

# Matej Varga

## *Curriculum Vitae*



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## BASIC INFORMATION

Academic degrees Bachelor of Geodesy, Master of Geodesy and Geoinformatics, PhD in Geodesy

Employer: ETH Zürich

Position: Postdoctoral researcher and teaching assistant [↗](#)

Linktree (all links): [↗](#)

Profiles on: [Web-of-Science](#), [R<sup>6</sup>](#), [in](#), [g<sup>+</sup>](#), [ID](#), [Scopus](#), [ORCID](#)

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## EDUCATION

### University programmes

2012 - 2018 **Postgraduate doctoral study of Geodesy and Geoinformation (PhD)**, Faculty of Geodesy University of Zagreb.

Thesis title: *The Application of Crustal Models in Regional Modelling of the Earth's Gravity Field*. Thesis: [↗](#). Supervisors: Prof. Tomislav Bašić, Prof. Dimitrios Tsoulis

2010-2012 **Master study programme in geodesy and geoinformatics (MSc)**, Faculty of Geodesy University of Zagreb, Summa Cum Laude.

Master thesis work: *Topoisostatic model of the territory of the Republic of Croatia*.

2007-2010 **Bachelor study programme in geodesy and geoinformatics (BSc)**, Faculty of Geodesy University of Zagreb, Summa Cum Laude.

### Research visits

2018 **New Technologies for the Information Society, Faculty of Applied Sciences, University of West Bohemia, Plzeň, Czech Republic.**

Research visit. Host: Prof. Pavel Novák

2017 **Institut für Erdmessung, Leibniz Universität Hannover, Hannover, Germany.**

Academic mobility scholarship. QUANTUM (Quantum Engineering and Space-Time Research) and GEO-Q (Relativistic Geodesy and Gravimetry with Quantum Sensors). Host: Prof. Jurgen Müller

### Scholarships

2018 **Ministry of Science, Education and Sports, Republic of Croatia.**

Academic mobility.

2017 **Almae Matris Alumni Croaticae UK, United Kingdom, University College London, Development of the new lithospheric Earth model based on the most recent geophysical and geodetic data.**

Academic award.

2017 **Ministry of Science, Education and Sports, Republic of Croatia.**

Academic mobility.

2011-2012 **Ministry of Defense, Republic of Croatia.**

Army Cadet Force Scholarship.

2007-2012 **Ministry of Science, Education and Sports, Republic of Croatia.**

Scholarship for excellent students.

### Other

2016-... **Chartered geodetic engineer**, Croatian Chamber of Chartered Geodetic Engineers, Zagreb, Croatia.

- 2012-... **Member**, Croatian Geodetic Society.
- 2012-... **Member**, Croatian Cartographic Society.
- 2009-2011 **Editor in Chief**, *Ekscentar: professional magazine of students of geodesy and geoinformation*, Faculty of Geodesy, University of Zagreb, Croatia.

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## WORKING EXPERIENCE

### Employers

- 2021- ... **ETH Zürich, Institute of Geodesy and Photogrammetry, Geosensors and Engineering Geodesy** [↗](#)
- scientific assistant and postdoc
  - lecturer at BSc and MSc studies
- 2012- 2021 **Faculty of Geodesy, University of Zagreb** [↗](#)
- doctoral and postdoctoral researcher
  - teaching assistant at BSc and MSc studies

### Main research fields

Engineering, satellite, physical, and geometrical geodesy

### Specific topics of interest

- geodetic reference systems and frames (terrestrial, celestial, height, time)
- geospatial data collection, processing, integration, analysis, and interpretation (GNSS, total station, level, terrestrial laser scanner, laser tracker, camera, radar, gravimeter, magnetometer)
- high-precision GNSS
- geodetic networks
- gravity and magnetic field modelling
- geoid modelling
- 3D reality capture
- structural deformation monitoring

