

# KHAYYUN RAHI, PH. D.

Al-Mustansiriyah University – College of Engineering

Mobile:

Email: [khayyun.rahi@okstate.edu](mailto:khayyun.rahi@okstate.edu)

## PERSONAL SUMMARY:

- Hydrologist, Educator, and Iraqi Water Resources Specialist.

## EDUCATION:

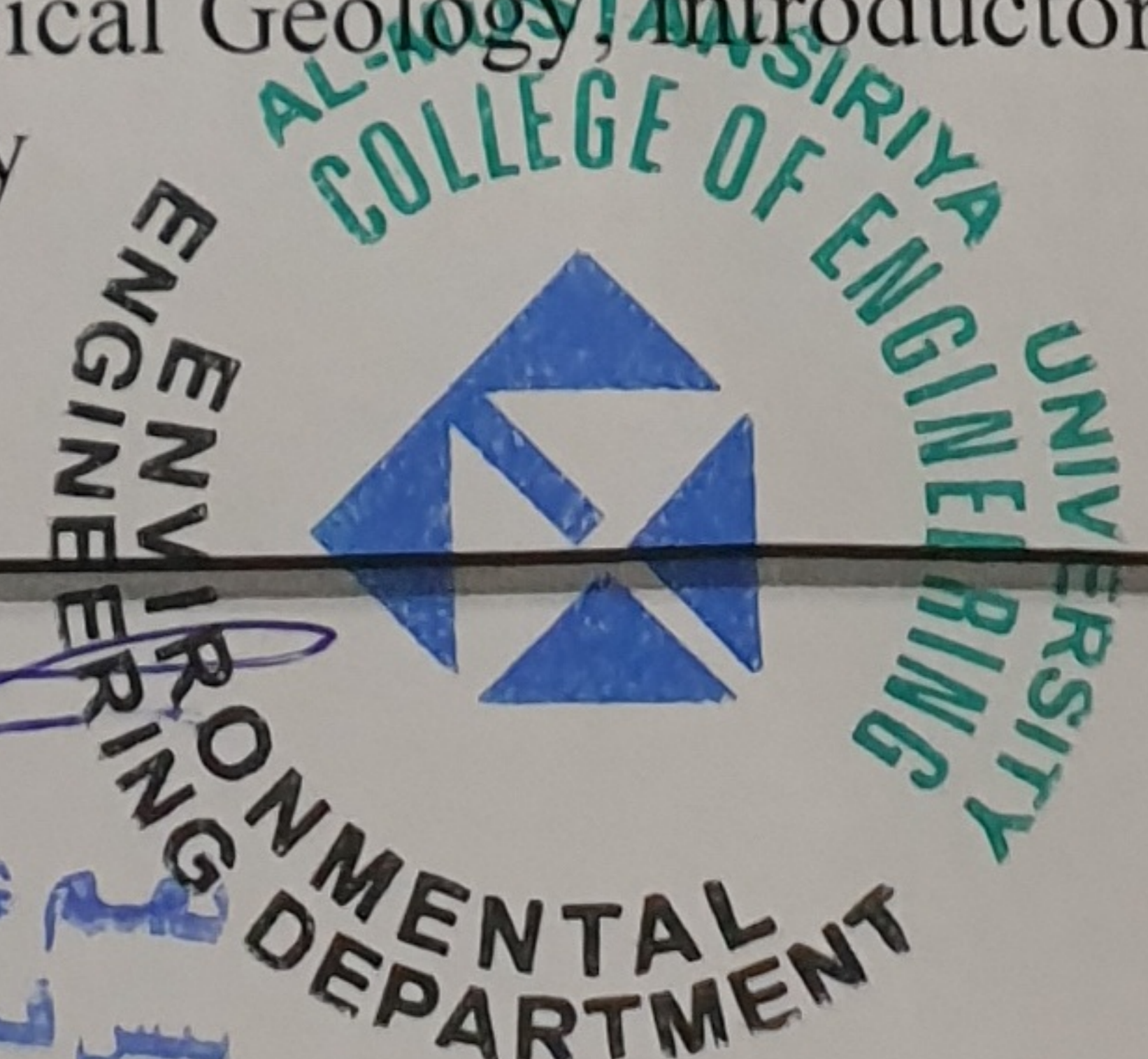
- **Ph.D. Geology with a Minor in Civil Engineering, Oklahoma State University (2010)**, GPA: 4.0 out of 4.0  
Dissertation: “Estimating the Hydraulic Parameters of the Arbuckle-Simpson Aquifer by Analysis of Naturally-Induced Stresses”  
Advisor: Dr. Todd Halihan
- **M.Sc. Hydrology, University of Arizona (1986)**  
Thesis: “Hydraulic Conductivity Assessment for Variably Saturated Rock Matrix”  
Advisor: Dr. Dan Evans
- **B.Sc. Agronomy, California State University, Chico, *cum laude* (1983)**

