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Research Experience / Education

- 2013 - Post-Doc at Institute Dom Luiz, University of Lisbon, Portugal. Topics of research: sea level, ocean tide loading, analysis of GNSS time-series and local geoid computations.
- 2008 - 2013 Researcher (Investigador Auxiliar, Ciência 2008) at the Interdisciplinary Centre of Marine and Environmental Research, Porto, Portugal. Topics of research: sea level and tides.
- 2003 - 2007 Post-doc at the Astronomical Observatory Prof. Manuel de Barros, University of Porto, Portugal. Topics of research: airborne gravimetry, ocean tide loading and GNSS time-series analysis.
- 2001 - 2003 Post-doc at the Faculty of Geodesy, Delft University of Technology, The Netherlands. Topics of research: tidal gravimetry and ocean tide loading.
 - 2001 Post-doc at Onsala Space Observatory, Chalmers University, Sweden. Topic of research: ocean tide loading.
- 1996 - 2000 Ph.D. in Oceanography at the Proudman Oceanographic Laboratory, Liverpool, United Kingdom, under the supervision of Prof. TF Baker. Title of thesis: "Ocean Tide Loading Using Improved Ocean Tide Models".
- 1990 - 1996 M.Sc. in Aerospace Engineering at Delft Technical University, The Netherlands. Title of Master thesis: "The influence of the atmosphere on the Earth rotation", supervised by Dr. R Noomen.

Book Chapters

2. **Bos MS**, Scherneck H-G, "Computation of Green's Functions for Ocean Tide Loading", In Sciences of Geodesy - II, Innovations and Future Developments, Xu, Guochang (Ed.), 2012, 410 p., ISBN: 978-3-642-27999-7.
1. Bastos L, **Bos MS**, Fernandes RMS, "Deformation and Tectonics: Contribution of GPS Measurements to Plate Tectonics - Overview and Recent Developments", In Sciences of Geodesy - I, Advances and Future Directions, Xu, Guochang (Ed.), 1st Edition., 2010, XVII, 507 p. ISBN: 978-3-642-11740-4.

Refereed Articles (listed in Web of Science database)

29. Royston S, Watson B, Legrésy B, King M, Church J, **Bos MS**, "Sea-level trend uncertainty with Pacific climatic variability and temporally-correlated noise", *Journal of Geophysical Research*, accepted for publication, 2018.
28. Klos A, **Bos MS**, Bogusz J, "Detecting time-varying seasonal signal in GPS position time series with different noise levels.", *GPS Solutions*, Vol. 22(21), doi:10.1007/s10291-017-0686-6, 2018.
27. He X, Montillet JP, Fernandes R, **Bos MS**, Yu K, Hua X, Jiang W, "Review of current GPS methodologies for producing accurate time series and their error sources", *Journal of Geodynamic*, Vol. 106, 12–29, doi:10.1016/j.jog.2017.01.004, 2017.
26. Klos A, Gruszczynska, M, **Bos MS**, Boy JP, Bogusz J, "Estimates of vertical velocity errors for IGS ITRF2014 stations by applying the Improved Singular Spectrum Analysis method and environmental loading models." *Pure and Applied Geophysics*, 1–18, doi:10.1007/s00024-017-1494-1, 2017.
25. Alothman AO, Fernandes RMS, **Bos MS**, Schillak S, Elsaka B, "Angular velocity of Arabian plate from multi-year analysis of GNSS data", *Arabian Journal of Geosciences*, Vol. 9(8), online, doi:10.1007/s12517-016-2569-5, 2016.
24. Penna NT, Clarke PJ, **Bos MS**, Baker TF, "Ocean tide loading displacements in western Europe. Part 1: Validation of kinematic GPS estimates", *Journal of Geophysical Research*, Vol. 120, 6523–6539, doi:10.1002/2015JB011882, 2015.
23. **Bos MS**, Penna NT, Baker TF, Clarke PJ, "Ocean tide loading displacements in western Europe. Part 2: GPS-observed anelastic dispersion in the asthenosphere", *Journal of Geophysical Research*, Vol. 120, 6540–6557, doi:10.1002/2015JB011884, 2015.
22. Ayres-Sampaio D, Deurloo R, **Bos MS**, Bastos L, "A Comparison Between Three IMUs for Strapdown Airborne Gravimetry", *Surveys in Geophysics*, Vol. 36(4), 571–586, doi:10.1007/s10712-015-9323-5, 2015.
21. Alothman AO, **Bos MS**, Fernandes RMS, Ayhan ME, "Sea level rise in the north-western part of the Arabian Gulf", *Journal of Geodynamics*, Vol. 81, 105–110, doi:10.1016/j.jog.2014.09.002, 2014.
20. **Bos MS**, Williams SDP, Araújo IB, Bastos LC, "The effect of temporal correlated noise on the sea level rate and acceleration uncertainty", *Geophysical Journal International*, Vol. 196(3), 1423–1430, doi:10.1093/gji/ggt481, 2014.
19. Gazeaux J, Williams S, King M, **Bos MS**, Dach R, Deo M, Moore AW, Ostini L, Petrie E, Roggero M, Teferle FN, Olivares G, Webb FH, "Detecting offsets in GPS time series: First results from the detection of offsets in GPS experiment", *Journal of Geophysical Research*, Vol. 118(5), 2397–2407, doi:10.1002/jgrb.50152, 2013.
18. **Bos MS**, Fernandes RMS, Williams SDP, Bastos L, "Fast error analysis of continuous GNSS observations with missing data", *Journal of Geodesy*, Vol. 87(4), 351–360, doi:10.1007/s00190-012-0605-0, 2013.
17. Araújo IB, **Bos MS**, Bastos LC, Cardoso MM, "Analysing the 100 year sea level record of Leixões, Portugal", *Journal of Hydrology*, Vol. 481, 76–84, doi:10.1016/j.jhydrol.2012.12.019, 2013.
16. Pugh DT, Woodworth PL, **Bos MS**, "Lunar tides in Loch Ness, Scotland", *Journal of Geophysical Research*, Vol. 116, C11040, doi:10.1029/2011JC007411, 2011.

