

- Geodesy Sources -

by Michele T. Mazzucato

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INTERNATIONAL CENTERS

Bureau Des Longitudes **BDL** site.bdlg.fr

Bureau Gravimétrie International **BGI** bgi.obs-mip.fr

Bureau International des Poids et Mesures **BIPM** www.bipm.org

Fédération Internationale des Géomètres **FIG** www.fig.net

International Association of Geodesy **IAG** www.iag-aig.org

International Cartographic Association **ICA** www.icaci.org

International Centre for Global Earth Models **ICGEM** icgem.gfz-potsdam.de/home

International DORIS Service **IDS** ids-doris.org
(Doppler Orbitography and Radiopositioning Integrated by Satellite)

International Earth Rotation and Reference Systems Service **IERS** www.iers.org

International Geodynamics and Earth Tide Service **IGETS** igets.u-strasbg.fr

International Geoid Service **IGeS** isgeoid.polimi.it

International GNSS Service **IGS** www.igs.org
(Global Navigation Satellite System)

International Laser Ranging Service **ILRS** ilrs.gsfc.nasa.gov

International Society for Photogrammetry and Remote Sensing **ISPRS** www.isprs.org

International Union of Geodesy and Geophysics **IUGG** www.iugg.org

International VLBI Service **IVS** ivscc.gsfc.nasa.gov
(Very Long Baseline Interferometry)

Joint Institute for VLBI in Europe **JIVE** www.jive.nl
(Very Long Baseline Interferometry)

Permanent Service for Mean Sea Level **PSMSL** www.psmsl.org

NATIONAL CENTERS

ARGENTINA

IGM Instituto Geográfico Militar www.ign.gob.ar

AUSTRALIA

GA Geoscience Australia www.ga.gov.au

AUSTRIA

BEV Bundesamt für Eich- und Vermessungswesen www.bev.gv.at
IGG Institut für Geodäsie und Geophysik [Wien] geo.tuwien.ac.at

BANGLADESH

NSMO National Surveying & Mapping Organization www.sob.gov.bd

BELARUS

Topographic and Geodetic Enterprise "Belgeodesy" geo.by/

BELGIUM

NGI Nationaal Geografisch Instituut www.ngi.be
ROB Royal Observatory of Belgium www.astro.oma.be

BRAZIL

IBGE Instituto Brasileiro de Geografia e Estatística www.ibge.gov.br

BRUNEI

Survey Department www.survey.gov.bn

BURKINA FASO

IGB Institut Géographique du Burkina www.igb.bf

CANADA

CGU Canada Geophysical Union www.cgu-ugc.ca
NRCAN Natural Resources CANada - Geodetic Survey Division www.geod.nrcan.gc.ca

CHILE

IGM Instituto Geográfico Militar www.igm.cl

CHINA

NASMG National Administration of Surveying Mapping and Geoinformation en.sbsm.gov.cn

COLOMBIA

IGAC Instituto Geográfico *Agustín Codazzi* www.igac.gov.co

CROATIA

DGU Drzavna Geodetska Uprava www.dgu.hr

CZECH REPUBLIC

CUZK Český Úřad Zeměměřický Katastrální www.cuzk.cz
 (Czech Office for Surveying, Mapping and Cadastre - COSMOC)

DENMARK

KMS Kort & MatrikelStyrelsen [Copenhagen] www.kms.dk



(National Survey and Cadastre of Denmark)

