

Sattam Abdulkareem Almadani

EDUCATION

PhD (2011) in Geophysics, Department of Geological Sciences & Engineering, Missouri University of Science & Technology (MST), Rolla, USA.

M.S. (2003) in Marine Physics, Department of Marine Physics, Faculty of Marine Sciences, King Abdulaziz University (KAU), Jeddah, Saudi Arabia.

B.S. (1999) in Marine Physics, Department of Marine Physics, Faculty of Marine Sciences, King Abdulaziz University (KAU), Jeddah, Saudi Arabia.

EMPLOYMENT

(2022 - Present)	Professor , Geology & Geophysics Department, Faculty of Sciences, King Saud University, Riyadh, Saudi Arabia.
(2018 - 2022)	Associate Professor , Geology & Geophysics Department, Faculty of Sciences, King Saud University, Riyadh, Saudi Arabia.
(2016 - 2017)	Director of Innovation Center , King Saud University, Riyadh, Saudi Arabia.
(2014 - 2016)	Vice Dean of the Faculty of Sciences , King Saud University, Riyadh, Saudi Arabia.
(2013 - 2018)	Assistant Professor , Geology & Geophysics Department, Faculty of Sciences, King Saud University, Riyadh, Saudi Arabia.

RESEARCH INTERESTS

- Solid-earth geophysics.
- Investigate the structure and dynamics of the Earth's crust and mantle.
- Study the distribution of seismic activities.
- Explore the interior of the Earth.
- Crustal thickness and Poisson's ratio.
- Digital signal processing.
- Crustal deformation.

TEACHING COURSES

- **Seismotectonics of the Arabian Plate (GPH 565)**
- **Special Topics in Geophysics (GPH 596)**
- **Geophysical Well Logging for Groundwater (GEOH 523)**
- **Research Project (GEOH 599)**
- **Physical Geology (GEO 101).**
- **Principles of Geophysics (GPH 201).**
- **Oceanography (GEO 435).**
- **Geophysical Exploration (GPH 301).**
- **Geophysical Reports (GPH 381)**
- **Marine Geophysics (GPH 444)**
- **Field Geophysics (GPH 393).**
- **Graduation Project (GPH 496).**
- **Graduation Project (GPH 497).**

FIELD WORK EXPERIENCE

- Install and service 18 broadband seismic stations along a 250 km profile in the Afar Depression, Ethiopia.
- Participate in field training by the Program for Array Seismic Studies of the Continental Lithosphere (PASSCAL) in Socorro, New Mexico, USA (2009).

COMPUTER SKILLS

- UNIX operating system.
- FORTRAN programming language.
- Generic Mapping Tools (GMT).
- Seismic Analysis Code (SAC).

-- 2014 --

Almadani, S., Abdelrahman, K., Ibrahim, K., Al-Bassam, A., and Al-Shmrani, A. *Site response assessment of an Urban extension site using microtremor measurements, Ahud Rufeidah, Abha District, Southwest Saudi Arabia*. Arabian Journal of Geosciences, DOI 10.1007/s12517-014-1380-4 (2014).

Reed, C., **Almadani, S.**, Gao, S., Elsheikh, A., Cherie, S., Abdelsalam, M., Thurmond, A., and Liu K. *Receiver function constraints on crustal seismic velocities and partial melting beneath the Red Sea rift and adjacent regions, Afar Depression*. Journal of Geophysical Research: Solid Earth, 119, 2138-2152, DOI:10.1002/2013JB010719 (2014).

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Almadani, S., Al-Amir, A., Fnais, M., Hassanein, K., Ibrahim, K., and Abd El-Motaal, S. *Evaluation of geotechnical parameters for urban site in southern Kamis Mushait city, southwest Saudi Arabia using seismic refraction method*. Arabian Journal of Geosciences, DOI 10.1007/s12517-014-1615-4 (2015).

Almadani, S., Ibrahim, K., Abdelrahman, K., Al-Bassam, A., and Al-Shmrani, A. *Magnetic and seismic refraction survey for site investigation of an urban expansion in Abha District, Southwest Saudi Arabia*. Arabian Journal of Geosciences, DOI 10.1007/s12517-014-1342-x3 (2015).

Abdelbaset El-Sorogy, **Sattam Almadani**, and Mohammad Al-Dabbagh. *Microfacies and diagenesis of the reefal limestone, Callovian Tuwaiq Mountain Limestone Formation, Central Saudi Arabia*. Journal of African Earth Sciences, v. 115, pp. 63-70 (2015).

