

Curriculum Vitae

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PERSONAL INFORMATION

Name: HANI N. KHOURY

Nationality: Jordanian

Marital Status: Married with four children

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CURRENT POSITION

Professor, Department of Geology, Faculty of Science, The University of Jordan

FIELDS OF SPECIALIZATION

Applied Mineralogy, Geochemistry, Clay Mineralogy, Industrial Rocks and Minerals, Environmental Sciences.

EDUCATION

- B.Sc., 1969, Ain Shams University-Cairo - **Applied Geology**.

- M.Sc., 1974, Ain Shams University-Cairo - **Mineralogy**.

- Ph.D., 1979, University of Illinois at Urbana-Champaign, U.S.A- **Clay Mineralogy**.

LANGUAGES:

- Arabic: Excellent
- English: Excellent
- German: Good

TEACHING EXPERIENCE

- 1988-now: Professor, The University of Jordan.
- 1984-1988: Associate Professor, The University of Jordan.
- 1979-1984: Assistant Professor, The University of Jordan.
- 1974-1975: Lecturer, The University of Jordan.

TEACHING ACTIVITIES – COURSES:

General Geology, Environmental Geology, Environmental Sciences, Mineralogy and Crystallography, Optical Mineralogy, Petrology, Geochemistry, Economic Geology, Industrial Rocks and Minerals, Advanced Mineralogy, Clay Mineralogy, Soil chemistry, Resources and the environment.

INDUSTRY EXPERIENCE

- Industrial rocks and minerals of Jordan - Characterization and evaluation of most of the commodities in Jordan.
- Rad-waste repositories and natural analogues.
- Developing low cost materials using local mineral resources to minimize CO2 emissions.

BIOGRAPHICAL SKETCH

- Dec. 2016-2018: Member of the Board of Trustees of the American University of Madaba
- 2013-2014: Chairman, Department of Geology (4th term).
- 2012-2013: Visiting Professor, University of Ottawa, Department of Earth Sciences, Canada
- 2011-2012: Member of the Editorial Board of the university of Jordan Journal DIRASAT: PURE SCIENCES.
- 2006-2010: Chairman, Department of Geology (3rd term).
- 2006-2013: Member of the Editorial Board of the Jordan Journal of Earth and Environmental Sciences (JJEES).
- 2005-2006: Visiting Professor, Al Balqa Applied University, Salt
- 2001-now: Coordinator of Geomaterials Research Group, Deanship of Scientific Research, U of Jordan.
- 2004-2005: Member of the Research Council of Princess Sumaya University for Technology.
- 2003-2005: Member of the University of Jordan Research Council.
- 1997-1999: Vice Dean Faculty of Science (2nd term).
- 1996-2000: Coordinator of the Higher Education Links Scheme (Promotion of the Northern Badia Region), UK.
- 1994 –1997: Chairman, Department of Geology (2nd term).
- 1995: Member of the Steering and Scientific Committee of the ‘Third Scientific Week’, Higher Council for Science and Technology, Amman.
- 1988-now: Professor, University of Jordan.
- 1993-1994: Visiting Professor, Yarmouk University and director of Industrial Technical College, Nizwa, Oman.
- 1989-1993: Vice Dean, Faculty of Science, University of Jordan (1st term).
- 1988-now: Consultant, rad waste repositories.
- 1988-1993: Chairman of the Chemical Wastes Committee, University of Jordan.
- 1989-1993: Chairman of the Research Council, Faculty of Science, University of Jordan.
- 1992-1993: Member of the Graduate College Council.
- 1989-1992: Member of the Faculty of Dentistry Council.
- 1988-1992: Member of the University of Jordan Research Council.
- 1984-1988: Associate Professor, University of Jordan.
- 1979-1984: Assistant Professor, University of Jordan.
- 1983-1986: Chairman Dept. of Geology (1st term).
- 1974-1975: Lecturer, University of Jordan.
- 1969-1974: Mineralogist and Geochemist at the Natural Resources Authority, Jordan.

