



Curriculum Vitae (C.V.)

Ahmed Abdelhalim Ahmed Mohamed



Permanent Address

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Ahmed Mohamed

Personal Background

Born: April 22, 1982; Assiut, Egypt.

Research Interest

I apply an interdisciplinary research approach including geophysical and remote sensing techniques to address a wide range of complex geological and environmental problems. I process ground-based and airborne geophysical data using Geosoft and other programs to estimate the volume of the sedimentary cover and the water resources, and to calculate the heat flow and geothermal gradient. I also process the potential field data to delineate the surface and subsurface structures that affect the groundwater flow in the aquifers. Furthermore, I use and process space-based gravity data using Matlab software to estimate the mass variations of the earth and to calculate the fluid (Oil, groundwater) storage variations. Moreover, I process electrical and electromagnetic data to investigate the groundwater occurrence, to study the subsurface zones for geotechnical purposes, and to delineate the saline-fresh water interface. Furthermore, I apply the simulation techniques to model the groundwater behaviors in the aquifers in response to the different extraction rates and salt-water intrusion. I have also good experience in processing of remote sensing data to extract the drainage patterns, to estimate surface runoff, to delineate the surface structures, to detect the changes in the land use/land cover and to map the different lithological units.

Educational Background

PhD of Geology in Applied Geophysics2016-05.
Joint Supervision scholarship between **Assiut Univ.**, and **Western Michigan Univ.**

Field: Geophysics, Renewable energy, and Water Resources

Thesis Title: "Constraints on the amount and passages of groundwater flow in the Nubian Sandstone Aquifer across political boundaries, Egypt" submitted to Faculty of Science, Assiut University, Egypt.

PhD Research visiting candidate2013-10 to 2016-03.
Western Michigan University, MI, USA

PhD researcher in Geophysical applications in Water Resources 2011-09 to 2013-07.
Assiut University, Assiut 71516, Egypt

Research Title: "Morph-tectonic evolution of Wadi El Arish, Sinai, Egypt: Applications for water resources.

Master of Geology2009-10.
Assiut University, Assiut 71516, Egypt

Pre-Master in Geology (87.57%)2004-09 to 2005-09.
Department of Geology, Assiut University, Assiut 71516, Egypt

Bachelor of Science in Geology (1999 - 2003):

Month of Completion : 2003-06

Institution Attended : Department of Geology, Assiut University, Assiut, Egypt

General grade : **Distinction with the degree of honor**

Rank : **First on the School**

General Certificate of Education, Science Division June, 1999
Manfalout, Assiut, Egypt

Employment Record and Research Experience

Dec., 2003 ~ Oct., 2009 **Demonstrator** Assiut University, Assiut 71516, Egypt
Nov., 2009 ~May, 2016 **Assistant Lecturer** Assiut University, Assiut 71516, Egypt
June, 2016 **Lecturer**. Assiut University, Assiut 71516, Egypt

Conferences

- 1- The Fourth International Conference on the Geology of Africa held from 15-16 Nov., 2005 at Geology Department, Faculty of Science, Assiut University, **Egypt.**
- 2- The Fifth International Conference on the Geology of Africa held from 23-24 Oct., 2007 at Geology Department, Faculty of Science, Assiut University, **Egypt.**
- 3- The Ninth International Conference on the Geology of the Arab World (GAW 9) held from 24-27 March 2008 at Geology Department, Faculty of Science, Cairo University, **Egypt.**
- 4- The Second Conference for Young Scientists "Basic Science & Technology" held from 18-19 Oct., 2008 at the Faculty of Science, Assiut University, **Egypt.**
- 5- The Sixth International Conference on the Geology of Africa held from 24-26 Oct., 2009 at Geology Department, Faculty of Science, Assiut University, **Egypt.**
- 6- The Tenth International Conference on the Geology of the Arab World (GAW 10) held from 10-12 April 2010 at Geology Department, Faculty of Science, Cairo University, **Egypt.**
- 7- The annual scientific meeting of the Paleontological Society of Egypt held on 7 April 2010 at the Egyptian Mineral Resources Authority, Abbasia, Cairo, **Egypt.**
- 8- The 48th annual scientific meeting of the Geological Society of Egypt held from 12-13 December 2010 at the Egyptian Mineral Resources Authority, Abbasia, Cairo, **Egypt.**
- 9- The Third Conference for Young Scientists "Basic Science & Technology" held from 19-20 April 2011 at the Faculty of Science, Assiut University, **Egypt**
- 10- American Geophysical Union (AGU2014), held in San Francisco, California, 15-19 December, 2014, **USA.**
- 11- American Geophysical Union (AGU2015), held in San Francisco, California, 14-18 December, 2015, **USA.**
- 12- The Eighth International Conference of Development and Environment in the Arab World, held in Assiut University, 22-24 March, 2016, **Egypt.**
- 13- The Ninth International Conference on the Geology of Africa (ICGA 2017), held at Geology Department, Faculty of Science, Assiut University, **Egypt.**