15. Löfgren JS, Haas R, Scherneck H-G, **Bos MS**, "Three months of local sea level derived from reflected GNSS signals", *Radio Science*, Vol. 46, CitelID RS0C05, doi:10.1029/2011RS004693, 2011.
14. Arnoso J, Benavent M, **Bos MS**, Montesinos FG, Vieira R, "Verifying the body tide at the Canary Islands using tidal gravimetry observations", *Journal of Geodynamics*, Vol. 51(5), 358–365, doi:10.1016/j.jog.2010.10.004, 2011.
13. King MA, Altamimi Z, Boehm J, **Bos MS**, Dach R, Elosegui P, Fund F, Hernandez-Pajares M, Lavallee D, Cerveira PJM, Penna N, Riva REM, Steigenberger P, van Dam T, Vittuari L, Williams S, Willis P, "Improved Constraints on Models of Glacial Isostatic Adjustment: A Review of the Contribution of Ground-Based Geodetic Observations", *Surveys in Geophysics*, Vol. 31(5), 465–507, doi:10.1007/s10712-010-9100-4, 2010.
12. **Bos MS**, "Comment on "Anomalous ocean load tide signal observed in lake-level variations in Tierra del Fuego" by A. Richter et al.", *Geophysical Research Letters*, Vol. 36(L04303), doi:10.1029/2009GL041531, 2010.
11. **Bos MS**, Bastos L, Fernandes RMS, "The influence of seasonal signals on the estimation of the tectonic motion in short continuous GPS time-series", *Journal of Geodynamics*, Vol. 49(3-4), 205–209, doi:10.1016/j.jog.2009.10.005, 2010.
10. Catalão J, **Bos MS**, "Sensitivity analysis of the gravity geoid estimation: A case study on the Azores plateau", *Physics of the Earth and Planetary Interiors*, Vol. 168(1-2), 113–124, doi:10.1016/j.pepi.2008.05.010, 2008.
9. Penna NT, **Bos MS**, Baker TF, Scherneck H-G, "Assessing the accuracy of predicted ocean tide loading displacement values", *Journal of Geodesy*, Vol. 82(12), 893–907, doi:10.1007/s00190-008-0220-2, 2008.
8. **Bos MS**, Fernandes RMS, Williams SDP, Bastos L, "Fast error analysis of continuous GPS observations", *Journal of Geodesy*, Vol. 82(3), 157–166, doi:10.1007/s00190-007-0165-x, 2008.
7. Combrink AZA, **Bos MS**, Fernandes RMS, Combrinck WL, Merry CL, "On the importance of proper noise modelling for long-term precipitable water vapour trend estimation", *South African Journal of Geology*, Vol. 110, 211–218, doi:10.2113/gssajg.110.2-3.211, 2007.
6. Fernandes RMS, Miranda JM, Meijninger BML, **Bos MS**, Noomen R, Bastos L, Ambrosius BAC, Riva REM, "Surface Velocity Field of the Ibero-Maghrebian Segment of the Eurasia-Nubia Plate Boundary", *Geophysical Journal International*, Vol. 169 (1), 315–324, doi:10.1111/j.1365-246X.2006.03252.x, 2007.
5. **Bos MS**, Baker TF, "An estimation of the errors in the gravity ocean tide loading computations", *Journal of Geodesy*, Vol. 79, 50–63, doi:10.1007/s00190-005-0442-5, 2005.
4. Baker TF, **Bos MS**, "Validating Earth and ocean tide models using tidal gravity measurements", *Geophysical Journal International*, Vol. 152(2), 468–485, doi:10.1046/j.1365-246X.2003.01863.x, 2003.
3. **Bos MS**, Baker TF, Røthing K, Plag H-P, "Testing ocean tide models in the Nordic Seas with tidal gravity observations", *Geophysical Journal International*, Vol. 150(3), 687–694, doi:10.1046/j.1365-246X.2002.01729.x, 2002.
2. **Bos MS**, Baker TF, Lyard FH, Zürn WE, Rydelek PA, "Long period lunar Earth tides at the geographic South Pole and recent models of ocean tides", *Geophysical Journal International*, Vol. 143(2), 490–494, doi:10.1046/j.1365-246X.2000.01260.x, 2000.

1. Sleeman R, Haak HW, **Bos MS**, van Gend JJA, "Tidal tilt variations in the Netherlands using shallow borehole tiltmeters", *Physics and Chemistry of the Earth*, Vol. 25(4), Part A, 415–420, doi:10.1016/S1464-1895(00)00065-X, 2000.

Refereed Conference Proceedings (listed in Web of Science database)

3. Deurloo R, Yan W, **Bos MS**, Ayres-Sampaio D, Magalhães A, Becker M, Becker D, Bastos L, "A comparison of the performance of medium- and high-quality inertial systems grades for strapdown airborne gravimetry", IAG Symposium, Vol. 143, 323–329, doi:10.1007/1345_2015_102, 2016.
2. **Bos MS**, Fernandes RMS, Almeida PG, Cordeiro M, Coetzee W, "Verifying the Accuracy of Recent Global Geopotential Models in North-West Mozambique", IAG Symposium, Vol. 143, 347–354, doi:10.1007/1345_2015_102, 2016.
1. Deurloo R, Bastos L, **Bos MS**, "On The Use Of UAVs For Strapdown Airborne Gravimetry", IAG Symposium, Vol. 136, 255–262, doi:10.1007/978-3-642-20338-1_31, 2009.