Hisham A. Gahlan a., Shoji Arai, and **Sattam A. Almadani**. *Petrogenesis of carbonated meta-ultramafic lenses from the Neoproterozoic Heiani ophiolite, South Eastern Desert, Egypt: A natural analogue to CO₂ sequestration*. Journal of African Earth Sciences 102-115, <http://dx.doi.org/10.1016/j.jafrearsci.2014.11.002> (2015).

Sattam Almadani; Abdullah Al-Amri; Mohammed Fnais; Kamal Abdel-Rahman Hassanein, Elkhedr Ibrahim; and Enayat Awad. *Seismic Hazard Assessment for Yanbu Metropolitan area, Western Saudi Arabia*. Arabian Journal of Geosciences, DOI 10.1007/s12517-015-1930-4 (2015).

-- 2016 --

Ali K. Abdel-Fattah, S. M. Mogren, and **Almadani, S.** *Seismicity constraints on stress regimes along Sinia Subplate Boundaries*. *Studia Geophysica et Geodaetica*. 60, 268-279, DOI: 10.1007/s11200-014-0968-1 (2016).

Abdelbaset S. El-Sorogy, Mohamed Tawfik, **Sattam A. Almadani**, and Abdullah Attiah. *Assessment of toxic metals in coastal sediments of the Rosetta area, Mediterranean Sea, Egypt*. *Environ Earth Science*, 75:398. DOI 10.1007/s12665-015-4985-3 (2016).

-- 2017 --

Sattam Almadani; Hussain Alfaifi; Mohammed Shehata; Elkhedr Ibrahim; Kamal Abdel-Rahman Hassanein; Abdullah Al-Amri; Mohamed Fnais; and Osama Kassem. *Hydrochemical characteristics and evaluation of the granite aquifer in the Alwadeen area, Southwest Saudi Arabia*. *Arabian Journal of Geosciences*, 10:139, DOI 10.1007/s12517-017-2873-8 (2017).

Sattam Almadani. *Source parameters of the 27th of June 2015 Gulf of Aqaba earthquake*. *Journal of Seismology*, DOI 10.1007/s10950-017-9651-7 (2017).

A.K. Abdelfattah, A. Al-Amri, A.K. Abd el-aal, Faisal K. Zaidi, M. Fnais, **S. Almadani**, and N. Al-Arifi. *The 23 January 2014 Jizan earthquake and its tectonic implications in southwestern Saudi Arabia*. *Tectonophysics*, (v. 712-713) 494-502 (2017).

Talal Alharbi & Hussain Alfaifi & **Sattam A. Almadani** & Abdelbaset El-Sorogy. *Spatial distribution and metal contamination in the coastal sediments of Al-Khafji area, Arabian Gulf, Saudi Arabia*. *Environ. Monit. Assess.* 189:634 (2017).

Abdelbaset El-Sorogy, Khaled Al-Kahtany, **Sattam Almadani**, Mohamed Tawfik. *Depositional architecture and sequence stratigraphy of the Upper Jurassic Hanifa Formation, central Saudi Arabia*. *Journal of African Earth Sciences* 139, 367-378 (2017).

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Sattam Almadani, Elkhedr Ibrahim, Mahfooz Hafez, Hussain Alfaifi, Talal Alharbi, Kamal Abdelrahman, & Essam Abdel-Motaal. *Geotechnical investigation of the El-Elb dam site, northwest Riyadh, Saudi Arabia, using 2D resistivity and ground-penetrating radar techniques*. *Arabian Journal of Geosciences* 11:33 (2018).

Hamdy E. Noura, Abdelbaset S. El-Sorogy, Mohamed Abdel-Wahab, **Sattam Almadani**, Hussain Alfaifi, and Mohamed Youssef. *Assessment of sediment quality using different pollution indicators and statistical analyses, Hurghada area, Red Sea coast, Egypt*. *Marine Pollution Bulletin* 133, 808-813 (2018).

Ali Y. Kahala, Abdelbaset S. El-Sorogy, Hussain J. Alfaifi, **Sattam Almadani**, and Habes A. Ghrefat. *Spatial distribution and ecological risk assessment of the coastal surface sediments from the Red Sea, northwest Saudi Arabia*. Marine Pollution Bulletin 137, 198-20 (2018).

Ali K. Abdelfattah, **Sattam Almadani**, Mohamad Fnais, Hussain J. Alfaifi, Nassir Al-Arifi, Abdullah Al-Amri, Basem Al-Qadasi, and Salvatore de Lorenzo. *Rupture characteristics of a small-sized earthquake (MW 4.2), onshore the south Red Sea, Saudi Arabia*. Journal of African Earth Sciences 151, 315–323 (2018).

