

Mohamed E. Ahmed

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(1) Education:

- 2009 – 2012** **Ph.D. in Geosciences:** Western Michigan University, Kalamazoo, Michigan, USA.
Ph.D. Dissertation: Integrated approach for hydrogeologic investigations in Africa: Inferences from space-borne and land-based gravity, aeromagnetic, GIS and remote sensing data.
- 2006 – 2009** **M.Sc. in Applied Geophysics:** Suez Canal University, Ismailia, Egypt.
M.Sc. Dissertation: Seismic data interpretation of the Neogene-Quaternary sediments of offshore Baltim area, Nile Delta, Egypt.
- 2000 – 2004** **B.Sc. in Applied Geophysics (*Excellent with Honor*):** Suez Canal University, Ismailia, Egypt.
B.Sc. Project: Resistivity imaging techniques for environmental studies in the main campus of Suez Canal University, Ismailia, Egypt.

(2) Appointments:

- 08/2018 - Present** **Assistant Professor:** Department of Physical and Environmental Sciences, Texas A&M University – Corpus Christi.
- 12/2017 – 07/2018** **Assistant Professor:** Geology Department, Faculty of Science, Suez Canal University, Ismailia, Egypt.
- 09/2017 – 12/2017** **Geophysics Expert:** National Center for Earthquakes and Volcanoes, Saudi Geological Survey, Jeddah, Saudi Arabia.
- 03/2016 – 08/2017** **Assistant Professor:** Geology Department, Faculty of Science, Suez Canal University, Ismailia, Egypt.
- 01/2013 – 02/2016** **Postdoctoral Researcher:** Department of Geosciences, Western Michigan University, Kalamazoo, Michigan, USA.
- 08/2009 – 12/2012** **Teaching and Research Assistant:** Department of Geosciences, Western Michigan University, Kalamazoo, Michigan, USA.
- 02/2009 – 07/2009** **Teaching and Research Assistant:** Geology Department, Faculty of Science, Suez Canal University, Egypt.
- 07/2008 – 01/2009** **Visiting Research Scientist:** Department of Geosciences, Western Michigan University, Kalamazoo, Michigan, USA.
- 11/2004 – 06/2008** **Teaching and Research Assistant:** Geology Department, Faculty of Science, Suez Canal University, Ismailia, Egypt.

(3) Additional Education:

- 2015: Emerging Leaders Alliance (ELA) workshop,** Society of Exploration Geophysicists, USA.
- 2015: Community Earth System Model (CESM) Tutorial,** National Center for Atmospheric Research, USA.
- 2013: Faculty and Leadership Development Project (FLDP):** Suez Canal University, Egypt.

2012: Multi-disciplinary Subsurface Integration in Exploration and Production: Society of Exploration Geophysicists and ExxonMobil, USA.

2011: Hazardous Waste Operations and Emergency Response (HAZWOPER; OSHA 40 hr. Certification): Western Michigan University, USA.

2011: Hydrogeology Field Course: Western Michigan University, USA.

2010: Gravity Recovery and Climate Experiment (GRACE): Principals and Applications: University of Texas, Center of Space Research, USA.

2008: Remote Sensing and GIS Applications in Geological, Hydrological, and Environmental Studies: Western Michigan University, USA.

2007: Geological and Geophysical Mapping Software: National Research Center, Egypt.

(4) Research Interests:

I apply integrated (**geophysics, remote sensing, hydrogeology, numerical modeling, GIS**) approaches to investigate a wide range of complex hydrological and environmental problems. My current research activities involve the use of **spaceborne, airborne, and terrestrial geophysical data** (GRACE, gravity, magnetic, seismic, GPR, resistivity), **geochemical data** (stable and radioactive isotopes), **remote sensing data** (GRACE, TRMM, GPM, SMAP, CMAP, Landsat, LiDAR, PALSAR, ERS, Envisat, Sentinel, SPOT, ASTER, GeoEye), **numerical modeling** (SWAT, GLDAS, CLM, CESM), **statistical approaches** (machine learning, artificial neural network), as well as **GIS** methodologies and techniques to address a variety of geological, hydrological, geophysical, and environmental problems. My ongoing research activities build on, and take advantage of, my strong background in the general field of **geophysics** that I acquired throughout my **M.Sc.** degree which involved the use of well logging tools (gamma ray, SP, resistivity, sonic, etc.) and 2D and 3D seismic (land and marine) data for reservoir characterization and modelling studies.

(5) Teaching Experience:

I have taught a wide range of geosciences courses to several populations of students at different environments and settings. These include undergraduate and graduate courses at Suez Canal University, Egypt (2004 – 2018), Western Michigan University, USA (2009 – 2016), and Texas A&M University – Corpus Christi (2018 – now).

2018 – Present: Texas A&M University – Corpus Christi (TX, USA):

GEOL 4322: Geophysics; CMSS 6590: Advanced Geophysics; GEOL 1303: Essentials of Geology (Online); GEOL 6450: Field Geology (Geophysics module); GEOL 4496: Direct independent study (Ground penetrating radar); GEOL 4496: Direct independent study (Radar interferometry).