Refereed Publications (not listed in Web of Science database)

5. Penna NT, **Bos MS**, Baker TF, Scherneck H-G, "Ocean tide loading displacement modelling: Accuracy assessment", *Bulletin d'Informations des Marées Terrestres*, Vol. 145, 11659–11662, 2009.
4. Scherneck H-G, **Bos MS**, "Displacements due to ocean tide and atmospheric loading", *International VLBI Service for Geodesy and Astrometry 2002 General Meeting Proceedings*, edited by NR Vandenberg and KD Baver, NASA/CP-2002-210002, 237–240, 2002.
3. Baker TF, **Bos MS**, Williams SDP, "Confronting Superconducting and absolute gravity measurements with models", *Bulletin d'Information des Marées Terrestres*, Vol. 136, 10743–10744, 2002.
2. Baker TF, **Bos MS**, "Tidal gravity observations and ocean tide models", *Journal of the Geodetic Society of Japan*, Vol. 47(1), 76–81, 2001.
1. **Bos MS**, Baker TF, "Ocean tides and loading in the Nordic Seas", *Memoirs of National Institute of Polar Research*, No. 54, 291–300, 2000.

Research Projects (Principal Investigator)

- 2010 Project "GEOid for MADeira (GEOMAD)" which had the objective to compute a local geoid for Madeira using airborne gravimetry. The campaign was sponsored by the European Facility for Airborne Research (Free flight time + €4.7k).
- 2005 - 2007 Project "Tool for Improving the Performance of Airborne Gravimetry (TIPGRAV)" funded by the Portuguese Foundation for Science and Technology with grant number POCTI/CTE-GIN/58494/2004 (€44k).

Research Projects (Member)

- 2017 - 2018 Project "Loading And Tectonics of Antarctica peninsula - 2017 (LATA-2017)", funded by the Portuguese Polar Program (PROPOLAR). The project leader is Dr. R Fernandes of University of Beira Interior, Portugal (€4k).
- 2015 - 2018 Project "Fogo Island volcano: multi disciplinary Research on 2014 Eruption (FIRE)", funded by the Portuguese Foundation for Sciences and Technology with grant number PTDC/GEO-GEO/1123/2014. The project leader is Dr. R Fernandes of University of Beira Interior, Portugal (€200k).
- 2015 - Working group 10 "GNSS Data and Product" of the Project "European Plate Observing System - Implementation Phase (EPOS-IP)", funded by Horizon 2020 [2020-INFRADEV-3-2015]. The project leader is Prof. Massimo Cocco of Istituto Nazionale di Geofisica e Vulcanologia (INGV), Italy (€18000k).
- 2016 - 2019 Project "Development and analysis of crustal structure models in the Canaries. Implications for studies of deformation and gravity changes in El Hierro and Lanzarote", with reference CGL201563799-P, funded by the Spanish Ministry of Science and Innovation. The project leader was Dr. J Arnosó of Complutense University of Madrid, Spain (€123.3k).
- 2014 - 2015 Project "Novos métodos para Usar estimativas de GNSS-PWV na Meteorologia de Portugal (NUVEM)", funded by the Portuguese Foundation for Sciences and Technology with grant number EXPL/GEO-MET/0413/2013. The project leader was Dr. R Fernandes of University of Beira Interior, Portugal (€41.7k).
- 2012 - 2014 Project "Advanced Geodetic and Geophysical Modelling in Gran Canaria. Integration into the Structural and Dynamic Context of the Canary Islands", with reference CGL2011-25494, funded by the Spanish Ministry of Science and Innovation. The project leader was Dr. J Arnosó of Complutense University of Madrid, Spain (€90.75k).
- 2009 - 2012 Project RAIA, an Interreg IV-A project between the North of Portugal and Galicia, with the objective to develop an oceanic observatory for the NW Iberian shelf. The project leader was Prof. V Pérez of MeteoGalica, Spain (€3500k)
- 2008 - 2012 Portuguese representative in the managing committee of the European Cooperation in Science and Technology (COST) Action ES0701 "Improved Constraints on Models of Glacial Isostatic Adjustment" led by Dr. MA King of Newcastle University, United Kingdom (The Action received up to €40k per year).
- 2009 - 2011 Project funded by the Administration of the ports of Douro, Leixões and Viana do Castelo (APDL), Portugal, to digitise and analyse 100 years of tide gauge records stored on paper rolls. Project leader was Dr. L Bastos (€50k) of Porto University, Portugal.
- 2006 - 2010 Project "Global Loading and Deformation at Tidal Timescales". The project was sponsored by NERC and led by Prof. PJ Clarke of University of Newcastle, United Kingdom (£136.6k).
- 2006 - 2010 Project "KINematics of the Eastern Margin of Africa (KINEMA)" was funded by the Portuguese Foundation for Science and Technology with grant number PTDC/CTE-GIN/64101/2006 and led by Dr. R Fernandes of University of Beira Interior, Portugal (€200k).

Oral Presentations

64. Fernandes R, **Bos MS**, Allothman A, Mora-Paz H, "Comparing Global and Dedicated Plate Angular Velocity Models: the cases of Arabia and South America", IAG-IASPEI, G04-4-02, Kobe, Japan, 30 July - 4 August 2017.

