

MUSTAFA SERKAN ISIK | RESUME

»»» ACADEMIC POSITIONS

Research Assistant Istanbul Technical University, 2016/02 - now

- » Teach lectures in the Department of Geomatics Engineering
Lectures: Fundamentals of Programming (Python), Advanced Programming (Python), Geodetic Satellites, Mathematical and Physical Geodesy, Field Works
- » Research on Remote Sensing, Machine/Deep Learning Techniques, Satellite Geodesy, GNSS, Gravity Field Modelling

»»» PROJECTS

Researcher Climate Change AI, 2022/08 - now

- » Climate Change AI (CCAI) Project: *Improving Resiliency of Malian Farmers with Yield Estimation: IMPRESSYIELD*

Researcher TUBITAK, Submitted

- » Scientific research project funded by Scientific and Technological Research Council of Turkey (TUBITAK): *Development of a Native Benchmark Dataset (PalmCity) for Deep Learning-Based Semantic Segmentation of Panoramic Street View Images and Analysis of Urban Semantic Objects' Relationship with Land Surface Temperature Using Machine Learning Methods*

Project Engineer Repair & Restoration of The Halki Seminary, 2021

- » 3D Modeling of the Halki Seminary via Laser Scanner, Drone, and GNSS

Consultant KAMA PRES INDUSTRY & TRADE INC., 2021

- » Software Design for Determining the Ideal Movement Route of Robot Arms via LiDAR and Image Processing

Researcher ITU General Research Project, 2018/07 - 2019/10

- » Methodological Research on the Improvement of Local Geoid Modeling, Project No: MGA-2018-41592.

Researcher ITU General Research Project, 2018/07 - 2019/07

- » Research on the Optimum Resolution of Digital Elevation Model for the Topographic Effect on Gravity Measurements, Project No: MGA-2018-41585.

Research Project Assistant TUBITAK, 2015/05 - 2017/11

- » Scientific research project funded by Scientific and Technological Research Council of Turkey (TUBITAK): *Methodology Investigation for Improvement on Regional Geoid Modeling & Contribution of Recent Gravity Field Satellite Missions and Satellite Altimetry Data to Geoid Model Improvement*

»»» EDUCATION

Doctor of Philosophy Istanbul Technical University, 2016 - 2022

- » GPA: 4.0/4.0
- » High-resolution Gravimetric Geoid Modeling in the Era of Satellite and Airborne Gravimetry, Supervisor: Prof.Dr. Bihter EROL

Master's Degree Istanbul Technical University, 2014 - 2016

- » GPA: 4.0/4.0
- » An Investigation on the Contribution of GOCE Satellite Mission to Regional Geoid Modelling in Turkey, Supervisor: Prof.Dr. Bihter EROL

Bachelor's Degree Istanbul Technical University, 2010 - 2014

- » GPA: 3.15/4.0
- » Use of Multi-temporal Data in Agricultural Mapping: A Case Study of Altınova Manufacturing Farm, Supervisor: Prof.Dr. A. Filiz SUNAR

CONTACT

📍 Istanbul, Turkey

🌐 geomsi.github.io

🌐 github.com/geomsi

🔍 [scholar.google.com/mustafaserkanisik/](https://scholar.google.com/citations?user=mustafaserkanisik/)

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PROGRAMMING SKILLS

</> Python



</> Matlab



</> Fortran 90/95



</> C++



</> C#



</> L^AT_EX



TOOLS

>_ Tensorflow >_ Pytorch

>_ Google Earth Engine >_ QGIS

>_ Pandas >_ GeoPandas >_ Geemap

>_ CartoPy >_ Generic Mapping Tools

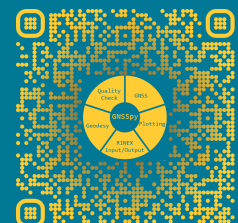
OPERATING SYSTEMS

🐧 Linux/Ubuntu

🖱️ Microsoft Windows

SOFTWARE DESIGN

</> GNSSpy: Python Toolkit for GNSS



</> Road Segmentation Data Generation

Çevikalp, M. R., **Isik, M. S.**, Celik, M. F., Musaoglu, N. (under review). *A Comparative Assessment of CYGNSS Soil Moisture Data in CONUS (in Turkish)*, Submitted to Geomatik.

