GEORGIOS S. VERGOS

Dipl. Rural and Surveying Engineering
MSc. Geomatics Engineering
Dr. Rural and Surveying Engineering
Head Department of Geodesy and Surveying
Head Laboratory of Gravity Field Research and Applications
Director IGFS CB, Director IHRF CC
Professor GravLab/RSE/AUTh

Place and Date of Birth: Göttingen, Low-Saxony, Germany, March 18, 1978
Citizenship: Greek
Marital Status: Married with Elena Tzanou, father of two children

Contact Details:

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1. Education

March 1999 – June 2000: Diploma thesis at the Department of Geodesy and Surveying of the School of Rural and Surveying Engineering of the Aristotle University of Thessaloniki under the title "*The contribution of satellite altimetry to gravity field modeling – A case of study in the Eastern Mediterranean*".

July 2000: Dip. Eng. of the School of Rural and Surveying Engineering of the Faculty of Engineering of the Aristotle University of Thessaloniki.

July 2000: Graduate student of the School of Rural and Surveying Engineering of the Aristotle University of Thessaloniki. Graduation with "Very Good" (8.49).

July 2000 – June 2002: Graduate student at the Department of Geomatics Engineering, Faculty of Engineering of the University of Calgary, Calgary, Alberta, Canada. Enrollment in an MSc program under the title "Gravity and Reference Systems".

March 2002: Successful defense of Master of Science theses under the title *"Sea Surface Topography, Bathymetry and Marine Gravity Field Modeling"*. The examining committee of my theses was Drs. M.G. Sideris, N. El Sheimy, N. Sneeuw and P. Wu.

December 2002 – July 2006: PhD candidate at the Department of Geodesy and Surveying of the Aristotle University of Thessaloniki, Greece under the supervision of Prof. Dr. I.N. Tziavos.

July 2006: Dr. Rural and Surveying Engineer, Department of Geodesy and Surveying, Aristotle University of Thessaloniki. PhD Thesis under the title *"Study of the Earth's Gravity Field and Sea Surface Topography in Greece by combining surface data and data from the new satellite missions of CHAMP and GRACE"*.

2. Professional experience

July 2006 – March 2008: Research Assistant, Department of Geodesy and Surveying, Aristotle University of Thessaloniki.

April 2008 – December 2012: Lecturer at the Department of Geodesy and Surveying, AUTh.

January 2013 – March 2017: Assistant Professor at the Department of Geodesy and Surveying, AUTh.

April 2017 – June 2021: Associate Professor at the Department of Geodesy and Surveying, AUTh.

June 2021 – today: Professor at the Department of Geodesy and Surveying, AUTh.

3. Teaching experience

School of Rural and Surveying Engineering - AUTh
Professor at the School of Rural and Surveying Engineering of the Aristotle University of Thessaloniki (April 2008 – today) in the following courses:

Undergraduate courses
a) Land Surveying (2nd Semester).
b) Signals and Spectral Methods in Geoinformatics (3rd Semester).
c) Introduction to the Gravity Field of the Earth (4th Semester).
d) Field Application of Layout Plans and Surveying Practice (6th Semester).
e) Gravimetry (7th Semester).
f) Geodetic Earth Observation (8th Semester)
g) Internship Program of the School of Rural and Surveying Engineering (7th Semester).
h) Entrepreneurship and Innovation in RSE Science (7th Semester).
i) Field Surveying Exercises (8th Semester).
j) Internship Program of the School of Rural and Surveying Engineering (7th Semester).

Graduate courses
a) Foundation research seminar (1st Semester).
b) Specialization research seminar in Advanced Geodetic Applications (2nd Semester).
c) Gravity field and GPS Leveling GPS (2nd Semester).

4. Research Activities and expertise

Physical geodesy, local and regional gravity field modeling, Vertical Datum Unification, Absolute and relative gravimetry, satellite altimetry, satellite geodesy, spectral methods in geodesy, physical oceanography, Ocean bathymetry estimation, Sea Surface Topography modeling, wavelet methods in geoid and gravity filed estimation and solution of boundary value problems, satellite methods in geodesy and geophysics, GPS/GIS integration.