63. **Bos MS**, Fernandes R, Thinley K, Gyeltshen, "DRUKGEOID15: The new geoid of Bhutan", IAG- IASPEI, G02-3-04, Kobe, Japan, 30 July - 4 August 2017.
62. Klos A, **Bos MS**, Bogusz J, "Modelling of Time-Varying Seasonal Signals in GNSS Time Series", IAG- IASPEI, G04-4-03, Kobe, Japan, 30 July - 4 August 2017.
61. Fernandes RMS, **Bos MS**, "Applied automatic offset detection using Hector", IGS Workshop, Paris, France, 3–7 July 2017.
60. Scherneck H-G, **Bos MS**, Fernandes R, "Ocean tide loading - where we are standing", 23rd Working Meeting of the European VLBI Group for Geodesy and Astrometry, Gothenburg, Sweden, 15-19 May 2017.
59. Klos A, **Bos MS**, Fernandes RMS, Bogusz J, "A new approach to post-seismic decay with temporal correlation", AGU Fall Meeting, G14A-04, San Francisco, USA, 12–16 December 2016.
58. **Bos MS**, "O Campo Gravidade da Terra e a Importância para o Sistema da Altitude", Fórum de Informação Geoespacial, Guarda, Portugal, 13 October 2016.
57. **Bos MS**, Fernandes RMS, "Automatic offset detection using Hector", 18th General Assembly of WEGENER, Ponta Delgado, Azores, 12–15 September, 2016.
56. Klos A, **Bos MS**, Fernandes RMS, Bogusz J, "Power-law Properties of Post-Seismic Decay: Tohoku 2011 Case Study", 18th General Assembly of WEGENER, Ponta Delgado, Azores, 12–15 September, 2016.
55. Fernandes RMS, **Bos MS**, Meghraoui M, Miranda M, Fonseca J, "Intra- and Inter-tectonic motions of the African continent", 18th General Assembly of WEGENER, Ponta Delgado, Azores, 12–15 September, 2016.
54. Bastos L, Fernandes RMS, **Bos MS**, "The Azores TANGO GNSS network: from 1988 to present", 18th General Assembly of WEGENER, Ponta Delgado, Azores, 12–15 September, 2016.
53. Fernandes RMS, Quintero R, **Bos MS**, "Investigating the Post-Seismic Deformation of 2012 Nicoya Earthquake from cGNSS data", IASPEI 2016, San José, Costa Rica, 20–22 June, 2016.
52. Gruszczynska M, Klos A, **Bos MS**, Bogusz J, "Assessing the seasonal signals between environmental loadings and GPS coordinates with Singular Spectrum Analysis", 18th International Symposium on Geodynamics and Earth Tides, Trieste, Italy, 5–9 June, 2016.
51. Klos A, Hunegnaw A, **Bos MS**, Teferle N, Fernandes RMS, Bogusz J, "Assessing power-law properties of post-seismic deformation in land movements", 18th International Symposium on Geodynamics and Earth Tides, Trieste, Italy, 5–9 June, 2016.
50. Fernandes RMS, **Bos MS**, Couto R, Freymueller J, Tretyakov M, "Evaluating the influence of data gaps in the analysis of position time-series", JKASP 2016, 9th Biennial Workshop on Japan-Kamchatka-Alaska Subduction Processes, Fairbanks, Alaska, May 31 – June 3, 2016.
49. Fernandes RMS, **Bos MS**, Bar-Sever Y, "Correlation of the stochastic proprieties of cGNSS time series with the local environment", IGS workshop, Sydney, NSW, Australia, 8–12 February 2016.
48. **Bos MS**, Clarke PC, Penna N, Baker TF, "Anelasticity of the asthenosphere inferred from GPS observations of ocean tide loading displacements in western Europe", 26th IUGG General Assembly, IUGG-2332, Prague, Czech Republic, 22 June – 2 July 2015.

47. Bastos L, Ayres-Sampaio D, Deurloo R, **Bos MS**, "Using an iXSea Inertial Navigation System for airborne gravimetry", 26th IUGG General Assembly, IUGG-5214, Prague, Czech Republic, 22 June – 2 July 2015.
46. Fernandes RMS, Quembo JL, **Bos MS**, Almeida PG, "Validation and Implementation of MozNet – the geocentric reference frame of Mozambique", IAG Commission 1 Symposium 2014: Reference Frames for Applications in Geosciences (REFAG2014), Kirchberg, Luxembourg, 13–17 October 2014.
45. **Bos MS**, Fernandes RMS, Vethamony P, Mehra P, "Estimating absolute sea level variations by combining GNSS and Tide gauge data", INCHOE 2014, 5th Indian National Conference on Harbour and Ocean Engineering, Goa, India, 5–7 February 2014.
44. Fernandes RMS, **Bos MS**, Almeida P, Cordeiro M, Coetzee W, Ferrão M, Mzunzu M, "The local geoid undulation model for Tete, Mozambique: comparison with global models", IAG Scientific Meeting, Potsdam, Germany, 1–6 September 2013.
43. **Bos MS**, Araújo IB, Bastos L, "Investigating variability of the M2 tide at Leixões", 2^o Jornadas de Engenharia Hidrográfica, Lisbon, Portugal, 20–22 June 2012.
42. Fernandes RMS, Meghraoui M, Miranda JM, **Bos MS**, Radwan A, Tahayt A, Muhammad M, "Constraints to the strain field of Africa from geodetic solutions: a contribution for the Seismotectonic Map of Africa", EGU General Assembly, EGU2012-7588, Vienna, Austria, 22–27 April 2012.
41. Bastos L, **Bos MS**, Caldeira R, Couvelard X, Allis S, Bio A, Araújo I, Fernandes J, Lázaro C, "Monitoring and forecasting ocean dynamics at a regional scale", KIMERAA 2nd transnational seminar - Competencies and Services in Marine Sciences and Clusters in Atlantic Area, Faro, Portugal, 4 July 2011.
40. Woodworth P, Pugh D, **Bos MS**, "The Astronomical Tides in Loch Ness", IUGG General Assembly, IUGG-1903, Melbourne, Australia, 28 June – 7 July 2011.
39. **Bos MS**, Araújo IB, Fernandes MJ, "A Regional Tide Model for the West Iberian Coast", 7th Conferência Nacional de Cartografia e Geodesia, Porto, Portugal, 5–6 May 2011.
38. Deurloo RA, **Bos MS**, Magalhães A, Bastos L, "An improved Low-Cost Strapdown IMU/GPS Airborne Gravimetry System", 7th Conferência Nacional de Cartografia e Geodesia, Porto, Portugal, 5–6 May 2011.
37. **Bos MS**, Deurloo RA, Magalhães A, Bastos L, "A new local geoid for Madeira", 7th Conferência Nacional de Cartografia e Geodesia, Porto, Portugal, 5–6 May 2011.
36. **Bos MS**, Araújo IB, Bastos L, Fernandes MJ, "A regional set of tide-level maps for the West Iberian Coast", Presented at the Fourth Coastal Altimetry Workshop, Porto, Portugal, 14–15 October 2010.
35. **Bos MS**, Fernandes RMS, Araújo IB, Bastos L, Vasconcelos M, "Error analysis of Cascais absolute sea-level change", 2nd International meeting on Data Analysis and Modelling in Earth Sciences (DAMES), Lisbon, Portugal, 22–24 September 2010.
34. **Bos MS**, Bastos L, Fernandes RMS, "Investigating the noise properties of GPS stations in Iberia", 15th General Assembly of WEGENER, Istanbul, Turkey, 14–17 September 2010.
33. **Bos MS**, Penna NT, Keshin M, Clarke PJ, Baker TF, "Status of ocean tide loading displacement modelling", International GNSS Service Workshop, Newcastle, United Kingdom, 28 June – 2 July 2010.