## ACADEMIC HONORS AND AWARDS:

- Member: The Honor Society of Phi Kappa Phi, 2007
- Member: The Golden Key International Honor Society, 2009
- 2006: \$5000.00 Scholarship, Environmental Science Graduate Program, Oklahoma State University.
- 1983: Dean List, California State University, Chico.
- 1983: Outstanding Student at the Department of Plants and Soil Sciences, California State University, Chico.
- 1980: Distinguished Students Full Scholarship to study in the U.S., Iraqi Government, Duration; 5 years.

## ACADEMIC /TEACHING EXPERIENCE:

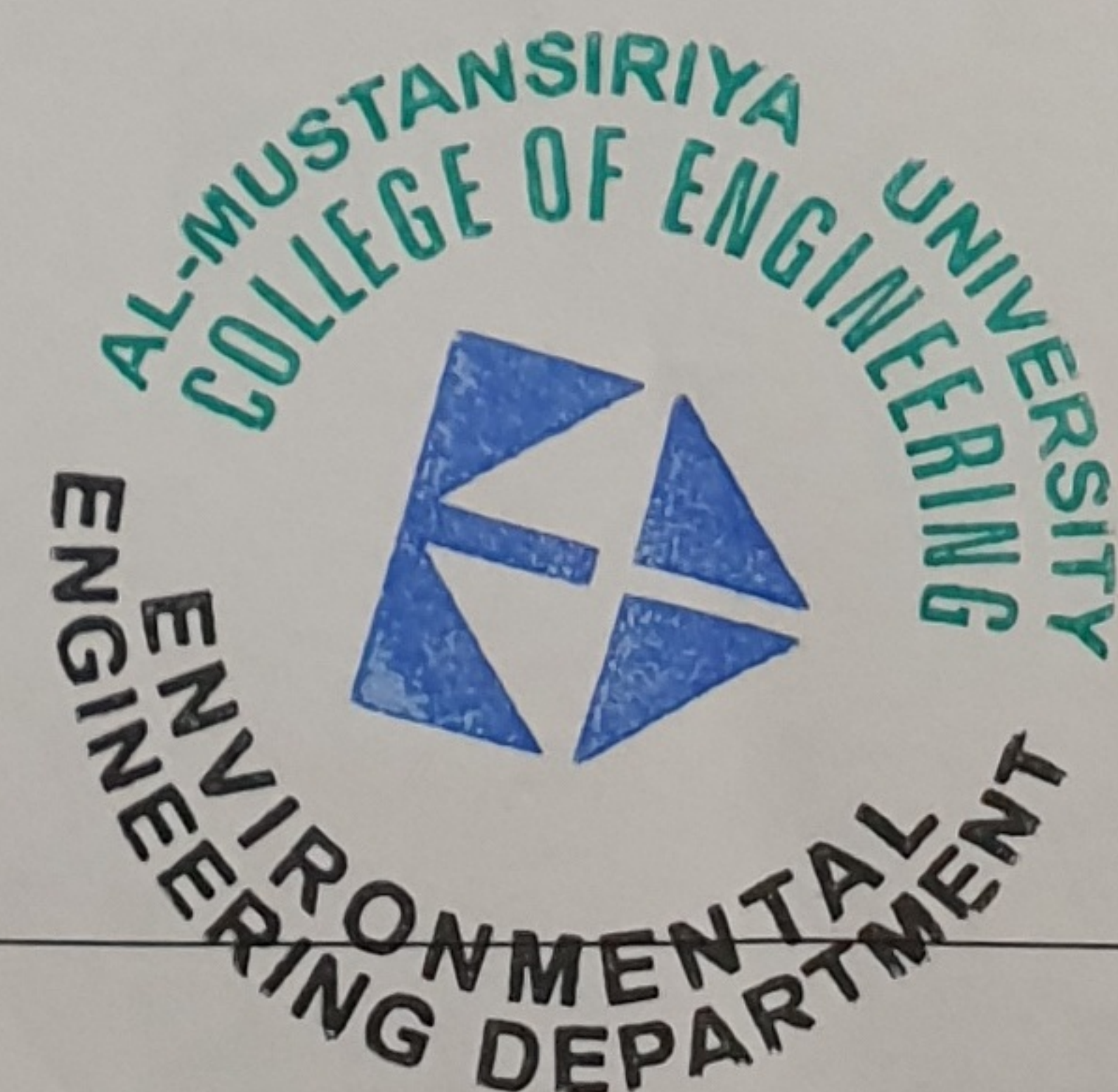
- October 2018- present; Teaching Faculty Member (Associate Professor) al Mustansiriah University
- October 2014-Sept.2018; Teaching Faculty Member (Murderess (Assistant prof)) al Mustansiriah University
- May 2014-October 2014; Consultant, Cleanco Recycling Nassiriah Limited
- October 2013-Present: Head of the International Division, Rahi for Science and Engineering, Stillwater, Oklahoma (Part time)
- August 2012-August 2013: Visiting Assistant Professor, Department of Energy and Earth Resources, University of Pittsburgh at Johnstown. Responsibilities: Teaching environmental Geology and Surface Water Hydrology for the Fall, Fossil Fuel, Earthquakes and Volcanoes, and Environmental Geology for the Spring.
- August 2011- May 2012: Visiting Assistant Professor, School of Geology, Oklahoma State University, Stillwater, Oklahoma. Responsibilities: Teaching Physical Geology, introductory Environmental Geology, and co-teaching Advanced Hydrogeology