MEMBERSHIP OF COMMITTEES & SOCIETIES

- Member of the National Committee, Building International Networks for Enhancement of Research in Jordan, Humboldt Kolleg. April 3-5, 2014.
- Member of the GSA (Geological Society of America).

- Chair of the Scientific Committee, International Conference on Materials in Jordan 9 - 11 March 2011.
- Chairman of the Fifth Jordanian Conference on Environment, 13, May, 2009
- Member of the Scientific Committee, the First Arab Impact Cratering and Astrogeology Conference. 9th -10th November 2009
- National Coordinator of the International Conference on Materials in Jordan 4 - 6 March 2009.
- National coordinator of the GERMAN-MIDDLE EAST INTERNATIONAL CONFERENCE, 11 May 2009.
- National coordinator of the Nanostructure Advanced Materials Conference: November 10 - 13, 2008. Amman, Jordan.
- National Coordinator of the 32nd International Geological Congress, Florence, Italy (2004).
- Geological Society of America (GSA)
- Consultant of many scientific institutes and engineering companies.
- Member of the Jordanian Board of the National and Science Museums.
- Member of the National Committee of Mineral Resources, Higher Council of Science and Technology, Jordan.
- Member of the Orthodox Club
- Member of Alexander von Humboldt Club

WORKSHOPS, TRAINING COURSES & CONSULTATIONS

- Training courses in applied clay mineralogy
- Consultant, rad waste repositories.
- Developing low cost materials using local mineral resources

AWARDS & PRIZES

- The University of Jordan distinguished researcher Award in 2016
- Alexander Von Homboldt Research Award (Summer, 2014) at Museum für Naturkunde, Humboldt University, Berlin, Germany.
- The Faculty of Science 2014 Distinguished Researcher Award.
- The Hisham Hijjawi Award for Applied Sciences in the fields of Industry & Energy (2011).
- Alexander Von Homboldt Research Award (Summer, 2011) at Museum für Naturkunde, Humboldt University, Berlin, Germany.
- Deanship of Scientific Research Award in 2009
- Alexander Von Homboldt Research Award (Summer, 2009) at the University of Greifswald, Germany.
- Deanship of Scientific Research Award in 2007.
- Alexander Von Homboldt research Research Award (Summer, 2006) at the Federal German Geological Survey (BGR), Hanover.
- Independence Decoration (Nov., 1994) awarded from his Majesty Late King Hussein.
- Alexander Von Homboldt Award (1986-1987), Wurzburg University, Germany.
- One Year Seniority in 1986 at the University of Jordan.
- 1985 Shouman Foundation Award in Basic Science for Arab Scientists
- DAAD Research Award in Summer 1983 in Braunschweig University and BGR Germany
- DAAD Research Award in Summer 1981 in Technical University, Munich, Germany
- DAAD Research Award in Summer 1980 in Braunschweig University, Germany.
- DAAD Research Award in Summer 1979 in Braunschweig University and BGR, Germany.
- US - AID Scholarship (1975-1978) at the University of Illinois, Urbana-Champaign, USA.
- CDG - Scholarship (1971-1973) at the Federal German Geological Survey (BGR), Hanover.

- B. Sc. Degree with Distinction First Honor Class 1969.

Research Grants

2006-2012, Chemical Stabilization of Natural Geomaterials for Construction and Industrial, 280,000 €. (Vrije Universiteit Brussel VUB-U of Jordan VLIR-project).

2010-2013, Waqf es Suwwan Meteoritic Impact Structure, 83,500 JD from Scientific Research Fund of Ministry of Higher Education in Jordan

2010-2013, Jordanian Zeolites, 10,000 JD from Hamdi Mango Center for Scientific Research

International Research Activities

-Chemical Stabilization of Natural Geomaterials for Construction and Industrial Applications in cooperation with Vrije Universiteit Brussel.

-Natural Radwaste Analogues in cooperation with Bedrock Geosciences, Switzerland.

-Waqf es Suwwan Meteoritic Impact Structure in cooperation with Museum fur Naturkunde - Leibniz Institute at Humboldt University Berlin.

