Stelios P. Mertikas
Geodesy & Geomatics Engineering Lab, Dept. of Mineral Resources Engineering, Crete Technical University, Chania, Crete, Greece, GR-73 100
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Research Interests: Geodesy, Satellite Geodesy, Global Satellite Navigation Systems, Geodetic quality control, accuracy measures, statistical process control, sea level changes, geodynamic deformation, calibration of satellite altimeters, remote sensing, image fusion,

Professional Preparation:

Diploma in Surveying Engineering, June 1979 (5-year University program) from the National Technical University of Athens, Greece, Dr. G. Veis, senior thesis advisor. Thesis: Hydrographic Survey, Tides, and Currents at the Rio-Antirio Straits, Patras, Greece.

Master of Science in Engineering, Surveying Engineering, March 1983 from the Department of Surveying Engineering of the University of New Brunswick, Canada, Dr. D.E. Wells, advisor. Thesis title: Differential Global Positioning System (GPS) Navigation: A Geometrical Analysis.

Doctor of Philosophy in Surveying Engineering, December 1988, from the Department of Surveying Engineering of the University of New Brunswick, Canada, Supervision by a committee consisting of Profs. D.E. Wells, R.B. Langley, W. Faig and Dr. A. Kluesberg. Dissertation title: A statistical Investigation into Reliable and Efficient Accuracy Measures in Positioning.

Canada Post-Doctoral Research Fellow, 1993, at the Department of Surveying Engineering, University of Calgary, Canada. Supervision by Prof. Klaus-Peter Schwarz (Past President of International Association of Geodesy), Worked on the development of models for GPS quality control and on precise airborne positioning and attitude control.

Australia Honorary Visiting Fellow, 2006, School of Geomatic Engineering, University of New South Wales, Sydney, Australia. Worked on research projects to develop generic algorithms for quality control of GPS measurements.

Japan STA Visiting Fellow, 2000, at the National Research Institute for Geosciences and Disaster Prevention, Tsukuba, Ibaraki, Japan, worked on research projects for the automatic and online detection of small and persistent shifts in Global Positioning System station coordinates by Statistical Process Control.

Visiting Professor, 2014 (3 months intermittent), at the Hong Kong Polytechnic University, Department of Land Surveying and Geo-Informatics, worked on Delay-Doppler satellite altimetry and rock-fall and landslide monitoring.

Japan JSPS Fellow, 2014 (2 months), at the University of Kyoto, Graduate School of Sciences, Fellow of the Japan Society for the Promotion of Science, Kyoto, Japan, worked on Delay-Doppler satellite altimetry and rock-fall and landslide monitoring.

Appointments:

Full Professor, 2000 – present, Dept. of Mineral Resources Engineering, Crete Technical University, Greece.

Laboratory Director, 2000 – present, Geodesy & Geomatics Engineering Lab, Dept. of Mineral Resources Engineering, Crete Technical University.

Director of Graduate Studies, 1997 – 2004, Dept. of Mineral Resources Engineering, Crete Technical University, Crete, Greece.

Associate Professor, 1996 – 2000, Dept. of Mineral Resources Engineering, Crete Technical University, Greece.

Assistant Professor, 1991 – 1996, Dept. of Mineral Resources Engineering, Crete Technical University, Greece

Visiting Assistant Professor, 1991-Spring Term, The University of Toronto, Department of Surveying Science, Canada, for 6 months. Courses: SUR 320 Introduction to Geodetic Methods, SUR 204 Surveying IV.

Scientific Advisor, 1988 – 1990, Hellenic Mapping and Cadastral Organization, Athens, Greece, Greece, Determination of geodetic positions in urban Greece using GPS, positioning of photogrammetric aircraft, control point coding, etc.