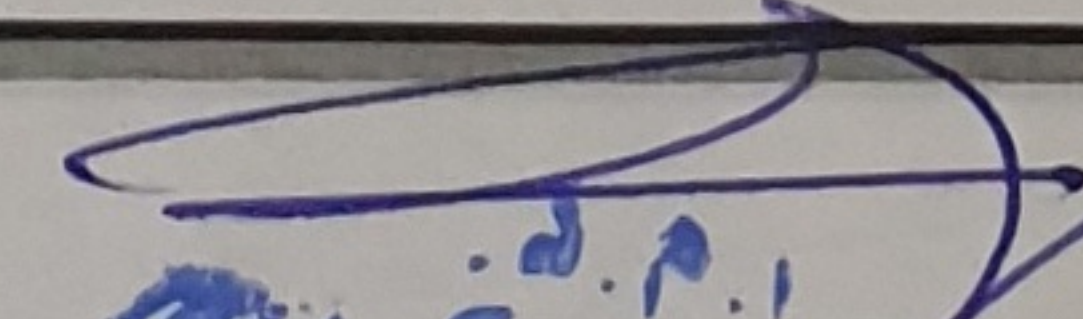


- March 2010- June 2011: Hydrologist, Groundwater Availability Modeling, Texas Water Development Board, Austin, Texas. Responsibilities: groundwater and surface water studies, aquifer parameters, geostatistics, ArcGIS, pumping test analysis, and base flow studies.
- 2007-2010: Graduate Teaching Associate, Boone Pickens School of Geology, Oklahoma State University. Teaching introductory geology laboratory classes
- 2005-2007: Graduate Research Associate, Boone Pickens School of Geology, Oklahoma State University, Participating with the Arbuckle-Simpson aquifer Hydrological Study Group, determination of aquifer parameters by analysis of tidally-induced water-level fluctuations. The work included in situ monitoring, and theoretical and modeling work
- 2000-2005: *Mudderriss* (equivalent to assistant professor), Department of Environmental Engineering, University of Mustansiriah, Baghdad, Iraq. Responsibilities: teaching engineering hydrology and statistics for engineers, consultant in the areas of water resources, wastewater treatment and sewer networks, and environmental hydrology. Team Lead for several design and study projects related to wastewater disposal and treatment, groundwater environmental problems, water-supply reservoir capacity design, and rainstorm drainage system.
- 1999-2000: Lecturer and Registrar, University of Mustansiriah, Baghdad, Iraq. Beside holding a managerial job, I was teaching engineering hydrology
- 1997-1999: Lecturer, University of Mustansiriah, Baghdad, Iraq. Responsibilities included teaching engineering hydrology and consultant in water resources and environmental engineering.
- 1986-1997: Chief Hydrologist, Ministry of Water Resources, Baghdad, Iraq. Responsibilities:
  - Groundwater studies including aquifer characterizations, pumping test analysis, dewatering, groundwater modeling, and groundwater investigations.
  - Surface water studies including hydrograph analysis, rainfall runoff relationship, baseflow analysis, reservoir capacity, storm water hydrograph, and IDF studies.
  - Irrigation and drainage studies including feasibility studies, design of subsurface agricultural drainage systems, and soil studies.