### Selected scientific contributions

- geoid and gravity field models of the Republic of Croatia, France (Auvergne), Colorado (USA), Mediterranean Sea proposal for the modernization of the Croatian height reference systems
- development of geodetic reference system transformation algorithms, workflows and software, including distortion modelling, for several areas worldwide
- post-seismic deformation analysis of crust and the geodetic infrastructure after 2020 Zagreb and Petrinja's earthquakes (Republic of Croatia)
- several 3D models of the cultural heritage sites
- geomagnetic network establishment and surveying for the territory of the Republic of Croatia
- geomagnetic network design of Switzerland
- concept design of the coordinate reference systems for the CERN Future Circular Collider (FCC)
- concept design of the surface and underground geodetic networks for the CERN FCC
- concept for calibration, control and testing of the geodetic equipment for the CERN FCC
- GNSS smartphone positioning and navigation in different conditions and areas (several datasets in Slovakia and the USA)

## Projects

Period	Project	Role	Details
20-22	<i>Improvement of the Geodetic Reference Frames and the Geodetic Infrastructure</i>	PR	<a href="#">↗</a>
22-25	European Alps Geoid	R	<a href="#">↗</a>
22-23	Design of the Swiss geomagnetic network	L, PR	
19-21	The 1-cm geoid Colorado experiment	R	<a href="#">↗</a>
19-21	AlpArray Gravity Research Group	R	<a href="#">↗</a>
20-21	Remote Real-time Riprap Protection Erosion Assessment on large rivers	R	<a href="#">↗</a>
17-21	Croatian Geomagnetic Repeat Stations Network II	R	
19	Observation of geomagnetic information Geomed-2: A high resolution geoid of the Mediterranean Sea	L, R	
15-19	CRODYN GNSS geodynamic campaign 2013	R	<a href="#">↗</a>
13	Geopotential and Geodynamics of the Adriatic (Geo++Adria)	R	
12-13	Croatian Geomagnetic Repeat Stations Network I	R	
12	Joint Croatian-Hungarian Geomagnetic Repeat Station Survey	R	

[L: leader, co-L: co-leader, PR: principal researcher, R: researcher]

## Teaching

Course name	Total semesters involved	Responsibilities
Engineering Geodesy	4	E, S, C
Geospatial Reference Systems and Geometrical Geodesy	11	L, E, S
Physical Geodesy	8	L, E
Geophysical Geodesy	6	S
Geomagnetism	6	E, S, C
Satellite Geodesy	5	E, C
Global Geodesy	5	S
Navigation	2	E, C
Analysis and Processing of Geodetic Measurements	2	E
Industrial Metrology and Machine Vision	1	S
Special algorithms for processing geodetic measurements	1	E

[L: lectures, E: exercises, S: seminar, C: field campaigns]

## Reviewer

Journal of Geodesy, Geophysical Journal International, Survey Review, International Journal of Digital Earth, International Journal of Image and Data Fusion, International Journal of Remote Sensing, Journal of Surveying Engineering, Remote Sensing Letters, Transactions in GIS, Geofizika

## Editorial member

Journal of Geodetic Science (ISSN 2081-9943, [↗](#))

## International scientific researching working groups

- JWG2.2.1 (2023-27): Comprehensive gravity data integration for the sub-cm geoid/quasi-geoid modelling
- IC-SG (2023-27): Dynamic gravity modelling of given distributions

- IAG JWG (2019-23): Implementation of the International Height Reference Frame (IHRF)
- ICCT Joint Study Group (2019-23): Forward gravity field modelling of known mass distributions
- ICCT-JSG (2019-23): Geoid/quasi-geoid modelling for realization of the geopotential height datum
- IAG JWG 2.2.2 (2015-23): Error assessment of the 1 cm geoid experiment
  
- IAG JWG 2.2 (2017-21): Validation of combined gravity model EGM2020
- IAG JWG (2015-19): Unified Height System, Strategy for the Realization of the International Height Reference System (IHRS)
- Geomed-2 (2015-19)
- AlpArray (2019-21)

### Student jobs

summer topographic survey, cadastral survey, GIS  
 2009, 2010,  
 2011

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## PERSONAL SKILLS

### LANGUAGES

Croatian native speaker  
 English full professional proficiency  
 German limited professional proficiency