- 14- The Tenth International Conference on the Geology of Africa (ICGA 2017), held at Geology Department, Faculty of Science, Assiut University, [Egypt](#).
- 15- The 13th International Geological Conference, held in Jeddah (03-06 March 2020), [Saudi Arabia](#).

Training Courses and Workshops Attendance

- 1- Training Course in the preparation of the teacher "General Education origins" held from 4-15 Dec., 2004 at Faculty of Education, Assiut University, [Egypt](#).
- 2- Workshop on Adobe Photoshop held from 27-31 May 2006 at Assiut University, [Egypt](#).
- 3- Geographic Information System (GIS) Training Course in Hydrogeology and Environmental Geology held from 1-31 August 2006 at the institute of Geological Sciences, Martin Luther University, Halle-Wittenberg, [Germany](#).
- 4- Workshop on Environmental Impact and Risk Assessment (EIRA) held from 28/03-4/4/2007 by German professor at the Geology Department, Assiut University, [Egypt](#).
- 5- Applied Hydrogeology and Drilling Course held from 20/6 - 19/7/ 2007 at the General Company for Research and Groundwater, [REGWA, Egypt](#).
- 6- Workshop on advanced GIS applications in Hydro- and Environmental Geology held from 11-17 April, 2007 by German professor at the Geology Department, Assiut University, [Egypt](#).
- 7- Remote Sensing and GIS training course and their applications in Environmental, Land and Water Resources held from 1-31 August 2007 at the faculty of Hydrological and Environmental Engineering, Vrije University, Brussels, [Belgium](#).
- 8- Workshop on Remote Sensing and Geographic Information Systems applications in Geo-Environmental Sciences held from 29/12/2007 - 03/01/2008 at the Geology Department, Assiut University, [Egypt](#).
- 9- Groundwater Flow Modeling Course "Visual Modflow" and Groundwater Chemistry, Hydrochemical Interpretation using GWW and Aquachem held from 08/11 - 20/11/2008 at the General Company for Research and Groundwater, [REGWA, Egypt](#).
- 10- Workshop on applications of Geographic Information System (GIS) held from 4-7 April 2009 at Assiut University, [Egypt](#).
- 11- Workshop on advanced digital image processing and their applications held from 2-6 January 2010 at Assiut University, [Egypt](#).
- 12- 3D Geological and Hydrogeological Modelling with Groundwater Managements Aspects held from 26-30 March, 2011 by German professor at the Geology Department, Assiut University, [Egypt](#).
- 13- Workshop on Application of Remote Sensing in Mineral Exploration held from 08-11 May 2011 in cooperation with NARSS at Assiut University, [Egypt](#).
- 14- Workshop on Principals and Applications of Soil and Water Assessment Tool (SWAT) held from 29 October to 07 November 2013 at Western Michigan University, [USA](#).

Software

Geophysics: Geosoft, IPI2win, Zond, Zohdi, GM SYS, Surfer, Matlab.

Geothermal and Groundwater Modelling: GMS 10.x, Visual Modflow, SWAT.

ESRI Tools: Arc Map 10.x, ArcView 3.x.

Extensions: WetSpass, Avswat, Spatial Analyst, Geostatistical Analyst, 3D Analyst.

RS Tools: ILWIS 3.4, Idrisi 32, ERDAS IMAGINE 9.1, Envi.

Other Software: RockWorks, Sigma Plot, Aquifer test, GWW, Aquachem, Feflow, Surfer, MicroDEM, GlobalMapper, GeODin.

Freeware Tools: SAGA, Quantum GIS, GRASS, 3 Dem.

Graphic Tools: CorelDraw, Photoshop.