- 1985-1986: Graduate Teaching Assistant, Department of Hydrology and Water Resources Administration, University of Arizona
- 1974-1980: Hydrology Technician, State Organization for Soil and Land Reclamation, Iraq

#### COURSES TAUGHT:

Undergraduate	Graduate
<ul style="list-style-type: none"> <li>• Groundwater hydrology (2019) College of Engineering, Al-Mustansiriyah University</li> <li>• Groundwater and seepage(2018) College of Engineering, Al-Mustansiriyah University</li> <li>• Eng. hydrology (since 2017) College of Engineering, Al-Mustansiriyah University</li> <li>• Engineering Geology (since 2014) and Principles of Environmental Engineering and Sustainability ( 2016-), College of Engineering, Al-Mustansiriyah University</li> <li>• Fossil Fuel, Earthquakes and Volcanoes, Environmental</li> </ul>	<ul style="list-style-type: none"> <li>• Hydrogeology (GEOL 4453), taught at Oklahoma State University, USA (2009)</li> <li>• Advanced Hydrogeology Spring 2012 (team-teaching with Dr. Todd Halihan), Oklahoma State University, USA</li> </ul>



  
 م.م. عبد الكريم  
 قسم هندسة البيئة

- Geology, and Physical Geology  
Spring 2013, University of  
Pittsburgh at Johnstown, USA
- Surface Water Hydrology and  
Environmental Geology Fall 2012,  
University of Pittsburgh at  
Johnstown, USA
  - Environmental Geology  
(advanced), Spring 2012 (team-  
teaching with Dr. Todd Halihan),  
Oklahoma State University, USA
  - Geology and Human Affairs,  
Spring 2012, Oklahoma State  
University, USA
  - Physical geology: Fall 2011,  
Oklahoma State University, USA
  - Geology and Human affairs  
(Introductory Environmental  
Geology), Fall 2011, Oklahoma  
State University, USA
  - Geology and Human Affairs  
Laboratory, taught at Oklahoma  
State University, USA
  - Engineering Hydrology; taught at  
the University of Mustansiriah, Iraq
  - Engineering Statistics; taught at the  
University of Mustansiriah, Iraq
  - FORTRAN 77 Programming;  
taught at the University of  
Mustansiriah, Iraq
  - Supervised senior projects in the  
area of hydrology and water  
resources (about 14)

