

***Curriculum Vitae***  
**Sana`a Abdulkareem AL-ZYOUND, PhD**



**Personal:**

**Surname:** AL-ZYOUND  
**Full name:** Sana`a Abdulkareem Fayad  
**Nationality:** Jordanian  
**Date of Birth:** 03.09.1981  
**Place of Birth:** Amman – Jordan  
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**Academic Qualifications**

Oct. 2008 – Aug. 2012

Dr. Eng. Degree in Geothermal Energy Sciences and Technology, Technische Universität Darmstadt, Germany

Thesis Title: *Geothermal Cooling in Arid Regions: An Investigation of the Jordanian Harrat Aquifer System*

Feb. 2003 – Aug. 2005

M.Sc. degree in Applied Geology Department of Earth and Environmental Sciences, Hashemite University, Zarqa, Jordan.

Thesis Title: *Mineralogy, geochemistry and physico-mechanical evaluations of al-Hashimiyya basaltic Rocks- Jordan*

Sept. 1999 – Feb. 2003

B.Sc. (Honor) degree in Department of Earth and Environmental Sciences, Hashemite University, Zarqa, Jordan.

**Professional Experiences**

July 2020 – recent

Director of Women's Studies Center at Al al-Bayt University

Aug. 2020 – recent

Associate professor at Al al-Bayt University / Earth and Environmental Sciences department – Institute of Earth and Environmental Sciences

Dec. 2013 – Aug. 2020

Assistant professor at Al al-Bayt University / Earth and Environmental Sciences department –  
Institute of Earth and Environmental Sciences

Sep. 2017 – Sep. 2018

Director of Water, Environment and Arid Regions Research Center (WEARRC)

Oct. 2014 – Feb. 2015

Head of the department of earth and environmental sciences / Al al-Bayt University

Sep. 2012 – Dec. 2013

Lecturer at Al al-Bayt University

April 2009 – April 2012

Teaching Assistant in Geothermal Science and Technology  
Institute of Applied Geosciences, Technische Universität Darmstadt, Germany.

Oct. 2006 – June 2008

Teaching and Research Assistant  
Department of Earth and Environmental Sciences, Hashemite University, Zarqa, Jordan.

March 2006 – Oct. 2006

High school teacher / Ministry of Education

## **Training Courses**

Sep. 2011

Block course in GIS (one week)

March 2010

Block course in FEFLOW modeling (Heat and flow / geothermal applications)

April. 2009

Block course in Hydrogeology (one week)

Feb. 2009

Block course in GOCAD (one week)

Aug. 2006– Oct. 2006

Training course in Teaching and Communication Skills for Teachers / Ministry of Education-  
JORDAN

June 2003 – Sept. 2003

Training course in Computer Driving – International Computer Driving License (ICDL)

## **Modeling and Software**

1. Finite Element Subsurface Flow and Transport Simulation System (FEFLOW): groundwater level calibration in the studied wells, heat (temperature) calibration in the studied points, flow transport model, heat transport model
2. Well design basic conceptual design
3. Geological Objects Computer Aided Design (GOCAD) : 3-D geology model  
Geographic Information Systems (GIS): 2-D geology model, lithology and topography.
4. Surfer: groundwater data interpretation
5. Grapher: groundwater drawdown modeling
6. Coral draw skills

## **Grants and Awards**

2019

Research grant from DAAD program of re-invitation a former scholarship holder for the project entitled with “Evaluation of a prospective geothermal reservoir in NE Jordan: Investigation of thermophysical and hydrochemical characteristics”

2019

International DAAD Alumni-Seminar “Applied Engineering for Smart Integration of Renewable Energy in Value Chains in Developing Countries” and the world's leading trade fair for the industry Hannover Messe

2019

Newton-Khalidi Fund for Researchers Link Workshops

2008 - 2012

DAAD Scholarship, PhD in Technische Universität Darmstadt- Germany

2003 - 2005

Grant from Hashemite University, during M.Sc. study- Jordan

1999-2003

Grant from Ministry of Higher Education and Scientific Research, B.Sc. degree, Jordan

## **Analytical skills**

Technical and laboratory analysis skills in

1. Thermo - hydrochemical analysis (environmental monitoring) for water types; major and minor elements, PH, Electrical conductivity, water temperature, TDS, BOD.
2. Soil mechanics; water content, organic matter, Proctor density, porosity and void ratio, soil classification, sieve and hydrometer analysis, Atterberg limits.
3. Rock thermo-mechanics; rocks thermal conductivity, density, permeability, porosity, water absorption, compressive strength, tensile strength, triax, rock Schmidt hammer hardness, ultrasonic velocity, abrasiveness, physical rock properties.

## Projects, scientific collaboration, academic cooperation

1. Three months project entitled with “Evaluation of a prospective geothermal reservoir in NE Jordan: Investigation of thermophysical and hydrochemical characteristics” DAAD program of re-invitation a former scholarship holder
2. Selection committee member of green field cities – local advisory committee.
3. DAAD Liaison representative in Al al Bayt University.
4. DAAD PhD scholars selection committee member.
5. Participating in environmental, water management and heritage preservation days in Al Mafraq city.
6. Lecturing secondary school students in environmental issues in Mafraq and Zarqa schools.
7. Participating in earth and environmental days in Hashemite University, Royal Scientific Society, The Higher Council for Science and Technology.
8. Participating in info days for ERASMUS PLUS, PRIMA, H2020 and Newton Funds.
9. Advisory of six masters students in applied earth sciences program and tens of graduation projects.