32. **Bos MS**, “Time-series analysis of Cascais data set using the Maximum Likelihood Estimation method”, Workshop on Sea-level rise along the Portuguese coast, CIIMAR, Porto, Portugal, 28 May 2010.
31. **Bos MS**, Fernandes RMS, Williams SDP, Bastos L, “Fast analysis of GPS time-series with gaps”, AGU Fall Meeting, G22A-03, San Francisco, USA, 14–18 December 2009.
30. **Bos MS**, Arnoso J, Benavent M, “Analysis of tidal gravity measurements made in the Canary Islands”, Encontro Ciência 2009, Lisbon, Portugal, 29–30 July 2009.
29. Fernandes RMS, **Bos MS**, Msemwa J, Sá A & KILI2008 Team, “KILI2008: Cálculo da Altitude Ortométrica do Monte Kilimanjaro”, 6th Conferência Nacional de Cartografia e Geodesia, Caldas da Rainha, Portugal, 7–8 May 2009.
28. Deurloo R, Bastos L, **Bos MS**, “Assessing the use of UAVs for airborne gravimetry”, 6th Conferência Nacional de Cartografia e Geodesia, Caldas da Rainha, Portugal, 7–8 May 2009.
27. Arnoso J, Benavent M, **Bos MS**, Montesinos FG, “New insights into ocean tide loading corrections on tidal gravity data in Canary Islands”, EGU General Assembly, EGU2009-6378, Vienna, Austria, 19–24 April 2009.
26. Bastos L, **Bos MS**, Fernandes RMS, “Investigating the seasonal signal within GPS time-series from Iberia stations”. 14th General Assembly of WEGENER, Darmstadt, Germany, 15–18 September 2008.
25. Williams SDP, **Bos MS**, Fernandes RMS, Bastos L, “Fast error analysis of continuous GPS observations”, EGU General Assembly, EGU2008-A-03212, Vienna, Austria, 13–18 April 2008.
24. **Bos MS**, Penna NT, Baker TF, Scherneck H-G, Bastos L, “Current state of ocean tide loading displacement modelling”, EGU General Assembly, EGU2008-A-05142, Vienna, Austria, 13–18 April 2008.
23. Fernandes RMS, Miranda JM, Bastos L, Catalão J, **Bos MS**, “Evaluating the present-day kinematics of Azores Triple Junction by combining campaign and permanent GNSS data”, UNAVCO Science Workshop, Boulder, USA, 11–13 March 2008.
22. Ferreira JPF, **Bos MS**, Fernandes RMS, Bastos L, “Comparison of methodologies in determination of vertical component in Oporto region”, 6th Assembleia Luso-Espanhola de Geodesia e Geofísica, Tomar, Portugal, 11–14 February 2008.
21. **Bos MS**, Deurloo RA, Bastos L, “Project AGMASCO: Noise Investigations of Airborne Gravimetry Observations”, 6th Assembleia Luso-Espanhola de Geodesia e Geofísica, Tomar, Portugal, 11–14 February 2008.
20. Bastos L, **Bos MS**, Catalão J, Deurloo RA, “Optimizing the flight-path for airborne gravimetry campaigns”, IUGG General Assembly, IUGG-2597, Perugia, Italy, 2–13 July 2007.
19. **Bos MS**, Fernandes RMS, van Dam T, Bastos L, “Modeling Atmospheric Loading using BLQ files”, EGU General Assembly, EGU2007-A-10793, Vienna, Austria, 15–20 April 2007.
18. **Bos MS**, Fernandes RMS, Bastos L, “(Mis)use of the BLQ-file for Atmospheric Loading modelling”, General Assembly of WEGENER, Nice, France, 4–7 September 2006.
17. Bastos L, **Bos MS**, Fernandes RMS, “Investigation of Common Modes in the Iberian GPS network”, General Assembly of WEGENER, Nice, France, 4–7 September 2006.
16. **Bos MS**, Matonti F, Bastos L, Zerbini S, Scherneck H-G “Analysis of atmospheric loading computations”, EGU General Assembly, EGU06-A-04124, Vienna, Austria, 2–7 April 2006.