Lecturer, 1986, at the Surveying Engineering Department of the University of New Brunswick, Canada. Course: SE 4312 Advanced Adjustment Calculus

Recent Publications:

Books& Monographs:

1. Mertikas S. P. (editor, 1993). Global Positioning Systems in Geosciences, Proceedings of the International Workshop, Technical University of Crete, Chania, Greece, 8-10 June, 1992, Access soft, Athens, ISBN: 960-220-519-9.
2. Mertikas S.P. (1994). Failure Detection in the Measurements of the Global Positioning System, Monograph, Department of Geomatics Engineering, University of Calgary, Canada.
3. Mertikas S.P. (1999). Remote Sensing and Digital Image Analysis, ION Publishing House, Athens, ISBN 960-405-949-1 (In Greek).
4. Agioutantis Z. & Mertikas S.P. (2003). A Practical Guide for Technical Writing, ION Publishing House, Athens,. ISBN 960-411-394-1(In Greek).
5. Mertikas, SP. (Editor, 2010). "Gravity Geoid and Earth Observation", International Association of Geodesy, IAG Commission 2: Gravity Field, Chania, Crete, Greece, 23-27 June 2008 (International Association of Geodesy Symposia), Vol. 135, DOI: 10.1007/978-3-642-10634, Springer-Verlag Berlin Heidelberg 2010.
6. Mertikas, S. P. (2011). "Geodesy, ground positioning and levelling", in the Encyclopaedia of Solid Earth Geophysics, Article G., edited by Professor Harsh K. Gupta, Springer, New York.
7. Mertikas, S. P. (2016). "Introduction to Geodesy, Satellite Positioning and Altimetry", Klidarithmos Publishing House, Athens, ISBN : 978-960-461-721-0, http://www.klidarithmos.gr/eisagogi-sth-geodesia

Recent Publications:

Mertikas, S. P., Xinghua Zhou, Fangli Qiao, A. Daskalakis, Mingsen Lin, Hailong Peng; I. N. Tziavos, G. Vergos, Ach. Tripolitsiotis; X. Frantzis (2015). « First Preliminary Results for the Absolute Calibration of the Chinese HY-2 Altimetric Mission Using the CRS1 Calibration Facilities in West Crete, Greece », Advances in Space Research, DOI: 10.1016/j.asr.2015.10.016.

Mertikas S. P., A. Daskalakis, I. N. Tziavos , G. S. Vergos, X. Frantzis, A. Tripolitsiotis Papadaki (2015). «First Calibration Results for the SARAL/AltiKa Altimetric Mission using the Gavdos Permanent Facilities », Marine Geodesy, 38(S1):249–259, 2015, http://dx.doi.org/10.1080/01490419.2015.1030052 .

Tripolitsiotis A. ; C. Steiakakis ; Z. Agioutantis ; S. Mertikas ; P. Partsinevelos ; P. Schilizzi (2013). « Land movement monitoring at the Mavropigi lignite mine using spaceborne D-InSAR», Proc. SPIE 8795, First International Conference on Remote Sensing and Geoinformation of the Environment (RSCy2013), 87951A (August 5, 2013); http://dx.doi.org/10.1117/12.2027100 .

Mertikas, S. P., A. Daskalakis, I. N. Tziavos,O. B. Andersen, G. Vergos, A. Tripolitsiotis, V. Zervakis, X. Frantzis, P. Partsinevelos (2012). "Altimetry, Bathymetry and Geoid variations at the Gavdos permanent Cal/Val Facility", Advances in Space Research, Elsevier, http://dx.doi.org/10.1016/j.asr.2012.10.02 .

Bonnefond P., J.-D. Desjonqueres, B. Haines, S. Mertikas, C. Watson (2012). "Absolute Calibration of the Topex/Poseidon and Jason Measurement Systems: Twenty Years of Monitoring from Dedicated Sites", Proceedings of the ESA Symposium "20 Years of Progress in Radar Altimetry", Venice Lido, Italy.

