

Nizar S. Abu-Jaber

Address

Center for the Study of Natural and
Cultural Heritage

German Jordanian University
P.O. Box 35247, Amman
11180 Jordan
Telephone: 06-429 4313

Mobile: 07 77 621236

nizar.abujaber@gnu.edu.jo
<http://jo.linkedin.com/in/nizarabujaber>

Personal

Date of birth: April 20, 1964.
Civil status: Married with two sons.

Education

Ph.D., 1991, North Carolina State University: Marine, Earth and Atmospheric Sciences (Geochemistry).

M.Sc., 1987, North Carolina State University: Marine, Earth and Atmospheric Sciences (Geology).

B.Sc., 1985, University of Jordan, Amman: Geology and Mineralogy.

Research interests

I am interested in the role of deep crust carbon fluxes on the development of geomorphology, surface deposits and groundwater hydrology and geochemistry in Jordan. In addition, I am also interested in the interaction between Humans and the landscape, especially modification of the hydrology through terracing and other water harvesting systems. I also study geoarchaeology and Quaternary geology, particularly the use of geological and archaeological data for climate reconstruction. In addition, I also study of archaeological materials (stone, pottery, mortar and glass) for determining provenance and production technology of these materials.

Experience

Professor, 2008-now, Department of Civil and Environmental Engineering (previously Water and Environmental Engineering), German Jordanian University. Seconded from Yarmouk University until 2011.

Director, 2013-now, Center for the Study of Natural and Cultural Heritage, German Jordanian University. Interim director from 2011-2013. Center won the second place of

the 2015 El Hassan Bin Talal Award for Scientific Excellence. It was also recognized at the GJU 5th annual Evening of Excellence Award (2015). Founder.

Director, January to October 2015, Consultation and Training Center, German Jordanian University.

Part-time lecturer, Yarmouk University, First and second semesters, 2013-2014 academic year. Teaching MSc. courses at the Department of Earth and Environmental Sciences.

Dean of Scientific Research, 2009-2012; Dean of Graduate Studies, 2008-2009 and Acting Dean of Scientific Research, 2008-2009, at the German Jordanian University

Professor, 2003-2011; Associate professor, 1997-2003; Assistant professor, 1993-1997; Lecturer 1991-1993, Department of Earth and Environmental Sciences, Yarmouk University.

Visiting professor, Al al-Bayt University, 2007-2008 (Sabbatical leave).

Chairman of the Department of Earth and Environmental Sciences, Yarmouk University. 2003-2005.

Visiting Associate Research Professor, 1999-2000, Division of Hydrological Sciences, Desert Research Institute, Las Vegas, NV (Sabbatical leave).

Acting director of the UNESCO Chair for Desert Studies and Desertification Control, 1998-1999, Yarmouk University.

Assistant to the Dean of Research and Graduate Studies, 1997-1998, Yarmouk University.

Teaching assistant, North Carolina State University, 1986-1991. Duties included teaching of introductory physical geology, historical geology and sedimentary petrology labs.

Nuclear research assistant, Nuclear Services Laboratory, N.C. State Univ., 1989-1991. Duties included sample preparation and data acquisition and analysis for the neutron activation analysis facility.

Hydrological Technician, ATEC Environmental Consultants, 1989. Duties involved acquisition of field data, sampling of cores and waters from monitoring wells and site assessments.

Hydrological Technician, USGS Water Resources Division, 1988-1989. Duties included lithological and geophysical well log correlation, core logging and literature assessment for various projects.

Courses TaughtGJU

Level	Title	Times taught
B.Sc.	Engineering Geology	22
B.Sc.	Soil properties and mechanics	4
B.Sc.	Hydrology	3
B.Sc.	Hydrogeology	1
B.Sc.	Radioactive waste management	4
M.Sc.	Sustainable Planning I	3
M.Sc.	Sustainable Planning II	1
M.Sc.	Research and Presentation Methods	1
M.Sc.	Meteorology and climate phenomenology	1
M.Sc.	Sustainability	1

Yarmouk University

Level	Title	Times taught
B.Sc.	General geology I	4
B.Sc.	General geology II	2
B.Sc.	Mineralogy	22
B.Sc.	Introductory geochemistry	8
B.Sc.	Hydrogeochemistry	4
M.Sc.	Advanced Igneous and Meta. Petrology	1
M.Sc.	Desert and Quaternary geology	1
M.Sc.	Advanced hydrogeology	1
M.Sc.	Environmental geochemistry	2
M.Sc.	Isotope geochemistry	3
B.Sc.	Environmental geology	1
B.Sc.	Radiation pollution	10
M.Sc.	Ecotourism	7
M.Sc.	Environmental problems in the Middle East	1
B.A.	Introduction to the application of sciences in archaeology	1
B.A.	Archaeological metals, ceramic and glass	1
B.A.	Scientific analysis of archaeological materials	6
B.A.	Dating methods and chronology	1
M.A.	Modern methods of surveying and dating in archaeology	2
M.A.	Scientific analysis of archaeological materials	2
M.A.	Material science for archaeologists	2
M.A.	Ancient technology	1
M.A.	Pottery: Raw materials and manufacturing techniques	2

In addition, I taught courses in petrology, industrial (and economic) geology, geochemistry, mineralogy and environmental science at Al al Bayt University.

Awards

The ICCROM Athar Award for Good Practices in Cultural Heritage Conservation and Management in the Arab Region for the project titled “Restoration of the Ancient Nabatean Flood Control System at Petra Jordan”. This project was recognized through the “Recognition of Excellence Award for Archaeological Sites”. 2020.