15. Fernandes RMS, **Bos MS**, Bastos L, "Mapping of active deformation regions in Europe using the EPN network", EGU General Assembly, EGU06-A-05313, Vienna, Austria, 2–7 April 2006.
14. Scherneck H-G, **Bos MS**, "Ocean loading tides - a review", EGU General Assembly, EGU06-A-03078, Vienna, Austria, 2–7, April 2006.
13. Bastos L, Fernandes RMS, **Bos MS**, Miranda JM, "Kinematics of the Ibero-Moroccan segment of the Eurasia-Nubia plate boundary derived from GEODAC solutions", UNAVCO Science Workshop, Denver, USA, 14–16 March 2006.
12. Garate J, Fernandes RMS, **Bos MS**, "Efectos de la Carga de Marea Oceanica en la Costa Atlantica de la Peninsula Iberica", 5th Assembleia Luso Espanhola de Geodesia e Geofísica, Seville, Spain, 30 January 2006.
11. Bastos L, **Bos MS**, Fernandes RMS, Combrink A, "Impact of GPS time series errors in the estimation of tectonic plate models", Dynamic Planet IAG Symposium, Cairns, Australia, 22–26 August 2005.
10. **Bos MS**, Bastos L, Fernandes RMS, "Atmospheric Loading at Portuguese GPS Stations", 4th Conferência Nacional de Cartografia e Geodesia, Lisbon, Portugal, 10–11 March 2005.
9. **Bos MS**, Fernandes RMS, Bastos L, "Computing realistic uncertainties of the motion estimates", 12th General Assembly of WEGENER, Tangier, Morocco, 21–23 September 2004.
8. **Bos MS**, "New software for computing the loading of the ocean tides", 4^a Assembleia Luso-Espanhola de Geodesia e Geofísica, Figueira da Foz, Portugal, 3–7 February 2004.
7. Scherneck H-G, **Bos MS**, "Displacements due to ocean tide and atmospheric loading", International VLBI Service (IVS) General Meeting, Tsukuba, Japan, 4–7 February 2002.
6. **Bos MS**, Haas R, "Long period tides observed in gravity and VLBI observations at Ny-Ålesund, Spitzbergen". 89th Journées Luxembourgeoises de Géodynamique, Munsbach, Luxembourg, 12–14 November 2001.
5. **Bos MS**, Haas R, "Observing Long-period Tides in Gravity and VLBI Observations at Ny-Ålesund (Svalbard) - A progress Report", 15th Working Meeting on European VLBI for Geodesy and Astrometry, Barcelona, Spain, 7–8 September 2001.
4. Baker TF, **Bos MS**, "Tidal gravity observations and ocean tide models". 14th International Symposium on Earth Tides (ETS2000), Mizusawa, Japan, 28 August – 1 September 2000.
3. **Bos MS**, Baker TF, "Ocean tides and loading in the Arctic". Second International Symposium on Environmental Research in the Arctic and Fifth Ny-Ålesund Scientific Seminar, Tokyo, Japan, 23–25 February 2000.
2. Baker TF, **Bos MS**, Hopewell H, "The effect of ocean and shelf tides on absolute gravity measurements". EGS General Assembly, Nice, France, 20–25 April 1998.
1. **Bos MS**, Gambis D, "Influence of the atmosphere on Earth rotation using the torque approach", EGS General Assembly, The Hague, The Netherlands, 6–10 May 1996.

Posters

35. Fernandes R, **Bos M**, Bruyninx C, Crocker P, Dousa J, Socquet A, Walpersdorf A, Avallone A, Ganas A, Gunnar B, Ionescu C, Kenyeres A, Ozener H, Vergnolle M, Lidberg M, Liwosz T, and Soehne W. "EPOS-GNSS – Improving the infrastructure for GNSS data and products in Europe", EGU General Assembly, EGU2017-10766, Vienna, Austria, 23–28 April, 2017.
34. Abdulaziz A, **Bos M**, Fernandes R, "An Update of Sea Level Rise in the northwestern part of the Arabian Gulf", EGU General Assembly, EGU2017-5474, Vienna, Austria, 23–28 April, 2017.
33. Fernandes RMS, **Bos MS**, "Applied automatic offset detection using HECTOR within EPOS-IP Time-series", AGU Fall Meeting, G51A-1084, San Francisco, USA, 12–16 December 2016.
32. Bogusz J, Klos A, **Bos MS**, Hunegnaw A, Teferle FN, "On the Impact of a Quadratic Acceleration Term in the Analysis of Position Time Series", EGU General Assembly, EGU2016-16816, Vienna, Austria, 17–22 April 2016.
31. Gruszczynska M, Klos A, **Bos MS**, Bogusz J, "Investigation on the coloured noise in GPS-derived position with time-varying seasonal signals", EGU General Assembly, EGU2016-471, Vienna, Austria, 17–22 April 2016.
30. **Bos MS**, Fernandes RMS, "Investigation of Random Walk Noise in GNSS Time-series", AGU Fall Meeting, G13A-0990, San Francisco, USA, 14–18 December 2015.
29. Klos A, **Bos MS**, Bogusz J, Boy J, "On the time-changeable signals in GPS time series", IUGG General Assembly, IUGG-G01p-235, Prague, Czech Republic, 22 June – 2 July 2015.
28. Penna N, Clarke P, **Bos MS**, Baker T, "Validation of tidal displacements estimated using kinematic GPS", IUGG General Assembly, IUGG-G04p-137, Prague, Czech Republic, 22 June – 2 July 2015.
27. Fernandes RMS, Sá A, Miranda P, **Bos MS**, Martins J, Machado T, "Signature on GNSS PWV estimates of relevant storms affecting Iberia in recent years", IUGG General Assembly, IUGG-G07p-372, Prague, Czech Republic, 22 June – 2 July 2015.
26. Alothman A, **Bos MS**, Fernandes RMS, Ayhan M, "Sea Level Rise in the northwestern part of the Arabian Gulf", EGU General Assembly, EGU2015-46, Vienna, Austria, 12–17 April 2015.
25. **Bos MS**, Fernandes RMS, Apolinário J, "Vertical land motion observed with GNSS in Iberia", EGU General Assembly, EGU2015-13635, Vienna, Austria, 12–17 April 2015.
24. Fernandes RMS, **Bos MS**, Apolinário J, Meghraoui M, "Mapping the tectonic motions of the African continent with cGNSS", General Assembly of Wegener 2014, Leeds, United Kingdom, 1–4 September 2014.
23. Silva M, Fernandes RMS, Nascimento A, Petta R, Matschullat J, Monico J, **Bos MS**, Sá A, Barbosa M, "Using GNSS observations to investigate variations of Pluviometry in the Semi-Arid Brazilian region", EGU General Assembly, EGU2014-5956, Vienna, Austria, 27 April – 2 May 2014.
22. **Bos MS**, Fernandes RMS, Apolinário J, "Investigation of the Cross-Correlation in GNSS Time-Series", AGU Fall Meeting, G41A-0918, San Francisco, USA, 9–13 December 2013.
21. Fernandes RMS, **Bos MS**, Apolinário J, Dias NA, Neves ML, Miranda JM, "Geodetic strain-rate field of Iberia", AGU Fall Meeting, G41A-0913, San Francisco, USA, 9–13 December 2013.