### Hobbies

- running, football, football refereeing, guitar

Date March 3, 2024



## PUBLICATIONS

\*Note: Underline stands for corresponding author and/or presenter.\*

\*\*Note: ***Bold Italic*** stands for *title of the reference*.\*\*

### Books

1. Varga, M. (2020): *Geometrical geodesy* (in Croatian). [↗](#)
2. Varga, M. (2020): *Physical geodesy* (in Croatian, revision in progress). [↗](#)

### Book chapters

3. Brkić, M.; Varga, M.; Poslončec-Petrić, V. (2013): *Geomagnetic field for the epoch 2009.5. Osnovna geomagnetska mreža Republike Hrvatske 2004.-2012., s kartama geomagnetskog polja za epohu 2009.5.* Brkić, M., editor(s). Zagreb: State Geodetic Administration, 33-38.

### Project reports

4. Varga, M., Wieser, A. (2024): *Concept for calibration, checking and testing of the geodetic equipment for the FCC.* Deliverable IGP-AA-2.5. CHART project FCC-Geodesy IGP-AA-2.
5. Varga, M., Wieser, A. (2024): *Conceptual design report for the connection of the geodetic underground monitoring system to the civil engineering one.* Deliverable IGP-AA-2.4. CHART project FCC-Geodesy IGP-AA-2.
6. Varga, M., Wieser, A. (2024): *Database of methodologies and instruments for position and orientation transfer into the FCC tunnel.* Deliverable IGP-AA-2.3. CHART project FCC-Geodesy IGP-AA-2.
7. Varga, M., Wieser, A. (2022): *Conceptual design report for the establishment of a surface geodetic reference network including control baseline.* Deliverable IGP-AA-2.2. CHART project FCC-Geodesy IGP-AA-2.
8. Varga, M., Wieser, A. (2021): *Proposition of Coordinate Reference Systems for FCC.* Deliverable IGP-AA-2.1. CHART project FCC-Geodesy IGP-AA-2.

### Articles in international journals

9. Tomašćik, J., Varga, M., Everett, T. (2024). *Raw GNSS data collected using smartphones and low-cost receiver under optimal and sub-optimal conditions.* Data in Brief, 110148. [↗](#)
10. Bjelotomić Oršulić, O., Varga, M., Yalvac, S. (2023). *Seismic Disturbances and Geodetic Effects: Unraveling the Impact of the Mw= 6.2 Petrinja Earthquake on the Croatian Positioning System CROPOS.* Geosciences, 14(1), 6 [↗](#).
11. Wang, Z., Varga M., Medić, T., Wieser A. (2023): *Assessing the alignment between geometry and colors in TLS colored point clouds.* ISPRS 2023 Geospatial Week, Egypt. X-1/W1-2023:597-604. [↗](#)
12. Baumann-Ouyang, A., Butt, J. A., Varga, M., Wieser, A. (2023): *MIMO-SAR Interferometric Measurements for Wind Turbine Tower Deformation Monitoring.* Energies, 16(3), 1518. [↗](#)
13. Wang, Y. M., Sánchez, L., ..., Varga, M.,... (2021): *Colorado geoid computation experiment - Overview and summary,* Journal of Geodesy, 36. [↗](#)
14. Varga, M.; Pitoňák, M.; Novák, P. ; Bašić, T. (2021): *Contribution of GRAV-D airborne gravity to improvement of regional gravimetric geoid modelling in Colorado, USA,* Journal of Geodesy, 36. [↗](#)
15. Zahorec, P., Papčo, J.,..., Götze, H., ... & Varga, M. (2021): *The first pan-Alpine surface-gravity database, a modern compilation that crosses frontiers.* Earth System Science Data, 13(5), 2165-2209 [↗](#)
16. Bjelotomć-Oršulić, O., Markovinović, D., Varga, M., Bašić T. (2021): *Coseismic Ground Displacement after the Mw6.2 Earthquake in NW Croatia Determined from Sentinel-1 and GNSS CORS Data.* Geosciences, 11(4), 170. [↗](#)