ECUADOR

IGM Instituto Geográfico Militar www.igm.gob.ec

ESTONIA

ELB Estonian Land Board www.maaamet.ee

ETHIOPIA

EMA Ethiopian Mapping Authority www.ema.gov.et

FINLAND

FGI Finnish Geodetic Institute www.fgi.fi

NLS National Land Survey www.maanmittauslaitos.fi

FRANCE

AFT Association Française de Topographie www.aftopo.org

CNFGG Comité National Français de Géodésie et Géophysique site.cnfgg.fr

GRGS Groupe Recherches Géodésie Spatiale grgs.obs-mip.fr

IGN Institut National de l'Information Géographique et Forestière www.ign.fr

LAREG Laboratoire de REcherche en Géodésie recherche.ign.fr/labos/lareg/page.php

GREECE

HMGS Hellenic Military Geographical Service www.gys.gr

GUATEMALA

IGN Instituto Geográfico Nacional *Alfredo Obiols Gómez* www.ign.gob.gt

HONG KONG

SMO Survey & Mapping Office www.landsd.gov.hk/mapping/welcome.htm

HUNGARY

Department of Geodesy, Remote Sensing and Land Offices www.fomi.hu

(ex **FOMI** Földmérési és Távérzékélesi Intézet)

GGRI Geodetic and Geophysical Research Institute [Sopron] www.ggki.hu

ICELAND

NLSI National Land Survey of Iceland www.lmi.is

INDIA

SOI Survey Of India www.surveyofindia.gov.in

INDONESIA

BAKOSURTANAL Badan KOordinasi SURvei dan PemeTAan Nasional
(National Coordinating Agency for Surveys and Mapping) bnpb.go.id

IRAN

NCC National Cartographic Center www.ncc.org.ir

IRELAND

OSI Ordnance Survey Ireland www.osi.ie

ISRAEL

MAPI Survey of Israel www.mapi.gov.il



ITALY

IGM Istituto Geografico Militare www.igmi.org
IIM Istituto Idrografico Marina www.marina.difesa.it/noi-siamo-la-marina/pilastro-logistico/scientifici/idrografico/Pagine/home.aspx

JAPAN

GSI Geographical Survey Institute www.gsi.go.jp/ENGLISH
JAS Japan Association of Surveyors www.jsurvey.jp/eng.htm

JORDAN

RJGC Royal Jordanian Geographic Centre www.rjgc.gov.jo

KENYA

Ministry of Lands lands.go.ke

LATVIA

VZD Valsts Zemes Dienests (State Land Service) www.vzd.gov.lv

LEBANON

DAG Directorate of Geographic Affairs www.lebarmy.gov.lb/en/content/directorate-geographic-affairs-0

LIECHTENSTEIN

LLV Liechtesteinischen Landes Verwaltung www.llv.li/amtstellen/llv-tba-home

LITHUANIA

LGT Lietuvos Geologijos Tarnyba www.lgt.lt

LUXEMBOURG

ACT Administration du Cadastre et de la Topographie www.act.public.lu

MACAU

DSCC Macao Cartography and Cadastre Bureau www.dsc.gov.mo

MACEDONIA

SAFGW State Authority For Geodetic Works www.katastar.gov.mk/en/home

MADAGASCAR

FTM Foiben Taosarintanin' i Madagasikara
(Institut Géographique et Hydrographique National) www.ftm.mg

MALAYSIA

JUPEM Jabatan Ukur dan PEmetaan Malaysia
(Department of Survey and Mapping Malaysia) www.jupem.gov.my/index.php

MALTA

MEPA Malta Environment & Planning Authority geoserver.pa.org.mt

MEXICO

INEGI Instituto Nacional de Estadística Geografía e Informática www.inegi.org.mx

NEPAL

SD Survey Department www.dos.gov.np

NETHERLANDS

DUT Delft University of Technology - Faculty of Geodetic Engineering www.tudelft.nl



