

Associate Professor of Applied Geology, Cairo University

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Born in Cairo, Egypt, 14th June 1969.

Egyptian nationality. Swiss permit C (2006-2014)

Languages: Arabic, fluent in English and little German.

EDUCATION

- BSc, Geology, First Class Honors, Cairo University, Giza, 1990.
- Pre MSc Courses in mineral exploration (economic deposits, plate tectonic sites of mineralization, statistics, igneous/metamorphic rocks, Geochronology), 1991.
- Diplom in Computer sciences, Statistical institute of Cairo University, 1992.
- **MSc in basement tectonics, Cairo University, 1995.**

"Thesis title: Precambrian geology and tectonic evolution of Ein Furtaga area, Gulf of Aqaba, Sinai-Egypt."

- Pre PhD Courses at ETH (apatite fission tracks, open-hole logging, GIS and remote sensing, matlab, Alpine tectonics 1999-2001.
- **PhD, Structural Geology, channel system Geological institute (ETH), Zurich & Cairo University 2002. "Thesis title: Structural Architecture of Southwestern Margin of Suez Rift, with Special emphasis on the Precambrian basement reservoir of Egypt."**
- Supervisors: Prof. Burg structural and tectonic group STG & Prof. Sehim Cairo University

EMPLOYMENT

- Demonstrator, Cairo University, Cairo, 1990-1995
- Asst. Lecturer, Cairo University, Cairo, 1996-2001.
- Asst. Lecturer, American University in Cairo, 1995-2000.
- Asst. lecturer, ETH, Zurich, 1999-2002
- **Lecturer, Cairo University, Cairo, since 2002**
- Research scientist, and Field advisor, ETH, Zurich, Switzerland since 2002.
- Principle consultant of AL Mashora Geologic consulting, Cairo-Kuwait, 1995-2005
- Lecturer of petroleum geosciences program, Cairo University 2008
- Researcher at Geology Department, Catania, University, Italy, March 2008
- E-learning scientific advisor (GNS- Egypt), 2008-11.
- Consultant Integrated Geoconsultancy (IGC), Cairo-Kuwait
- **Associate professor of applied geology (structure geology), Cairo University, Cairo, 2017.**

COMPUTER SKILLS

Programming and statistical software:

C++, Matlab, SPSS,

Geologic Software

Geomechanics – Petrel-Teclog Move, Kingdom, RockWorks Utilities

Image analysis software ERDASS, ENVI and ArcGIS

Paleostress analysis (T-Tecto, Sperna, NDA,TVB) modelling and basin analysis)

RESEARCH AND EXPERIENCE

- **Subjects: field geology, tectonics, structural geology, basin dynamics, geomechanics, hydrocarbon exploration and reservoir modelling, watershed analysis, remote sensing image analysis, geostatistics.**
- **Methods: field studies (paleostress, fracture analysis), borehole image interpretation,** GIS modules, GPR, subsurface data analysis (Geoframe, Petrel, Rockworks, etc), numerical modelling, Matlab programming, Physical analogue modelling, digital mapping and GPS SURVEY.
- **Work in:** Egypt, Iraq, Morocco, Sudan, Libya, Kuwait, Jordan and Europe (Switzerland, Norway, Germany, Italy, Croatia).
- **Member** of Cairo university research team in the following projects in corporation with the Egyptian Scientific Research Academy and geological survey of Egypt:
 - *Be- Mineralization in the Eastern Desert of Egypt.*
 - *Metagenic map of Egypt*
- **Co-supervisor of ETH project and Diploma of Fredy Pfister (2003) and Peter Wille (2005) on** the characterization basement reservoir in corporation with Suez Oil Company ETH project.
- **Consultant of Assessment of flash flood hazards and flood control studies in many remote** areas in Egypt.
- **Consultant** of structural and Hydrogeological assessment of landfill sites.
- **Consultant** of Geologic and environments Impact Assessment (EIA) studies of many tourist projects in Egypt (Sinai, Red Sea coasts and North coast).
- **Field leader, consultation and instructor** for numerous oil companies and consulting companies including Transglobe, Dot Norke, North Energy, DNO, PGNiG SA, SUCO, GPC, GUPCO, INA, Petrogulf, Dara, Bapetco, RWA, OGS, Petrobel, petrosalam, Gemsa., Amapetco , Erex, GeoEnergy.
- **Consultant** of various geothermal energy and hydrocarbon exploration studies 2006-2018.
- Structural Geology consultation for Hamash Misr for gold mines
- **Field advisor** for West central Sinai field mapping courses for students of ETH Zurich, Switzerland and Catania University, Italy.
- **Field advisor** for the annual geologic Trips (Petroleum engineering, American University). Involved in Egyptian black shale evaluation project with (Petroleum engineering, American University).
- **Geologic consultant** of GeoModelling Solutions GmbH, Zurich, Switzerland.
- **Co-Supervisor** of 10 PhD and 23 MSc projects (Cairo, Fayoum, Azhr and Alex universities and ETH-Zurich).