El Hassan Award for Scientific Excellence for the Center for the Study of Natural and Cultural Heritage at GJU. 2015 (second place).

International Center for Scientific Culture (World Lab) scholarship (1999-2000) to partially cover sabbatical leave at the Desert Research Institute. DRI covered the rest of the salary.

The Abdul Hamid Shoman Award for Young Arab Researchers (1997).

Special Achievement Award, USGS (1989).

Advisory functions

Member of a national committee to designate well sites in eastern Jordan for a national project to develop agriculture there. Named by the prime minister’s office on recommendation of the Royal Court. December 2022-now.

Member of the Board of Trustees for the American University of Madaba (2022-now).

Member of the governance council of Jordanian Geologists Association (2022-now). Directly elected by the General Assembly for the eight-member board. Chairman of the scientific committee for the association.

Member of the National Committee for the Management of Geological Reserves and Parks, September 2021 until the present.

Member of the Graduate Studies Council at GJU from October 2022-now. The council regulates issues related to graduate studies at the university.

Member of a national team to prepare a Guidebook for Arabic terms in Environmental Science. Commissioned by the Jordan Academy of Arabic. December 2020 until now.

Member of the scientific task force on “Cultural Heritage and Climate Change” in the context of the regional initiative of the Cyprus Republic for Climate Change. May 2020 until December 2021.

Jordanian representative for a UNESCO project for producing the “Atlas on Natural Hazards in the Arab Region: *A Tool for socio-ecological systems resilience and adaptation*”. December 2018 till December 2021.

Member of a technical committee to prepare a national engineering hydrological code. Named by the minister of public works and housing. January to April, 2019.

Review panel member for the Ministry of Public Works and Housing award for consultancy work in the field of water and wastewater for 2018. January 2019. Named by the ministry’s committee for qualifying consultants.

Expert consultancy board member for the Petra Development Tourism Regional Authority, August 2018-Now.

Technical consultant, USAID Local Enterprise Support Program to evaluate proposals for suggesting a plan to revitalize the salt production industry in Azraq. December 2018-January, 2019.

Geological expert, Consulting Maisam Architects and Engineers on their Deiseh Museum Project (client is the Aqaba Special Economic Zone Authority). August-October, 2018.

Member of the Scientific Research Council at GJU. Council reviews regulations and research proposals submitted by faculty members of the university. 2017-2019.

Member of the advisory council for the Prince Faisal Center for Dead Sea, Environment and Energy Studies at Mu’tah University (2009-2012 and 2015 till 2018).

Co-chair of a consultative forum on the geology and hydrology of Petra. The forum was to advise on the implementation of the Petra Integrated Management Plan as part of UNESCO efforts to that effect. October 2016 until December 2017.

Member of the board of trustees for the Middle East University (2009-2010 and from 2013-2017).

Peer reviewer-land use planning advisor for the Mainstreaming Biodiversity Conservation in the Tourism Sector Development in Jordan (BITS) project implemented by the United Nations Development Program (UNDP). June, 2016 until July, 2017.

Environmental and geological expert for the Wadi Araba Integrated Master Plan project, HS Group. November 2015 until August 2016.

Member of the translation team for the ICOMOS stone deterioration glossary for the English-Arabic version (http://iscs.icomos.org/pdf-files/Arabic_glossary.pdf). 2016.

Content expert (geology of the Dead Sea) for an Earth Touch USA television pilot project titled “Legend hunter: Sodom and Gomorrah”, first aired on the Travel Channel on April 4, 2016. September, 2015.

Member of a national committee to commercialize geothermal energy in Jordan under the title “Geothermal energy for development in Jordan”, funded by the UNDP Istanbul International Center for Private Sector in Development (December 2013-May, 2014).

Senior environmental and cultural heritage expert for the master plan of the capital city of Yemen, Sana’a. Project is being implemented by HS Group. April 2013-December 2013 (suspended).

Member of the board of trustees for the Al-Hussein Bin Talal University (2010-2014).

Chair of an evaluation committee to consider the risks associated with expanding the back road of Petra and installing a solar powered generation facility there. Named by the Director General of the Department of Antiquities of Jordan. May, 2011.

Chair of an evaluation committee appointed by the Higher Education Accreditation Commission to assess a joint M.Sc. Program between the University of Jordan and the University of Cologne in Germany on the subject of Integrated Water Resource Management, August, 2010.

Chair of an investigation committee to study a rock fall at the archaeological site of Petra, named by the Director General of the Department of Antiquities, Jordan, 2010.

Participated in the workshop organized by the Ministry of Higher Education and the World Bank in preparation for the Higher Education Reform for Knowledge Economy (HER/KE) project. I was a member of the focus group concerned with competitive funding aspects of the project from April to June, 2008. In February 2009, I was a member of a four member national core group that participated in finalizing the HER/KE documents which also included detailed recommendations for the reform of higher education in Jordan. Many of these recommendations were integrated into the previous Universities' Law (20-2009).

Expert witness in numerous court cases involving water supply and quality issues (intermittent 2002-2008).

Member of the Scientific Research Council at Yarmouk University, 2006-2008. The council is in charge of formulating research priorities and strategies at the university level.

Member of the National Capacity Self-Assessment team for Global Environmental Management (NCSA), Jordan. This was a UNDP funded project to assess national capabilities to implement the three Rio conventions and to suggest action plans to this effect. I was responsible for the policy assessment task. May to September, 2006.