-Unusual Mineralization from central Jordan in cooperation with V. S. Sobolev Institute of Geology and Mineralogy, Siberian Branch of the Russian Academy of Sciences.

M.Sc.Theses Supervision, Department of Geology, University of Jordan

-**Nassir, S., (1980):** Mineralogy, petrology, and origin of marbles from Daba-Siwaqa and Maqarin areas.

-**El-Sakka, W., (1983):** Mineralogical and industrial characterization of the Batn El Ghoul clay deposits, southern Jordan.

- **Al-Hawari, Z., (1986):** Clay minerals associated with the Jordanian phosphates and its possible industrial utilization.

- **Faraj, B., (1989):** Clay minerals and vitrinite reflectance analysis in HZ-4 well, Azraq basin, Jordan.

- **Joudeh, R., (1991):** Stabilization of silty clayey soil in Jordan.

- **Qa'adan, M., (1992):** Mineralogy and origin of Recent deposits in the Azraq depression.

- **Bayook, A., (1992):** Batn El-Ghoul clay deposits as a potential source for aluminum.

- **Abu Jeyyab, A., (1992):** Distribution and characterization of the upper Jurassic of Arda area and its industrial importance.

- **Abu Halima, Kh., (1993):** Mineralogy, chemistry and industrial studies of Al-Yamani clay deposits in Aqaba area.

- **Abu Dayyeh, B., (1993):** Geology, mineralogy, geochemistry and industrial applications of the clay deposits from wadi Musa-Petra area, Jordan.

- **Al Omari, Y., (1995):** Mineralogical and engineering properties of clayey beds at failure areas along Irbid-Jerash-Amman-Dead Sea high ways.

- **Malak, H., (1995):** Mineralogy and Industrial characterization of Ein El-Baida clay deposits/Azraq basin.

- **Nafiz, A., (1997):** Mineralogical, geochemical, healing characterization and origin of the Dead Sea clay (black mud) deposits, Jordan.

- **Ghrir, A., (1998):** The distribution, nature, origin, and economic potential of zeolite deposits in Uneiza, Mukawir, and Tell Hassan of Jordan.

- **Ed-Deen, T., (1998):** Zeolites from Tell Rimah and its use for industrial wastewater treatment.

- **Al-Zoubi, A., (2005):** Characterization of unusual green Cr-rich clays from Suweileh area, Jordan.

- **Ajarmeh, N., (2014):** Unusual mineralogy of Suweileh metamorphic rocks, Jordan.

- **Al Bzour, A., (2015):** Mobility of uranium in the wild plants of central Jordan.

-Yasin, M., (2015): Karst and Sinkholes in Hartha Area, N. Jordan.

Ph. D. Theses Supervision, Department of Geology, University of Jordan

Al Moumani, T., (2000): Characterization, industrial utilization, and environmental impact of the Hiswa clay deposits, south Jordan.

Abu Jeyyab, A., (2001): Mineralogical and geochemical properties and industrial applications of Azraq gypsum deposits, Jordan.

Abdel-Hadi, N., (2006): Utilization of bituminous limestone ash from EL-LAJJUN area for engineering applications.

Dwairi, R., (2007): Industrial application of zeolitic tuff in Jordan.

Dabsheh, I., (2010): Dissolution of Jordanian Raw Materials in Alkaline Solutions and their Stabilization for Construction Purposes

Khirfan, M., (2010): Remote sensing and structural analysis of Jabal Waqf As Suwwan meteorite impact

Al-Slaty, F., (2010): Durability of Geopolymers Product from Jordanian Hiswa Clay

Najar, A., (2012): Method development and determination of polychlorinated dibenzo-P-dioxins (PCDDs) and polychlorinated dibenzo-furans (PCDFs) in Jordanian clay.

Patents

1. Method for producing geopolymeric materials. Inventors: M. Alshaaer, M. Esaifan, **H. Khoury**, H. Rahier
2. A process for production of pure zeolite 4A from raw kaolinite. Inventors: Hamdalla Al Houdali and **Hani Khoury**
3. Discovery of new mineral: Tululite IMA 2014-065. Khoury, H.N., Sokol, E.V., Kokh, S.N., Seryotkin, Y.V., Nigmatulina, E.N., Goryainov, S.V., Belogub, E.V. and Clark, I.D. (2015) Tululite, IMA 2014-065. CNMNC Newsletter No. 23, February 2015, page 53; Mineralogical Magazine, 79, 51-58.