TEACHING DUTIES

Lecturer of the following under graduate courses and labs

- Field Geology, structure geology, geotectonics, remote sensing, geostatistics, aerial photograph and Survey

Lecturer of the following under post-graduate courses

- Structure geology, applied techniques in structural geology, subsurface mapping, basin analysis.
- Remote sensing in hydrocarbon and mineral exploration, geostatistics, ArcGIS in environmental studies
- Structure and stratigraphic control of hydrocarbon trapping, advanced reservoir studies, seismic interpretation and structural and stratigraphic modelling,

Instructor (for the upstream programs in hydrocarbon Industry)

- Applied Subsurface Geological Mapping
- Fault Seal Analysis
- Reservoir Geomechanics
- Structure restoration
- Surface Geological Mapping
- petroleum geology for engineer and non-geologist
- Field mapping and Regional Geology
- Fracture analysis and borehole image interpretation
- Naturally Fractured Reservoirs and their modelling
- Structural Geology in Hydrocarbon Exploration and exploitation
- Sedimentary Basin Analysis and Hydrocarbon Potentiality
- GIS in hydrocarbon industry
- Geostatistics and reservoir modelling
- Field trip advisor (Sinai, Nile Valley, Eastern Desert, Western Desert of Egypt).

Published articles:

1. **Hammed M.S., (2004):** Apatite fission track dating of rift-related volcanics event: evidence of early rifting along the Eastern margin of Gulf of Suez, Egypt. Proceedings of the 6th International conference of Geochemistry, Alexandria (2004), 483-496.
2. N.A. Shallaly, C.Beier, K.M.Haase and **M.S. Hammed** (2013): Petrology and geochemistry of the Tertiary Suez rift volcanism, Sinai, Egypt. Journal of Volcanology and Geothermal Research, 267, 119–137. <http://dx.doi.org/10.1016/j.jvolgeores.2013.10.005>.
3. **M.S. Hammed** and A. Abdel Khalek (2015): 3D Digital geological mapping and lithological characterization of the Northwestern margin of the Gulf of Suez, Egypt: by integration of remotely sensing data. 15th International Multidisciplinary Scientific GeoConference SGEM 2015, SGEM2015 Conference Proceedings, ISBN 978-619-7105-31-5 / ISSN 1314-2704, June 18-24, 2015, Book1 Vol. 1, 11-22 pp. DOI: 10.5593/SGEM2015/B11/S1.002.
4. M. Abdelrazik, H. Ayad, **M. Hammad** and T. Farag (2015): Fuzzy connectedness segmentation of remote sensing data in geological mapping by feature extraction. International Journal of Innovative Science, Engineering & Technology, 2/11, 358-388. ISSN 2348-7968.
5. E.A. Khalaf, A. Abdel Motelib, **M.S. Hammed** and A.H. El Manawi. (2016): Volcano-sedimentary characteristics in the Abu Treifiya Basin, Cairo–Suez District, Egypt: Example of dynamics and fluidization over sedimentary and volcanoclastic beds by emplacement of syn-volcanic basaltic rocks. Journal of Volcanology and Geothermal Research, 308, 158-178. <http://dx.doi.org/10.1016/j.jvolgeores.2015.10.023>.
6. E. Khalaf and **M.S. Hammed** (2016): Morphology and development of pahoehoe flow-lobe tumuli and associated features from a monogenetic basaltic volcanic field, Bahariya

Depression, Western Desert, Egypt. Journal of African Earth Sciences, 113. <http://dx.doi.org/10.1016/j.jafrearsci.2015.10.010>.