20. Bastos L, R Deurloo, **Bos MS**, Becker M, Yan W, Magalhães A, Martin J, “Comparison of the Performance of Medium- and High-quality Inertial Systems Grades for Strapdown Airborne Gravimetry”, IAG Scientific Assembly 2013, Potsdam, Germany, 1–6 September 2013.
19. Arnosó J, **Bos MS**, Benavent M, Penna N, Velez EJ, “OTL calculations for studying elastic response of the upper crust in Gran Canaria (Canary Archipelago)”, 17th International Symposium on Earth Tides “Understand the Earth?”, Warsaw, Poland, 15-19 April 2013.
18. Mora-Paez H, Fernandes RMS, Acero-Patiño N, **Bos MS**, “Present-Day Kinematics of the Tectonic Blocks around Colombia, South America”, EGU General Assembly, EGU2013-1001, Vienna, Austria, 7–12 April 2013.
17. **Bos MS**, Fernandes RMS, Williams SDP, Bastos L, “The noise properties in GPS time-series at European stations revisited”, EGU General Assembly EGU2013-12825, Vienna, Austria, 7–12 April 2013.
16. **Bos MS**, Araújo IB, Bastos L, “The effect of long-range dependence on sea level trend error”, Planet Under Pressure conference, London, United Kingdom, Abstract #3257, 26–29 March 2012.
15. Clarke PJ, **Bos MS**, Penna NT, Keshin M, Baker TF, “Anomalous ocean tide loading displacements in western Europe suggest mantle anelasticity”, AGU Fall Meeting, G33B-0983, San Francisco, USA, 5–9 December 2011.
14. Löfgren JS, Haas R, Scherneck H-G, **Bos MS**, “Local Sea Level Derived from Reflected GNSS Signals”, AGU Fall Meeting, G21B-0812, San Francisco, USA, 5–9 December 2011.
13. **Bos MS**, Deurloo RA, Bastos L, Magalhães A, “A New Local Geoid for Madeira Using Airborne Gravimetry”, AGU Fall Meeting, G13A-0880, San Francisco, USA, 5–9 December 2011.
12. Tavares O, **Bos MS**, Bastos L, Fernandes RMS, “An online GPS time-series analysis provider at GEODAC”, EGU General Assembly, EGU2011-13026, Vienna, Austria, 3–8 April 2011.
11. Fernandes RM, Miranda JM, Matias LM, Soto JI, **Bos MS**, Almeida PG, “Nubia-Eurasia Plate Boundary in Iberia From GPS Data”, AGU Fall Meeting, G43A-0843, San Francisco, USA, 13–17 December 2010.
10. Keshin M, Penna NT, Clarke PJ, **Bos MS**, Baker TF, “GPS estimation of anomalous tidal loading displacements”, International GNSS Service Workshop, Newcastle, UK, 28 June – 2 July 2010.
9. Keshin M, Penna NT, Clarke PJ, **Bos MS**, Baker TF, “Anomalous tidal loading signals in South-West England and Brittany”, EGU General Assembly, EGU2010-5814, Vienna, Austria, 2–7 May 2010.
8. Deurloo R, Bastos L, **Bos MS**, “On The Use Of UAVs For Strapdown Airborne Gravimetry”, IAG Symposium, Buenos Aires, Argentina, 31 August – 4 September 2009.
7. Fernandes RMS, Msemwa J, **Bos MS**, and the KILI2008 Team, “The KILI2008 project: Precise measurement of the highest elevation of Africa: Mt. Kilimanjaro”, EGU General Assembly, EGU2009-11274, Vienna, Austria, 19–24 April 2009.
6. Boehm J, et al., “Geodetic Observation-level Modelling for the Measurement of GIA”, AGU Fall Meeting, G31A-0647, San Francisco, USA, 15–19 December 2008.
5. Catalão J, **Bos MS**, Antunes C, “A new high precision gravity and geoid model for the Azores archipelago”, EGU General Assembly, G12-1TU5P-0348, Vienna, Austria, 15–20 April 2007.
4. Combrink AZA, Fernandes RMS, **Bos MS**, Combrinck WL, Merry CL, “Monitoring of PWV over South Africa using GPS”, EGU General Assembly, EGU06-A-05592, Vienna, Austria, 2–7 April 2006.