Member of the advisory group for the museum exhibition planned for the Dead Sea Panorama complex, which was implemented by the Ministry of Tourism with funding from JICA, September 2003-July 2004.

Member of the Jordanian National Committee for the UNESCO International Hydrological Program as a representative of Yarmouk University (September 2001-January 2004).

Member of the research team for the MEDA-Corpus project, which was funded by the EU and resulted in the compilation of a book titled “Traditional Mediterranean Architecture”, 2002. Book is available on the MEDA-Corpus website <http://www.meda-corpus.net/eng/index.asp?op=40202000>.

Advisory group meeting of the International Atomic Energy Agency on integration of isotopic techniques in effective water management. November 24-27, 1997, Amman.

Consultant, Ingersoll-Rand Company, Rock Drilling Division, Intermittent from 1989-1991. Have prepared a number of reports evaluating petrography and mechanical characteristics for samples of interest to Ingersoll-Rand.

Training courses

Keynote speaker for a UNESCO Regional bureau for Arab States’ GeoConference “Mapping research and practices in geosciences in the development sectors”, with a presentation titled “Implications of geosciences and earth sciences in the development sector- Mashreq Region”, October 18-20, 2021 (Webinar).

Conducted a number of training exercises in resilience thinking, world energy and population, and sustainable land-use planning as an expert in sustainable planning in a training workshop on "Using Scenario Planning Techniques for Understanding the Cause-Effect Relationship of Complex Systems". This was conducted by UNDP in cooperation with the Ministry of Environment in the period from the 23rd to the 26th of November, 2020 in Aqaba, Jordan.

Presented a lecture for the National Graduate Institute for Policy Studies (Japan) for their students and faculty as well as those of Sichuan University in China under the title “Flood Control and Water Management in Nabatean Petra”. October 19, 2020 (Webinar).

Conducted a lecture series at the Friedrich-Alexander Universität, Erlangen-Nürnberg, Germany, which was held from May 9-13, 2017 under the Erasmus+ program. This included a colloquium on non-traditional research approaches to water and climate in Jordan, and lectures on soil and carbonate geomorphology and carbonate crusts in Petra.

Conducted a one day workshop on “Proposal preparation for administrators of external project units”, which was presented within a program for capacity building of the Jordan research community. This program was organized by the Higher Council for Science and Technology, Jordan. September 24, 2011.

Conducted a one day workshop on innovation in writing research proposals. This workshop was held at the Higher Council for Science and Technology on November 6, 2010. It was conducted as part of a project conducted by the HCST for building research capacities in Jordan for proposal writing and research.

Speaker in the introductory workshop titled “How to write a successful proposal” held at the Princess Sumaya University of Technology from October 7-8, 2009. This workshop was organized by the Higher Council of Science and Technology as part of a project funded by the Scientific Research Fund of Jordan entitled “Workshops on writing research proposals”.

Speaker in the workshop titled “Vocational seminar on cultural heritage preservation” held at Yarmouk University from June 23-26, 2008. The workshop was organized by the Aristotle University of Thessaloniki (Greece) at Yarmouk University as part of the activities of the TEMPUS project for establishing a Master’s program in archaeometry at Yarmouk University.

Speaker in the workshop titled “Sustainable water resource development: the role of proxy records in understanding drought and its influence on reclaimed water resources” held at the Hashemite University from July 11-15, 2004. The workshop was organized by the Tree Ring Laboratory at the University of Arizona and funded by the International Arid Lands Consortium.

Nuclear techniques in hydrology. Gave five lectures at the course organized by the Arab Atomic Energy Agency in cooperation with the Ministry of Energy and Natural Resources and the Water Authority. 12-22 August, 1995, Amman.

Editorial boards

Member of the editorial board for *Heritage*, an MDPI journal (2018-now)

Member of editorial board for the *Jordan Journal of Earth and Environmental Science* (2013-2019).

Co-editor with Ioannis N. Vogiatzakis, Theano S. Terkenli and Maria Gabriella Trovato for a special issue of *Land* titled “Landscapes in the Eastern Mediterranean between the Future and the Past” (2017).

Co-editor with Elizabeth Bloxam, Patrick Degryse and Tom Heldal for the volume published by the Geological Survey of Norway titled “*QuarryScapes. Ancient stone quarry landscapes in the Eastern Mediterranean*”, NGU Special Publication 12 (2009).

Member of the editorial board of *Yarmouk Cultural Magazine* (2005-2006).

Associate editor for *Ground Water* (1996-1998).

Member of the editorial board of the *Jordanian Geologist Magazine* (1992-93 and 2005).

Professional societies

International Council for Monuments and Sites (ICOMOS). Founding member of the Jordanian National Committee.

The Jordanian Geologists Association.

Conference committees

Organizer

Co-organizer of a session at the Fifth Landscape Archaeology Conference (LAC2018) which was held in Newcastle and Durham, UK, from the 17th to the 20th of September, 2018. The title of the half-day session was “Dynamic landscapes: The human role in reshaping the geomorphology of arid environments”

Co-organizer for a workshop titled “Ancient Terrace Practices in Jordan” held at GJU from September 10-11, 2017 in collaboration with the German Archaeological Institute in Berlin and the German Protestant Institute for Archaeology in Amman.

Chair of the organizing committee for the closing conference of the MEDSCAPES project titled “Landscapes of the Eastern Mediterranean: challenges opportunities, prospects and accomplishments”, which was held at GJU and the Dead Sea Panorama Complex on December 13-14, 2015.