Celik, M. F., **Isik, M. S.**, Taskin, G., Erten, E., Camps-Valls, G. (2023). *Explainable Artificial Intelligence for Cotton Yield Prediction with Multisource Data*, IEEE Geosciences and Remote Sensing Letters, <https://doi.org/10.1109/LGRS.2023.3303643>

Ozturk, O., **Isik, M. S.**, Kada, M., Şeker, D. Z. (2023). *Improving Road Segmentation by Combining Satellite Images and LiDAR Data with a Feature-Wise Fusion Strategy*, Applied Sciences, 13(10), 6161. <https://doi.org/10.3390/app13106161>

Isik, M. S., Çevikalp, M. R., Erol, B., Erol, S. (2022). *Improvement of GOCE-based Global Geopotential Models for Gravimetric Geoid Modeling in Turkey*, Geosciences, 12(12), 432. <https://doi.org/10.3390/geosciences12120432>

Çelik, M. F., **Isik, M. S.**, Yuzugullu, O., Fajraoui, F., Erten, E. (2022). *Soil Moisture Prediction from Remote Sensing Images Coupled with Climate, Soil Texture and Topography via Deep Learning*. Remote Sensing, 14(21), 5584. <https://doi.org/10.3390/rs14215584>

Ozturk, O., **Isik, M. S.**, Sarıturk, B., Şeker, D. Z. (2022). *Generation of Istanbul Road Data Set using Google Map API for Deep Learning-Based Segmentation*, International Journal of Remote Sensing, 43(8), <https://doi.org/10.1080/01431161.2022.2068989>

Isik, M. S., Erol, B., Çevikalp, M. R., Erol, S. (2022). *Geoid Modeling with Least Squares Modification of Hotine's Integral using Gravity Disturbances in Turkey*, Earth Science Informatics, 15(3), 1889–1904. <https://doi.org/10.1007/s12145-022-00843-2>.

Isik, M. S., Erol, S., Erol, B. (2022). *Investigation of the Geoid Model Accuracy Improvement in Turkey*, Journal of Surveying Engineering, [https://doi.org/10.1061/\(ASCE\)SU.1943-5428.0000397](https://doi.org/10.1061/(ASCE)SU.1943-5428.0000397).

Wang, Y. M., Sánchez, L., Ågren, J., Huang, J., Forsberg, R., Abd-Elmotaal, H. A., Ahlgren, K., Barzaghi, R., Bašić, T., Carrion, D., Claessens, S., Erol, B., Erol, S., Filmer, M., Grigoriadis, V. N., **Isik, M. S.**, Jiang, T., Koç, Ö., Krčmaric, J., ... Zingerle, P. (2021). *Colorado geoid computation experiment – Overview and summary*, Journal of Geodesy, vol. 95, 127, <https://doi.org/10.1007/s00190-021-01567-9>.

Isik, M. S., Erol, B., Erol, S., Sakil, F. F. (2021). *High-Resolution Geoid Modeling Using Least Squares Modification of Stokes and Hotine Formulas in Colorado*, Journal of Geodesy, vol. 95, 49, <https://doi.org/10.1007/s00190-021-01501-z>.

Erol, B., **Isik, M. S.**, Erol, S. (2020). *An Investigation on Accuracy Analysis of Global and Regional (High Resolution) Digital Elevation Models (in Turkish)*, Afyon Kocatepe Üniversitesi Fen Ve Mühendislik Bilimleri Dergisi, 20 (4), 598-612, <https://doi.org/10.35414/akufemubid.746252>.

Erol, B., **Isik, M. S.**, Erol, S. (2020). *Assessment of gridded gravity anomalies for precise geoid modeling in Turkey*, Journal of Surveying Engineering, 146(3), [https://doi.org/10.1061/\(ASCE\)SU.1943-5428.0000317](https://doi.org/10.1061/(ASCE)SU.1943-5428.0000317).

Erol, B., **Isik, M. S.**, Erol, S. (2020). *An Assessment of the GOCE High-Level Processing Facility (HPF) Released Global Geopotential Models with Regional Test Results in Turkey*, Remote Sensing, 12(3):586, <https://doi.org/10.3390/rs12030586>.