4. PUBLICATIONS:

- Articles in scientific journals with an international referee system (ISI Web of Knowledge)

1. *Alomari, R., Esaifan M., Hourani M., Amayreh H., Amayreh M., Khoury H. (2019):* Synthesis of Electroconducting Hydroxy-Sodalite/Graphite Composite: Preparation and Characterization Advances in Materials Physics and Chemistry, 2019, 9, 25-36
<http://www.scirp.org/journal/ampc>
2. *Alqudah, M., Khoury, H., Salameh, E., and Joerg Mutterlose, J (2018): A story told by calcareous nannofossils - the timing and course of an Eocene meteorite. Arab J Geosci (2018) 11: 451. <https://doi.org/10.1007/s12517-018-3776-z>.*
3. *Al-Ajarmeh N and Khoury H. (2018):* Apatite-rich pyrometamorphic rocks from Suweileh area, Jordan. Arab J Geosci. Arab J Geosci (2018) 11: 520.
<https://doi.org/10.1007/s12517-018-3874-y>
4. *Al-rimawi F., Daana M., Khamis M., Karaman R., Khoury H., Qurie M. (2018).* Removal of Selected Pharmaceuticals from Aqueous Solutions Using Natural Jordanian Zeolite. Arabian Journal for Science and Engineering. <https://doi.org/10.1007/s13369-018-3406-9>
5. *Khoury, H. (2018):* Economic potentials of industrial rocks and minerals in the Azraq basin, NE Jordan. Arabian Journal of Geosciences. Arab J Geosci 1: 72.
<https://doi.org/10.1007/s12517-018-3423-8>