Chair of the organizing committee for the 6th Jordanian Environmental Conference convened by the Jordanian Geologists Association in cooperation with the Center for the Study of Natural and Cultural Heritage at GJU under the title “Hot Environmental Issues”, which was held on June 5-6, 2012.

Chair of the organizing committee for the workshop held by the Jordan National Committee for the International Hydrological Program entitled "The role of scientific research in the water sector and its effect on the community". The workshop was held with the cooperation of the Ministry of Water and Irrigation, the UNESCO and Yarmouk University. Nov. 4, 2002.

Secretary of the organizing committee of the conference held by the UNESCO Chair for Desert Studies and Desertification Control entitled "Learning from the past: Global paleoclimatic changes", held from May 18-21, 1998.

Committee member

Member of the organizing committee for the "Fifth Jordanian Conference on the Environment" which was organized by the Jordanian Geologists Association and held on May 13, 2009 at the University of Jordan.

Member of the organizing committee for the workshop on "Water and Waste" which was held in cooperation between Yarmouk University and Lippe und Hoexter University (Germany). The workshop was from September 10-13, 2006 and was held at Yarmouk University.

Member of the organizing committee for the workshop for GIS users in Jordan. This workshop was held on November 16, 2005 and was organized by Yarmouk University.

Member of the organizing committee for the Regional Workshop on Desertification, which was organized by the UNESCO Chair for Desert Studies and Desertification Control in June 20-21, 2005.

Member of the organizing committee for the conference titled "Geology and tourism", which was organized by the Jordanian Geologists Association and held on the campus of Yarmouk University in November, 2002.

Member of the conference organizing committee on the "Extent of Environmental Stress in the Region". This conference was organized by Yarmouk University, the General Establishment for Environmental Protection, the Jordanian Society for desertification control and Badia development and the Jordanian Environmental Society. The conference was held at Yarmouk University from October 26-27, 1998.

Member of the organizing committee of the conference held by the UNESCO Chair for Desert Studies and Desertification Control entitled "Past, Present and Future of the Middle-East Deserts" between July 30 and August 1, 1996. I led the pre-conference field trip.

Member of the organizing committee of the Fifth Jordanian Geological Conference (Oct. 1994).

Member of the organizing committee of the regional conference on "Preconditions and requirements for successful environmental policies in Arab countries", which was held at Yarmouk University in May, 1993.

Grants

External funding

Technical design and supervisor for a project conducted by the Danish Refugee Council on behalf of the German International Development Agency (GIZ) titled "Rehabilitation

of terraces and check dams in Wadi Musa, Petra. 2020. JD 81,883 (JD is fixed at 1.41 USD).

CfW Nabataee 1 (Cash for work project for the reconstruction of flood control systems in Petra), 2019. German International Development Agency (GIZ). Euro 459,878 (cancelled due to COVID-19).

Base level and paleo-climate change in Petra: Management of a dynamic hydrological system. 2018. Scientific Research Fund of Jordan. JD 42,956.

Restoration of the ancient Nabatean flood control system in Wadi Madras at Petra. 2017. US Ambassadors Fund for Cultural Preservation. USD 150,000.

Exploring and quantifying the effectiveness of ancient terracing practices for water harvest and agriculture. 2015. Support to Research and Technological Development & Innovation initiatives and Strategies in Jordan (SRTD II), Higher Council for Science and Technology, Euro 22,344.

Near-basement rock-water interaction as an indicator to understanding deep aquifer chemistry. 2015. The Abdulhamid Shoman Foundation, Amman. JD 14,920.

MEDSCAPES. Development of landscape character assessment as a tool for effective conservation of natural heritage of the eastern Mediterranean. 2014. Funded by the European Union as part of the ENPI-CBCMED program. Total budget 965,000 Euros. GJU share 81,000 Euros.

Research on preservation of Wadi Rum's natural environment, archaeology and social fabric, 2012. Funded by the Consulting Engineering Center. JD 6,760.

Assessment of uncertainties associated with ground water potential, recharge and movement in NW Jordan: Towards sustainable ground water resource management in semiarid regions. 2008. Jordan Ministry of Higher Education and Scientific Research through the Scientific Research Fund. JD 232,300.

QuarryScapes. The characterization and protection of ancient quarries in the Eastern Mediterranean. 2005. Sixth framework program of the European Commission. Total funding, 1,000,000 Euros; Yarmouk University share was 114,600 Euros.

Documentation and management of the shallow water resources in the Tulul al Ashaqif area, NE Jordan using GIS techniques. 2005. The Abdulhamid Shoman Foundation, Amman. JD 7,900.

Characterization of building materials used at the ez-Zantur excavation site in Petra. 2003. Basle University, Switzerland. JD 1,300.

Study of the suitability of agricultural drainage waters in the Safi area for potash production. 2002. Arab Potash Company. JD 16,000.

The Feasibility of Water Harvesting and Storage in Shallow Aquifers in the Eastern Badia of Jordan. 2000. International Arid Lands Consortium. Total funding was USD 100,000; Yarmouk University share was \$38,800.

Role of shallow aquifers in northern Badia. 1999. International Development Research Centre (Canada). US \$ 65,000.

Natural ground water recharge in the Jordanian Badia. 1998. The Badia Research and Development Programme. JD 5,000.