Vergos, G., Erol, B., Natsiopoulos, D. A., Grigoriadis, V. N., **Isik, M. S.**, Tziavos, I. A. (2018). *Preliminary results of GOCE-based height system unification between Greece and Turkey over marine and land areas*, Acta Geodaetica et Geophysica, 53(1), 61-79. <https://doi.org/10.1007/s40328-017-0204-x>.

SELECTED CONFERENCE PAPERS

Şeker, D. Z., Ozturk, O., **Isik, M. S.**, Kada, M. (2023). *Feature-wise Fusion of Optical Satellite Images and LiDAR Data: Pathway to Enhance Road Segmentation*, AGU Annual Meeting 2023, 11-15 December 2023, USA.

Isik, M. S., Celik, M.F. (2023). *Machine Learning Based Soil Moisture Estimation using CYGNSS Mission*, 19. Türkiye Harita Bilimsel ve Teknik Kurultayı, 3-5 October 2023, Türkiye.

Celik, M.F., **Isik, M. S.** (2023). *Corn Yield Prediction with Multi-Dimensional Earth Observation Data Using Machine Learning*, 19. Türkiye Harita Bilimsel ve Teknik Kurultayı, 3-5 October 2023, Türkiye.

Isik, M. S., Celik, M.F., Erten E. (2023). *Interpretable cotton yield prediction model using Earth Observation time series*, IEEE International Geoscience and Remote Sensing Symposium IGARSS, 16-21 July 2023, Pasadena, USA. <https://doi.org/10.1109/IGARSS52108.2023.10281702>

Celik, M.F., **Isik, M. S.**, Erten, E., Camps-Valls, G. (2023). *Explainability of end and mid-season cotton yield predictors in CONUS*, IEEE International Geoscience and Remote Sensing Symposium IGARSS, 16-21 July 2023, Pasadena, USA. <https://doi.org/10.1109/IGARSS52108.2023.10283252>

Celik, M.F., **Isik, M. S.**, Erten, E., Gulsen, T. (2023). *Informative Earth Observation Variables for Cotton Yield Prediction Using Explainable Boosting Machine*, IEEE International Geoscience and Remote Sensing Symposium IGARSS, 16-21 July 2023, Pasadena, USA. <https://doi.org/10.1109/IGARSS52108.2023.10282371>

Çevikalp, M.R., Celik, M.F., **Isik, M. S.** (2023). *Monitoring Daily Soil Moisture in CONUS Region with CYGNSS Satellites*, Turkish National Union of Photogrammetry and Remote Sensing (TUFUAB) 12th Technical Symposium, 24-26 May, Sivas, Türkiye.

Çelik, M. F., **Isik, M. S.**, Yuzugullu, O., Fajraoui, F., Erten, E. (2023). *Multi-source Data Fusion for Estimation of Soil Moisture with LSTM*, Turkish National Union of Photogrammetry and Remote Sensing (TUFUAB) 12th Technical Symposium, 24-26 May, Sivas, Türkiye.

Isik, M. S., Özbey, V., Erol, S., Tari, E. (2021). *GNSSpy: Python Toolkit for GNSS Data*, IEEE International Geoscience and Remote Sensing Symposium IGARSS, 2021, pp. 8550-8553, <https://doi.org/10.1109/IGARSS47720.2021.9553880>

Sánchez L., Ågren J., Huang J., Wang Y.M., Mäkinen J., Denker H., Ihde J., Abd-Elmotaal H., Ahlgren K., Amos M., Barzaghi R., Bašić T., Blitzkow D., Carrion D., Claessens S., Erol B., Erol S., Filmer M., Forsberg R., Grigoriadis V.N., **Isik, M. S.**, Jiang T., Li X., Liu Q., Matos A.C.O.C., Matsuo K., Novák P., Pail R., Pitoňák M., Roman R., Schmitd M., Sideris M., Varga M., Vergos G.S., Véronneau M., Willberg M., Zhang V., Zingerle P. (2019). *Advances in the realisation of the International Height Reference System*. GGOS Days 2019 in SIRGAS 2019 Symposium, Nov 11 -14, Rio de Janeiro, Brazil.

Isik, M. S., Erol, B., Erol, S., Sakil, F. F. (2019). *High-Resolution Geoid Modeling Experiment Using GRAV-D Data Over Colorado*. In International Geodesy and Geophysics Union General Assembly 2019 (IUGG2019), 08-18 July, Montreal, Canada.