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Ali Y. Kahal, Abdelbaset S. El-Sorogy, Hussain J. Alfaifi, **Sattam Almadani**, and Osama M. Kassem. *Biofacies and diagenetic alterations of the Pleistocene coral reefs, northwest Red Sea coast, Saudi Arabia*. Geological Journal 1–11, (2019).

Ali K. Abdelfattah, Salvatore de Lorenzo, **S. Almadani**, M. Fnais, H. Alfaifi, and N. Al-Arifi. *Another look at the 2009 seismic activity, Harrat Lunayyir, Saudi Arabia*. Journal of Seismology, volume 23, Issue 4, pp 801–818 (2019).

Sattam Almadani, Elkhedr Ibrahim, Abdullah Al-Amri, Mohammed Fnais, and Kamal Abdelrahman. *Delineation of a fractured granite aquifer in the Alwadeen area, Southwest Saudi Arabia using a geoelectrical resistivity survey*. Arabian Journal of Geosciences, August, 12:449, (2019).

Abdelbaset S.El Sorogy, Talal Alharbi, **Sattam Almadani**, and Mansour Al-Hashim. *Molluscan assemblage as pollution indicators in Al-Khobar coastal plain, Arabian Gulf, Saudi Arabia*. Journal of African Earth Sciences. Volume 158, October, 103564 (2019).

-- 2020 --

Almadani, Sattam. *Crustal characteristics beneath the Tien Shan belt, Central Asia, using the seismic receiver function*. Journal of King Saud University – Science, 32, 2157-2162 (2020).

Almadani, Sattam. *Rate of seismic deformation in the Gulf of Aqaba inferred from moment-tensor summation*. Stud. Geophys. Geod., 64 (2020).

Almadani, Sattam, Kamal Abdelrahman, and Fahad bin Mansour. *Site response assessment and ground conditions at King Saud University Campus, Riyadh city, Saudi Arabia*. Arabian Journal of Geosciences, 13:357 (2020).

Ali K. Abdelfattah; A. Al-Amri; M. Sami; Faisal K. Zaidi; S. Qaysi; M. Fnais; **S. Almadani**; N. Al-Arifi. *An analysis of a moderate earthquake, eastern flank of the Red Sea, Saudi Arabia*. Earth, Planets and Space, 72:34 (202).

Hend Hussein, Amr Abd El-Raouf, **Sattam Almadani**, Kamal Abdelrahman, Elkhedr Ibrahim, O.M. Osman. *Application of geochemical modeling using NETPATH and water quality index for assessing the groundwater geochemistry in the south Wadi El-Farigh area, Egypt*. Journal of King Saud University – Science, 33, 101284 (2020).

Ali Kahal, Abdelbaset S. El-Sorogy, Saleh Qaysi, **Sattam Almadani**, Osama M. Kassem, Ahmed Al-Dossari. *Contamination and ecological risk assessment of the Red Sea coastal sediments, southwest Saudi Arabia*. Marine Pollution Bulletin 154, 111125 (2020).

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Hamad H. AlQahtani, Mohammed S. Fnais, **Sattam A. Almadani**, Mansour S. Alhumimidi, & Kamal Abdelrahman. *Electrical resistivity and refraction seismic tomography in the detection of near-surface Qadimah Fault in Thuwal-Rabigh area, Saudi Arabia*. Arabian Journal of Geosciences 14: 1153 (2021).

Hussain Alfaifi, Abdelbaset S. El-Sorogy, Saleh Qaysi, Ali Kahal, **Sattam Almadani**, Fahad Alshehri, and Faisal K. Zaidi. *Evaluation of heavy metal contamination and groundwater quality along the Red Sea coast, southern Saudi Arabia*. Marine Pollution Bulletin 163, 111975 (2021).

Fahad Alshehri, **Sattam Almadani**, Abdelbaset S. El-Sorogy, Essam Alwaqdani, Hussain J. Alfaifi, and Talal Alharbi. *Influence of seawater intrusion and heavy metals contamination on groundwater quality, Red Sea coast, Saudi Arabia*. Marine Pollution Bulletin 165, 112094 (2021).

Sattam A. Almadani, Kamal Abdelrahman & Saleh Qaysi. *Integrated geoinvestigation for evaluation of an engineering site—a case study from the western Riyadh city, central Saudi Arabia*. Arabian Journal of Geosciences 14:380 (2021).