2004 – 2018: Suez Canal University (Ismailia, Egypt):

Field geophysics and instrumentation; Advanced gravity and magnetic methods; Gravity methods; Magnetic methods; Principals of geophysics; Geophysical exploration for petroleum and groundwater; Geophysical exploration for archaeology and mineral resources.

2009 – 2016: Western Michigan University (MI, USA):

Gravity Recovery and Climate Experiment (GRACE): Principals and Hydrological Applications (short course); Soil and Water Assessment Tool (SWAT): Principal and Applications (short course); Paleohydrology of the Arabian Peninsula (short course); Remote sensing for environmental applications (lab); Ground Penetrating Radar (GPR) for environmental applications (lab); Principles of groundwater sampling and monitoring (lab); Environmental and surface geophysics (lab); Remediation design and implementation (lab).

(6) Students Supervision:

Graduate Students:

- 2019 – Present:** Dionel Colmenero: M.Sc. (chair): Subsurface characterization of Padre Island using Ground Penetrating Radar (GPR) and Electrical Resistivity Imaging (ERI).
- 2019 – Present:** Ryan Turner: M.Sc. (chair): Structural and stratigraphic controls on reservoir quality and distribution of the Oligocene Vicksburg Formation, Brooks County, Texas.
- 2019 – Present:** Michael Haley: M.Sc. (chair): Mapping land subsidence along Texas' coastal bend using radar interferometric techniques.
- 2019 – Present:** Bimal Gyawali: Ph.D. (member): Characterization of coastal terrestrial water storage and groundwater fluxes to the coastal ocean under different hydroclimatic condition.
- 2019 – Present:** Joseph Stearns: M.Sc. (member): An evaluation of the feasibility of the time-lapse electrical resistivity tomography method in quantifying submarine groundwater discharge in fine sediment and highly saline embayments.
- 2018 – Present:** Sbreen Serag: M.Sc. (member): An integrated geophysical approach for site assessment and characterization: Case study from the main campus of Suez Canal University, Ismailia, Egypt.
- 2018 – Present:** Dina Essam: M.Sc. (member): Monitoring temporal variations in groundwater levels in urban areas using Ground Penetrating Radar.

Undergraduate Students:

- 2019:** Nelder Benavides & Rowdy Cheatham: Monitoring temporal variations in the reservoir of the Grand Ethiopian Renaissance Dam using Landsat and Sentinel data.
- 2019:** Robert Carte: Managing aquifers sustainability using GRACE data.
- 2017:** Ahmed Fakhereldeen: Quantifying the effects of the Grand Ethiopian Renaissance Dam on Egypt's surface water resources.
- 2017:** Mustafa Abdelkereem: Assessment and sustainable utilization of Egypt's groundwater resources: Constrains from geophysical and remote sensing data.
- 2017:** Ahmed Abdelhameed: Monitoring temporal variations in the Nubian Aquifer's groundwater resources from space.

(7) Professional Affiliations:

- 2018 – Present:** Corpus Christi Geological Society (**CCGS**).
- 2015 – Present:** American Association of Petroleum Geologists (**AAPG**).
- 2011 – Present:** Improving Michigan's Access to Geographic Information Network (**IMAGIN**).
- 2011 – Present:** Geological Society of America (**GSA**).
- 2010 – Present:** Society of Exploration Geophysicists (**SEG**).
- 2010 – Present:** American Geophysical Union (**AGU**).

(8) Technical Experience:

- **Programming Languages:** Python, C, FORTRAN, R, Matlab
- **Geophysics Software:**
 - **Seismic:** SeisImager, RadexPro, Kingdom Suite.
 - **Ground Penetrating Radar (GPR):** RADAN
 - **Electric Resistivity:** EarthImager, INTERPEX, Resist, ATO, RES2D/3DINV.
 - **Induced Polarization (IP):** Cole-Cole modeling
 - **Gravity and Magnetic:** GEOSOFT Oasis Montaj
 - **Electromagnetic:** EM-31, T-VLF
 - **Well logging:** Petra
- **GIS Software:** Arc GIS (Arc Map, Arc Catalog, Arc Globe, and Arc Scene)
- **Remote Sensing and Image Processing:** ENVI, PCI, ERDAS, SARscape

- **Hydrologic Modeling Software:** SWAT, MODFLOW
- **Statistical and Mapping Software:** SPSS, Minitab, Grapher, Golden Surfer, Didger
- **Others:** Canvas, Coral Draw, and Photoshop

(9) Professional Activities:

Journal Reviews:

2010 – Present: Journal of Hydrology; Geophysics; Remote Sensing; Water Resources Research; Journal of Geosciences and Geomatics; Remote Sensing of Environment; Journal of Geological Resource and Engineering, Water; Groundwater; Journal of Arid Environments.

Proposal Reviews:

2015 – Present: NASA Postdoctoral Program

2014 – Present: AGU's Outstanding Student Presentation Award (OSPA).

2019: NASA - Solar System Exploration Research Virtual Institute 2018 CAN

2018: NASA - Development and Advancement of Lunar Instruments

2018: NASA - Maturation of Instruments for Solar System Exploration

2016: NASA - Concept of Life Detection Technology

2015: NASA - Planetary Data Archiving, Restoration, and Tools

2016: NASA Earth Sciences

2014: German Research Foundation/Deutsche Forschungsgemeinschaft (DFG).