6. *Esaiifan, M., Hourani, M., Khoury, H., Rahier, H., Wastiels, J. (2017). Synthesis of hydroxysodalite zeolite by alkali-activation of basalt powder rich in calc-plagioclase. Advanced Powder Technology. 28,(2), 473–480. <http://dx.doi.org/10.1016/j.apt.2016.11.002>.*
7. *Sokol, E.V., Kokh, S.N., Khoury, H.N., Seryotkin, Yu.V., Goryainov, S.V., Novikova, S.A., Sokol, I.A. (2017): Natural analogue approaches to prediction of long-term behaviour of Ca₂UO₅·2-3H₂O ‘X-phase’: case study from Tulul Al Hammam site, Jordan. *Arabian Journal of Geosciences* 10: 512. <https://doi.org/10.1007/s12517-017-3305-5>.*
8. *Sokol, E., Kozmenko, O., Khoury, H., Kokh, S., Novikova, S., Nefedov, A., Sokol, I., and Zaikin, P. (2017): Calcareous Sediments of the Muwaqqar Chalk Marl Formation, Jordan, as a Potential Precursor of Mississippi Valley-Type Deposits: Mineralogical and Geochemical Gondwana Research 46, 204–226, <http://dx.doi.org/10.1016/j.gr.2017.03.008>*
9. *Bzour, A. F., Khoury, H. N., Oran, S. A., 2017. Uptake of Some Toxic Elements by Wild Plants in Siwaqa Area/Central Jordan. *Appl Microsc* 2017;47(3):148-156. <https://doi.org/10.9729/AM.2017.47.3.148>. pISSN 2287-5123-eISSN 2287-4445*
10. *Khoury, H., Sokol, E., Kokh, S., Seryotkin, Y., Kozmenko, O., Goryainov, S., Clark, I. (2016): Intermediate Members of the Lime-Montepelite Solid Solutions (Ca_{1-x}Cd_xO, x = 0.36-0.55): Discovery in Natural Occurrence. *American Mineralogist*, Volume 101, pages 146–161.*
11. *Bzour, A. F., Khoury, H. N., Oran, S. A., 2016. Assessment of bioavailability of chromium (Cr), vanadium (V) and uranium (U) in wild plants in Siwaqa Area, Central Jordan. *Int. J. Curr. Res. Biosci. Plant Biol.* 3(12), 84-94. doi: <http://dx.doi.org/10.20546/ijcrbp.2016.312.010>*
12. *Ibrahim, K., Khoury, H., and Tuffaha, R. (2016): Mo and Ni Removal from Drinking Water Using Zeolitic Tuff from Jordan. *Minerals* 2016, 6(4), 116; doi:10.3390/min6040116.*
13. *Sokol, E., Kokh, S., Khoury, H., Seryotkin, Y., Goryainov, S. (2016): Long-term immobilisation of Cd²⁺ at the Tulul Al Hammam natural analogue site, central Jordan. *Applied Geochemistry* 70, 43-60. <http://dx.doi.org/10.1016/j.apgeochem.2016.05.002>. <http://dx.doi.org/10.1016/j.apgeochem.2016.05.0020883-2927/©2016>.*
14. *Khoury, H., Kokh, S., Sokol, E., Likhacheva, A. Seryotkin, Y., Belogub, E. (2016): Ba- and Sr-mineralization of fossil fish bones from metamorphosed Belqa Group sediments, central Jordan, *Arabian Journal of Geosciences*, 9:461. DOI 10.1007/s12517-016-2503-x*
15. *Esaiifan, M., Khoury, H., Aldabsheh, I., Rahier, H., Hourani, M., Wastiels, J. (2016): Hydrated lime/potassium carbonate as alkaline activating mixture produce kaolinitic clay based inorganic polymer. *Applied Clay Science* 126: 278-286 doi:10.1016/j.clay.2016.03.026.*
16. *Khoury, H., Sokol, E., Kokh, S., Seryotkin, Y., Nigmatulina, E., Goryainov, S., Belogub, E., Clark, I. (2016): Tululite, Ca₁₄(Fe³⁺, Al)(Al, Zn, Fe³⁺, Si, P, Mn, Mg)₁₅O₃₆: a new Ca zincate-aluminate from combustion metamorphic marbles, central Jordan. *Mineralogy and Petrology, Miner Petrol.*, 110:125–140, DOI 10.1007/s00710-015-0413-3*
17. *Khoury, H., Ibrahim, Kh., Al Dwairi, R., Torrente, D. (2015): "Wide Spread Zeolitization of the Neogene - Quaternary Volcanic Tuff in Jordan" *Journal of African Earth Sciences*. 101, 420–429. 10.1016/j.jafrearsci.2014.09.018. Elsevier.*
18. *Alnawafleh, H.M., Tarawneh, K.E., Khoury, H.N., Abdelhadi, N.A., Shakkoury, O.Y., Dwairi, R.A. and Amaidreh, M.N. (2015): Dolomitization in Campanian Oil Shale Rocks from South-Western Jordan. *Open Journal of Geology*, 5, 689-700. <http://dx.doi.org/10.4236/ojg.2015.510061>*