Evaluation of the chemical and isotopic characteristics of the aquifers in the Hammad and Sirhan basins. 1997. Arab League Educational, Cultural and Scientific Organization. US \$ 18,000.

Paleoclimatic changes in the playas of the badia region. 1997. Badia Research and Development Programme. JD 8,000.

Hydrochemistry of aquifers of the northeastern badia, Jordan. 1995. Badia Research and Development Programme. JD 7,500.

Evolution of evaporite mushrooms in the Dead Sea. 1995. Arab Potash Company. JD 2,700.

Hydrochemistry of aquifers in the Dead Sea area. 1992. Arab Potash Company. JD 550.

Internal funding by the Scientific Research Council at Yarmouk University.
(JD is fixed at 1.41 USD)

Study of recharge and groundwater movement in the upper Yarmouk basin using geochemical and isotopic techniques. 2005, JD 2980.

Land use and environmental change in Al Mazar Al Shamali subdistrict over the last 50 years. 2004, JD 2,481.

A GIS-based hydrological decision support system for the Tulul al Ashaqif aquifers, NE. Jordan. 2003, JD 2,210.

Geology of the Bargash cave system, N. Jordan. 2003, JD 1,240.

Geology and geochemistry of materials used in the construction of ancient Gadara, NW Jordan. 2002, JD 1,360.

Groundwater recharge in the northeastern badia, Jordan. 1996, JD 2,860.

Hydrochemistry of northeastern Jordan. 1995, JD 1,300.

Genesis of chert in the Amman Formation. 1992 and 1995, JD 1,000.

Publications

Book

Abu-Jaber, Nizar. 2010. Jordan and the environmental challenge (الأردن والتحدى البيئي)
Published by Dar Al Shorouk, Amman, with support from the Ministry of Culture. 216
pp. (*in Arabic*).

Refereed articles

Alqudah, M., **Abu-Jaber, N.**, Al-Rawabdeh, A., and Al-Tamimi, M., in press.
Paleoenvironmental study of the Late Cretaceous-Eocene Tethyan Sea associated with
phosphorite deposits of Jordan, *Applied Sciences*.

Abu-Jaber, N., Hamarneh, C., Al-Farajat, M., Al-Rawabdeh, A. and Al Khasawneh, S.,
2022. Historic management of the dynamic landscape in the surroundings of Petra,
Jordan. *Jordan Journal of Earth and Environmental Sciences* 13 (4): 232-241.

AlRayyan, K., Hamarneh, C. and **Abu-Jaber, N.**, 2022. Fortified in time: An Adaptive
reuse of Wadi Rum Fort. Chapter 42, in: Cultural Heritage: At the Intersection of the
Humanities and the Sciences, ed. Hani Hayajneh, *Archäologie: Forschung und
Wissenschaft. Bd. 7*, pp.623-636. ISBN 978-3-643-91252-7.

Hamarneh, C., **Abu-Jaber, N.**, Joudeh, S., Al-Rawabdeh, A., Abdelal, Q. and Al Qudah,
K., 2022. Nabatean flood control system of Wadi Hremiyyeh, Petra restoring and
learning from the past. *Near Eastern Archaeology*, 85 (3): 220-227.

al Khasawneh, S., **Abu-Jaber, N.**, Hamarneh, C. and Murray, A., 2022. Age
determination of runoff terrace systems in Petra, Jordan, using rock surface
luminescence dating, *Archaeological and Anthropological Sciences* 14:48.

Abdelal, Q., Al-Rawabdeh, A., Al Qudah, K., Hamarneh, C. and **Abu-Jaber, N.**, 2021.
Hydrological assessment and management implications for the ancient Nabataean flood
control system in Petra, Jordan. *J. Hydrol.* 601: 126583

El-Hasan, T., Harfouche, M., Aldrabee, A., Abdelhadi, N., **Abu-Jaber, N.**, and
Aquilanti, G., 2021. Synchrotron XANES and EXAFS evidences for Cr⁺⁶ and V⁺⁵
reduction within the oil shale ashes through mixing with natural additives and hydration
process, *Heliyon* 7(4), e06769.

Al-Bashaireh, K., Weber-Karyotakis, T.M., **Abu-Jaber, N.** and Lepaon, T., 2020.
Marble Sculptures from the Great Eastern Baths of Gerasa (Jordan): The Sources of the
Marbles. *Bulletin of the American Schools of Oriental Research*, 384: 21-43.

Abu-Jaber, N., Al Khasawneh, S., Alqudah, M., Hamarneh, C., Al-Rawabdeh, A. and Murray, A., 2020. Lake Elji and a geological perspective on the evolution of Petra, Jordan. *Palaeogeography, Palaeoclimatology, Palaeoecology*. 557 (2020) 109904

Abu-Jaber, N., Rambeau, C., Hamarneh, C., Lucke, B., Inglis, R. and Alqudah, M., 2020. Development, distribution and palaeoenvironmental significance of terrestrial carbonates in the Petra region, southern Jordan. *Quaternary International*. 545: 3-16.

Lucke, B., Sandler, A., Vanselow, KA., Bruins, HJ., **Abu-Jaber, N.**, Bäumler, R., Porat, N., Kouki, P., 2019. Composition of Modern Dust and Holocene Aeolian Sediments in Archaeological Structures of the Southern Levant. *Atmosphere*. 10(12):762.

Awawdeh, M., Jaradat, R., al Qudah, K., **Abu-Jaber, N.**, Awawdeh, M., 2019. A GIS-based Hydrogeological and Geophysical Study for the Analysis of Potential Water Infiltration in the Upper Yarmouk River Basin, North Jordan. *Jordan Journal of Earth and Environmental Sciences* 10(3): 136-144.

