

# Mu'ayyad Al Hseinat

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School of Sciences, Department of Geology  
University of Jordan

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## Introduction

Al Hseinat holds his Ph.D. in Geophysics from the University of Hamburg in 2016. The Ph.D. thesis was proposed to explore the subsurface structures of the SW Baltic Sea using the multichannel reflection seismic data. The masterwork focused on the understanding of the structural deformational pattern of the so-called Wadi Shueib Fold-Belt in Jordan. Al Hseinat has more than 10 years of local and regional experience in the field of Plate Tectonics studies. Currently, Al Hseinat's research aims to link surface/subsurface faulting and folding to the ongoing stress field orientation related to the major plate boundaries to build a better understanding of the structural deformational style of Jordan.



## Editorial Board Member of

- **Journal of Earth Science and Geology (Madridge: IJEG). ISSN: 2642-1569**  
[https://madridge.org/editorial\\_board\\_member/Muayyad-Al-Hseinat](https://madridge.org/editorial_board_member/Muayyad-Al-Hseinat)
- **Advances in Environmental Studies: ISSN: 2642-4231**  
[https://scholars.direct/editor-Full\\_bios.php?jid=environmental-studies&eid=DP96143817](https://scholars.direct/editor-Full_bios.php?jid=environmental-studies&eid=DP96143817)

## Work Experience

**Assistant Professor**

**08.01.2017 – Present**

**University of Jordan**

Instructor, teaching several courses related to geophysics and tectonics.

**Research Assistant**

**01.01.2015 – 30.06.2016**

**University of Hamburg**

Institute of Geophysics, Center for Earth System Research and Sustainability,

University of Hamburg/Germany (DFG grant -BurVal-Baltic Project), Bundesstrasse 55, 20146 Hamburg, Germany

**Teaching assistant**

**13.09.2009 – 01.10.2010**

**The University of Jordan**

Instructor for Environmental Science and Earth courses

University of Jordan, Marine Faculty-Aqaba, Jordan

**Instructor**

**10.2007 – 06.2009**

**Ministry of Education**

Instructor for Environmental and Earth Science Course for Secondary Level

Different schools in Irbid

**Geological Trainee**

**24.01.2007 – 05.01.2008**

**Natural Resources Authority**

Training on Geophysical and GIS Software's at the Natural Resources Authority in Amman, Jordan.

**Environmental Inspector (Trainee)**

**01.2007 – 01.2008**

**Ministry of Environment**

Inspection in field for Environmental Permissions at the Irbid Department of Environment in the Ministry of

Environment, Jordan.

**Geological Inspector**

**06.2006 – 09.2006**

**Harza Co. – Al-Wehda Dam Project**

Inspector for Dam grouting, Al-Wehda Dam Project in Irbid, Jordan.

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## Education

Ph.D. Degree 04.2011 – 12.2016

### Ph.D. Degree in Geophysics

**Thesis title:** A seismic reflection study of the Late Cretaceous to recent tectonic evolution of the North German Basin and the transition zone to the Baltic Shield/southwest Baltic Sea.

Institute of Geophysics, Center for Earth System Research and Sustainability, University of Hamburg, Germany

M.Sc. Degree 09.2005 – 05.2009

Master of Science, Rank: 85.8, Grade: Very Good, First honor.

### M.Sc. Degree in Structural Geology

**Thesis Title:** Structural Analysis of the Wadi Shueib Fold Belt, Jordan

Yarmouk University, Irbid / Jordan

B.Sc. Degree 09.2001 – 06.2005

Bachelor of Science, Rank: 80.93, Grade: Very Good, one of the top ten.

### B.Sc. Degree in Applied Geological and Environmental Science

**Graduation Project:** Quality Assessment of Ground Water in Southern Part of Jordan

AL al-Bayt University, Al-Mafraq / Jordan

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## Languages

Mother tongue Arabic

Other languages English (Excellent Level)

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## Technical Skills

- Very good command in GIS Tools, i.e. ArcGIS 10.7.
- Very good command in using Kingdom Suite 8.6 + Software for Seismic Interpretation.
- Good knowledge in using Seismic Unix software for Seismic processing.
- Very good command in using Geological Software's; i.e. SURFER 12.x, ROCKWARE 6.x, and Stereographic Projection v2.5.
- Very good command in using CorelDraw Software.