Presentations, papers and Awards

1. **Ahmed Mohamed.** Hydro-geophysical study of the groundwater storage variations over the Libyan area and its connection to the Dakhla basin in Egypt, **African Earth Sciences.** <https://www.sciencedirect.com/science/article/pii/S1464343X19301530>.
2. **Ahmed Mohamed.** Gravity based estimates of groundwater storage variations of the Sudanese area, **African Earth Sciences.** <https://www.sciencedirect.com/science/article/pii/S1464343X19303954?via%3Dihub>.
3. **Ahmed Mohamed.** Gravity applications in estimating the mass variations in the Middle East: a case study from Iran. **Arab J Geosci** 13, 364 (2020). <https://doi.org/10.1007/s12517-020-05317-7>. <https://link.springer.com/article/10.1007/s12517-020-05317-7>.
4. **Ahmed Mohamed.** Gravity applications to groundwater storage variations of the Nile Delta Aquifer, **under review**.
5. **Ahmed Mohamed,.** Geometry of the magma chamber and Curie point depth beneath Hawaii Island: Inferences from magnetic and gravity data, **under review**.
6. **Ahmed Mohamed,.** Depth to the bottom of the magnetic layer, crustal thickness, and heat flow in Africa: Inferences from gravity and magnetic data, **under review**.
7. **Ahmed Mohamed,.** Delineating fractured groundwater aquifer using geophysical techniques guided by surface drainage patterns at Abha area, Saudi Arabia, **under review**.
8. **Ahmed Mohamed,.** To investigate groundwater occurrence using gravity and electrical techniques: A case study from Wadi Sar, Hijaz Mountains, Saudi Arabia, **under review**.
9. **Ahmed Mohamed,.** Assessment of groundwater resources and recharge rates of the North-Western Sahara Aquifer System using satellite gravity data, **under review**.
10. **Ahmed Mohamed.** Hydro-geophysical setting of the Nubian Sandstone Aquifer System: Inferences from gravity, GRACE, and CI-36 ages: the International Conference for Young Scientists in Basic & Applied Sciences, Faculty of Science, Assiut University, Egypt
11. **Ahmed Mohamed.** Isotopic studies of the groundwaters in the Eastern Sahara: Inferences from oxygen-18 and deuterium: A review: The Eighth International Conference of Development and Environment in the Arab World, held in Assiut University, 22-24 March, 2016, Egypt.
12. **Ahmed Mohamed,** Mohamed Sultan, Mohamed Ahmed, Eugene Yan, Ezzat Ahmed. Aquifer recharge, depletion, and connectivity: Inferences from GRACE, land surface models, geochemical, and geophysical data: Submitted to Geological Society of America Bulletin. <http://www.editorialmanager.com/gsabulletin/default.aspx>
13. **Mohamed, A.,** Sultan, M., Yan, E., Sturchio, N., Ahmed, E., 2015. Towards A Better Understanding of the Hydrologic Setting of the Nubian Sandstone Aquifer System: Inferences from Groundwater Flow Models, CI-36 Ages, and Grace Data: AGU, San Francisco, California, 14-18 December 2015. <https://agu.confex.com/agu/fm15/meetingapp.cgi/Paper/81102>
14. Abotalib, Z., Sultan, M., El Kadiri, R., **Mohamed, A.,** 2014. Did Groundwater Processes Shape the Saharan Landscape during the Previous Wet Periods? A Remote Sensing and Geostatistical Approach: AGU, San Francisco, California, 15-19 December 2014

15. **Mohamed, A.**, Sultan, M., Ahmed, M., Yan, E., 2014. Quantifying modern recharge to the Nubian Sandstone Aquifer System: inferences from GRACE and Land Surface Models: AGU, San Francisco, California, 15-19 December 2014. <https://agu.confex.com/agu/fm14/meetingapp.cgi/Paper/19166>
16. Ahmed, M., Sultan, M., Wahr, J., **Mohamed, A.**, Yan, E., 2014. Quantifying recharge and depletion rates of the Nubian Sandstone Aquifer System: An integrated approach: GRACE Science Team Meeting (GSTM), Potsdam, Germany, September 29 – October 1, 2014.
17. **Mohamed, A.**, Sultan, M., Bakheit, A., Ezzat, A., Ahmed, M., Farag, A., 2014. Geophysical (global gravity field model) and field (well data) Constraints on Groundwater Flow in the Nubian Sandstone Aquifer in Egypt, Sudan, Libya, and Chad: GSA, Vancouver, British Columbia, 19-22 October 2014. <https://gsa.confex.com/gsa/2014AM/webprogram/Paper242699.html>
18. Mamdouh F. Soliman, Nageh A. Obaidalla, Ezzat A. Ahmed, **Ahmed A. Ahmed** and Johannes Kurzweil, Mid-Paleocene event at Gabal Nezzazat, Sinai, Egypt: planktonic foraminiferal biostratigraphy, mineralogy and geochemistry: Arabian Journal of Geosciences, <http://link.springer.com/article/10.1007%2Fs12517-013-1066-3>
19. Best Paper Award of the Egyptian Society of Geology, December 2010, “The Danian/Selandian (D/S) boundary in Egypt: Stratigraphical, Mineralogical and Geochemical studies”.
20. Best Paper Award of the Egyptian Society of Paleontology, April 2010, “Litho-, bio- and chemo- stratigraphic studies on the Danian/Selandian (D/S) boundary at Wadi El Maheer, north Eastern Desert, Egypt”.