NEW ZEALAND**LINZ** Land Information New Zealand www.linz.govt.nz**NICARAGUA****INETER** Instituto Nicaragüense de Estudios TERritoriales www.ineter.gob.ni**NORTHERN IRELAND****OSNI** Ordnance Survey of Northern Ireland www.osni.gov.uk**NORWAY****SK** Statens Kartverk www.kartverket.no**OMAN****NSA** National Survey Authority www.mod.gov.om**PANAMA****IGN** Instituto Geográfico Nacional *Tommy Guardia* <http://ignpanama.anati.gob.pa>**PERU****IGN** Instituto Geográfico Nacional www.ign.gob.pe**PHILIPPINES****NAMRIA** National Mapping and Resource Information Authority www.namria.gov.ph**POLAND****GUGIK** Główny Urząd Geodezji i Kartografii www.gugik.gov.pl**PORTUGAL****SNIG** Sistema Nacional de Informação Geográfica snig.dgterritorio.gov.pt
ex IGP Instituto Geográfico Português**QATAR**The Centre for GIS - State of Qatar www.gisqatar.org.qa**ROMANIA****NACLR** National Agency for Cadastre and Land Registration www.ancpi.ro**RUSSIA****IAA** Institute Applied Astronomy [St Petersburg] iaaras.ru
МИИГАиК (МИИГАиК) www.miigaik.ru
(Московского Государственного Университета Геодезии и Картографии)
(Moscow State University of Geodesy and Cartography)**SINGAPORE****SLA** Singapore Land Authority www.sla.gov.sg**SLOVAKIA****GCC** Úrad Geodézie Kartografie a Katastra www.skgeodesy.sk
(Geodesy Cartography and Cadastre Authority of the Slovak Republic)**SLOVENIA****GRS** Geodetska uprava Republike Slovenije www.gu.gov.si**SOUTH AFRICA**

NGI National Geo-Spatial Information www.ngi.gov.za

SOUTH KOREA

NGII National Geographic Information Institute www.ngii.go.kr

SPAIN

ICGC Institut Cartogràfic i Geològic de Catalunya www.icgc.cat

IGN Instituto Geográfico Nacional www.ign.es

SRI LANKA

SDSL Survey Department Sri Lanka www.survey.gov.lk

SWEDEN

Lantmäteriet www.lantmateriet.se

SWITZERLAND

IGP Institute of Geodesy and Photogrammetry at ETH Zurich www.igp.ethz.ch

SWISSTOPO SWISS Federal Office of Topography www.swisstopo.ch

THAILAND

RTSD Royal Thai Survey Department www.rtsd.mi.th/index.php

TURKEY

HGK Harita Genel Komutanlığı www.harita.gov.tr

UKRAINE

GIS-portal Geomatica geosolutions.com.ua

UNITED KINGDOM

BCS British Cartographic Society www.cartography.org.uk

OS Ordnance Survey www.ordnancesurvey.co.uk

URUGUAY

SGM Servicio Geográfico Militar igm.gub.uy

USA

AGU American Geophysical Union sites.agu.org

ASPRS American Society for Photogrammetry and Remote Sensing www.asprs.org

JPL Jet Propulsion Laboratory (Earth Sciences) www.jpl.nasa.gov/earth

NGA National Geospatial – Intelligence Agency www.nga.mil

(ex National Imagery & Mapping Agency **NIMA**) (ex Defense Mapping Agency **DMA**)

NGDC NOAA National Geophysical Data Center www.ngdc.noaa.gov

(National Oceanic Atmospheric Administration **NOAA**)