University Services & committees:

03/2019: Search Committee Member, Tenure-track faculty in sedimentology, Texas A&M University, Corpus Christi.

04/2018: Technical Committee Member, The Faculty of Science 3rd Annual Student Research Conference, Suez Canal University, Egypt.

04/2017: Reviewing Committee Member, Fourth Young Researchers Conference, Suez Canal University, Egypt.

03/2017: Technical Committee Member, The Faculty of Science 2nd Annual Student Research Conference, Suez Canal University, Egypt.

2016-2017: Post-graduate examination control unit, Suez Canal University, Egypt.

09/2016: Geological Society of America (GSA) session convener, Satellite Remote Sensing Applications in Hydrology and Geology, Denver, Colorado, USA.

03/2016: Remote Sensing Science Olympiad Organization Committee, Western Michigan University, USA.

12/2015: Geosciences Department Recruiting Committee, Western Michigan University, USA.

2010-2015: Remote Sensing Science Olympiad Organization Committee, Western Michigan University, USA.

(10) Awards and Honors:

2019: Recognition Certificate, Research and Innovation, Texas A&M University – Corpus Christi.

2018: Scientific Research Excellence Award, Suez Canal University, Ismailia, Egypt.

2018: Recognition Certificate, Faculty of Science 3rd Annual Student Research Conference, Suez Canal University, Egypt.

2018: Recognition Certificate, International Conference of Humboldt Kolleg: Applied Research in Energy, Environment, and Development. Suez Canal University, Egypt.

2017: Humboldt Research Fellowship for Experienced Researchers, Alexander von Humboldt-Stiftung (**€ 56,700**);

2017: Professor Ahmed Asker Award for best applied research article, Suez Canal University, Ismailia, Egypt.

2017: Recognition Certificate, Faculty of Science 2nd Annual Student Research Conference, Suez Canal University, Egypt.

2017: Recognition Certificate, Fourth Young Researchers Conference, Suez Canal University, Egypt.

2016: Outstanding International Publishing Award, Suez Canal University, Ismailia, Egypt.

2015: Travel grant: The 8th Annual Emerging Leaders Alliance (ELA) Conference.

2015: Travel grant: AGU-SEG workshop (Potential-Field and Electromagnetic Methods Applied to Basin Studies).

2015: Outstanding International Publishing Award, Suez Canal University, Ismailia, Egypt.

2015: Travel grant: 2015 CESM Tutorial, National Center for Atmospheric Research (NCAR) (**\$1,000**).

2015: Travel grant: The 20th Annual CESM Workshop, National Center for Atmospheric Research (NCAR) (**\$1,000**).

2015: Travel grant: Preparing for an academic career in the geosciences workshop, University of Wisconsin – Madison (**\$350**).

- 2013:** Earth Sciences and Remote Sensing Facility Postdoctoral Fellowship, Western Michigan University.
2012: Student Education Program (SEP) Award, Society of Exploration Geophysicists (SEG)/ExxonMobil (**\$2,000**).
2012: The Superior Academic Scholarship Award, National Association of Black Geologists and Geophysicists (NABGG) (**\$500**).
2012: Jim Living Scholarship, Improving Michigan's Access to Geographic Information Network (IMAGIN) (**\$500**).
2012: David Kuenzi Graduate Student Research Award, Geosciences Dept., Western Michigan University (**\$500**).
2012: Gwen Frostic Doctoral Fellowship, Western Michigan University (**\$4,000**).
2012: Research Scholarship, Kalamazoo Geological and Mineral Society (KGMS) (**\$500**).
2012: Dissertation Completion Fellowship, Western Michigan University (**\$15,000**).
2012: Graduate Student Best Paper Competition Award, Improving Michigan's Access to Geographic Information Network (IMAGIN) (**\$500**).
2011: All-University Graduate Research and Creative Scholar Award, Western Michigan University.
2011: Graduate Research and Creative Scholars Award, Geosciences Dept., Western Michigan University (**\$500**).
2011: Research Scholarship, Kalamazoo Geological and Mineral Society (KGMS) (**\$1,000**).
2011: Advisory Council Scholarship, Geosciences Dept., Western Michigan University (**\$500**).
2010: Graduate Student Research Grant, Western Michigan University (**\$1,600**).
2010: Graduate Student Travel Grant, Western Michigan University (**\$2,600**).
2009: Recognition Certificate, International Graduate Assistant Training Program, Western Michigan University.
2009: President of the Suez Canal University Achievement award, Suez Canal University, Ismailia, Egypt.
2008: Young Researchers Training Scholarship Award, Egyptian Ministry of Higher Education and Scientific Research (**\$15,000**).
2004: Governor of Ismailia Achievement Award, Ismailia Governorate.
2004: Outstanding Undergraduate Student Award, Suez Canal University (*I graduated with the highest grade in a class of 450 students*).