17. **Varga, M.**, Stipčević, J. (2021): *Gravity anomaly models with geophysical interpretation of the Republic of Croatia, including Adriatic and Dinarides regions*, Geophysical Journal International, 226(3), 2189-2199. [↗](#)
18. Tomaštik, J., **Varga, M.**. (2021): *Practical applicability of processing static, short-observation-time raw GNSS measurements provided by a smartphone under tree vegetation*, Measurement, 178, 109397. [↗](#)
19. Bjelotomić Oršulić, O., **Varga, M.**; Markovinović, D.; Bašić, T. *LTide - Matlab/Octave software tool for temporal and spatial analysis of tidal gravity acceleration effects according to Longman formulas*. Earth Science Informatics. 12 (2019), 1, 1-10. [↗](#).
20. Bjelotomić Oršulić, O.; Markovinović, D.; **Varga, M.**; Bašić, T. (2019): *The impact of terrestrial gravity data density on geoid accuracy: case study Bilogora in Croatia*. Survey review - Directorate of Overseas Surveys, 1-10. [↗](#)
21. **Varga, M.**; Bašić, T. *Accuracy validation and comparison of global digital elevation models over Croatia*. International Journal of Remote Sensing. 36 (2015), 1; 170-189. [↗](#).
22. **Varga, M.**; Grgić, M.; Bašić, T. *Empirical Comparison of the Geodetic Coordinate Transformation Models: a Case Study of Croatia*. Survey Review - Directorate of Overseas Surveys. 48 (2015); 1-13. [↗](#).
23. Grgić, M.; **Varga, M.**; Bašić, T. *Empirical Research of Interpolation Methods in Distortion Modelling for the Coordinate Transformation between Local and Global Geodetic Datums*. Journal of Surveying Engineering. 142 (2015), 2; 5-15. [↗](#).

### Articles in other journals

24. **Brkić M.**; **Varga, M.**; Grgić, M.; Radović, N.; Bašić, T. *Model radnog popravka kompasa za 2020. godinu*, Strategos, 4 (2020), 1; 7-29. [↗](#).
25. **Varga, M.**; Grgić, M.; Bjelotomić Oršulić, O.; Bašić, T. *Influence of digital elevation model resolution on gravimetric terrain correction over a study-area of Croatia*, Geofizika, 36 (2019), 1; 17-32. [↗](#).
26. **Brkić, M.**; Pavasović, M.; **Varga, M.**; Grgić, M. *2nd Geomagnetic Information Renewal Cycle in the Republic of Croatia - First Results*. Kartografija i geoinformacije : časopis Hrvatskoga kartografskog društva. 17 (2018), 30; 4-15. [↗](#).
27. Pokupić, M.; **Varga, M.**; Bašić, T. *Models of geomorphometric parameters and drainage networks for the territory of Republic of Croatia*. Hrvatski geografski glasnik. 80 (2018), 1; 61-76. [↗](#).
28. **Varga, M.**. *Geomagnetic Anomalies over the Territory of the Republic of Croatia*. Geodetski list: glasilo Hrvatskoga geodetskog društva. 68 (2014), 3; 173-184. (in Croatian) [↗](#)
29. Šugar, D.; **Varga, M.**; Cindrić, M. *Night-time Geomagnetic Field Observations on the POKUpsko Repeat Station..* Geodetski list: glasilo Hrvatskoga geodetskog društva. 67 (90) (2013), 1; 13-27. (in Croatian) [↗](#)
30. **Varga, M.**; Bašić, T. *Quality Assessment and Comparison of Global Digital Elevation Models on the Territory of Republic of Croatia*. Kartografija i geoinformacije: časopis Hrvatskoga kartografskog društva. 12 (2013), 20; 4-17. [↗](#)
31. **Varga, M.**; Dragčević, D.; ... *Review of the regional geoid models around the world*. Ekscentar: časopis studenata Geodetskog fakulteta Sveučilišta u Zagrebu. 148 (2012), 15; 82-88. (in Croatian)
32. **Varga, M.**. *Validation of the Airy-Heiskanen topo-isostatic compensation model over the territory of Republic Croatia..* Ekscentar: časopis studenata Geodetskog fakulteta Sveučilišta u Zagrebu. 148 (2012), 15; 104-108. (in Croatian)
33. **Varga, M.**. *Global Geodetic Observing System - GGOS*. Ekscentar: časopis studenata Geodetskog fakulteta Sveučilišta u Zagrebu. 124 (2011); 69-75. (in Croatian)