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## Memberships

- Board Member at Jordanian Geologist Association (JGA) – Irbid Branch, April 2008 – April 2011.
- Member in Jordanian Geologist Association. July 2005 – Present.

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## Special Courses and Certificates

- Marine Geophysical experiments including High-resolution Multi-channel seismic and echosounder data (Institute of geophysics\ Hamburg) took place in the Atlantic Ocean (Azoren Plateau, Cruise—M113) 28<sup>th</sup> Dec. 2014 to 23<sup>rd</sup> Jan. 2015.

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<http://www.pangaea.de/PHP/CruiseReports.php?b=Meteor>

<http://www.ldf.uni-hamburg.de/meteor/wochenberichte/wochenberichte-meteor/m113-m116/meteor-expeditionsheft-113-116.pdf>

- Land Geophysical experiments including ground penetrating radar, geoelectric and high- resolution vibrator seismic (Institute of geophysics\Hamburg) Master thesis data acquisition held in Copenhagen\Denmark May 2013.
- Marine Geophysical experiments including High-resolution Multi-channel seismic and echosounder data (Institute of geophysics\ Hamburg) took place in the Caribbean Sea (Yucatan Throughflow, Cruise-94) March 2013.  
[https://getinfo.de/en/search/id/awi%3Adoi%7E10.2312%252Fcr\\_m94/](https://getinfo.de/en/search/id/awi%3Adoi%7E10.2312%252Fcr_m94/)  
(Hübscher, C., D. Nürnberg, M. Al Hseinat, M. Alvarez García, Z. Erdem, N. Gehre, A. Jentzen, C. Kalvelage, C. Karas, B. Kimmel, T. Mildner, A. O. Ortiz, A. O. Parker, A. Petersen, A. Raeke, S. Reiche, M. Schmidt, B. Weiß, D. Wolf (2014) Yucatan Throughflow - Cruise No. M94 – March 12 – March 26, 2013 – Balboa (Panama) – Kingston (Jamaica). METEOR Berichte, M94, 32 pp., DFG-Senatskommission für Ozeanographie, DOI:10.2312/cr\_m94)
- Land Geophysical experiments including ground penetrating radar, geoelectric and high- resolution vibrator seismic (Institute of geophysics\ University of Hamburg) Training field course held in Helgoland\Germany October 2011.
- Diving Course in Open Seas held at the Marine Science Station (MSS), Aqaba\ Jordan, May – June 2010.
- Basics of Disaster Risk Reduction, held through the Support to Building of National Capacities for Earthquake Risk Reduction at Aqaba Special Economic Zone Project, Organized by ASEZA, UNDP and the Swiss Agency for Development and Cooperation SDC. Aqaba\Jordan, .20 - 21 June 2010.
- Basics of Geology and Natural Disasters, held through the Support to Building of National Capacities for Earthquake Risk Reduction at Aqaba Special Economic Zone Project, Organized by ASEZA, UNDP and the Swiss Agency for Development and Cooperation SDC. Aqaba\Jordan,13 to 16 June 2010.
- The Means and Techniques of Risk Management at the Local Level, held through the Support to Building of National Capacities for Earthquake Risk Reduction at Aqaba Special Economic Zone Project, Organized by ASEZA, UNDP and the Swiss Agency for Development and Cooperation SDC. Aqaba\Jordan, June 2010.
- Interpreting the results of seismic risk assessment, held at through the Support to Building of National Capacities for Earthquake Risk Reduction at Aqaba Special Economic Zone Project, Organized by ASEZA, UNDP and the Swiss Agency for Development and Cooperation SDC. Aqaba\ Jordan, June 2010.
- Advance course in applied geophysics, including a full training on geophysical software's, i.e. Interpret VES, Refraction, and SRIM.
- An Introductory Course of Interactive Seismic Interpretation Using Kingdom Suite +, equivalent to 40 training hours, during the period 17 September 2008 – 28 December 2008.
- Cambridge International Diploma in IT Skills awarded by University of Cambridge Local Examinations Syndicate under the Candidate Number: JO08214154.