(11) Research Grants:

Pending Grants:

- 2020 – 2022: Ahmed M., PI:** Development of sustainable groundwater resources in Saint Catherine area, Sinai, Egypt. **Society of Exploration Geophysicists**, preproposal, Total: **\$100,000**.
2020 – 2022: Ahmed M., PI (Co-Is: D. Murgulet, Z. Hua): Understanding the Response of Hydrogeologic Systems in Arid Environments to Climatic and Human Interventions. **NASA**, Total: **\$398,618**.
2020 – 2023: Ahmed M., PI (Co-Is: D. Murgulet, P. Tissot): Bridging gravity field observations across GRACE and GRACE-FO missions over Africa: Implications for water resources sustainability. **NASA**, Total: **\$470,797**.
2020 – 2022: Ahmed M., PI (Co-PI: J. Gibeaut): Mapping land subsidence along the coastal bend using radar interferometric techniques. **Texas General Land Office**, preproposal, Total: **\$207,635**.
2020 – 2022: Ahmed M., PI (Co-PI: D. Murgulet): Modelling freshwater inflow and nutrient and sediment inputs into Baffin Bay, Phase I. **Texas General Land Office**, preproposal, Total: **\$133,974**.
2020 – 2020: Ahmed M., PI: Geological, Hydrogeological, Environmental, and Geophysical Applications of Geographic Information System (GIS). **Saudi Geological Survey**, Total: **\$75,000**.
2020 – 2020: Ahmed M., PI: Gap-Filling between GRACE and GRACE-FO missions over Turkey. **Scientific and Technological Research Council of Turkey**, Total: **\$40,000**.
2019 – 2020: Ahmed, M., Co-PI (PI: D. Murgulet): MRI: Acquisition of a Leading-edge Portable Geoprobe System with Subsurface Sampling, Logging and Imaging capabilities for Geoscience Research and Education. **National Science Foundation (NSF)**, Total: **\$523,634**.
2019 – 2022: Ahmed, M., Co-PI (PI: D. Murgulet): Interdisciplinary assessment of potential human/environmental health risks due to water contamination following extreme weather events. **National Academy of Sciences, Engineering, and Medicine**, Total: **\$1,457,738**.
2019 – 2022: Ahmed M., PI (Co-PI: D. Murgulet): Impact of Climate Change and Uncontrolled Pumping on the Deep Groundwater Aquifers in the Kingdom of Saudi Arabia for Sustainable Water Resources. **King Abdulaziz University**, Total: **\$150,000**.

Funded Grants:

- 2018 – 2019: Ahmed M., PI:** Construction of a Geophysics Test Site (GTS) at Texas A&M University – Corpus Christi. **Corpus Christi Geological Society**, Total: **\$5,000**.

- 2019 – 2019: **Ahmed, M., PI** (Co-PIs: K. Cammarata, M. Starek, M. Mehrubeoglu): Acquisition of ENVI (Environment for Visualizing Images): The Division of Research, Commercialization, and Outreach, **Texas A&M University – Corpus Christi**, Total: **\$6,652**.
- 2018 – 2019: **Ahmed, M., PI** (Co-PI: J. Lee): Emerging Trends in Africa’s Water Availability: Inferences from the Gravity Recovery and Climate Experiment (GRACE) Data: The Division of Research, Commercialization, and Outreach, **Texas A&M University – Corpus Christi**, Total: **\$10,000**.
- 2019 – 2022: **Ahmed, M., PI**: Acquisition of 5 licenses of Schlumberger Petrel software. In-kind contribution. **Schlumberger**. Total: **\$5,610,745**.
- 2019 – 2022: **Ahmed, M., PI**: Acquisition of 10 licenses of IHS Kingdom Geoscience Bundle. In-kind contribution. **HIS Markit**. Total: **\$393,460**.
- 2018 – 2018: **Ahmed, M., Consultant** (PI: Burhan Niyazi): Quantifying spatiotemporal variability in water resources of the southern parts of the Red Sea Hills, Saudi Arabia: **King Abdulaziz University Research Program**, Saudi Arabia, 2018, Total: **100,000 SR**.
- 2017 – 2018: **Ahmed, M., PI**: Sustainable Management of the Nubian Aquifer Water Resources in Egypt: An integrated approach: **National Authority for Remote Sensing & Space Sciences (NARSS)**, Egypt, Total: **\$10,000**.
- 2015 – 2017: **Ahmed, M., Co-PI** (PI: Mohamed Sultan): An integrated approach for a better understanding of the hydrologic setting, longevity, and optimum utilization of the Nubian Sandstone Aquifer System in Egypt: **US-Egypt Science and Technology**, Total: **\$398,708**.
- 2015 – 2015: **Ahmed, M., Co-I** (PI: Mohamed Sultan): Use of GRACE and Relevant Remote Sensing Data to Estimate Spatial and Temporal Changes in Terrestrial Water Storage (TWS) for the Nubian Aquifer System: **National Authority for Remote Sensing & Space Sciences (NARSS)**, Egypt, Total: **\$27,000**.
- 2015 – 2016: **Ahmed, M., Co-PI** (PI: Mohamed Sultan): Development of an Early Warning System for Rainfall-Induced Debris Flows: **Saudi Geological Survey (SGS)**, Saudi Arabia, Total: **\$100,000**.
- 2014 – 2015: **Ahmed, M., Co-PI** (PI: Mohamed Sultan): Towards a better understanding of the paleo-hydrologic setting of the Empty Quarter: **Saudi Geological Survey (SGS)**, Saudi Arabia, Total: **\$90,000**.
- 2013 – 2014: **Ahmed, M., Co-PI** (PI: Mohamed Sultan): Use of GRACE data to estimate temporal changes in Terrestrial Water Storage (TWS) across the Empty Quarter and surroundings: **Saudi Geological Survey (SGS)**, Saudi Arabia, Total: **\$60,000**.
- 2012 – 2014: **Ahmed, M., Consultant** (PI: Saad Mogren): Exploration of groundwater potentialities of the sinkholes in Rufa graben, Ar-Riyadh area using geophysical techniques: **King Abdulaziz City for Science and Technology (KACST)**, Saudi Arabia, Total: **1,757,200 SAR**.
- 2012 – 2014: **Ahmed, M., Consultant** (PI: Saad Mogren): Groundwater exploration and assessment using geophysical techniques and hydrogeological information in the Wasia aquifer, Central Saudi Arabia: **King Abdulaziz City for Science and Technology (KACST)**, Saudi Arabia, Total: **1,879,600 SAR**.