Willis,P., S. Mertikas, D. F. Argus, O. Bock (2012). "DORIS and GPS Monitoring of the Gavdos Calibration Site in Crete", Advances in Space Research, Elsevier, http://dx.doi.org/10.1016/j.asr.2012.08.006

Tserolas, V., S.P. Mertikas, X. Frantzis (2012). "The western Crete geodetic infrastructure: Long-range power-law correlations in GPS time series using Detrended Fluctuation Analysis", Advances in Space Research, Elsevier, http://dx.doi.org/10.1016/j.asr.2012.08.002 .

Hausleitner W., F. Moser, J.-D. Desjonqueres, F. Boy, N. Picot, J. Weingrill, S. Mertikas, A. Daskalakis (2012). "A new method of precise Jason-2 altimeter calibration using a microwave transponder", Marine Geodesy, Volume 35, Supplement 1, 2012, Special Issue: OSTM/Jason-2 Applications—Part 3, http://dx.doi.org/10.1080/01490419.2012.718239 .

Tziavos, I. N., G.S. Vergos, S.P. Mertikas, A. Daskalakis, V.N. Grigoriadis, A. Tripolitsiotis (2012). "The contribution of local gravimetric geoid models to the calibration of satellite altimetry data and an outlook of the latest GOCE GGM performance in Gavdos", Advances in Space Research, Elsevier, http://dx.doi.org/10.1016/j.asr.2012.06.013

Mertikas, S. P., A. Daskalakis, X. Frantzis, A. Tripolitsiotis, P. Partsinevelos, (2011). “Preparatory works for the altimeter calibration of the Sentinel-3 mission using the dedicated calibration site in Crete and Gavdos”, SPIE Symposium on Remote Sensing Paper No. 8175-31, ERS11-RS02-64, Remote Sensing of the Ocean, Sea Ice, Coastal Waters, and Large Water Regions 2011.

Mertikas, S. P., A. Daskalakis, I. N. Tziavos, G. S. Vergos, X. Frantzis, A. Tripolitsiotis, P. Partsinevelos, D. Andrikopoulos & V. Zervakis (2011). “Ascending and Descending Passes for the Determination of the Altimeter Bias of Jason Satellites using the Gavdos Facility”, Marine Geodesy, Special Issue on OSTM/Jason-2 Calibration/Validation- Part 2, Volume 34, Issue 3-4, 2011, DOI: 10.1080/01490419.2011.584837

Mertikas S. P., A. Daskalakis, V. Tserolas, W. Hausleitner, I. N. Tziavos; G. S. Vergos, V. Zervakis, X. Frantzis, A. Tripolitsiotis, P. Partsinevelos, D. Andrikopoulos (2010). Absolute calibration of Jason satellite radar altimeters at Gavdos Cal/Val facility using independent techniques." SPIE Symposium on Remote Sensing, Paper Number: 7825-12, "Remote Sensing of the Ocean, Sea Ice, and Large Water Regions 2010", Toulouse, France.

Mertikas, S.P., R. T. Ioannides, I. N. Tziavos, G. S. Vergos, W. Hausleitner, X. Frantzis, A. Tripolitsiotis, P. Partsinevelos, D. Andrikopoulos (2010). Statistical Models and Latest Results in the Determination of the Absolute Bias for the Radar Altimeters of Jason Satellites using the Gavdos facility. Marine Geodesy, 33: 1, 114-149, doi: 10.1080/01490419.2010.488973.

Mertikas S. P., A. Daskalakis, V. Tserolas, W. Hausleitner, I. N. Tziavos; G. S. Vergos, V. Zervakis, X. Frantzis, A. Tripolitsiotis, P. Partsinevelos, D. Andrikopoulos (2010). Absolute calibration of Jason satellite radar altimeters at Gavdos Cal/Val facility using independent techniques." SPIE Symposium on Remote Sensing, Paper Number: 7825-12, "Remote Sensing of the Ocean, Sea Ice, and Large Water Regions 2010", Toulouse, France.