El-Hasan, T. and **Abu-Jaber, N.**, 2019. Geochemistry, mineralogy and origin of the shallow water sediments collected along the eastern shore of the northern part of the Dead Sea. *Carbonates and Evaporites* 34(3): 975-985.

El-Hasan, T., **Abu-Jaber, N.** and Abdelhadi, N., 2019. Hazardous toxic element mobility in burned oil shale ash, and attempts to attain short- and long-term solidification. *Oil Shale* 36(2S): 226-249.

AlRayyan, K., Hamarneh, C., Sukkar, H., Ghaith, A. and **Abu-Jaber, N.**, 2019. From abandoned mines to a labyrinth of knowledge: A conceptual design for a geo-heritage park museum in Jordan. *Geoheritage* 11(2): 257-270.

Lucke, B., Roskin, J., Vanselow, K., Bruins, H., **Abu-Jaber, N.**, Deckers, K., Lindauer, S., Porat, N., Reimer, P., Bäumler, R., Erickson-Gini, T., Kouki, P., 2019, Character, rates, and environmental significance of Holocene dust accumulation in archaeological hilltop ruins in the southern Levant. *Geosciences* 9:190.

Jones, M.D., **Abu-Jaber, N.**, AlShdaifat, A., Baird, D., Cook, B.I., Cuthbert, M.O., Dean, J.R., Djamali, M., Eastwood, W., Fleitmann, D., Haywood, A., Kwiecien, O., Larsen, J., Maher, LA., Metcalfe, SE., Parker, A., Petrie, CA., Primmer, N., Richter, T., Roberts, N., Roe, J., Tindall, JC., Unal-Imer, E. and Weeks, L. 2019. 20,000 years of societal vulnerability and adaptation to climate change in southwest Asia. *Wiley Interdisciplinary Reviews: Water*. 6 (2): e1330.

Odeh, T., Boulad, N., Abed, O., Abu Yahya, A., Khries, N. and **Abu-Jaber, N.** 2017. The influence of geology on landscape typology in Jordan: Theoretical understanding and planning implications. *Land*. 6(3): 51.

Abu-Jaber, N., 2017. Mopping up leaking carbon: A natural analog at Wadi Namaleh, Jordan. *Chemie der Erde-Geochemistry*. 77:267-279.

Hamarneh, C. and **Abu-Jaber, N.**, 2017. Mosaic pavement mortar production in *Gerasa* in the Byzantine period. *Archaeological Research in Asia*. 9:22-33.

Al Qudah, K., Abdelal, Q., Hamarneh, C. and **Abu-Jaber, N.**, 2016. Taming the torrents: The hydrological impacts of ancient terracing practices in Jordan, *J. Hydrol.* 542: 913-922.

Abu-Jaber, N. and El-Naser, H. 2016. Geology and hydrochemistry of the deep sandstone aquifers of Jordan. *Environmental Earth Sciences* 75: 875.

Abu-Jaber, N., Abunnasr, Y., Yahya, A. A., Boulad, N., Christou, O., Dimitropoulos, G., Gkoltsiou, K., Khreis, N., Manolaki, P., Michael, K., Odeh, T., Papatheodoulou, A., Sorotou, A., Sinno, S., Suliman, O., Symons, N., Terkenli, T., Trigkas, V., Trovato, M.G., Victora, M., Zomeni and Vogiatzakis, I. N., 2015. Travelling in the eastern Mediterranean with landscape character assessment. In *Third International Conference on Remote Sensing and Geoinformation of the Environment* (pp. 9535-01-9535-11). International Society for Optics and Photonics.

Al Qudah, K., **Abu-Jaber, N.**, Jaradat, R. and Awawdeh, M., 2015. Artificial rainfall tests, soil moisture profiles and geoelectrical investigations for the estimation of recharge rates in a semi-arid area (Jordanian Yarmouk River Basin). *Environmental Earth Sciences* 73:6677-6689.

Hamarneh, C. and **Abu-Jaber, N.**, 2013. Documentation and protection of the quarries of Gerasa. *Levant* 45 (1): 57-68.

Abu-Jaber, N., al-Saad, Z., Shiyyab, A. and Degryse, P., 2012. Provenance of white marbles from the Nabatean sites of Qasr al Bint and Collonaded Street Baths at Petra, Jordan. *Mediterranean Archaeology and Archaeometry* 12 (1): 21-29.

Abu-Jaber, N., 2011. In search of a nuclear waste disposal site. *Jordan Journal of Civil Engineering* 5:315-321.

Abu-Jaber, N., al-Saad, Z. and Smadi, N., 2009. The quarriescapes of Gerasa (Jarash), Jordan. In Abu-Jaber, N., Bloxam, E.G., Degryse, P. and Heldal, T. (eds.), *QuarryScapes: ancient stone-quarry landscapes in the Eastern Mediterranean*. Geological Survey of Norway Special Publication 12, pages 67-75.

Ershaidat, N., **Abu-Jaber, N.**, Al-Bataina, B., Shobaki, J. and Jaradat, A., 2009. Relationship between the effective diffusion coefficient of soil radon and groundwater recharge in semi-arid areas. *Env. Earth Sciences* 59: 261-268.