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## Projects and Publications

- Ibraheem Hamdan, Abdulla Al-Rawabdeh, **Mu'ayyad Al Hseinat**, 2020 (under review). Assessment of the Groundwater vulnerability for the Corridor wellfield using the modified DRASTIC model: A case study from the east of Jordan. Open Journal of Geology.
- Abdulla M. Al-Rawabdeh, Khaled Hazaymeh, Sara Nusir, Rana Shdifat, **Mu'ayyad Al Hseinat**, 2020. A GIS-EIP based Model for Mechanic Industrial Zone Site Selection in Al-Mafraq City, Jordan. Jordan Journal of Earth and Environmental Sciences (JJES).
- **Mu'ayyad Al Hseinat**, Abdulla M. Al-Rawabdeh, Malek Alzidaneen, Masdouq Al-Taj, Hind Ghanem, Abdullah Diabat, Ghaleb Jarrar, Mohammad Atallah, 2020. New Insights for Understanding the Structural Deformation Style of the Strike-Slip Regime along the Wadi Shueib and Amman-Hallabat Structures in Jordan Based on Remote Sensing Data Analysis, Jordan. Geosciences (MDPI) 10(7), 253. <https://doi.org/10.3390/geosciences10070253>
- **Mu'ayyad Al Hseinat**, Mohammad Rasheed, Saber Al-Rousan, 2020. Long-term quality record (1996-2018) of coastal sediments at the complex industrial site along the Jordanian coast of the Gulf of Aqaba. Environmental Monitoring and Assessment, 192(443), 1-10. <https://doi.org/10.1007/s10661-020-08390-3>
- Ghanem, H., McAleer, R.J., Jarrar, G.H., **Al Hseinat, M.**, Whitehouse M., 2020.  $^{40}\text{Ar}/^{39}\text{Ar}$  and U-Pb SIMS zircon ages of Ediacaran dikes from the Arabian-Nubian Shield of south Jordan. Precambrian Research, 343, 105714. <https://doi.org/10.1016/j.precamres.2020.105714>
- Khawar Ashfaq Ahmed, Sarfraz Khan, Mahmood Sultan, Umair Bin Nisar, Kalim Ullah and **Mu'ayyad Al Hseinat**, 2019. Precise seismic sub-structural model of Eocene Chorgali Limestone in Turkwal field, Central Potwar, Pakistan. Acta Geologica Sinica-English Edition, 93(6), 1711-1720. <https://doi.org/10.1111/1755-6724.13813>
- Hübscher, C., **Al Hseinat, M.**, Schneider, M., Betzler, C., 2019. Evolution of Contourite Systems in the Late Cretaceous Chalk Sea Along the Tornquist Zone, Sedimentology 66(4), 1341-1360. <https://doi.org/10.1111/sed.12564>
- **Al Hseinat, M.**, Hübscher, C., 2017. Late Cretaceous to recent tectonic evolution of the North German Basin and the transition zone to the Baltic Shield/southwest Baltic Sea. Tectonophysics 708, 28-55. <https://doi.org/10.1016/j.tecto.2017.04.021>
- **Al Hseinat, M.**, 2016. A Seismic Reflection Study of the Late Cretaceous to Recent Structural Evolution of the North German Basin and the Transition Zone to the Baltic Shield (Southwest Baltic Sea). Ph.D. thesis, Universität Hamburg, Faculty of Mathematics, Informatics and Natural Science, Department of Earth Sciences.
- **Al Hseinat, M.**, Hübscher, C., Lang, J., Lüdmann, T., Ott, I., Polom, U., 2016. Triassic to recent tectonic evolution of a crestal collapse graben above a salt-cored anticline in the Glückstadt Graben / North German Basin. Tectonophysics 680, 50-66. <http://www.sciencedirect.com/science/article/pii/S0040195116301251>
- Hübscher, C., D. Nürnberg, **M. Al Hseinat**, M. Alvarez García, Z. Erdem, N. Gehre, A. Jentzen, C. Kalvelage, C. Karas, B. Kimmel, T. Mildner, A. O. Ortiz, A. O. Parker, A. Petersen, A. Raeke, S. Reiche, M. Schmidt, B. Weiß, D. Wolf (2014) Yucatan Throughflow - Cruise No. M94 – March 12 – March 26, 2013 – Balboa (Panama) – Kingston (Jamaica). METEOR Berichte, M94, 32 pp., DFG-Senatskommission für Ozeanographie, DOI:10.2312/cr\_m94  
[https://getinfo.de/app/Yucatan-Throughflow-Cruise-No-M94-March-12-March/id/awi%3Adoi~10.2312%252Fcr\\_m94](https://getinfo.de/app/Yucatan-Throughflow-Cruise-No-M94-March-12-March/id/awi%3Adoi~10.2312%252Fcr_m94)