#### PROFESSIONAL AFFILIATIONS:

- American Society of Civil Engineering
  - American Water Resources Association
  - Geological Society of America
  - American Geophysical Union
  - International Association of Hydrogeologists
  - Oklahoma City Geological Society
- Previous membership:
- Iraqi Agricultural Engineers Union
  - Iraqi Geologists Union
  - Iraqi Scientific Society of Water Resource (elected to the Executive Committee 1999-2003)

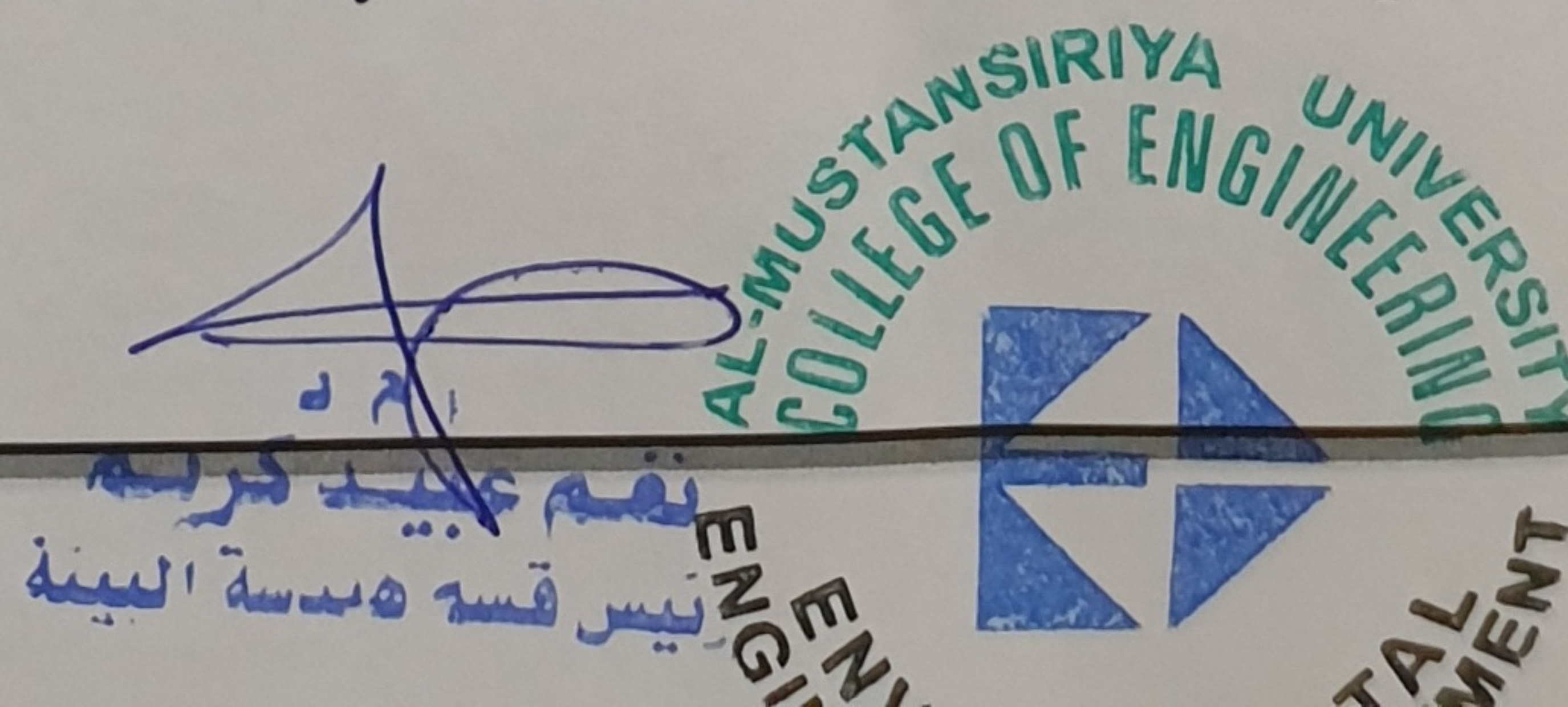
#### PUBLICATIONS:



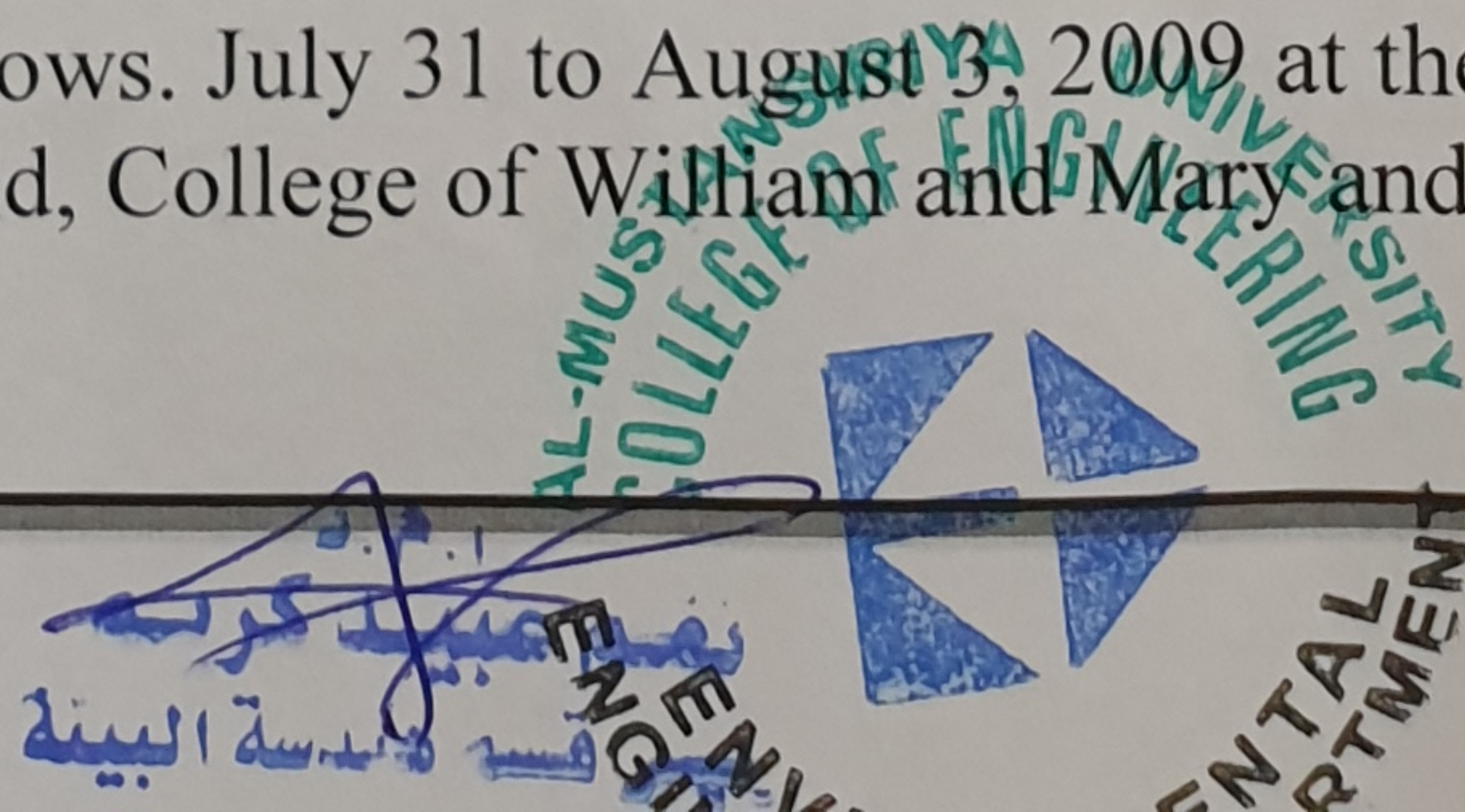
1. **Rahi, K. A.** Salinity Management in the **Shatt al-Arab River**, 1<sup>st</sup> international conference on civil engineering science (ICCES), College of Engineering, University of al-Qadisiyah, al-Diwaniya, Iraq, 2018
2. **Rahi, K. A.**, and Halihan, T., Salinity Evolution of the Tigris River, Regional Environmental Change, <https://doi.org/10.1007/s10113-018-1344-4>, May, 2018
3. Yasir, R. A., **Rahi, K. A.**, and Abudi, Z. N., Water budget fo Abu Zirig marsh in southern Iraq, Journal of Engineering and Sustainable Development Vol. 22, No. 10, January 2018, [www.jeasd.org](http://www.jeasd.org) (ISSN 2520-0917)
4. **Rahi, K. A.**, and Halihan, T., Identifying aquifer type in fractured rock aquifers using harmonic analysis, Ground Water. Vol. 51, No. 1, pp 76-82, 2013.
5. **Rahi, K. A.**, and Halihan, T., Changes in the salinity of the Euphrates River system In Iraq, Regional Environmental Change, Vol. 10, No. 1, pp 27-35, 2010.
6. **Rahi, K.**, and Halihan, T., Estimating selected parameters of the Arbuckle-Simpson Aquifer by analysis of naturally-induced stresses, Oklahoma Water Resources Board, 2009.
7. **Rahi, K. A.**, and Abudi, Z. N., Rain Harvesting Techniques Applied to Some Iraqi Zones, Engineering and Development Journal, College of Engineering, Al-Mustansiriah Univ., Baghdad, Iraq, Vol. 9, No. 2, pp 82-90, 2005.
8. Ghailan, A. H., **Rahi, K. A.**, and Hussian, A. S., Rainwater Harvesting Potential in the Iraqi Western Desert, Iraqi Journal of Water Resources, No. 1, Vol. 21, 2002.