## Publications

### Published peer reviewed articles

Al-Zyoud and Al-Malabeh (2007); *Physico-Mechanical Evaluations of Al-Hashimiyya Basaltic Rocks*, 6<sup>th</sup> International Symposium on Eastern Mediterranean Geology. (April, 2007), Amman, Jordan.

Al-Malabeh and Al-Zyoud (2007); *Mineralogy and Geochemistry Evaluations of Al-Hashimiyya Basaltic Rocks, Jordan*, 6<sup>th</sup> International Symposium on Eastern Mediterranean Geology. (April, 2007), Amman, Jordan.

Al-Zyoud.S, Al-Malabeh.A. and Sass.I, (2009) “*Geothermal and Engineering Evaluation of Basaltic Rocks in Harrat Al-Shaam, Jordan*”, International Conference and Exhibition on Green Energy and Sustainability for Arid Region and Mediterranean Countries ICEGES (Nov. 2009), Amman, Jordan.

Al-Zyoud, S., Al Malabeh, A. and Sass, I. (2009): *Evaluation of physicommechanical properties of basaltic rocks in Harrat Al-Shaam, Jordan*. International Conference and Exhibition on Green Energy and Sustainability for Arid Regions and Mediterranean Countries. Amman, Jordan.

Al-Zyoud, S. and Sass, I. (2011): *Thermophysical properties of flood basalts as prospective geothermal reservoirs: Case study Harrat Al Shaam, Jordan*. 18. Tagung für Ingenieurgeologie – Berlin. 299-300. Germany.

Al-Zyoud, S., Rühaak W. and Sass, I. (2012): *The potential of shallow groundwater resources for cooling purposes - a Geothermal case study in north east Jordan*. Proceedings, 37th Stanford Geothermal Workshop. Stanford, California, USA.

Al-Zyoud, S., Rühaak, W. and Sass, I., (2015). *Dynamic numerical modeling of the usage of groundwater for cooling in north east Jordan - a geothermal case study*. Renewable Energy, 62, pp. 63 - 72.

Al-Zyoud, S., Rühaak, W., Forootan, E. and Sass, I. (2015): *Over Exploitation of Groundwater in the Centre of Amman Zarqa Basin—Jordan: Evaluation of Well Data and GRACE Satellite Observations*. Resources 2015, 4, 819-830.

Elhaddad, E. and Al-Zyoud, S (2017); *Geochemical processes and quality assessment of pollution of Rosetta branch, Nile River, Egypt*. Arabian Journal of Geosciences, 2017, Volume 10, Number 5, Page 1.

Ibrahim, M., Al-Zyoud, S. and Elhaddad, E. (2018) *Surface Water Quality Monitoring for River Nile, Egypt Using GIS-Techniques*. Open Journal of Geology, 8, 161-173.  
<https://doi.org/10.4236/ojg.2018.82010>

Al-Zyoud, S. (2019) *Prediction Approach for Petrothermal Properties in Al Hashimiyya Basalts-Jordan*. Open Journal of Geology, 9, 43-56. <https://doi.org/10.4236/ojg.2019.91004>

Al-Zyoud, S. (2019) *Thermo-Physical and Mechanical Properties of Al Hashimiyya Basaltic Rocks, Jordan*. International Journal of Geosciences, 10, 193-208.  
<https://doi.org/10.4236/ijg.2019.102012>

Al Dhoun, H. and Al-Zyoud, S. (2019) *Geochemical Assessments and Potential Energy Sources Evaluations Based on Oil Shale and Geothermal Resource in Wadi Al-Shallala—North Jordan*. International Journal of Geosciences, 10, 351-365. <https://doi.org/10.4236/ijg.2019.103020>

Al-Zyoud, S. (2019) *Shallow Geothermal Energy Resources for Future Utilization in Jordan*. Open Journal of Geology, 9, 783-794. <https://doi.org/10.4236/ojg.2019.911090>

Al-Zyoud, S. (2019) *Geothermal Energy Utilization in Jordanian Deserts*. International Journal of Geosciences, 10, 906-918. <https://doi.org/10.4236/ijg.2019.1010051>

## Talks

Al-Zyoud, S. (2019): *Geothermal Energy Potential for Future Utilization in Jordan*, 22-28 Oct., 2019. Mugla, Turkey.

Al-Zyoud, S (2019): *Thermal water resources challenges in Jordan*. BIRI Water Management Workshop, Sep. 2019, Ankara, Turkey.

Al-Zyoud, S. and Sass, I. (2011): *Thermophysical properties of flood basalts as prospective geothermal reservoirs: Case study Harrat Al Shaam, Jordan*. 18. Tagung für Ingenieurgeologie – Berlin. 299-300.

Al-Zyoud, S., Al Malabeh, A. and Sass, I. (2010): *Evaluation of Geothermal Properties of Basaltic Rocks in Harrat Al-Shaam, Jordan*. First European Geothermal PhD Day EGP D 2010, An Initiative of the EERA Joint Program in Geothermal Energy, Collection of Abstract: p.p.10, Potsdam.

Al-Zyoud, S., Al Malabeh, A. and Sass, I. (2009): *Evaluation of physicommechanical properties of basaltic rocks in Harrat Al-Shaam, Jordan*. International Conference and Exhibition on Green Energy and Sustainability for Arid Regions and Mediterranean Countries. Amman, Jordan.