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- **Al Hseinat, M.**, Hübscher, C., 2014. Ice-load induced tectonics controlled tunnel valley evolution - instances from the southwestern Baltic. Quaternary Science Reviews 97, 121-135.  
<http://www.sciencedirect.com/science/article/pii/S0277379114001863>
- Project for Earthquakes Risk Assessment in Amman City; done by Department of Earth and Environmental Science/ Yarmouk University, Jordan; July 2008.
- Project for Vulnerability Map of Yarmouk Basin Using GIS Programs; done by Department of Earth and Environmental Science/ Yarmouk University, Jordan; June 2007 to January 2008.

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### Conference Articles

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- Ghanem, H., Mcalleer, RJ., Jarrar, GH., **Al Hseinat, M.**, Whitehouse, M., 2019.  $^{40}\text{Ar}/^{39}\text{Ar}$  and U-Pb SIMS Zircon Ages of Ediacaran Dikes from the Arabian-Nubian Shield of South Jordan. Conference paper. Goldschmidt, Barcelona, August 2019.  
<https://goldschmidt.info/2019/program/programViewAuthor?authorId=2050092961>
- **M. Al Hseinat**, C. Hübscher, 2017. Near Surface Tectonics in the Baltic Sea Sector of the North German Basin and the Tornquist Zone. Geophysical Research Abstract, Vol. 19, EGU-2017-4456, 2017, in Vienna, Austria.  
<http://meetingorganizer.copernicus.org/EGU2017/EGU2017-4456.pdf>
- **M. Al Hseinat**, C. Hübscher, 2017. Near Surface Tectonics in the Baltic Sea Sector of the North German Basin and the Tornquist Zone. Conference paper at DGG77, Potsdam.  
[http://dgg2017.dgg-tagung.de/fileadmin/dgg2017/images/schriftliche\\_Unterlagen/DGG2017\\_Tagungsband\\_web.pdf](http://dgg2017.dgg-tagung.de/fileadmin/dgg2017/images/schriftliche_Unterlagen/DGG2017_Tagungsband_web.pdf)
- **M. Al Hseinat**, C. Hübscher, H. Lykke-Andersen., 2016. Base Quaternary mapping and shallow faults within the southwestern Baltic Sea. Conference paper, Baltic 2016 – The 13th Colloquium on Baltic Sea Marine Geology, September 12 – 16, 2016, in Gdańsk, Poland.  
<http://konferencje.pgi.gov.pl/en/baltic-home.html>
- M. Schneider., **M. Al Hseinat**, C. Hübscher., 2015. Upper Cretaceous contourite along the Tornquist Zone. Conference poster at DGG75, Hannover.  
[https://gfzpublic.gfz-potsdam.de/rest/items/item\\_2446890\\_6/component/file\\_2487904/content](https://gfzpublic.gfz-potsdam.de/rest/items/item_2446890_6/component/file_2487904/content)
- **M. Al Hseinat**, Hübscher, C., 2015. Ice-load induced tectonics controlled tunnel valley evolution - instances from the southwestern Baltic. Conference paper at DGG75, Hannover.  
[https://gfzpublic.gfz-potsdam.de/rest/items/item\\_2446890\\_6/component/file\\_2487904/content](https://gfzpublic.gfz-potsdam.de/rest/items/item_2446890_6/component/file_2487904/content)
- Lang, J., **M. Al Hseinat**, Brandes, C., Hampel, A., Hübscher, C., Winsemann, J., 2015. Numerical simulation of ice-load induced salt movements. Conference paper, EGU2015, At Vienna, Austria, Volume: Vol. 17, EGU2015-1982, 2015. <http://meetingorganizer.copernicus.org/EGU2015/EGU2015-1714.pdf>
- **M. Al Hseinat**, C. Hübscher ., J. Lang., I. Ott., U. Polom., C. Brandes., A. Hampel., J. Winsemann., 2015. Ice-load induced salt tectonics controlled crestal collapse graben evolution – Instances from the Southwestern Baltic Sea. Conference paper, GeoBerlin 2015, Henry Ford Bau of the FU Berlin; 10/2015.  
[http://www.geoberlin2015.de/assets/detailed\\_conf\\_program\\_mon\\_tue\\_wed\\_2509.pdf](http://www.geoberlin2015.de/assets/detailed_conf_program_mon_tue_wed_2509.pdf)