Participation & Collaboration:

- 2011 – 2015: Use of GRACE, remote Sensing, and traditional data sets for modeling time-dependent water partitioning on continental scales: A case study from Africa: **NASA**, Total: **\$457,000**.
- 2011 – 2014: Evaluating subsidence in the Nile Delta using radar interferometry: **NSF**, Total: **\$298,000**.
- 2010 – 2014: Detailed Studies of Landslides in Jazan Area, Saudi Arabia: **Saudi Geological Survey**, Total: **\$300,000**.
- 2008 – 2012: Assessment and development of alternative water resources in the Sinai Peninsula, Egypt: **NATO Science for Peace and Security**, Total: **\$220,000**.
- 2012 – 2013: Enhancing capacity for water-resource studies in Egypt and Morocco: **US State Department**, Total: **\$220,000**.
- 2008 – 2012: Integration of GRACE data with inferences from hydrologic models, geochemical data, and field data for a better understanding of the time-dependent water storage variability in large-scale aquifers: Case studies from North Africa: **NASA**, Total: **\$380,000**.
- 2009 – 2012: The hydrologic role of faults in the Mojave Desert: Fracture controlled mountain front groundwater flow, San Bernardino Mountains, **Mojave Water Agency**, Total: **\$57,000**.
- 2008 – 2010: Assessment and development of renewable groundwater resources in the Quetta Valley, Pakistan: **US State Department**, Total: **\$200,000**.
- 2009 – 2012: A remote sensing – based early warning system for algal blooms in Kuwait Bay and coastal waters: **Kuwait Institute for Scientific Research (KISR)**, Total: **\$155,000**.

(12) Publications:

Manuscripts:

1. Gafurov, A., Yapiyev, V., **Ahmed, M.**, Sagin, J., Haghghi, A., Murtazin, E., Akylbekova, A., Klöve, B., 2019, Groundwater resources in the Aral Sea Basin, in **Aral Sea Book**, *In Review*.
2. El-Sharkawi, M., Botros, N., Madani, A., **Ahmed, M.**, Abdellatif, B., Abdelrahman, Y., Araffa, S., 2019, History of the geological research in Egypt. In Hamimi, Z., El-Barkooky, A., Martínez Frías, J., Fritz, H., Abd El-Rahman, Y. (Eds.), **Geology of Egypt**, Springer, *In Review*.
3. **Ahmed, M.**, Wiese, D., 2019, Short-term trends in Africa's freshwater resources: Magnitudes and drivers, **Science of the Total Environment**, v. 695, p. 133843, doi: <https://doi.org/10.1016/j.scitotenv.2019.133843>
4. **Ahmed, M.**, Sultan, M., Elbayoumi, T., Tissot, P., 2019, Forecasting GRACE data over the African watersheds using artificial neural network, **Remote Sensing**, v. 11, p. 1769-1790, doi: <https://doi.org/10.3390/rs11151769>.
5. Niyazi, B., **Ahmed, M.**, Masoud, M., Rashed, M., Basahi, J., 2019, Sustainable and resilient management scenarios for groundwater resources of the Red Sea coastal aquifers, **Science of the Total Environment**, v. 690, p. 1310-1320, doi: <https://doi.org/10.1016/j.scitotenv.2019.07.081>
6. Sultan, M., Sturchio, N., Alsefry, S., Emil, M., **Ahmed, M.**, Fathy, K., AbuAbdullah, M., Bettadpur, S., Save, H., Othman, A., Chouinard, K., 2019, Assessment of age, origin, and sustainability of fossil aquifers: A geochemical and remote sensing-based approach, **Journal of Hydrology**, v. 576, p. 325-341, doi: [10.1016/j.jhydrol.2019.06.017](https://doi.org/10.1016/j.jhydrol.2019.06.017).
7. Abdelmohsen, K., Sultan, M., **Ahmed, M.**, Save, H., Elkaliouby, B., Emil, M., Yan, E., Abotalib, A., Krishnamurthy, R., Abdelmalik, K., 2019, Response of deep aquifers to climate variability, **Science of the Total Environment**, v. 677, p. 530-544, doi: [10.1016/j.scitotenv.2019.04.316](https://doi.org/10.1016/j.scitotenv.2019.04.316).
8. Niyazi, B., **Ahmed, M.**, Basahi, J., Masoud, M., Rashed, M., 2018, Spatiotemporal trends in freshwater availability in the Red Sea Hills, Saudi Arabia, **Arabian Journal of Geosciences**, v. 702, p. 1-13, doi: [10.1007/s12517-018-4052-y](https://doi.org/10.1007/s12517-018-4052-y).
9. Fallatah, O., **Ahmed M.**, Cardace, D., Boving, T., Akanda, A., 2018, Assessment of Modern Recharge to Arid Region Aquifers Using Integrated Geophysical, Geochemical, and Remote Sensing Approaches, **Journal of Hydrology**, v. 569, p. 600 – 611, doi: [10.1016/j.jhydrol.2018.09.061](https://doi.org/10.1016/j.jhydrol.2018.09.061).
10. **Ahmed, M.**, Abdelmohsen, K., 2018, Quantifying Modern Recharge and Depletion Rates of the Nubian Aquifer in Egypt, **Surveys in Geophysics**, v. 39, p. 729-751, doi: [10.1007/s10712-018-9465-3](https://doi.org/10.1007/s10712-018-9465-3)
11. Fallatah, O., **Ahmed M.**, Save, H., Akanda, A., 2017, Quantifying Temporal Variations in Water Resources of a Vulnerable Middle Eastern Transboundary Aquifer System. **Hydrological Processes**, v. 31, p. 4081-4091, doi: [10.1002/hyp.11285](https://doi.org/10.1002/hyp.11285).
12. Ebead, B., **Ahmed, M.**, Niu, Z., Huang, N., 2017, Quantifying the anthropogenic impact on groundwater resources of North China using GRACE and land surface models: **Journal of Applied Remote Sensing**, doi: [10.1117/1.JRS.11.026029](https://doi.org/10.1117/1.JRS.11.026029).
13. Mohamed, A., Sultan, M., **Ahmed M.**, Yan, E., Ahmed, E., 2016, Aquifer recharge, depletion, and connectivity: inferences from GRACE, land surface models, geochemical, and geophysical data. **Geological Society of America Bulletin**, v. 129, p. 534-546, doi: [10.1130/B31460.1](https://doi.org/10.1130/B31460.1).
14. **Ahmed, M.**, Sultan, M., Yan, E., Wahr, J., 2016, Assessing and Improving Land Surface Model Outputs Over Africa Using GRACE, Field, and Remote Sensing Data. **Surveys in Geophysics**, v. 37, p. 529-556, doi: [10.1007/s10712-016-9360-8](https://doi.org/10.1007/s10712-016-9360-8).
15. Mohamed, L., Sultan, M., **Ahmed, M.**, Zaki, A., Sauck, W., Soliman, F., Yan, E., Elkadiri, R., Aboelmagd, A., 2015, Structural controls on groundwater flow in basement terrains: Geophysical, remote sensing, and field investigations in Sinai: **Surveys in Geophysics**, v. 36, p. 717-742, doi: [10.1007/s10712-015-9331-5](https://doi.org/10.1007/s10712-015-9331-5).
16. Dailey, D., Sauck, W., Sultan, M., Milewski, A., **Ahmed, M.**, Laton, R., Foster, J., Elkederi, R., Schmidt, C., Alharbi, T., 2015, Geophysical, remote sensing, GIS, and geochemical applications for a better understanding of the structural controls on groundwater flow in the Mojave Desert, California: **Journal of Hydrology: Regional Studies**, v. 3, p. 211-232, <https://doi.org/10.1016/j.ejrh.2014.12.002>
17. **Ahmed, M.**, Sultan, M., Wahr, J., Yan, E., 2014, The use of GRACE data to monitor natural and anthropogenic induced variations in water availability across Africa: **Earth Science Reviews**, v. 136, p. 289-300, <https://doi.org/10.1016/j.earscirev.2014.05.009>
18. Sultan, M., **Ahmed, M.**, Wahr, J., Yan, E., Emil, M., 2015, Monitoring Aquifer Depletion from Space: Case Studies from the Saharan and Arabian Aquifers, in Lakshmi, V., (Ed.), **Remote Sensing of the Terrestrial Water Cycle**, AGU Geophysical Monograph # 206, p. 347-366, doi: [10.1002/9781118872086](https://doi.org/10.1002/9781118872086).
19. Alharbi, T., Sultan, M., Sefry, S., El Kadiri, R., **Ahmed, M.**, Chase, R., Milewski, A., AbuAbdallah, M., Emil, M., Chouinard, 2014, An assessment of landslide distribution in the Fifa area, Saudi Arabia, using remote sensing

- and GIS techniques: **Natural Hazards and Earth System Sciences**, v.14, p. 1553–1564, [doi: 10.1002/9781118872086](https://doi.org/10.1002/9781118872086).
20. Abouelmagd, A., Sultan, M., Sturchio, N., Soliman, F., Rashed, M., **Ahmed, M.**, Kehew, A., Milewski, A., Chouinard, K., 2014. Paleoclimate record in the Nubian Sandstone Aquifer, Sinai Peninsula, Egypt: **Quaternary Research**, v. 81, p. 158–167, <https://doi.org/10.1016/j.yqres.2013.10.017>
 21. **Ahmed, M.**, Sauck, W., Sultan, M., Yan, E., Soliman, F., Rashed, M., 2014. Geophysical constraints on the hydrogeologic and structural settings of the Gulf of Suez Rift–related basins: Case study from the El Qaa Plain, Sinai, Egypt: **Surveys in Geophysics**, v. 35, p. 415–430, [doi: 10.1007/s10712-013-9259-6](https://doi.org/10.1007/s10712-013-9259-6)
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Abstracts for Presentations at Professional Meetings:

