

# Hossam MARZOUK

## Ph.D. student

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## + ABOUT ME

Highly motivated and experienced geophysicist seeking a postdoctoral research position in Electromagnetic prospecting to leverage my expertise in EM analysis and contribute to advancing research and exploration. With a strong background in potential field methods and electromagnetics, I am interested in investigating subsurface natural resources using ground, airborne, and semi-airborne measurements.

- Fieldwork experience in acquiring geomagnetic, magnetotelluric, and semi-airborne datasets.
- Proficient in programming languages such as MATLAB and Python and have experience working with large datasets.
- Experience in geophysical instrumentation hardware manufacturing and software programming.

## PROFESSIONAL EXPERIENCE

Present Nov 2019	<b>Ph.D. student   Institute of Geophysics, University of Münster, Germany</b> <ul style="list-style-type: none"><li>➤ Acquisition, processing, and modeling of magnetotelluric datasets</li><li>➤ Acquisition and processing of Semi-airborne Electromagnetic measurements</li></ul>
Nov 2019 Aug 2013	<b>Researcher   National Research Institute of Astronomy and Geophysics, NRIAG, Egypt</b> <ul style="list-style-type: none"><li>➤ Acquisition, processing, and modeling of total magnetic intensity data for archeology prospecting and structural geology investigations</li><li>➤ Operation and maintenance of two permanent magnetic observatories</li><li>➤ Acquisition and analysis of magnetotelluric datasets for hydrological investigation and crustal studies</li></ul>
Jul 2013 Apr 2013	<b>Geophysicist   Spectrum Geopex Egypt Processing Center, , Egypt</b> <ul style="list-style-type: none"><li>➤ Analysis and processing of 3D seismic reflection data</li></ul>
Jan 2013 Sep 2012	<b>Lecturer   Geoscience department, Faculty of science, Helwan University, Egypt</b> <ul style="list-style-type: none"><li>➤ Teaching bachelor students geophysics courses</li><li>➤ Analysis and interpretation of potential field datasets</li></ul>

## EDUCATION

Expected Feb 2024	<b>Ph.D.   Applied Geophysics, University of Münster, Germany</b> <ul style="list-style-type: none"><li>➤ <b>Dissertation :</b> "Probing the lithospheric architecture of Northeast Africa using magnetotelluric measurements across Egypt".</li><li>➤ Research project was funded by the Egyptian Ministry of Higher Education and Scientific Research.</li></ul>
Mar 2018	<b>M.Sc.   Geophysics, Mansoura University, Egypt</b> <ul style="list-style-type: none"><li>➤ <b>Dissertation :</b> "Integrating Magnetotelluric measurements with simultaneous magnetic observatory records to improve crustal investigations by telluric recordings".</li></ul>
July 2012	<b>B.Sc.   Geophysics, Helwan University, Egypt</b> <ul style="list-style-type: none"><li>➤ First ranked student in the Earth Sciences department.</li><li>➤ <b>Graduation Project :</b> Spectral analysis and Filter design for geophysical datasets.</li></ul>

## COMPUTER SKILLS

Programming	MATLAB, Python, C++ Javascript, HTML
GIS	QGIS, ArcGIS, PostgreSQL
Geosciences	Oasis Montaj, Surfer, RockWorks, ParaView
Operating systems	Windows, Linux

## LANGUAGES

Arabic	● ● ● ● ●
English	● ● ● ● ●
German	● ● ○ ○ ○

## PUBLICATIONS

- 2023 Elbarbary, S., Abdel Zaher, M., **Marzouk H.**, Arafa-Hamed, T. (2023) Investigation of geothermal resources using geophysical potential field in Hurghada area, Egypt. *Exploration Geophysics*. In Press.
- 2023 Arafa-Hamed, T., **Marzouk H.**, Elbarbary, S., Abdel Zaher, M. (2023) A Geophysical Investigation of the Urban-expanding Area over the Seismologically Active Dahshour Region, Egypt. *Acta Geophysica*. In Press.
- 2023 Aboud E., Arafa-Hamed, T., Alqahtani F., **Marzouk H.**, Elbarbary, S. (2023) Geothermal System at northern Rahat volcanic field, Saudi Arabia, revealed from 3D magnetotelluric inversion. *Journal of Volcanology and Geothermal Research*, 437, 10779  
<https://doi.org/10.1016/j.jvolgeores.2023.107794>.
- 2023 Arafa-Hamed, T., Abdel Zaher, M., El-Qady, G., **Marzouk H.**, Elbarbary, S., Fujimitsu, Y. (2023) Deep heat source detection using the magnetotelluric method and geothermal assessment of the Farafra Oasis, Western Desert, Egypt. *Geothermics*, 109, 102648.  
<https://doi.org/10.1016/j.geothermics.2023.102648>.
- 2022 Elbarbary, S., Abdel Zaher, M., Saibi, H., Fowler, A.-R., Ravat, D., **Marzouk, H.** (2022) Thermal structure of the African continent based on magnetic data : Future geothermal renewable energy explorations in Africa. *Renewable and Sustainable Energy Reviews*, 158, 112088.  
<https://doi.org/10.1016/j.rser.2022.112088>.
- 2019 Arafa-Hamed, T., Khalil, A., Nawawi, M., **Marzouk, H.**, Hariri, M. (2019) Geomagnetic Phenomena Observed by a Temporal Station at Ulu-Slim, Malaysia during The Storm of March 27, 2017. *Sains Malaysiana*.  
<http://dx.doi.org/10.17576/jsm-2019-4811-13>.
- 2019 Gaweish, W., **Marzouk, H.**, MARAEV, I., Petrov, A. (2019) Magnetic data interpretation to determine the depth of basement rocks and structural elements of Mandisha village, El-Bahariya Oasis, Western Desert, Egypt. *News of Ural State Mining University*.  
<http://dx.doi.org/10.21440/2307-2091-2019-2-7-19>.

## CONFERENCES

- 2023 **Marzouk, H.**, Arafa-Hamed, T., Becken, M., M., Comeau, M., Ibrahim A. (2023) ETectonic model of the Arabian-Nubian Shield and the Saharan Metacraton, Northeast Africa, derived from magnetotelluric data . EGU General Assembly 2023  
<https://doi.org/10.5194/egusphere-egu23-12197>
- 2022 **Marzouk, H.**, Arafa-Hamed, T., Becken, M., Abdel Zaher, M. (2022) Conductivity model of the passive continental margin derived from magnetotelluric sounding on the western coast of the Red Sea. Jahrestagung der Deutschen Geophysikalischen Gesellschaft  
[Link](#)
- 2021 **Marzouk, H.**, Arafa-Hamed, T., Becken, M., Abdel Zaher, M., Comeau, M. (2021) Electrical properties of the lithosphere in the western desert, Egypt, using magnetotelluric sounding. EGU General Assembly 2021  
<http://dx.doi.org/10.5194/egusphere-egu21-13382>

References available upon request