7. Abd El Gawad, Abd El Hafez, N., E., **Hammed, M.**, and El Nagar, H. (2016): Petrophysical characterization of pre-rift reservoirs of West Hurghada District, Egypt. IJSET - International Journal of Innovative Science, Engineering & Technology, Vol. 3 Issue 12, pp. 74-83
8. Abd El Hafez, N., Abd El Gawad, E., **Hammed, M.**, and El Nagar, H. (2016): Subsurface structural imaging and architecture of pre-rift sediments of West Hurghada District, Egypt. Ijiset - International Journal of Innovative Science, Engineering & Technology, Vol. 3 Issue 12, pp.84-98.
9. Seleim, A. M., and **Hammed, M. S.** (2016): Applications of Remote Sensing in lithological mapping of East Esh El Malaha area, Southwest Gulf Of Suez-Egypt. International Journal of Scientific & Engineering Research, Volume 7, Issue 12, pp. 691-701.
10. El Aref, M.M., **Hammed, M. S.** and Salama, A. (2017): Geomorphological Classification and Zonation of the Surface Karst Landforms of Bahariya-Farafra Region, Western Desert, Egypt. International Journal of Science and Research (IJSR), Volume 6, No 5, p. 957-965. DOI: 10.21275/ART20173367.
11. El Aref, M.M., **Hammed, M. S.** and Salama, A. (2017): Inventory and Assessment of the Geomorphosites of Bahariya –Farafra Territory, Western Desert, Egypt. International Journal of Sciences: Basic and Applied Research (IJSBAR), Volume 33, No 2, p. 128-143.
12. Moshira R., **Hammed, M.S.**, Abdel- Motelib, A., (2017): Geotechnical properties of Galala Limestone Tiles, Eocene rocks, Ain El Sukhna, Red Sea Coast, Egypt. International Journal of ChemTech Research. Vol.10, No.5, pp 368-378.
13. Hammam, A. Gaber, A., Abdelwahed M., **Hammed, M.** (2018 in press): Geological mapping of the Central Cairo-Suez District of Egypt, using space-borne optical and radar dataset, The Egyptian Journal of Remote Sensing and Space Sciences, <https://doi.org/10.1016/j.ejrs.2018.11.004>.

Recently Presented Conference Papers

1. Hefny M., Gostick J., Ebigbo A., Saar M., and **Hammed M. (2019)**: CO₂-Brine multiphase flow in Nubian Sandstone, Egypt: A Pore-Network Modeling using Computerized Tomography Imaging. European Geothermal Congress (EGC): June 11st-14th, 2019, Hague-Netherlands.
2. Hefny M., **Hammed M.**, Ebigbo A., and Saar M. (2018): Petrophysical characterization of Nubian Sandstone reservoirs and their potential for geothermal applications; central Gulf of Suez, Egypt. 6thEuropeanGeothermal Workshop (EGW): 10-11 October, 2018, Strasbourg, France.
3. Shedid, A. G., **Hammed, M. S.**, Hussein, A. W. and Sayed, F. (2018): Land use change detection and urban extension at Abu-Roash environs, West Cairo, Egypt. Naatural Hazards Congress-2018, Melbourne, Australia.
4. Abdelkhalek, A., Sehim, A, **Hammed, M.**, and Khaled D. (2018): Impacts of the Inherited Tectonic Fabrics and Sedimentary Thicknesses on the Northern Gulf of Suez (GOS) Rift Development. GEO2018, 13th Middle East Geosciences Conference and Exhibitions, 5-8 March, 2018, Manama, Bahrain.
5. Shedid, A. G., **Hammed, M. S.**, Hussein, A. W. and Sayed, F. (2018): Tecto-stratigraphy evolution of Shabrabet area, North Eastern Desert. Proceedings of ICBSEA: International Conference on Basic Science and Environmental Applications, April 3- 4, 2018, Fayoum, Egypt.
6. Abdelkhalek, A., Sehim, A., **Hammed, M.S.**, Ivanković, J., (2017): Role of the Inherited Wadi Ghoweiba Oblique Half-Graben on the Gulf of Suez Rift Development, Egypt. GeoBremen2017, 24-29 September, Bremen, Germany.
7. Hassanein, Giraud, Robert, Jaillard, Masrour, Aly, **Hammed (2017)**: Paleoenvironmental conditions during the Aptian early Albian in the Essaouira - Agadir Basin, western Morocco. INA 16 - Athens, v. 36, special issue, Greece".