1. Turner, R., **Ahmed, M.**, 2019, Structural and stratigraphic controls on reservoir quality and distribution of the Oligocene Vicksburg formation, Brooks county, Texas: **AGU**, San Francisco, CA, Dec. 2019.
2. **Ahmed, M.**, Gyawali, B., Sultan, M., 2019, Bridging gravity field observations across GRACE and GRACE-FO missions over Africa: **AGU**, San Francisco, CA, Dec. 2019.
3. Sultan, M., Abdelmohsen, K., Elkaliouby, B., Abdellatif, B., Emil, M., **Ahmed, M.**, Save, H., Farag, A., Al-Dousari, A., Abdelmalik, K., 2019, Use of GRACE solutions for a better understanding of aquifer recharge sources, connectivity, groundwater flow, sustainability, and response to climate variability: **AGU**, San Francisco, CA, Dec. 2019.
4. Gyawali, B., Murgulet, D., **Ahmed, M.**, 2019, Quantifying change in groundwater storage in the coastal region of Texas: **AGU**, San Francisco, CA, Dec. 2019.
5. Colmenero, D., **Ahmed, M.**, Zavala, L., 2019, Subsurface characterization of Padre Island using Ground Penetrating Radar (GPR) and Electrical Resistivity Imaging (ERI): **Society of Exploration Geophysicists (SEG)**, San Antonio, TX, Sep. 2019.
6. **Ahmed, M.**, Sultan, M., Elbayoumi, T., 2018, Gap-Filling between GRACE and GRACE-FO missions over Africa: **AGU**, Washington, DC, Dec. 2018.
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9. Fathy, K., Sultan, M., **Ahmed, M.**, Save, H., Emil, M., 2017, Structural Control and Groundwater Flow in the Nubian Aquifer: **AGU**, New Orleans, LA, Dec. 2017.
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13. **Ahmed, M.**, 2017, Monitoring temporal variations in Egypt's surface and groundwater resources from space: **Grand Ethiopian Renaissance Dam Workshop, Suez Canal University**, Ismailia, Egypt, March, 2017.
14. Fakhreldeen, A., **Ahmed, M.**, 2017, Quantifying the effects of the Grand Ethiopian Renaissance Dam on Egypt's surface water resources: **The 2nd Scientific Conference for Student Research, Faculty of Science, Suez Canal University**, Ismailia, Egypt, March, 2017.
15. Abdelkereem, M., **Ahmed, M.**, 2017, Assessment and Sustainable Utilization of Egypt's Groundwater Recourses: Constrains from Geophysical and Remote Sensing Data: **The 2nd Scientific Conference for Student Research, Faculty of Science, Suez Canal University**, Ismailia, Egypt, March, 2017.
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25. **Ahmed, M.**, Sultan, M., 2015, Monitoring temporal variations in water resources across the Arabian Peninsula and identification of their controlling factors: **AGU**, San Francisco, CA, Dec. 2015.
26. Mohamed, L., Sultan, M., **Ahmed, M.**, Zaki, A., 2015, Fault zone hydrogeology of crystalline and sedimentary aquifers in arid regions: The case Sinai Peninsula, Egypt: **AGU**, San Francisco, CA, Dec. 2015.
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29. Mohamed, A., Sultan, M., Yan, E., **Ahmed, M.**, Sturchio, N., Ahmed, E., 2015, Towards a better understanding of the hydrologic setting of the Nubian Sandstone Aquifer System: Inferences from groundwater flow models, Cl-36 ages, and GRACE data: **AGU**, San Francisco, CA, Dec. 2015.
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37. Alharbi, T., Sultan, M., **Ahmed, M.**, 2015, Quantify the partitioning of precipitation over the Al-Madinah watershed, Saudi Arabia using SWAT model: **2015 SWAT Conference & Workshops**, Sardinia, Italy, June 2015.
38. Alharbi, T., Sultan, M., **Ahmed, M.**, 2015, Impacts of climate changes over the Arabian Peninsula: **AGU Chapman Conference**, Santa Fe, NM, July 2015.
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40. Sultan, M., **Ahmed, M.**, 2015, Use of GRACE and land surface models to monitor water availability in Central Asia and surroundings: **The 4th International Seminar on Human Being and Ecological Environment of Central Asia**, China, Feb. 2015.
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46. Emil, M., Sultan, M., **Ahmed, M.**, Chouniard, K., 2014, Understanding the paleohydrological setting of the Arabian Peninsula: An integrated approach: **AGU**, San Francisco, CA, Dec. 2014.
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51. 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, BC, Oct. 2014.
52. Qian, S., Tiyip, T., Sultan, M., **Ahmed, M.**, 2014, Monitoring of dynamic changes in terrestrial water storage in Central Asia using GRACE data: **The 3rd International Workshop on Earth Observation and Remote Sensing Applications (EORSA)**, Changsha, China, Jun. 2014.
53. **Ahmed, M.**, Sultan, M., Wahr, J., Yan, E., 2013, Monitoring aquifer depletion from space: Case Studies from the Saharan and Arabian aquifers: **AGU**, San Francisco, CA, Dec. 2013.
54. Mohamed, L., Sultan, M., **Ahmed, M.**, Zaki, A., 2013, An integrated approach (remote sensing, geophysics, field) to assess the structural control of groundwater flow in Wadi Feiran basement complex, Sinai, Egypt: **AGU**, San Francisco, CA, Dec. 2013.
55. Sultan, M., Sturchio, N., Sefry, S., **Ahmed, M.**, AbuAbdallah, M., Emil, M., Chouinard, K., 2013, Chemical, isotopic and remote sensing constraints on the age, origin, and groundwater potentiality in the Rub Al Khali aquifer system, Arabian Peninsula: **AGU**, San Francisco, CA, Dec. 2013.
56. Alharbi, T., Sultan, M., **Ahmed, M.**, Sefry, S., AbuAbdallah, 2013, Modeling runoff and sediments yields and their response to climate change: Case study from the Red Sea coast of Saudi Arabia: **AGU**, San Francisco, CA, Dec. 2013.
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59. **Ahmed, M.**, Sultan, M., Wahr, J., Yan, E., 2013, Is the Nubian Sandstone Aquifer System being depleted? **GSA**, Denver, CO, Oct. 2013.
60. Sultan, M., Abouelmagd, A., **Ahmed, M.**, Sturchio, N., Krishnamurthy, R., Soliman, F., Rashed, M., Milewski, A., Krawczyk, M., 2013, Constraints on the timing of recharge of the fossil aquifers in Saharan Africa and Sinai: **GSA**, Denver, CO, Oct. 2013.
61. Buckner, M., Sultan, M., **Ahmed, M.**, 2013, What is GRACE telling us about Earthquake? **Western Michigan University, Howard Hughes Medical Institute**, Kalamazoo, MI, Jul. 2013.
62. **Ahmed, M.**, Sultan, M., Alharbi, T., 2013, Monitoring aquifer depletion from space: Case studies from Nubian Sandstone Aquifer in Egypt and the Saq Aquifer in Saudi Arabia: **GSA**, Kalamazoo, MI, May 2013.
63. Alharbi, T., Sultan, M., **Ahmed, M.**, 2013, Climate change over the Arabian Peninsula: Inferences from TRMM data: **GSA**, Kalamazoo, MI, May 2013.
64. **Ahmed, M.**, Sultan, M., Wahr, J., Yan, E., Bonin, J., Chouinard, K., 2012, Monitoring climate and man-made induced variations in terrestrial water storage (TWS) across Africa using GRACE data: **AGU**, San Francisco, CA, Dec. 2012.
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 74. Sultan, M., **Ahmed, M.**, Sturchio, N., Yan, E., Milewski, A., Becker, R., Wahr, J., Becker, D., and Chouinard, K., 2012, An integrated (remote sensing, GIS, hydrogeology, geochemistry, geophysics, and hydrologic modeling) approach for a better understanding of the hydrology of the Nubian Aquifer, NE Africa: **AGU Chapman Conference on Remote Sensing of the Terrestrial Water Cycle**, Kona, Hawaii, Feb. 2012.
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90. Sultan, M., Wahr, J., **Ahmed, M.**, Milewski, A. and Becker, R., 2008, What is GRACE telling us about the hydrology of the Nubian Aquifer: **GRACE Science Team Meeting (GSTM)**, Austin, TX, Dec. 2008.