Mertikas, S. P., A. Daskalakis, W. Hausleitner, I.N. Tziavos, G.S. Vergos, V. Zervakis, P. Partsinevelos, X. Frantzis, D. Andrikopoulos, A. Tripolitsiotis (2010). Calibration of satellite radar altimeters at Gavdos Cal/Val facility using three different methodologies, Proceedings of European Space Agency Living Planet 2010, Bergen, Norway, 28 Jun–2 Jul 2010 (in Press).

Mertikas, S. P., E. Papadaki, Ev. Paleologos (2010). Radar Interferometry Techniques for monitoring subsidence induced by excessive groundwater pumping in Crete, Greece, Proceedings of European Space Agency Living Planet 2010, Bergen, Norway, 28 Jun–2 Jul 2010 (in Press).

Mertikas, S.P., Ath. Papadopoulos, E. C. Pavlis (2008). "Estimation of the altimeter bias for the Jason satellite using the dedicated calibration site at Gavdos." SPIE Symposium on Remote Sensing, Paper Number: 7105-16, "Remote Sensing of the Ocean, Sea Ice, and Large Water Regions 2008", 15-18 September 2008, Cardiff, Wales, United Kingdom.

Ieronimidi, E. S. P. Mertikas, D. Hristopoulos (2006). Fusion of Quickbird satellite images for vegetation monitoring in previously mined reclaimed areas, Proceedings of SPIE Conference, The International Society for Optical Engineering, Volume 6366, SPIE Paper Number: 6366-39,11-13 September 2006, Stockholm, Sweden.

Mertikas, S. P. and K. Damianidis (2006). "Monitoring the Quality of GPS Station Coordinates in Real Time", GPS Solutions. DOI: 10.1007/s10291-006-0044-6, Springer.

Hristopulos, D. T., S. P. Mertikas, I. Arhontakis, Brownjohn J. M.W. (2006). "Using GPS for monitoring tall-building response to wind loading: filtering of abrupt changes and low-frequency noise, variography and spectral analysis of displacements", GPS Solutions. DOI 10.1007/s10291-006-0035-7, Springer.

Pavlis C. E, S. P. Mertikas and the GAVDOS Team (2004). The GAVDOS Mean Sea Leval and Altimeter Calibration Facility: Results for Jason-1, Marine Geodesy, Vol. 27, pp 631-655.

Five Other Publications

Mertikas S.P. (1999). Remote Sensing and Digital Image Analysis, ION Publishing House, Athens. ISBN 960-405-949-1.

Mertikas, S. P. and C. Rizos (1997). On-line Detection of Abrupt Changes in the Carrier Phase Measurements of GPS, Journal of Geodesy, Vol. 71, pp. 469-482.

Youcai, H. and S. P. Mertikas (1995). On the Design of Robust Regression Estimators, Manuscripta Geodaetica, Vol. 20, No.3, pp 145-160.

Mertikas S.P. (1994). Failure Detection in the Measurements of the Global Positioning System, Monograph, Department of Geomatics Engineering, University of Calgary, Canada.

Mertikas S. P. (1994). The Description of Accuracy using Conventional and Robust Estimates of Scale, Journal of Marine Geodesy, Vol. 17, pp.251-269.

Synergistic Activities:

- Organized (Chairman) and coordinated an IAG International Symposium on "Gravity, Geoid and Earth Observation 2008", 23-27 June 2008, Technical University of Crete, Chania, Greece. This International Association of Geodesy Symposium attracted more that 250 scientists from Australia, Algeria, Argentina, Austria, Belgium, Bulgaria, Brazil, Canada, China, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iran, Italy, Japan, Luxemburg, The Netherlands, Russia, Slovakia, Norway, Poland, Portugal, Korea, Spain, Sweden, Switzerland, Taiwan, Unites States of America, United Kingdom.
- Chairman for the past 7 years for the SPIE Remote Sensing of the Ocean, Sea Ice, and Large Water Regions.
- Organized (Chairman) and coordinated International Workshop on "Global Positioning Systems in Geosciences", Technical University of Crete, Chania, Greece. The Workshop was in honor of Professor George Veis and attracted more that 100 scientists from United States, Canada, United Kingdom, Germany, Switzerland, France, the Netherlands, Poland, Italy, People's Republic of China, South Africa and Greece.
- Organized with Prof. A. Dermanis (Aristotle University of Thessaloniki) the International Summer School on "Data Analysis and the Statistical Foundations of Geomatics", sponsored by the