8. Hassanein, Giraud, Robert, Jaillard, Masrour, Aly, **Hammed (2017)**. Integrated stratigraphy of the uppermost Barremian-lower Albian in the Essaouira-Agadir Basin (western Morocco) and correlations with northern Tethyan basins. INA 16 - Athens, v. 37, special issue, Greece".
9. **Hammed, M. S.**, El Aref, M. M., and Salama, A. (2017): Utilizations of remote sensing data and GIS techniques in geologic mapping and zonation of the surface karst landforms of Bahariya-Farafra Territory, Western Desert, Egypt. The 55th annual Scientific Meeting of the Geological Society of Egypt 3-4 Dec. 2017.
10. El Aref, M. M., **Hammed, M. S.**, and Salama, A. (2017): Morphometry of the Polygonal Karst Landforms of the Bahariya-Farafra Karst Territory- Egypt. The 55th annual Scientific Meeting of the Geological Society of Egypt 3-4 Dec. 2017.
11. El Aref, M. M., **Hammed, M. S.**, and Salama, A. (2017): El Sheikh Abdalla Denuded paleokarst "White Desert & Crystal Mountain", Bahariya – Farafra Karst Territory. Western Desert, Egypt. The 55th annual Scientific Meeting of the Geological Society of Egypt 3-4 Dec. 2017.
12. El Aref, M. M., **Hammed, M. S.**, and Salama, A. (2017): Inventory and Assessment of the Geomorphosites of Bahariya-Farafra Territory, Western Desert, Egypt. The 55th annual Scientific Meeting of the Geological Society of Egypt 3-4 Dec. 2017.
13. Shedid, A. G., **Hammed, M. S.**, Hussein, A. W. and Sayed, F. (2016): Surface expression of Kattaniya inverted basin at Abu Roash area, the Northeastern Western Desert, Egypt: structural style and tectonic history. Proceedings of ICBSEA: International Conference on Basic Science and Environmental Applications, April 3-4, 2016, Fayoum, Egypt.

RESEARCH GROUP (projects)

1. Ichnology and paleo-environmental reconstruction of the Lower Cambrian rocks, Um Bogma area, Sinai, Egypt. (2003)
2. Geological studies on carbonate rocks of Qattamiya district and their use in Egyptian cement Industry (2005) National institute of building material research.
3. Stratigraphic, sedimentology and mineralogical studies on the Oligocene red beds and the Associated volcanics of El Fayoum and Greater Cairo district, Egypt (2007)
4. Numerical Structural modeling of gravity induced folding: A case study from the Western margin of Gulf of Aqaba, (2008)
5. Structural and hydrocarbon habitats of Sidri-Firan Field, Gulf of Suez Rift, Egypt (2009), Petrobel Oil Company.
6. Structural modelling and hydrocarbon potentiality of Wadi Ghoweiba rift segment, the North-western sector of Gulf of Suez rift, Egypt (2010)
7. Engineering geology studies and mapping of expensive soil of Kom Oshim, Fayoum Egypt, (2010)
8. Digital geologic mapping and genesis of Karst related features in some Egyptian territories (2012) Ministry of Environmental Affairs
9. Structural architecture of Bahariya Oasis, Western Desert-Egypt (2008) Ganoup
10. Structural and reservoir modeling of Ras Budran Oil Field, East central Gulf Of Suez Egypt (2011) Suco.
11. Integrated geological modeling of Ras Fanar Oil Field, West Central Gulf Of Suez Egypt. (2011) Suez Oil Company
12. Geologic Model of Kareem reservoir in North Zeit Bay Concession (NZBC), Gemsa Basin, Southern Gulf Of Suez, Egypt.
13. Tectono-Stratigraphic evolution of Abu Roash and Shabrawet Syrian arc structures, Egypt (2011)
14. 4D Geological mapping and structural model of Hammam Faraun Block (2012)
15. Evaluation der Basement Reservoirs der ostlichen Riftschulter des Golf von Suez, SW Sinai Geisum, ETHZ, Suco
16. Fracture modeling of surface and subsurface Eocene Carbonates of in NOW oil field, Petrosalam Co. and AOC.
17. Geothermal potentialities of Nubian reservoir in Gulf of Suez Rift (ETH, Hefni 2015 JP Burg and Martin Saar groups).

GRANTS

- El Ashri Cairo University Grant best M Sc & PhD in the academic year 1995&2002
- ETH Zurich fund for surface analogue for basement reservoir characterization project.

MEMBERSHIPS

- Geological society of Egypt. GSE
- Mineralogical society of Egypt.
- African Geological Society, AGS
- Syndicate of scientific professionals
- Egyptian Petroleum exploration Society, EPEX
- American Association of Petroleum Geologists, AAPG