19. *Aldabsheh, I., Khoury, H., Rahier, H., Wastiels, J. (2015) : Dissolution behavior of Jordanian clay-rich materials in alkaline solutions for alkali activation purpose. Part I'. Applied Clay Science. 115: 238–247*
20. *Esaihan M., Rahier, H., barhoum, A., Khoury, H., Hourani, M., and Wastiels J. (2015): Development of inorganic polymer by alkali-activation of untreated kaolinitic clay: Reaction stoichiometry, strength and dimensional stability. Construction and Building Materials (JCBM), 91, 30 August 2015, Pages 251–259. Elsevier*
21. *Khoury, H.N., Sokol, E.V., Kokh, S.N., Seryotkin, Y.V., Nigmatulina, E.N., Goryainov, S.V., Belogub, E.V. and Clark, I.D. (2015): Tululite, IMA 2014-065. CNMNC Newsletter No. 23, February 2015, page 53; Mineralogical Magazine, 79, 51-58.*
22. *Jumean, F., Pappalardo, I., and Khoury, H. (2015): Removal of Pb(II) from Wastewaters by Zeolites and Sands: Correlation of X-ray Fluorescence Data and Scanning Electron Microscope Images to Batch Removal Efficiency. American Journal of Analytical Chemistry (AJAC), 6, 297-304. <http://dx.doi.org/10.4236/ajac.2015.64028>.*
23. *Khoury, H. N. (2015). Uranium Minerals of Central Jordan (2015). Applied Earth Science (Trans. Inst. Min. Metall. B), VOL 124 NO 2, 104-128.*
24. *Khoury, H., Sokol, E., and Clark, I. D. (2015): Calcium uranium oxides from central Jordan: associations, chemistry, and alteration products. The Canadian Mineralogist, Can Mineral 53:61-82, DOI: 10.3749/canmin.1400071*
25. *Al-Thawabeia, R., Khoury, H., and Hodali, H. (2015): Synthesis of zeolite 4A via acid–base activation of metakaolinite and its use for water hardness treatment. Desalination and Water Treatment. 56, (40), 947-952. DOI: 10.1080/19443994.2014.941413.*
26. *Slaty, F., Khoury, H., Wastiels, J.H., Rahier. (2015): Durability of alkali activated cement produced from kaolinitic clay. Applied Clay Science 104, 229–237
[doi:10.1016/j.clay.2014.11.037](https://doi.org/10.1016/j.clay.2014.11.037)*
27. *Alawi, M., Najjar, A., and Khoury, H. (2015): Levels of Polychlorinated Dibenzodioxins/Dibenzofurans in Jordanian Clay, Clean – Soil, Air, Water, 43 (4) , 592–594. DOI: 10.1002/clen.201400240, 41, 1-7. 2014.*
28. *Salameh, E., Khoury, H., and Reimold, W. (2014): Drilling the Waqf as Suwwan impact structure. Int J. Earth Sci (Geol Rundsch). 103: 253-264. DOI 10.1007/s00531-013-0932-2.*
29. *Schmieder, M., Buchner, E., Salameh, E., and Khoury, H. (2014): Comment on “Some observations facing the interpretation of Waqf as Suwwan structure, SE desert of Jordan, as an impact crater”, by A. M. Abed et al. (2014), Arabian Journal of Geosciences 8 (8):6459-6463; DOI 10.1007/s12517-014-1672-8. Springer.*
30. *Al-Degs, Y., Ghrir, A., Khoury, H., Walker, G., Sunjuk, M., Al-Ghouti, M. (2014): Characterization and Utilization of Fly Ash of Heavy Fuel Oil Generated in Power Stations. Fuel Processing Technology 123, 41–46.*
31. *Heinrichs, T., Salameh, E., and Khoury, H. (2014): The Waqf as Suwwan crater, Eastern Desert of Jordan: aspects of the deep structure of an oblique impact from reflection seismic and gravity data. Int J Earth Sci (Geol Rundsch). 103:233-252. DOI 10.1007/s00531-013-0930*
32. *Khoury, H., and Al-Zoubi, A. (2014): Origin and characteristics of Cr-smectite from Suweileh area, Jordan. Applied Clay Science, 90, 43–52.*
33. *Khoury, H. N., salameh, E. M. and Clark I. D. (2014): Mineralogy and origin of surficial uranium deposits hosted in travertine and calcrete from central Jordan. Applied Geochemistry, 43, 49–65.*