3. **Bos MS**, Baker TF, "Testing Ocean Tide Models Using Superconducting Gravimeter Observations", AGU Fall Meeting, G12A-1058, San Francisco, USA, 6–10 December 2002.
2. **Bos MS**, "The numerical accuracy of the ocean tide loading integral", EGU General Assembly, 4441, Nice, France, 21–26 April 2002.
1. **Bos MS**, Baker TF, "Tidal gravity observations and modeling in the near coastal zone", 14th International Symposium on Earth Tides (ETS2000), Mizusawa, Japan, 28 August – 1 September 2000.

Peer-Review Activities

Reviewer for: Journal of Geodesy, Geophysical Journal International, Journal of Limnology, Advances in Space Research, Tellus A, South African Journal of Science and Journal of Geodynamics, Water, Radio Science, Journal of Geophysical Research, Sensors, GPS Solutions.

Computer Skills

- Proficient in: C++, C, Fortran, Matlab and Tcl.
- Author of the HECTOR software package to analyse geodetic time-series of which the source code and the executables are freely available at: <http://segal.ubi.pt/hector/>. It is being used by research groups in United Kingdom, China, Poland and Colombia.
- Author of the CARGA software package to compute ocean tide loading. It has also been used at Newcastle University, United Kingdom.
- Author of the free ocean tide loading provider at <http://holt.oso.chalmers.se/loading/> in 2002 under the supervision of Dr. H-G Scherneck. It is endorsed by the International Earth Rotation Service and handles around 500-1000 requests per year.

Supervising Experience

- 2006 - 2010 Co-supervisor of the Ph.D. student Richard Deurloo (SFRH/BD/25618/2005) on "Development of a Kalman Filter Integrating System and Measurement Models for a Low-cost Strapdown Airborne Gravimetry System".
- 2010 - 2011 Supervisor of the student Odair Tavares who worked on automizing the HECTOR software package.
- 2009 - 2010 Supervisor of the technician Maria Manuel Cardoso who worked with our software to digitise paper rolls with tide gauge data.
- 2007 Supervisor of the internship of João Ferreira who studied the difference between GPS levelling using a geoid model and classical levelling along the Douro river.
- 2006 Supervisor of a six month stay of Maite Benavent, Ph.D. student at Complutense University of Madrid, Spain, at the Astronomical Observatory of Porto, Portugal. This work experience was a necessary part of her Ph.D. program.
- 2004 Supervisor of the student Francisco Xavier Fernandes Duarte as part of the TIPGRAV project (POCI/CTE-GIN/58494/2004).

2001-2003 Co-supervisor of the M.Sc. student Pim Hilferink at the Geodesy Faculty of Delft University of Technology, The Netherlands. Title thesis: "The Effect of Local Atmospheric Pressure Variations on Gravity".

Examiner in Ph.D. defense

2015 Marta Calvo García-Maroto at the Universidad Complutense de Madrid/Université de Strasbourg. Title of thesis: Analysis of Long-Term Gravity Records in Europe: Consequences for the Retrieval of Small Amplitude and Low Frequency Signals Including The Earth's Core Resonance Effects.

Lecturing

2008-2011 Each year one class lecture + practical on Height Systems at the Faculty of Sciences of University of Porto, Portugal.

January 2009 Two class lectures + practical on Ocean Tide Modelling at CIIMAR, University of Porto, Portugal.

Organizational Skills

May 2010 Organized together with Dr. I Araújo at CIIMAR, University of Porto, Portugal, a mini-workshop on Sea level rise along the Portuguese coast.

2004 Member of the local organising committee of the IAG International Symposium Gravity, Geoid and Space Missions - GGSM2004, that was held in Porto, Portugal from 30 August to 3 September 2004.

Scientific Consultancy Work

July 2013 Presentation at Centro Nacional de Cartografia e Teledetecção (CENECARTE), Maputo, Mozambique, of the accuracy assessment of the current national geoid model of Mozambique and recommendations about the adoption of a global geopotential model in the future (MozGeoid). This work was done together with Dr. R Fernandes.

June 2015 Presentation at National Land Commission (NLC), Thimpu, Bhutan, of the newly computed local geoid DRUKGEOID2015. This work was done together with Dr. R Fernandes.

Field Work

January 2015 Terrestrial gravity campaign in Bhutan using a SCINTREX CG5.

June 2014 Terrestrial gravity campaign on Madeira using a LaCoste & Romberg G-1019 and a SCINTREX CG5.

August 2013 Terrestrial gravity campaign in North-West Mozambique using a SCINTREX CG3.

- July 2010 Airborne gravity campaign using an ATR-42 aircraft of SAFIRE in order to compute the geoid over Madeira.
- July 2008 Terrestrial gravity campaign around the Kilimanjaro, Tanzania, with a Scintrex CG3. This was part of the KILI2008 campaign, led by Dr. R Fernandes, which had the objective to measure the orthometric height of the Kilimanjaro.
- July 2006 Terrestrial gravity campaign on Faial, the Azores with the LaCoste & Romberg G-1054.
- 2002 - 2003 Tidal gravity measurements using a LaCoste & Romberg ET15, G-785 and G-971 in the geodetic bunker in Westerbork, The Netherlands.
- September 1999 Calibration of the feedback system of the LaCoste & Romberg G836-F gravimeter at the Large Scale Facility in Ny-Ålesund, Svalbard.

Languages

- English Fluent
- Dutch Fluent
- Portuguese Intermediate