-- 2022 --

Ahmed Abdelaal, Ahmed I. Abdelkader, Fahad Alshehri, Asmaa Elatiar and **Sattam A. Almadani**. *Assessment and Spatiotemporal Variability of Heavy Metals Pollution in Water and Sediments of a Coastal Landscape at the Nile Delta*. Water, 14, 3981 (2022).

Saleh Qaysi, Ali K. Abdelfattah, **Sattam Almadani**, Abdulrasheed Olaniyan, and Hazzan Alzahrani. *Attenuation characteristics of coda wave in southern Arabian Shield*. Journal of King Saud University – Science 35, 102372 (2022).

Mustafa El-Rawy, Okke Batelaan, Fahad Alshehri, **Sattam Almadani**, Mohamed S. Ahmed and Ahmed Elbeltagi. *An Integrated GIS and Machine-Learning Technique for Groundwater Quality Assessment and Prediction in Southern Saudi Arabia*. *Water* 2023, 15 (13), 2448; <https://doi.org/10.3390/w15132448> (2023).

Mohamed Rashwan, Adel K. Mohamed, Fahad Alshehri, **Sattam Almadani**, Mohammed Khattab and Lamees Mohamed. *Flash Flood Hazard Assessment along the Red Sea Coast Using Remote Sensing and GIS Techniques*. *ISPRS Int. J. Geo-Inf.* 2023, 12(11), 465; <https://doi.org/10.3390/ijgi12110465> (2023).

Kamal Abdelrahman, Saddam Ali Hazaea and **Sattam A. Almadani**. *Geological-geotechnical investigations of the historical Diriyah urban zone in Riyadh, Saudi Arabia: an integrated approach*. *Front. Earth Sci.*, 22 May, Sec. Environmental Informatics and Remote Sensing. Volume 11 <https://doi.org/10.3389/feart.2023.1202534> (2023).

Fahad Alshehri, Abdelbaset S. El-Sorogy, **Sattam Almadani**, and Mufleh Aldossari. *Groundwater quality assessment in western Saudi Arabia using GIS and multivariate analysis*. *Journal of King Saud University – Science*, Volume 35, Issue 4, May, 102586 (2023).

Mosaad Ali Hussein Ali, Farag M. Mewafy, Wei Qian, Fahad Alshehri, **Sattam Almadani**, Mofleh Aldawsri, Majed Aloufi and Hussein A. Saleem. *Mapping Leachate Pathways in Aging Mining Tailings Pond Using Electrical Resistivity Tomography*. *Minerals*, 13, 1437. <https://doi.org/10.3390/min13111437> (2023).

Mustafa El-Rawy, Heba Fathi, Wouter Zijl, Fahad Alshehri, **Sattam Almadani**, Faisal K. Zaidi, Mofleh Aldawsri and Mohamed Elsayed Gabr. *Potential Effects of Climate Change on Agricultural Water Resources in Riyadh Region, Saudi Arabia*. *Sustainability*, 15, 9513. <https://doi.org/10.3390/su15129513> (2023).

Abdelbaset S. El-Sorogy, Mohamed Tawfik, **Sattam A. Almadani**, and Taisser Zumlot. *Evaluation of sediment quality for heavy metal(loid)s contamination and health risk assessment in the Gulf of Suez, Egypt*. *Marine Pollution Bulletin* 203, 116496 (2024).

Shah Rukh, Mohammad Saleem Akhtar, Fahad Alshehri, Ayaz Mehmood, Kouser Majeed Malik, **Sattam Almadani**, Ahmad Khan and Muhammad Shahab. *Modeling the Transport of Inorganic Arsenic Species through Field Soils: Irrigation and Soil Structure Effect*. *Water* 2024, 16, 386. <https://doi.org/10.3390/w16030386> (2024).

Abdelbaset S. El-Sorogy, Mansour H. Al-Hashim, **Sattam A. Almadani**, Salvatore Giacobbe, and Hamdy E. Nour. **Potential contamination and health risk assessment of heavy metals in Hurghada coastal sediments, Northwestern Red Sea**. Marine Pollution Bulletin 198, 115924 (2024).

Hatem M. El-Desoky, Imane Bachri, Ahmed M. El Mezayen, Ahmed M. Abdel-Rahman, Hamada El-Awny, Arafa A. El-Gammal, Fahad Alshehri and **Sattam Almadani**. **An integrated remote sensing, petrology, and field geology analyses for Neoproterozoic basement rocks in some parts of the southern Egyptian-Nubian Shield**. Scientific Reports, 14:14761 (2024).