34. *Dwairi, R., Ibrahim, K. and Khoury, H. (2014):* Potential use of faujasite-phillipsite and phillipsite-chabazite tuff in purification of treated effluent from domestic wastewater treatment plants". *Environmental Earth Sciences*, Volume 71, Issue 12, pp 5071-5078. DOI 10.1007/s12665-013-2911-0. Springer-Verlag.
35. *Slaty, F., Khoury, H., Wastiels, J H. Rahier. (2013):* Characterization of alkali activated kaolinitic clay. *Applied Clay Science*, 75–76, 120–125.
36. *Alawi, M., Najjar, A., and Khoury, H., (2013).* Analytical Method Development for the Screening and Determination of Dioxins in Clay Matrices. [www. clean-journal.com](http://www.clean-journal.com). *Clean – Soil, Air, Water*, 41, 1-7.
37. *Khoury, H. N. (2012):* Long-Term Analogue of Carbonation in Travertine from Uleimat Quarries, Central Jordan. *Environmental and Earth Science*. 65:1909-1916.
38. *Khoury, H., Salameh, E., and Khirfan, M. (2012):* Chert from Jebel Waqf as Suwwan meteoritic impact structure. *N. Jb. Geol. Paläont. Abh.* 265/3, 281–293 Stuttgart,
39. *Al Ghouti, M., Ghrair, A., Khoury, H., Al-Degs, Y., Khraishe, M. (2012):* Fly ash generated from heavy fuel incineration in power plants: Physical and chemical characteristics *ESAIJ*, 7(11), 406-412.
40. *Al-Ghouti, M., Al-Degs, Y., Ghrair A., Khoury, H., and Ziedan, M. (2012):* The potential use of geopolymer containing fly ash produced in heavy fuel power plants for toxic metals fixation: Chemical and physical characteristics, *ESAIJ*, 7(3), 84-92.
41. *Al-Ghouti, M., Al-Degs, Y., Ghrair A., Khoury, H., and Ziedan, M. (2011):* Extraction and separation of vanadium and nickel from fly ash produced in heavy fuel power plants. *Chemical Engineering Journal*, 173, 191– 197.
42. *Schmieder, M., Reimold, W. U., Buchner, E., Khirfan, M., Salameh, E. & Khoury, H. (2011):* Shock metamorphic microfeatures in cherts from the Jebel Waqf as Suwwan impact structure, Jordan. *Meteoritics and Planetary Science*, 46, (4), 574–586.
43. *Kenkmann, T., Reimold, W., Kirifan, M., Salameh, E., Khoury, H., and Konsul, K. (2010):* The complex impact crater Jebel Waqf as Suwwan in Jordan: effects of target heterogeneity and impact obliquity on central uplift formation. *Geological Society of America Special Papers. Large Meteorite Impacts and Planetary Evolution IV.* 465: 471-488.
44. *El-Eswed, B., Yousef, R. I., Alshaaer, M., Khalili, F., and Khoury. H. (2009):* Alkali solid-state conversion of kaolin and zeolite to effective adsorbents for removal of lead from aqueous solution", *Desalination Publications*, European Desalination Society, *Via Antica Arischia*, 8. 1-7.
45. *Abdul Hadi, N., Khoury, H., and Suleiman, M. (2009):* Utilization of Bituminous Limestone Ash from EL-LAJJUN Area in production of lightweight Masonry block. *Acta Geotechnica*: 4, (3), 215-222.
46. *Yousef R., El-Eswed, B., Alshaaer, M., Khalili, F., Khoury, H. (2009):* The influence of using Jordanian zeolitic tuff on the adsorption, physical, and mechanical properties of geopolymers products. *Journal of Hazardous Materials*, 165, (1-3), 15, P 379-387.
47. *Abdul Hadi, N., Khoury, H., and Suleiman, M. (2008):* Utilization of Bituminous Limestone Ash from EL-LAJJUN Area for Engineering Applications. *Acta Geotechnica*, 3:139–151.
48. *Salameh, E., Khoury, H., Reimold, W., and Schneider, W. (2008):* The first large meteorite impact structure discovered in the Middle East: Jebel Waqf as Suwwan, Jordan. *Meteoritics and Planetary Science*. 43, Nr 10, 1681-1690.