34. **Varga, M.** *Ruder Bošković in geodesy*. Ekscentar: časopis studenata Geodetskog fakulteta Sveučilišta u Zagrebu. 124 (2011); 94-96. (in Croatian)
35. Luketić, A.; **Varga, M.**; Žižić I. *Analysis of the CROPOS on the calibration base of the Faculty of Geodesy, Zagreb*. Ekscentar: časopis studenata Geodetskog fakulteta Sveučilišta u Zagrebu. 112 (2010), 12; 48-51. (in Croatian)

### International and national oral presentations, conference proceeding papers and posters

36. Wieser, A., **Varga, M.** (2022): *Coordinate Reference Challenges for a potential FCC*. Swisstopo Colloquium. [↗](#)
37. Pitoňák, M., **Varga, M.**, Šprlák, M. (2021): *The omission error modelling of global gravity field models using different digital terrain models*, Geodesy for a sustainable Earth, Beijing, China, June 28-July 2, 2021, (poster) [↗](#),
38. Bjelotomić Oršulić, O., **Varga, M.**, Bašić, T., and Korbar, T. (2021): *Distorsion of Croatian national positional reference system CROPOS after the earthquake M6.2 in NW Croatia*, EGU General Assembly 2021, online, 19-30 Apr 2021, EGU21-16581. [↗](#),
39. Bjelotomić Oršulić, O., Korbar, T., Markovinović, D., **Varga, M.**, and Bašić, T.: *Ground displacement over Petrinja area caused by earthquake M6.2: interdisciplinary analysis of geodesy and geology based on analysis from SAR Sentinel-1 data*, EGU General Assembly 2021, 19-30 Apr 2021, EGU21-16582, [↗](#), 2021.
40. Harasti, A., Gilja, G., **Varga, M.**, and Fliszar, R. (2021): *ScourBuoy concept for scour monitoring system*, EGU General Assembly 2021, online, 19-30 Apr 2021, EGU21-131, [↗](#).
41. Pokupić, M.; **Varga, M.**; Nevistić Z.; Grgić M.; Bašić, T.: *CroCoord v1.0 - an Android application for nearly real-time 3D PPP multi-frequency multi-GNSS static surveying using smartphones*. Contributions to International Conferences on Engineering Surveying, 24, INGEN&SIG 2020, Dubrovnik, Croatia, Springer Nature, 2020. [↗](#). (paper)
42. Gilja, G.; Cikojević, A.; Potočki K.; **Varga, M.**; Adžaga, N. *Remote Real-time Riprap Protection Erosion Assessment on large rivers* // EGU General Assembly 2020, Online, 4-8 May 2020, EGU2020-1933. [↗](#). (oral)
43. Sánchez, L.; Ågren, J.; Huang, J.; ... **Varga, M.**;... *IHRF2019: the first realisation of the International Height Reference System* // IUGG2019, Montreal, Canada, 2019. (oral)
44. Sebera, J.; Götze, H. J.; ... **Varga, M.** *Towards An Alpine Bouguer Gravity Anomaly Map* // Online Abstracts, Frankfurt, Germany, 2019. (poster)
45. **Varga, M.**; Pitoňák, M.; Novák, P.; Bašić, T.: *The contribution of the GRAV-D airborne gravity data in the regional geoid modelling: a case study in Colorado, USA* // IUGG2019 General Assembly meeting. Montreal, Canada, 2019. (poster) [↗](#)
46. Grgić, M.; Brkić, M.; **Varga, M.**; Budić, J.: *Activities on the 2nd Cycle of Geomagnetic Information Renewal in the Republic of Croatia* // EPOS TCS Geomagnetic Observations meeting with Users and Providers, Prague, Czech Republic, 2019. (poster)
47. Sánchez, L.; Ågren, J.; Huang, J.; ... **Varga, M.**;... *Advances in the realization of the International Height Reference Frame (IHRF)* // SIRGAS2019, Rio de Janeiro, Brasil, 2019. (oral)
48. **Varga, M.**; Grgić, M.; Bjelotomić, O.; Bašić, T. (2018): *Investigation and comparison of RCR and LSMSA regional geoid modelling approaches* // Gravity, Geoid and Height Systems 2, Gravity field of the Earth, GGHS2018, Copenhagen, Denmark. [↗](#) (oral)
49. Grgić, M.; **Varga, M.**; Nerem, R. S.; Bašić, T.: *The application of coastal and standard altimeter data for the study of the impact of sea level rise* // Gravity, Geoid and Height Systems 2, Gravity field of the Earth, GGHS2018 Copenhagen, Denmark, 2018. S6-07. (oral) <https://bit.ly/3CzrWEi>