Koç, Ö., Erol, S., **Isik, M. S.**, Erol, B. (2019). *Contribution of Cryosat-2 SAR/SARin Data to Local Vertical Datum Validation and Height System Unification in Turkey*. In International Geodesy and Geophysics Union General Assembly 2019 (IUGG2019), 08-18 July, Montreal, Canada.

Koç, Ö., Erol, S., **Isik, M. S.**, Erol, B. (2018). *Validation of Mediterranean Sea MSS and Marine Geoid using Recent Global and Regional Models, Local Tide Gauge and Coastal Altimetry Products*. In International Symposium on Gravity, Geoid and Height Systems 2018(GGHS2018), 17-21 September, Copenhagen, Denmark.

İnce, E.S., Erol, B., **Isik, M. S.**, Erol, S., Huang, J. (2018). *High-resolution Geoid Modelling in Turkey Using Stokes-Helmert Approach*. In IX Hotine-Marussi Symposium, 18-22 June 2018, Rome, Italy.

Isik, M. S., İnce, E. S., Erol, B. (2016). *An Investigation on the Improvement of Regional Geoid Model in Turkey with Contribution of Methodology and Recent Satellite Missions Data*. Presented at the International Symposium on Gravity, Geoid and Height Systems 2016, Session-1 "Future gravity field mission concepts and performance", 19-23 September, Thessaloniki, Greece.

Vergos, G., Erol, B., Natsiopoulos, D. A., Grigoriadis, V. N., **Isik, M. S.**, Tziavos, I. A. (2016). *GOCE-based height system unification between Greece and Turkey. First considerations over marine and land areas*. Presented at the 2016 EGU General Assembly, Session Session G4.2 - Satellite Gravimetry: Data Analysis, Results and Future Concepts, 17-22 April, Vienna, Austria.

Isik, M. S., Şenyıldız, Z., Sunar, F. (2014). *Use of Multi-temporal Data in Agricultural Mapping: A Case Study of Altınova Manufacturing Farm*, 5th Remote Sensing & GIS Symposium (UZAL-CBS), 14-17 October, Istanbul, Türkiye.

Access full list of publications via <https://avesis.itu.edu.tr/isikm/publications>

»»» OTHERS (DATA, MODEL, AND SOFTWARE)

Software	Isik, M. S. , Özbey, V. (2021). <i>GNSSpy: Python Toolkit for GNSS Data</i> , https://github.com/GNSSpy-Project/gnsspy
Software	Ozturk, O., Isik, M. S. (2022). <i>Road Segmentation Data Generation</i> , https://github.com/geomsi/road-segmentation_data_generation
Data	Ozturk, O., Isik, M. S. (2022). <i>Istanbul Road Data Set</i> , https://www.kaggle.com/datasets/ozanozturk61/istanbul-road-dataset
Model	Isik, M. S. , Erol, B., Erol, S., Sakil, F.F. (2021). <i>The ITU quasi-geoid based on Least Squares modification of Hotine integral with additive corrections for the Colorado Experiment: CollSMHA2021. V. 1.0.</i> GFZ Data Services. https://doi.org/10.5880/isg.2021.001
Model	Isik, M. S. , Erol, B., Erol, S., Sakil, F.F. (2021). <i>The ITU geoid based on Least Squares modification of Hotine integral with additive corrections for the Colorado Experiment: CollSMHA2021. V. 1.0.</i> GFZ Data Services. https://doi.org/10.5880/isg.2021.002
Model	Isik, M. S. , Erol, B., Erol, S., Sakil, F.F. (2020). <i>The ITU quasi-geoid based on Least Squares modification of Stokes integral with additive corrections for the Colorado Experiment: CollSMHA2021. V. 1.0.</i> GFZ Data Services. https://doi.org/10.5880/isg.2020.005
Model	Isik, M. S. , Erol, B., Erol, S., Sakil, F.F. (2020). <i>The ITU geoid based on Least Squares modification of Stokes integral with additive corrections for the Colorado Experiment: CollSMHA2021. V. 1.0.</i> GFZ Data Services. https://doi.org/10.5880/isg.2020.006

»»» AWARDS

Incentive Award	Turkish National Geodetic Commission , 2022
Best Poster Presentation	Turkish National Geodetic Commission , 2016