Regular reviewer in:
- Journal of Geodesy (J Geod 2003(77): 487-488; J Geod 2004(78): 223-224)
- Journal of Geodetic Science
- Journal of Geodynamics
- Arabian Journal for Science and Engineering
- Computer and Geosciences
- Surveys in Geophysics
- Geophysical Journal International
- Marine Geodesy
- IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing
- International Association of Geodesy and International Union of Geodesy and Geophysics Symposia.
- Geotechnical Scientific Issues (2003(14): 1-3)

5. Research Projects

Participated in more than 27 research projects, either as main investigator and coordinator related to height system unification, geoid modeling, satellite geodesy, risk management and satellite altimetry. A short list of recent projects, during the last 10 years, includes the following:

(i) Main investigator in the «Validation, quality assessment and interpretation of current satellite-only Earth gravity models». Bilateral cooperation program between Greece and Czech Republic. Duration: 11/2005 – 11/2007.

(ii) Main investigator in the «Gravity Field Modeling for the Mediterranean Sea by Combining Satellite and Marine Gravity Data». Bilateral cooperation program between Greece and Italy. Duration: 11/2005 – 11/2007.

(iii) Main investigator in the «Development of an Information System for Natural Risk Management in the Mediterranean - SyNaRMa». INTEREG III, ARCHIMED, Priority Axes 3, Measure 3.3.5. Duration: 06/2006 – 12/2007.

(iv) Main investigator in the «Development of a common intraregional monitoring system for the environmental protection and preservation of the Black Sea – ECO-Satellite». EU ENPI. Duration: 10/2011 – 10/2013.

(v) Main investigator in the «Evaluation of the Hellenic Vertical network in the frame of the European systems and control networks interconnection - Application in the areas of Attiki and Thessaloniki». Archimedes III action. Duration: 11/2011 – 04/2014.

(vi) Co-investigator in the «External calibration/validation of ESA's GOCE mission and contribution to dynamic ocean topography and sea level change determination through stochastic combination with heterogeneous data – GOCE-SeaComb». ESA/PRODEX. Duration: 07/2012 – 07/2014.

(vii) Co-investigator in the « Height System Unification, Dynamic Ocean Topography and gravity field determination with GOCE Global Geopotential Models employing stochastic methods and heterogeneous data sources – GOCE^{+++} » . ESA/PRODEX. Duration: 02/2016 – 07/2017.

(viii) Main investigator in the «*Geoid and Gravity Field Modelling by GOCE Satellite Gradients and Terrestrial Data – GeoGravGOCE*» project, funded by the HFRI(ELIDEK)/GSRT. Duration: 23/12/2019 – 22/12/2022.

(ix) Main investigator in the «*Modernization of the Hellenic Gravity Network – ModernGravNet*» project, funded by the HFRI(ELIDEK)/GSRT. Duration: 23/12/2019 – 22/06/2023.

(x) Main investigator in the "*EaRth Observation Tools for the promotion of DigITal Economy – Erodite*» project, funded in the frame of the H2020 Erasmus+ (Erasmus+) in the frame of the EAC/A02/2019 call EAC/A02/2019. Duration: 01/2021 – 01/2025.

(xi) Coordinator in the "Generation and strengthening of network differential positioning services through continuously operating reference stations for land and airborne applications – GeoNetGNSS» project. European Union and National Funds through the RCM OP (KEPA/ANEM) in the frame of the action Innovation Investment Plans. Duration: 10/2021 – 10/2025.

(xii) Main investigator in the "Partial Building of the Geodetic Reference Framework, Phase III" (CONSTRUCTION OF THE SECOND ORDER NETWORK OF KRGJSH)" project funded by the State Authority for Geospatial Information (ASIG). Duration 06/2023-12/2023.

(xiii) Coordinator in the "Partial construction of the Albanian Geodetic Reference Framework, Phase IV" project funded by the State Authority for Geospatial Information (ASIG). Duration 05/2024-12/2024. Budget: 34.300 €.

(xiv) Coordinator in the "GREEK NATIONAL SATELLITE SPACE PROJECT: AXIS 3 LAND MONITORING SERVICE" project funded by the European Space Agency. Duration 09/2024-06/2026. Budget: 27.872 €.

(xv) Coordinator in the "NGGM and MAGIC Science and Applications Impact Study" project funded by the European Space Agency. Duration 09/2024-06/2026. Budget: 55.000 €.

