphasis is on the representation and determination of gravity quantities. Processing models of satellite geodesy are not included. They are beyond the scope of this textbook (one may consult "Satellite Geodesy" by Kaula or Seeber's "Satellite Geodesy"). Of course, to some extent one wonders why Wolfgang Torge has devoted a whole chapter to geodetic and gravimetric networks. Nowadays one does not think so much in terms of networks anymore. However, with this approach the author is able to illustrate the geodetic principle of going from the large to the small and the logical development from 1 + 2-dimensional via 3-dimensional to present-day 4-dimensional networks. The closing chapter contains a wonderful introduction into geophysical geodesy. It starts with a description of the structure of the Earth, alternative models of isostasy and the role of plate tectonics. These phenomena are then connected with tectonically important signatures in the gravity field, with the geodynamic relevance of crustal motion, Earth rotation and with tides. The book contains an extensive list of references and a very useful and balanced list of subjects. Most of the figures, all together 184, are very helpful for the understanding of the subjects. The price of the book is acceptable even for a student budget.

Is there nothing to be criticized? As almost all geodetic textbooks it does not contain detailed numerical examples and exercises. In addition, a few of the figures, taken from internet presentations are not very readable. In the next edition they should be exchanged by better ones. In some cases color graphics would be helpful. Modern Earth sciences and geodesy have benefited a lot in recent years from the possibilities of modern color graphics and these possibilities should be used for textbooks.

This third edition of the well-known textbook "geodesy" is outstanding and highly recommended. It has a clear structure, it is up-to-date, nowhere overloaded, easily accessible and readable in parts, too. It offers an excellent insight into the state-of-affairs of geodesy as a scientific discipline. It also gives the connection to applications in practise and in Earth sciences. It will be a perfect companion for many generations of undergraduate and graduate students. At the same time it is an ideal introduction into geodesy for colleagues from practise and from neighboring disciplines.

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Gravity from the ground up: An introductory guide to gravity and general relativity



Title:	Gravity from the ground up: An introductory guide to gravity and general relativity
Author:	Bernard Schutz
Publisher:	Cambridge University Press
ISBN:	0 521 45506 5
Year:	2003
Price:	US \$45 (£30)
Pages:	xxvi + 462
Size:	20 x 26
Details:	hardback

This book covers a wide range of gravity related topics, but concentrates mainly on those relevant for understanding and explaining general relativity and to some extent for astronomy and astrophysics. It aims for presenting gravitation theory as a unified subject. But from a geodetic point of view, the content is rather poor compared to what is needed in physical geodesy (e.g. gravity anomalies, physical heights, gravity field determination, etc. are missing completely). The geodetic parts discussed do not reach graduate level, with a few exceptions (e.g. for satellite geodesy: the slingshot mechanism to use a planet's gravitational attraction to accelerate a spacecraft). But one should not consider this book as a geodetic textbook, it isn't! It was thought for beginners in gravitation theory, or more precise in general relativity, where it presents a rich overview. As intended for beginners, it is written more descriptive and contains only few formulas.

The book is organized in the following way:

It consists of various structural elements like a main text, boxes, a glossary or a website. The main text is written more descriptive and explaining, often pictured which is helpful for the general understanding. The author's style is that of a teacher (,We have seen ... We are now ready to make another step ...'), which not every reader may like. Formulas and equations are mainly given in separate boxes called ,investigations' as well as corresponding exercises (for which computer programs in Java and the solutions can be found on <http://www.gravityfromthegroundup.org>). The website contains also links to thematically related sites and satellite missions. Further explanations are presented as side notes, which also describe the contents of the present chapter or section, and in the glossary. Thus the reader either has to stick to the main text and skip several parts of the book or he has to be somehow ,flexible' to catch all the elements offered.

The topics addressed are presented systematically from Galileo and Newton to Einstein resp. from the Earth and the solar system over the stars and galaxies to black holes and the whole universe. Even if geodesy is dealt less extensively with, some aspects like tides and tidal forces, satellite trajectories or the impact of the atmosphere are considered quite nicely. The central topics, however, comprise gravitation in general, where many astrophysical and relativistic details are discussed, e.g. physics of the sun, colors of the stars, birth and

death of a star, binaries and galaxies, theoretical and experimental relativity (e.g. twin paradox, length contraction, light deflection or Mercury's perihelion shift), spacetime geometry and Einstein's gravity, black holes and neutron stars, gravitational waves and lenses, cosmology and the big bang.

Here, the author always relates theory to experiments and tries to give an idea how observable confirmation of the various phenomena could be achieved.

In my opinion, on one hand the reader is somehow hit with too much information, i.e. too much different aspects, on the other hand some matter is explained too popular and not deep enough. Therefore the book may be recommended for those people who want to get a first impression about gravity, especially general relativity. They get an impressive overview what is happening in the universe, what Einstein's achievements are and how this is related to gravity. This book is not sufficient for scientific use. But this was not the intention of the author, who wanted to write a book for beginners at school or undergraduate level. In working multi-media based, by avoiding formulas in the main text and in describing the phenomena in a simple way, he tries a little bit different access than usual, which may catch more young people and interest them in science. The future will show, whether this procedure is successful.

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