Invited Talks:

- 2019: Del Mar Collage**, Geophysics facility at TAMU-CC, November 2018, Kingsville, TX, USA, March 2019, Corpus Christi, TX, USA.
- 2018: Texas A&M University – Kingsville**, GRACE data: A tool for sustainable management of the Nubian aquifer's water resources, November 2018, Kingsville, TX, USA.
- 2018: Corpus Christi Geological Society**, Sustainable Management of the Nubian Aquifer Water Resources: Integrated Geophysical, Remote sensing, and GIS Approaches, October 2018, Corpus Christi, TX, USA.
- 2017: National Authority for Remote Sensing and Space Sciences**, Sustainable Management of the Nubian Aquifer Water Resources in Egypt: An integrated approach, August 2017, Cairo, Egypt.
- 2015: Lawrence Berkeley National Laboratory**, An Integrated Approach for Hydrogeologic Investigations in Arid Environments, December 2015, Berkeley, CA, USA.
- 2015: West Virginia Wesleyan College**, Groundwater Exploration using Gravity Method, April 2015, Buckhannon, WV, USA.
- 2015: West Virginia Wesleyan College**, Integrated Approach for Hydrogeologic Investigations in Africa and Middle East, April 2015, Buckhannon, WV, USA.
- 2012: Kalamazoo Geological and Mineral Society**, Basin definition using gravity and magnetic data: Case study from El Qaa Plain, Sinai, Egypt, September 2012, Kalamazoo, MI, USA.
- 2011: Kalamazoo Geological and Mineral Society**, Hydrogeology Field Course: Hydrogeophysics, September 2011, Kalamazoo, MI, USA.