6. Functions, Memberships, Associations, Evaluation, Reviewing

- Member of ESA's Next Generation Gravity Mission (NGGM) Mission Advisory Group (MAG) (08.2023 – 01/2026)

- President of the IAG IGFS Central Bureau (2016 – today).
- Director of the IHRS/IHRF Coordination Center (07.2023– today).
- IGFS Representative to the GGOS Governing Board (07.2023– today).
- GGOS Executive Committee Member (07.2023– today).
- Director of the IHRS/IHRF Coordination Center (07.2023– today).
- IGFS Representative to the GGOS Governing Board (07.2023– today).
- Chair of IAG Sub-Commission 2.2 “Methodology for Geoid and Physical Heights” (2019-2023, 2023-2027).
- IAG Fellow (2019 – today).
- Head, Department of Geodesy and Surveying (2017-2018, 2018-2019, 2021-2022, 2022-2023).
- Head, Laboratory of Gravity Field Research and Applications (01.08.2022 – today).
- Vice-chair of IAG Commission 2, ISG, IGFS, ICGEM JWG2.4 on “Integration and Validation of local geoid estimates” (2015 – 2019).
- Member of the IAG Commission 1, Commission 2, IGFS, ICCT and GGOS Focus Area 1 “Unified Height System” JWG0.1 on “Strategy for the Realization of the IHRS” (2015 – today).
- IGFS representative in IAG’s Global Geodetic Observation System (GGOS), GGOS Bureau of Network and Observations, GGOS Bureau of Products and Standards (2019-2023).
- Member of the American Geophysical Union (AGU), the European Geophysical Society (EGS) and the Canadian Geophysical Union (CGU).
- Member of the International Association of Geodesy (IAG) (2003-today).
- Member of the National Technical Chamber of Greece (TEE) (June 2002 – today).
- Member of the Panhellenic Association of Dipl. Rural and Surveying Engineers (June 2002 – today).
- Member of the Association of Dipl. Rural and Surveying Engineers of Northern Greece (June 2002 – today).
- Evaluator, Latvian Council of Science (LCS), Call for Fundamental and Applied Research Projects (06.2025-07.2025)
- Evaluator, Latvian Council of Science (LCS), Open Selection of Measure 1.1.1.9 for "Postdoctoral research” (06.2025-07.2025)
- Evaluator, Public School of Higher Education and Vocational Training, Nicosia, Cyprus Agency of Quality Assurance and Accreditation in Higher Education (04.2023-07.2023)
- Evaluator, HFRI 2nd Call Basic Research Financing (component 4.5 “Promote Research and Innovation” of the National Recovery and Resilience Plan (“Greece 2.0”)) (04.2023-06.2023)
- Evaluator, Associate Professor Atef Faleh Othman Al-Mashagbah promotion to Full Professor Al al-Bayt University, Faculty of Earth Science, Jordan (02.2023-04.2023)
- Evaluator, Polish National Science Center SONATA BIS-11 Call for proposals (12.2021-08.2021)
- Evaluator, Italian Ministry for University and Research (MUR) 2020 PRIN Call for proposals (7/2021-8/2021)

7. Publications (last five years)

Author of more than 115 referred publications, 260 conference presentations and 12 papers in dedicated volumes. More than 850 non self-citations to authored referred papers (Scopus©). Below is a list of a selection of the most recent (2017-2026) referred papers. (*The complete list is available at* https://gravlab.topo.auth.gr/journals/*)*

2026

1. Adam, R.N., Vergos, G.S. (2026). Altimetry Data Analysis for Coastal Erosion: A Time Series Approach. In: International Association of Geodesy Symposia. Springer, Berlin, Heidelberg. https://doi.org/10.1007/1345_2025_301

2025

2. Mamagiannou, E.M.G., Vergos, G.S. (2025). Contribution of the NGGM and MAGIC Constellation to Geodesy with an Emphasis on the IHRF. In: International Association of Geodesy Symposia. Springer, Berlin, Heidelberg. https://doi.org/10.1007/1345_2025_298
3. Pitenis, E.A., Vergos, G.S. (2025). GOCE SGG Wavelet Multi-resolution Analysis with the Latest Level 2 GOCE Data in the Wider Hellenic Region. In: International Association of Geodesy Symposia. Springer, Berlin, Heidelberg. https://doi.org/10.1007/1345_2025_296
4. Vergos, G.S.; Natsiopoulos, D.A.; Mamagiannou, E.G.; Tzanou, E.A.; Triantafyllou, A.I.; Tziavos, I.N.; Ramnalis, D.; Polychronos, V. A Regional Gravimetric and Hybrid Geoid Model in Northern Greece from Dedicated Gravity Campaigns. Remote Sens. 2025, 17, 197. https://doi.org/10.3390/rs17020197
5. Vergos, G.S. *et al.* (2025). Towards an Improved Gravimetric Geoid in Albania. In: International Association of Geodesy Symposia. Springer, Berlin, Heidelberg. https://doi.org/10.1007/1345_2025_289