Abu-Jaber, N., Al Saad, Z., and al Qudah, M., 2009. Geomorphological and geological constraints on the development of Early Bronze chert industries at the northern rim of

the Al Jafr Basin, Southern Jordan. *Mediterranean Archaeology and Archaeometry* 9 (1): 17-27.

Al Qudah, K. and **Abu-Jaber, N.**, 2009. A GIS database for sustainable management of shallow water resources in the Tulul al Ashaqif region, NE Jordan. *Water Resources Management* 23: 603-615.

Abu-Jaber, N. and Kharabsheh, A., 2008. Ground water origin and movement in the upper Yarmouk Basin, Northern Jordan. *Env. Geol.* 54: 1355-1365.

Abu-Jaber, N., Mustafa, H. and Melhem, D., 2006. Geology of the Dhaher (Bargish) cave system, NW Jordan. *Abhath Al Yarmouk, Basic Science and Engineering Series* 15 (2): 351-363.

Kimberley, M. and **Abu-Jaber, N.**, 2005. Shallow perched groundwater, a flux of deep CO₂, and near-surface water-rock interaction in northeastern Jordan: An example of positive feedback and Darwin's "Warm Little Pond". *Precambrian Research* 137: 273-280.

Abu-Jaber, N., 2004. Geochemical modeling of the effects of the proposed Red Sea-Dead Sea canal. *Abhath Al Yarmouk, Basic Science and Engineering Series* 13 (2): 269-281.

Abu-Jaber, N., Abu-Orabi, S., Gharaibeh, S., Malkawi, H., Momani, I., Qudah, M., and Yousef, N. 2003. Suitability of agricultural drainage water of the Safi area for potash production. *Abhath Al Yarmouk, Basic Science and Engineering Series* 12 (2B): 585-602.

Abu-Jaber, N., Abderahman, N., Azaizeh, W., Omari, H., Haddadin, G., Al Sokhny, K., Hamzeh, M., and Al Qudah, K., 2003. Investigation of shallow ground water in the Tulul al Ashaqif highlands, Jordan. *Abhath Al Yarmouk, Basic Science and Engineering Series* 12 (2A): 381-400.

Abu-Jaber, N. and Ismail, M., 2003. Hydrogeochemical modeling of the shallow groundwater in the Northern Jordan Valley. *Env. Geol.* 44: 391-399.

Abu-Jaber, N., 2001. Geochemical evolution and recharge of the shallow aquifers at Tulul al Ashaqif, NE Jordan. *Env. Geol.* 41: 372-383.

Abu-Jaber, N., al Saad, Z. and Quraan, R., 2001. Provenance and technology of the Early Bronze pottery, p. 193-202 in: Zeidan Kafafi (ed.), *Jebel Abu Thawwab (Er-Rumman), Central Jordan. The Late Neolithic and Early Bronze I occupations.* Bibliotheca Neolithica Asiae meridionalis et occidentalis & Monographs of the Institute of Archaeology and Anthropology, Yarmouk University 3. Berlin, *Ex Oriente*.

Abu-Jaber, N., Hess, J. and Howcroft, W., 2001. Chemical erosion in the Lilburn cave system, Kings Canyon National Park, California. *Ground Water*. 39: 223-229.

Bajjali, W. and **Abu-Jaber, N.**, 2001. Climatological signals from paleogroundwater in Jordan. *J. Hydrol.* 243: 133-147.

Abu-Jaber, N. and Al Saad, Z., 2000. Petrology of Middle Islamic pottery from Khirbat Faris, Jordan. *Levant* 32:179-188.

Dottridge, J. and **Abu-Jaber, N.**, 1999. Groundwater resources and quality in northeastern Jordan: safe yield and sustainability. *Applied Geography* 19: 313-323.

Eraifej, N. and **Abu-Jaber, N.**, 1999. Geochemistry and pollution of shallow aquifers in the Mafraq area, North Jordan. *Env. Geol.* 37:162-170.

Abu-Jaber, N., 1998. A new look at the chemical and hydrological evolution of the Dead Sea. *Geochim. Cosmochim. Acta*. 62: 1471-1479.

Abu-Jaber, N.S., Jawad Ali, A. and Al Qudah, K., 1998. Use of solute and isotopic composition of groundwater to constrain the groundwater flow system of the Azraq area, Jordan. *Ground Water* 36: 361-365.

Abu-Jaber, N., Jawad Ali, A., and Shinaq, R. 1997. Genesis of the Amman Formation silicified limestone of Jordan. *Africa Geoscience Review* 4: 381-393.

al Saa'd, Z., **Abu-Jaber, N.**, and Bataineh, S., 1997. Provenance and technology of Late Neolithic pottery from Wadi Shueib, Jordan. in: Gebel, H.G., Kafafi, Z., and Rolefson, G. (eds.), Prehistory of Jordan II, Perspectives from 1997. Studies in early Near Eastern production, subsistence and environment 4, p. 615-624, *Ex oriente*, Berlin.

Abu-Jaber, N.S., Al-Bataina, B.A. and Jawad Ali, A., 1997. Radiochemistry of sediments from the southern Dead Sea, Jordan. *Env. Geol.*, 32:281-284.

Abu-Jaber, N.S., El Aloosy, A.S. and Jawad Ali, A., 1997. Determination of aquifer susceptibility to pollution using statistical analysis: A case study from Wadi Shueib, Jordan. *Env. Geol.*, 31: 94-106.

Al-Shereideh, S., Saqqa, W. and **Abu-Jaber, N.**, 1997. Petrology, microfacies and geochemistry of phosphate beds in the Upper Cretaceous Amman Formation, SE Irbid. *Africa Geoscience Review* 4: 405-415.