50. Sánchez, L.; Ågren, J.; Huang, J.; ... **Varga, M.**;...: *Advances in the establishment of the International Height Reference Frame (IHRF)* // GGHS2018 abstracts Copengahen, Denmark, 2018. (oral)
51. **Varga, M.**; Bašić, T.: *Numerical investigation on the importance of digital elevation models in regional geoid modelling* // IX Hotine-Marussi Symposium, Rome, Italy, 2018.  (oral)
52. Bašić, T.; **Varga, M.**: *A brief (historical) review on definitions and applications of the geoid* // IX Hotine-Marussi Symposium, Rome, Italy, 2018.  (oral)
53. **Grgić, M.**; **Varga, M.**; Bašić, T.: *On Development of the Croatian Offshore Vertical Reference Frame*. VI. HKK 2018 Zbornik radova VI. hrvatski kongres o katastru. Zagreb: Tomagraf, 2018. 71-80. (paper+oral)
54. **Pokupić, M.**; **Varga, M.**; Bašić, T. *Geomorphometric and drainage network models of the territory of Republic of Croatia* // 3th International Conference on Geoheritage, Geoinformation and Cartography Selce, Republic of Croatia, 2017. (oral)
55. Bašić, A.; **Varga, M.**; Bašić, T.: *Practical height issues in 3D cadastres*. Zbornik radova 10. simpozija ovlaštenih inženjera geodezije: Prostorni registri za budućnost / Paar, R. (ed.). Opatija, Hrvatska, 19-22.10.2017. 84-89. (paper+oral) 
56. Lozo, M.; **Varga, M.**; Bašić, T. *Modern Height Reference System as a Precondition of the implementation of the 3D Cadastre*. Prostorni registri za budućnost / Paar, R. (ed.). Opatija, Hrvatska, 19-22.10.2017. 26-31. (paper+oral) 
57. **Varga, M.**; Skočić, Š.; Bašić, T. *Investigations of the effects of topographic/bathymetric masses and crustal parameters in gravity field modeling*. 17th International Multidisciplinary Scientific Geoconference SGEM 2017, Issue 22, Volume 17. Sofia : STEF92 Technology Ltd, 2017. 383-388. (paper+oral)
58. **Varga, M.**; Vidić, I.; Bašić, T. *Analysis of satellite based global gravity field models on GNSS/levelling and reference gravity stations worldwide*. 17th International Multidisciplinary Scientific Geoconference SGEM 2017, Issue 22, Volume 17. Sofia : STEF92 Technology Ltd., 2017. 99-106. (paper+oral)
59. **Barzaghi, R.**; Vergos, G. S.; ... ; **Varga, M.**. *Gravimetric geoid model development in the Mediterranean Sea within the Geomed-2 project*. IAG Symposia Series. Springer. (oral)
60. **Barzaghi, R.**; Vergos, G. S.; ... **Varga, M.**; ... *The GEOMED2 project: Multi-resolution aspects and aliasing in topographic effects for geoid and gravity determination*. IAG-IASPEI 2017 Online abstracts. (oral)
61. **Varga, M.**; Bjelotomić, O.; Bašić, T. *Initial Considerations on Modernization of the Croatian Height Reference System*. Proceedings of the International Symposium on Engineering Geodesy - SIG 2016. 2016. 225-233. (paper+oral)
62. **Barzaghi, R.**; Vergos, G. S.; ...; **Varga, M.**;... *Gravimetric geoid model development in the Mediterranean Sea within the Geomed-2 project*. IAG Symposia Series. Springer. (oral)
63. **Barzaghi, R.**; Vergos, G. S.; ...; **Varga, M.**; ...*Investigation of the contribution of topographic effects on regional geoid modeling within the Geomed-2 project*. GGHS2016 abstracts. (oral)
64. **Varga, M.**; Grgić, M.; Bjelotomić, O.; Bašić, T. *PGREP - towards a REPository of worldwide resources used in Physical Geodesy*. GGHS2016 abstracts. (poster) 
65. **Barzaghi, R.**; Vergos, G. S.; ...; **Varga, M.**; ... *Improved representations of the Mediterranean Geoid within the GEOMED 2 project. Contributions of local gravity, GOCE and Cryosat2 data*. Proceedings of ESA LP 2016. (oral)
66. **Barzaghi, R.**; Vergos, G. S.; ...; **Varga, M.**; ... *Theoretical and numerical investigations towards a new geoid model for the Mediterranean Sea - The GEOMED2 project*. EGU abstracts. (oral)
67. **Barzaghi, R.**; Albertella, A.; ...; **Varga, M.**; ... *The GEOMED 2 project: A high resolution geoid of the Mediterranean Sea*. 26th International Union of Geodesy and Geophysics (IUGG) General Assembly 2015. 2015. (oral)