2024

6. Sánchez, L.; Barzaghi, R.; Vergos, G.; Operational Infrastructure to Ensure the Long-Term Sustainability of the International Height Reference System and Frame (IHRS/IHRF). 2024, 1–10. https://doi.org/10.1007/1345_2024_250
7. Sánchez L, Barzaghi R, Vergos GS (2024). Establishment of a Geopotential-based World Height System – The International Height Reference System (IHRS) and its Realisation, the International Height Reference Frame (IHRF). Allg Vermess-Nachr 5-6: 246-255. https://doi.org/10.14627/avn.2024.5-6.3
8. Vergos, G.S.; Tziavos, I.N.; Mertikas, S.; Piretzidis, D.; Frantzis, X.; Donlon, C. Local Gravity and Geoid Improvements around the Gavdos Satellite Altimetry Cal/Val Site. Remote Sens. 2024, 16, 3243. https://doi.org/10.3390/rs16173243

2023

9. Grebenitcharsky RS, Vergos GS, Al-Shahrani S, Al-Qahtani A, Iuri G, Othman A, Aljebreen S (2023) Hybrid Geoid Modeling for the Kingdom of Saudi Arabia. In: International Association of Geodesy Symposia. Springer, Berlin, Heidelberg. https://doi.org/10.1007/1345_2023_215
10. Grigoriadis VN, Andritsanos VD, Natsiopoulos DA, Vergos GS, Tziavos IN. Geoid Studies in Two Test Areas in Greece Using Different Geopotential Models towards the Estimation of a Reference Geopotential Value. Remote Sensing 15(17):4282. https://doi.org/10.3390/rs15174282
11. Natsiopoulos DA, Mamagiannou EG, Pitenis EA, Vergos GS, Tziavos IN (2023) GOCE Downward Continuation to the Earth's Surface and Improvements to Local Geoid Modeling by FFT and LSC. Remote Sensing 15(4):991. https://doi.org/10.3390/rs15040991
12. Natsiopoulos DA, Mamagiannou EG, Triantafyllou A, Tzanou EA, Vergos GS, Tziavos IN, Ramnalis D, Polychronos V (2023) Newly Acquired Gravity Data in Support of the GeoNetGNSS CORS Network in Northern Greece. In: International Association of Geodesy Symposia. Springer, Berlin, Heidelberg. https://doi.org/10.1007/1345_2023_213
13. Sánchez L, Wziontek H, Wang MY, Vergos GS, Timmen L (2023) Towards an integrated global geodetic reference frame: preface to the special issue on reference systems in physical geodesy. J Geod 97(6):59. https://doi.org/10.1007/s00190-023-01758-6
14. Vergos GS, Grebenitcharsky RS, Al-Qahtani A, Al-Shahrani S, Natsiopoulos D, Aljebreen S, Tziavos IN, Iuri G, (2023) HDevelopment of the National Gravimetric Geoid Model for the Kingdom of Saudi Arabia. In: International Association of Geodesy Symposia. Springer, Berlin, Heidelberg. https://doi.org/10.1007/1345_2023_214

2022

15. Mamagianou E, Pitenis E, Natsiopoulos DA, Vergos GS, Tziavos IN (2022) GeoGravGOCE: A standalone MATLAB GUI for processing GOCE satellite gradient data. Com Geosc 166,105184. https://doi.org/10.1016/j.cageo.2022.105184
16. Pitenis E, Mamagianou E, Natsiopoulos DA, Vergos GS, Tziavos IN, Grigoriadis VN, Sideris MG (2022) FIR, IIR and Wavelet Algorithms for the Rigorous Filtering of GOCE SGG Data to the GOCE MBW. Remote Sensing 14(13),3024. https://doi.org/10.3390/rs14133024

2021

17. Grigoriadis VN, Vergos GS, Barzaghi R, Carrion D, Koç Ö (2021) Collocation and FFT-based geoid estimation within the Colorado 1 cm geoid experiment. J Geod 95(52). https://doi.org/10.1007/s00190-021-01507-7
18. Sánchez L, Ågren J, Huang J, Wang YM, Mäkinen J, Pail R, Barzaghi R, Vergos GS, Ahlgren K, Liu Q (2021) Strategy for the realisation of the International Height Reference System (IHRS). J Geod 95(33). https://link.springer.com/article/10.1007/s00190-021-01481-0