Abu-Jaber, N.S. and Wafa, N.A., 1996. Hydrochemistry of aquifers in the southern Dead Sea area, Jordan. *Environmental Geol.*, 28: 213-222.

Abu-Jaber, N.S., 1993. Uniformitarian geochemical constraints on the genesis of Jordanian Tethyan phosphorites. *Mu'tah Journal for Research and Studies-Applied and Natural Sciences Series*, 8 (4): 301-322.

Nasir, S., Abu-Rukah, Y., Sadooni, F., **Abu-Jaber, N.S.** and Duwairi, I., 1993. Pyrite nodules in Lower Cretaceous sandstone from Wadi Zerqa, North Jordan. *Mu'tah Journal for Research and Studies-Applied and Natural Sciences Series*, 8 (4): 323-339.

Abu-Jaber, N. and Kimberley, M., 1992. Origin of ultramafic-hosted vein magnesite on Margarita Island, Venezuela. *Mineralium Deposita*, 27: 234-241.

Abu-Jaber, N. and Kimberley, M., 1992. Origin of ultramafic-hosted vein magnesite deposits. *Ore Geology Reviews*, 7: 155-191.

Llano, M., Cardenas, J., Mayz, L., Guevara, P., Armas, A., Freon, P., Kimberley, M. and **Abu-Jaber, N.**, 1991, Elementos biogenicos de los sedimentos de la fosa de cariacó y los recursos icticos del nororiente Venazolano. *Memoria Sociedad de Ciencias Naturales La Salle*, LI (135-136): 57-71.

Abu-Jaber, N., Kimberley, M. and Cavaroc, V., 1989. Mesozoic-Paleogene basin development within the eastern Mediterranean borderland. *J. Petrol. Geol.*, 12: 419-436.

Numerous abstracts in conference proceedings.

Numerous articles in non-refereed publications, including local newspapers, magazines, book chapters and websites as well as a blog (<http://jordanscience.wordpress.com>).

Graduate students

M.Sc. in Environmental and Renewable Energy Engineering at GJU

Dana Al Sawaeer, 2023. Investigating groundwater recharge, movement and pollution in the Naur District, Amman, Jordan.

M.Sc. in spatial planning at GJU

Sami Tarabieh, 2015. Sustainable spatial planning constraints in Al-Me'raad watershed, Jordan.

M.Sc. in geology or environmental science at Yarmouk University

Mohammad Qudah, 2007. Ancient chert quarries landscape and provenance study in the northern Al-Jafar basin, Southern Jordan.

Ahmad Jaradat, 2007. Use of radon diffusion in soil to estimate recharge in the upper Yarmouk Basin, Jordan.

Alaa' Kharabsheh, 2006. Hydrology and hydrochemistry of the Upper Yarmouk river basin, northern Jordan.

Taher Jarrah, 2005. Changes in forest cover and land use during the last 50 years in Al-Mazar Al Shamali Subdistrict, using GIS.

Deema Melhem, 2004. Geology of the Birgish Cave system, N. Jordan.

Mohammad Khawaja, 2004. A GIS based decision support system for development of shallow ground water in the Tulul al Ashaqif area, NE Jordan.

Wael Azaizeh, 2003. Hydrogeology of the shallow aquifers of Wadi Ghussein, NE Jordan.

Khaled Bashaireh, 2003. Provenance of marble and caliche used in the building of Um Qais (Gadara), NW Jordan.

Ma'moun Ismail, 2002. Shallow groundwater salination in the northern Jordan Valley.

Muheeb Awawdeh, 1998. Paleoclimatic variation at Qa' Habbabiya, Jordan.

Nader Eraifej. 1997. Geochemistry and pollution of the shallow aquifers in the Mafraq area, northern Jordan.

Sana' Bataineh. 1996. Provenance and technology of Neolithic pottery from Wadi Shueib, Jordan.

Ra'eda Quraan. 1996. Archaeogeology of Early Bronze pottery from the Abu Thawwab site, Jordan.

Undergraduate graduation projects (GJU)

Lamees Jabaheen, 2021. The effect of using terraces in the reduction of flow velocities using HEC-RAS software: a case study of Wadi Zarqa Ma'in.

Mohammad Abu Shanab, Mohammed Rjoub and Anas Saud, 2020. Construction of a portable rainfall simulator for soil runoff studies.

Mohammad Qashou and Sanad Quraan, 2019. Design of Flood Control System in Petra, Jordan Using Ancient Technologies.

Aseel Mansour and Lamees Al Hires, 2019. Documenting the hydrology and the hydrogeology of the German Jordanian University Region.

Heba Asayreh, 2017. Supercritical CO₂ effect on the geochemistry of groundwater.

- Mu'tasem Al Saifi, 2017. Assessment of the effectiveness of the WWTP at GJU.
- Said Abulhaija. 2017. A proposed hydrological research station in Wadi Araba.
- Nebras Maslamani. 2017. Leaching studies on Jordanian oil shale ash.
- Mo'minah Abu Hammour. 2016. Groundwater flow and sinkhole development in the southern Dead Sea, Jordan.
- Reem Haddadin. 2016. The effect of leaking of supercritical CO₂ on groundwater.
- Samer Edilbi. 2016. Assessment of radionuclides in Jordanian phosphogypsum for industrial purposes.
- Mousa Lutfi. 2014. Environmental issues related to lead battery production in Jordan.