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- M. Al Hseinat., Hübscher, C., 2015. Ice-load induced tectonics controlled tunnel valley evolution - instances from the southwestern Baltic. Conference paper, GeoBerlin 2015, Henry Ford Bau of the FU Berlin; 10/2015.  
[http://www.geoberlin2015.de/assets/detailed\\_conf\\_program\\_mon\\_tue\\_wed\\_2509.pdf](http://www.geoberlin2015.de/assets/detailed_conf_program_mon_tue_wed_2509.pdf)
- J. Wagner, C. Hübscher, M. Al Hseinat, I. Ott., 2012. Post-glacial salt tectonics shaped the Present-day Bathymetry of the Southwestern Baltic. Conference poster at DGG72, Hamburg.  
[http://www.geophysics.zmaw.de/index.php?id=7&L=1&tx\\_sevenpack\\_pi1\[search\]\[rule\]=AND&tx\\_sevenpack\\_pi1\[search\]\[sep\]=space&tx\\_sevenpack\\_pi1\[author\\_letter\]=W&tx\\_sevenpack\\_pi1\[author\]=Wagner&tx\\_sevenpack\\_pi1\[show\\_abstracts\]=0&tx\\_sevenpack\\_pi1\[show\\_keywords\]=0&tx\\_sevenpack\\_pi1\[year\]=all&cHash=5a305f1a76b1ee6ab3bf0208f92cd1e8](http://www.geophysics.zmaw.de/index.php?id=7&L=1&tx_sevenpack_pi1[search][rule]=AND&tx_sevenpack_pi1[search][sep]=space&tx_sevenpack_pi1[author_letter]=W&tx_sevenpack_pi1[author]=Wagner&tx_sevenpack_pi1[show_abstracts]=0&tx_sevenpack_pi1[show_keywords]=0&tx_sevenpack_pi1[year]=all&cHash=5a305f1a76b1ee6ab3bf0208f92cd1e8)

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### Scholarships & Awards

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- Scholarship to finish PhD studies in Germany from University of Jordan, 10.1.2011-31.12.2014.
- Student Award for Academic Excellence, Yarmouk University, Irbid – Jordan, May 2009.
- Student Award for Academic Excellence, Al al-Bayt University, Mafraq – Jordan, May 2005.

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### Supervising M.Sc. Thesis

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- Albaker, Saja, 2020 (In process). Examining the Tectonic Activity Along the Wadi Shueib and Amman-Hallabat faults Using Earthquakes and Remote Sensing Dataset.
- AlZidaneen, Malek, 2020. Investigation of the Structural Evolution of Central Jordan based on Integration of Reflection Seismic and Remote Sensing Techniques. M.Sc. The University of Jordan.
- Qutishat, Tala, 2019 (In process). Active Tectonic Movement of the Dead Sea Transform Fault Induced Soft-sediment Deformation: Instances from the Quaternary Deposits at Wadi Al-Kharazeh.
- Eljurf, Samer, 2019 (In process). Assessment of the Petroleum System within the south-eastern part of Al-Sirhan Basin through 2D Seismic and Wireline Logging Data Interpretation. MSc. The University of Jordan.

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### References

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#### Prof. Dr. Ghaleb Jarrar, Professor of Petrology, Department of Geology, The University of Jordan

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#### Prof. Dr. Christian Hübscher, Professor of Geophysics, Institute of Geophysics, University of Hamburg

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Bundesstrasse 55, 20146 Hamburg, Germany  
Office phone: +49-40-428385184  
Fax: +49-40-428385441  
Email Address: christian.huelscher@uni-hamburg.de

#### Prof. Dr. Mohammad Atallah, Professor, Department of Earth and Environmental Science, Yarmouk University

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