International Association of Geodesy and the International Society for Photogrammetry and Remote Sensing, Chania, Greece, May 25-30, 1998. Technical University of Crete, Greece.

- Main Speaker/Lecturer at the 1996 Workshop on "The Directions of GPS: The 1996 GPS Lecture Series". Organized by the School of Geomatic Engineering, University of New South Wales, Sydney, Australia. Prof. Richard Langley, University of New Brunswick, Canada and Prof. Alan Dodson, Institute of Engineering Surveying & Space Geodesy, University of Nottingham, England.
- Country Point of Contact (CPOC) for Greece as designated by the civil GPS Service Interface Committee (US Department of Transportation, chartered by the US Government), 1990-1995.
- Member of the Working Group of the International Association of Geodesy, Special Committee on «Marine Positioning». 1992-1996.
- Member of the Working Group of the International Association of Geodesy, Special Study Group 1.154 on «Quality Issues in Real-Time GPS Positioning». 1998-2000.

Professional Affiliations: Member of the Technical Advisory Committee, Technical University of Crete, Technical Chamber of Greece.

Editorial Contributions: GPS Solutions Editorial Board, Reviewer for the following scientific Journals Bulletin Geodesique, Manuscripta Geodeatica, Journal of Geodesy, Marine Geodesy, Geomatica (Canada), International Federation of Automatic Control: Transportation Systems, International Journal of Transportation Research, Part C: Emerging Technologies, IEEE, Transactions on Intelligent Transpiration Systems, GPS Solutions (Editorial Board), Geophysical Reviews, ERATOSTHENIS (1989-1991.)

Recent Research Collaborators:

Co-ordinator for the 7th FRAMEWORK PROGRAMME, Marie Curie Actions: International Research Staff Exchange Scheme: ""A global network of permanent sites for calibrating satellite altimetry missions." Collaboration with Centre National de la Recherche Scientifique, Observatoire de la Cote d' Azur, France, The First Institute of Oceanography, State Oceanic Administration, China, Universidade do Estado do Amazonas, Brazil. (2013-2015).

Co-ordinator for the 7th FRAMEWORK PROGRAMME, Marie Curie Actions: International Research Staff Exchange Scheme: MELINA: " Development of a global network for the real-time detection of failures and extreme events in natural disasters" Collaboration with Latvijas Universitate, Latvia, Tongji University, Shanghai, China, Hong Kong Polytechnic University, Hong Kong, China. (2013-2016)

Co-ordinator for ISTRIA Project: "Development of Integrated Systems for the Identification of Rock Falling in Highways", General Secretariat for Research and Technology. (2013-2015).

Co-ordinator for the European Space Agency Project: "Sentinel-3 Altimeter Calibration Site", European Space Research and Technology Center (2013-2015).

Co-ordinator for the EU Project SOFIA: Enhancement of Crete's dedicated calibration facility for satellite radar altimeters and seismic deformation monitoring using continuously operating geodetic arrays', Thematic Priority: FP7-REGPOT-2008-1, Coordination and Support Action (Support Action), Duration 3 years (2009-2011).

Co-investigator with NASA-UMBC- Joint Center for Earth Systems Technology. Title: "Dynamics of Eastern Mediterranean, Sea Level, and Altimetry Calibration-Validation (DynMSLAC)" Funded by the National Aeronautics and Space Administration, Ocean Surface Topography Science Team, SOT/ST-03-0026-0046, Start on 1-1-2005. Duration 4 years.