NGS National Geodetic Survey www.ngs.noaa.gov

OSU Ohio State University (Geodesy Science) earthsciences.osu.edu

USGS United States Geological Survey www.usgs.gov

VENEZUELA

IGVSB Instituto Geográfico de Venezuela *Simón Bolívar* www.igac.gov.ve

YEMEN

YSA Yemen Survey Authority geospatial.com



GEODETIC SATELLITES

- Laser Ranging Retroreflector Experiment (Sea of Tranquility) **APOLLO 11** nssdc.gsfc.nasa.gov/nmc/spacecraft/display.action?id=1969-059C
- Laser Ranging Retroreflector Experiment (Fra Mauro) **APOLLO 14** www.lpi.usra.edu/lunar/missions/apollo/apollo_14/experiments/lrr
- Laser Ranging Retroreflector Experiment (Hadley Rille) **APOLLO 15** www.lpi.usra.edu/lunar/missions/apollo/apollo_15/experiments/lrr
- Laser Ranging Retroreflector Experiment (Sea of Rains) **LUNA 17** nssdc.gsfc.nasa.gov/nmc/spacecraft/display.action?id=1970-095A
- Laser Ranging Retroreflector Experiment (Sea of Serenity) **LUNA 21** nssdc.gsfc.nasa.gov/nmc/spacecraft/display.action?id=1973-001A
- Geodetic Satellites List ilrs.gsfc.nasa.gov/missions/satellite_missions/index.html
- Satellite Mission Geodesy www.tbs-satellite.com/tse/online/mis_geodesie.html
- CHALLENGING Minisatellite Payload **CHAMP** www-app2.gfz-potsdam.de/pb1/op/champ//index_CHAMP.html
- European Geostationary Navigation Overlay Service **EGNOS** www.egnos-pro.esa.int/index.html
www.esa.int/esaNA/egnos.html
- European Remote Sensing Satellite **ERS** earth.esa.int/web/guest/missions/esa-operational-eo-missions/ers
- European satellite navigation system **GALILEO** www.esa.int/esaNA/galileo.html
- GEODETIC Satellite **GEOSAT** www.aviso.altimetry.fr/en/missions/past-missions/geosat.html
- GLOBAL NAVIGATION Satellite System **GLONASS** www.glonass-iac.ru/en
(GLOBAL'naya Navigatsionnaya Sputnikovaya Sistema)
- Gravity Field and Steady State Ocean Circulation Explorer **GOCE** earth.esa.int/web/guest/missions/esa-operational-eo-missions/goce
- Gravity Recovery And Climate Experiment **GRACE** www2.csr.utexas.edu/grace
- JASON** sealevel.jpl.nasa.gov/missions/jason1
- NAVIGATION System with Time And Ranging Global Positioning System www.gps.gov
NAVSTAR GPS www.navcen.uscg.gov/gps-constellation
- Ocean TOPography Experiment **TOPEX/POSEIDON** sealevel.jpl.nasa.gov/missions/topex



DOCUMENTATION



Geodesy and Gravity (<i>John Wahr</i>)	fgg-web.fgg.uni-lj.si/~mkuhar/Zalozba/Geodesy_Gravity_Wahr.pdf
Geodesy for the Layman (<i>Richard K. Burkard</i>)	www.ngs.noaa.gov/PUBS_LIB/Geodesy4Layman/toc.htm
Geodesy Page (<i>James Q. Jacobs</i>)	www.jqjacobs.net/astro/geodesy.html
Geodetic Datums (<i>Peter H. Dana</i>)	foote.geography.uconn.edu/gcraft/notes/datum/datum_f.html
MapHistory (<i>Tony Campbell</i>)	www.maphistory.info/index.html
Navigation on the spheroidal Earth (<i>Ed Williams</i>)	edwilliams.org/ellipsoid/ellipsoid.html
Publications Library NGS	geodesy.noaa.gov/library
The Altimetry Atlas	www.deos.tudelft.nl/AS/altim/atlas
Virtual Museum of Surveying	www.surveyhistory.org



Coordinate gaussiane e geografiche (<i>Michele T. Mazzucato</i>)	Trasformazioni Gaussiane PDF
Coordinate geografiche e cartesiane geocentriche (<i>Michele T. Mazzucato</i>)	Trasformazioni Cartesiane PDF
La geometria sulla sfera (<i>Paolo Lazzarini</i>)	users.libero.it/prof.lazzarini/geometria_sulla_sfera/geo.htm
La sfera in geometria e geografia (<i>Giuseppe De Cecco & Elisabetta Mangino</i>)	siba-ese.unisalento.it/index.php/quadmat/issue/view/780
Laboratorio di Geomatica	geomatica.como.polimi.it
Progetto Rete di Eratostene (<i>coordinatore Nicola Scarpel</i>)	eratostene.vialattea.net
Trasformazioni di datum e di coordinate (<i>Aurelio Stoppini & Fabio Radicioni</i>)	labtopo.ing.unipg.it/files_sito/compiti/georef_d.pdf
Trasformazioni tra sistemi di coordinate (<i>Davide Travaglini</i>)	www.sisef.it/forest@/pdf/Travaglini_228.pdf