Language Proficiency

Arabic Native language
English TOEFL iBT
Deutsch Grundstufen eins & zwie
French Debutant

Teaching interest

Geophysics (Gravity, Magnetic, Electric and Electromagnetic methods)
 Hydrogeology (groundwater investigation)
 Geographic Information System and Remote Sensing Applications
 Geochemistry

Miscellaneous

Member in the Geological Society of America (GSA).
 Member in the American Geophysical Union (AGU).
 Member in the Society of Exploration Geophysicists (SEG).
 Member in the Geological Society of Egypt (GSE).
 Member in the Paleontological Society of Egypt (PSE).

Short-Term Projects

- Electrical resistivity survey for groundwater investigations at wadi Qena, Qena, March 2017.

- Electrical resistivity survey for groundwater investigations in area of west Assiut city, Assiut-Cairo road, September 2017.
- Electrical resistivity survey for groundwater investigations in area of central security section, Assiut, October 2017.
- Electrical resistivity survey for groundwater investigations in area of Seedy Abdelrahman, Northern Coast of Egypt, March 2018.
- Electrical resistivity survey for groundwater investigations in the secondary agricultural school, El Quseyya, Assiut, December 2017.
- Electrical resistivity survey for groundwater investigations in area of west Atamna village, Assiut, December 2017.
- Electrical resistivity survey for groundwater investigations in area along the Assiut-New Valley road, New valley, May 2017.
- Electrical resistivity survey for groundwater investigations in area of west Goheina, Sohag, May 2017.
- Electrical resistivity survey for groundwater investigations in area of western Plateau, New Nasser city, Assiut, June 2017.
- Electrical resistivity survey for groundwater investigations in area of Arab El Awamer, Assiut, June 2017.
- Groundwater flow modelling for Karlomena farms, Wadi El Assiuty, Assiut, July 2017.
- Electrical resistivity survey for groundwater investigations in area of west Malawy, El Minea, August 2017.
- Electrical resistivity survey for groundwater investigations in area of Seedy Abdelrahman, Northern Coast of Egypt, March 2018.
- Electrical resistivity survey for groundwater investigations at west Tahta area, Sohag, March 2018.
- Electrical resistivity survey for groundwater investigations at wadis Hodeen and Abu Saafa, Shelateen area, Red Sea, May 2018.
- Electrical resistivity survey for groundwater investigations at the western part of El-Ghanaym city, Assiut, July 2018.

- Electrical resistivity survey for fresh groundwater investigations in the area close to the coast of Gulf of Suez, Ras Gharib – Zaafarana Road, November 2018.
- Electrical resistivity survey for groundwater investigations Wadi El Assiuty, January 2020.

Long-Term Projects

- Geophysical, hydrogeological studies, mathematical modelling, and chemical analyses to construct and evaluate new production wells for drinking and domestic uses, Assiut Company for Drinking Water and Sanitation, Assiut, for two years (2017-2018), **Funded by Assiut Company for Drinking Water and Sanitation.**
- Geophysical survey for groundwater investigations, drilling, well design, and pumping tests, New Naser city, west Assiut, for two years (2019-2020), **Funded by Egyptian Government.**

Ongoing Projects

- Exploration of the deep groundwater resources in Wadi El Assiuti Basin, Eastern Desert, Egypt: Geomorphological, hydrogeological and geophysical applications, for two years (2019-2021), **Funded by The Science and Technology Development Fund (STDF).**