(Geo-Alert): Principal Investigator, "Development of Algorithms for Quality Control of Measurements in deformation monitoring, Collaboration with the Aristotle University of Thessaloniki, (2005-2007).

KASTELI Cal-Val: Principal Investigator: Extension of the Gavdos permanent calibration/validation facility for radar satellite altimetry and development of a new facility on mainland Crete, Greece»,

Collaboration with NASA/ Joint Center for Earth Systems Technology, Washington DC, USA.(2006-2008).

FALASSARNA: Title, Enhancement of Geophysical and Geodetic Networks for an automatic system of warnings for earthquakes and tsunamis, Collaboration with National Observatory of Athens, 2006-2008.

Organizational Skills & Competences:

As Director of Graduate Studies initiated and led the graduate program at Master's and Ph.D. level on "Environmental Geo-Technology" at the School of Mineral Resources Engineering, Technical University of Crete (1997-2004).

Acted as coordinator and Principal Investigator of research Projects at International, European and National level, involving National Aeronautics and Space Administration-USA, European Space Agency, Austrian Academy of Sciences, ETH Zurich, Switzerland, Observatoire de la Côte d'Azur-France, Centre National d'Etudes Spatiales (CNES)-France, State Oceanic Administration-China; UEA (University of the State of Amazonas)-Brazil, University of North Carolina, USA; Danish Space Center; Hong Kong Polytechnic University, Tongji University-China, etc.

Established the 4th world permanent research infrastructure at the island of Gavdos, Crete, Greece for calibrating satellite radar altimeters of American, European, Chinese and Indian missions. The other 3 sites are operated by JPL, NASA, USA in California, by CNES France in Corsica and by Australian Government in Tasmania. This Gavdos Calibration/Validation permanent infrastructure has been operating and providing absolute biases for altimetry satellites for more than a decade. It was established in 2001 and has been on continuous operation as of 2004. It can provide calibration/validation for all altimetric missions (i.e., Jason-2, HY-2, SARAL/AltiKa, Sentinel-3, Cryosat-2, etc.). It includes a major set of permanent facilities, prototype scientific equipment (transponder), while at the same time it collects archives, analyses, interprets and disseminates scientific data internationally.

Organized a "Regional Outreach Workshop on "Lab's contribution to local and regional capacity building" in Crete, Greece, July 2011.

Organized an International Technical Workshop on "Deformation Monitoring & Satellite Altimetry Calibration" in Crete, Greece, 20-21 January 2011.

Organized (Chairman) and coordinated an IAG International Symposium on Gravity, Geoid and Earth Observation 2008, 23-27 June 2008, Technical University of Crete, Chania, Greece. More 250 international scientists participated, International Association of Geodesy.

Organized (Chairman) and coordinated International Workshop on "Global Positioning Systems in Geosciences", Technical University of Crete, Chania, Greece, 1991.

2009-present: Principal Investigator (PI) at the European Space Agency, for Cryosat-2 and Sentinel-3 Satellite Calibration Validation Retrieval Team.

2009-present: Principal Investigator in the SARAL/AltiKa satellite calibration team (Indian Space Research Organization and the Centre National d'Etudes Spatiales, France), and the International Sea Surface Topography Science Team (as of 2001).

2009-2014: Permanent Scientific Committee for Earthquake Risk Assessment and Evaluation, Organization for Earthquake Protection and Planning, Athens, Greece.

Mertikas's Advisors:

Wells, D.E. (M.Sc.E.); Wells, D.E., R.B. Langley, W. Faig and Dr. A. Kluesberg (Ph.D.), Klaus-Peter Schwarz (Post-doc). Chris Rizos (Australia, Fellow), Y. Fukuda (Japan, Fellow).

7 December 2016