49. *Fourcade, S., Trotignon, L., Boulvais, P., Techer, I., Elie, M., Vandamme, D., Salameh, E., and Khoury, H. (2007):* Cementation of kerogen-rich marls by alkaline fluids released during weathering of thermally metamorphosed marly sediments. Part I: Isotopic (C, O) study of the Khushaym Matruk natural analogue (central Jordan). *Applied Geochemistry*, 22, 1293-1310.
50. *Elie, M., Techer, I., Trotignon, L., Khoury, H., Salameh, E., Vandamme, D., Boulvais, P. and Fourcade, S. (2007):* Cementation of kerogen-rich marls by alkaline fluids released during weathering of thermally metamorphosed marly sediments. Part II: Organic matter evolution, magnetic susceptibility and metals (Ti, Cr, Fe) at the Khushaym Matruk natural analogue (central Jordan). *Applied Geochemistry*, 22, 1311-1328.
51. *Salameh, E., Khoury, H., and Schneider, W., (2006):* Jebel Wagf as Suwwan, Jordan: a possible impact crater – a first approach. *Z. dt. Geowiss.* 157/3, p. 319-325.
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Contribution to the geology and industry of Jordan

- More than 160 publications.
- Characterization of all clay minerals in Jordan for industrial applications.
- Discovery of an unusual origin of travertine deposits associated with secondary uranyl vanadates and Cr-rich smectite from central Jordan.

- Identification of more than 100 minerals in the marbles of Maqarin, Daba-Siwaqa and Suweileh. Some minerals are known only in meteorites.
- Exploration and characterization of all industrial rocks and minerals for the development of the Badia Region, NE Jordan (submitted to the Higher Council of Science and Technology).
- Utilization of zeolitic tuff and clay from Jordan for the purification of drinking water, waste water, hazardous waste, improvement of the soil and feed ingredients for domestic animals.
- Characterization of all potential economic industrial rocks and minerals in Jordan. Results were represented in 5 books published by the Deanship of Scientific Research, The University of Jordan.

CONTRIBUTION IN THE ADVANCEMENT OF SCIENCES

- Discovery of unusual and unique natural alkaline waters with the highest pH in the world.
- Discovery of many economic industrial rocks and minerals
- Contribution in the discovery of the largest flying dinosaur and the first meteoritic impact structure in Jordan.
- Discovery of unusual cement and radwaste analogues in north (Maqarin) and central Jordan (Suweileh and Daba-Siwaqa).
- Discovery of a new mineral Tululite (Ca-zincate-aluminate) with reference to Tulul Al Hammam, central Jordan..
- Discovery of seven new Ca-U oxide phases, Ca-Cd oxide and hydroxide phases and a new phosphate phase namely Ba-Sr phase belonging to the apatite supergroup minerals and many other new phases
- Development of new green low cost construction materials using local cheap mineral resources.

Some researchers comments on Khoury's work

- Maarten Broekmans from the American Mineralogist Journal wrote an article under the title **Highlights and Breakthroughs** commenting on the discovery of Prof. Khoury. The discovered mineral is of intermediate composition in the lime-montepsonite (CaO-CdO) series and occurs naturally in rocks at approximately 60 km SSE from the center of Amman. In his article, Broekmans said Khoury's paper should inspire scientists and engineers committed to research within the field. Broekmans also indicated that the scientific disciplines used by Khoury and his research group shows the power of trans-disciplinary research, and the capability of "mineralogy for society" to resolve real life issues (*American Mineralogist*, 101, 3-4, 2016).

- Matt Herod wrote on July 19, 2013 in **The European Geosciences Union (EGU) blogs** (<http://blogs.egu.eu/network/geosphere/2013/07/19/the-mysteries-of-maqarin/>). In order to understand how cement will behave in certain environments or when conditions change, In order to solve this problem we must turn to the next best thing, which is **a natural site, such as Maqarin**, that mimics the environmental conditions we are looking for and hopefully it can answer some of these questions. Hence, the beauty of the natural analogue.

- **The First Arab Impact Cratering and Astrogeology Conference (22 countries) , Amman, Jordan, 9-11 November 2009—An appreciation***

The impact structure in Jordan is **ranked as one of the best exposed of its kind in sedimentary rock**. The well-exposed impact structures may serve as unique site museums, for instruction of laypeople and students in geoscience, planetary science, astronomy, life and environmental science. The visit to Jordan must be counted amongst participants' best field trip experiences ever. The enormous cultural heritage of Jordan, its scenic beauty and geological plentitude made

this excursion and conference an outstanding experience. * *Meteoritics & Planetary Science* 45, Nr 2, 157–160 (2010).