68. Grgić, M.; Varga, M.; Bašić, T. *The Empirical Comparison of Coordinate Transformation Models and Distortion Modeling Methods Based on a Case Study of Croatia*. AGU meeting abstract database. 2015. [↗](#) (poster)
69. Vujić, E.; Kovács, P.; Brkić, M.; Varga, M.. *Regional geomagnetic field model for Croatia*. IUGG Abstracts. 2015. (poster)
70. Varga, M.; ...; Bašić, T.: *Accuracy validation of global digital elevation models SRTM and ASTER using GNSS stations of CROPOS permanent network*. Zbornik radova 4. CROPOS konferencije. 2015. 106-113. (oral)
71. Grgić, M.; ... Varga, M.; ...: *Empirical comparison of different transformation models and T7D model over the area of the city of Zagreb*. Zbornik radova 4. CROPOS konferencije. 2015. 96-105. (paper+oral)
72. Grgac, I.; ...; Varga, M.; ...: *Comparison of heights determined with CROPOS VPPS service and geometric levelling in Earth gravity field*. Zbornik radova 3. CROPOS konferencije. 2013. 118-125. (paper+oral)
73. Grgić, M.; ...; Varga, M.; ...: *Application of the Trimble xFill system for Augmentation of Global Navigation Systems*. Zbornik radova 3. CROPOS konferencije. 2013. 126-132. (paper+oral)

### Presentations and other contributions

74. Varga M. (2022): *Coordinate Reference and Networks*. Oral presentation on CERN FCC Week 2022. [↗](#)
75. Varga M., Wieser, A. (2022): *Coordinate Reference Challenges for a potential FCC*. Oral presentation on Swiss Colloquium. [↗](#)
76. Varga M., Bašić, T. (2019): *Gravimetry and geoid modelling in Croatia - an overview*. Loránd Eötvös centenary. At: Budapest, Hungary. Hungarian Academy of Sciences. [↗](#)
77. Varga M. (2018): *The Application of Crustal Models in Regional Modelling of the Earth's Gravity Field*. PhD defense presentation. Faculty of Geodesy, University of Zagreb. [↗](#)

### Mentoring and supervision

1. Bättig, P. (2024): *GNSS-smartphone navigation in urban environments using machine learning techniques and factor graph optimization*. Master Thesis. Institute of Geodesy and Photogrammetry. ETH Zürich.
2. Meier, N. (2024): *Investigating systematic EDM errors of modern total stations*. Bachelor Thesis. Institute of Geodesy and Photogrammetry. ETH Zürich.
3. Wallimann, C. (2024): *Testing the performance of Terrestrial Laser Scanners according to ISO specifications*. Bachelor Thesis. Institute of Geodesy and Photogrammetry. ETH Zürich.
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