On-Line Geodesy Resources (*Mike Craymer*) www3.sympatico.ca/craymer/geodesy

An online geodesic bibliography (*Charles F.F. Karney*) geographiclib.sourceforge.io/geodesic-papers/biblio.html

Geodesy Books in Gallica [gallica.bnf.fr/services/engine/search/sru?operation=searchRetrieve&version=1.2&page=1&query=\(gallica%20all%20%22geodesie%22\)%20and%20\(dc.type%20all%20%22monographie%22\)](http://gallica.bnf.fr/services/engine/search/sru?operation=searchRetrieve&version=1.2&page=1&query=(gallica%20all%20%22geodesie%22)%20and%20(dc.type%20all%20%22monographie%22))

Geodesy Books in Internet Archive archive.org/search.php?query=geodesia
archive.org/search.php?query=geodesie
archive.org/search.php?query=geodesy

Geodesy Books in Books Google www.google.it/search?hl=it&tbo=p&tbm=bks&q=geodesy&tbs=,bkv:f&num=10

Geodesy Books in e-rara www.e-rara.ch/search/quick?query=geodesia
www.e-rara.ch/search/quick?query=geodesie
www.e-rara.ch/search/quick?query=geodesy



SOFTWARE

Cconvert by Planetek www.planetek.it/media/download/software

Geodetic Software by NGS www.ngs.noaa.gov/PC_PROD/pc_prod.shtml

Geodetic Tool Kit by NGS www.ngs.noaa.gov/TOOLS

Program GeoConv (Eino Uikkanen) www.kolumbus.fi/eino.uikkanen/geoconvgb/index.htm

TRASPUNTO www.mondogis.com/traspunto.html



UTILITY ONLINE

- Calculate distance, bearing and more between Latitude/Longitude points** www.movable-type.co.uk/scripts/latlong.html
(Chris Veness)
- Calculating with coordinates** geo.javawa.nl/coordcalc/index_en.html
- Coordinate Translation** (Gerald I. Evenden) jeeep.com/details/coord
- Distanza sul globo** (Michele T. Mazzucato) www.matematicamente.it/staticfiles/approfondimenti/astronomia/Modulo_Distanza_Globo.xls
- Ellissoide** (Michele T. Mazzucato) www.matematicamente.it/staticfiles/approfondimenti/astronomia/Modulo_Ellissoide.xls
- Gaussiane** (Michele T. Mazzucato) www.matematicamente.it/staticfiles/approfondimenti/astronomia/Modulo_Gaussiane.xls
- Geodesic calculations for an ellipsoid done right** (Charles F.F. Karney) geographiclib.sourceforge.net/scripts/geod-calc.html
- Geodetic Calculations – Vincenty’s Formulae** (by GA) www.ga.gov.au/geodesy/datums/vincenty_inverse.jsp
www.ga.gov.au/geodesy/datums/vincenty_direct.jsp
- Great Circle Calculator** (Ed Williams) edwilliams.org/gccalc.htm
- Magnetic Field Calculators by NOAA** www.ngdc.noaa.gov/geomag/calculators/magcalc.shtml
- NGA EGM96 and EGM08 Geoid Calculators** earth-info.nga.mil/index.php?dir=wgs84&action=egm96-geoid-calc
- Surface Distance Between Two Points of Latitude and Longitude** www.chemical-ecology.net/java/lat-long.htm
(John A. Byers)
- The Generic Mapping Tools** (Paul Wessel) www.generic-mapping-tools.org
- Trasformazioni coordinate** (Vito Borneo) www.borneo.name/coordinate
- Transverse Mercator Calculator** (Alan Morton) www.dmap.co.uk/ll2tm.htm