9. Rahi, K. A., Rainwater harvesting project at al Rasoul Farm, Wasit Governorate, Iraq (in Arabic), the Seventh Iraqi Technological Conference, Univ. of Technology, Baghdad, Iraq, 2001
10. **Rahi, K. A.**, Mutter, G., and Al-Obiady, M. I., Analyzing the Groundwater Problem at Diwaniah City, Engineering and Development Journal, College of Engineering, Al-Mustansiriah Univ., Baghdad, Iraq, Vol. 4, No. 2, pp 56-63, 2000.
11. **Rahi, K. A.**, Hor (marsh) Al-Shiwiacha and its Use for Flood and Irrigation Purposes, Report (in Arabic), Ministry of Water Resources, Baghdad, Iraq, 23p, 2000.
12. **Rahi, K. A.**, Irrigation projects during Abbasid era and its relation to present day irrigation projects, Irrigation system during Abbasid era symposium, the Iraqi Academy of Science (in Arabic), Baghdad, Iraq, 1999.
13. **Rahi, K. A.**, and Ibrahim, K., Dewatering of the Historical Babylon City, Iraqi Journal of Water Resources, No. 1, Vol. 18, 1999.
14. **Rahi, K. A.**, Salih, W. A., and Alshami, A. H., The Role of Al-Dalmage Lake in the Operation of Tigris Euphrates Outfall Drain, Report (in Arabic). Urban Planning Center, Univ. of Baghdad, Baghdad, Iraq, 20p, 1993.
15. **Rahi, K. A.**, and Alawi, A. J., Flow in Vertically Layered Porous Media with Infiltration, 2nd Sci. Conf. of Saddam Dam Research Center Proceedings, Mosul University, Mosul, Iraq, 1990.
16. Alawi, A. J., and **Rahi, K. A.**, Equivalent Homogenous Porous Media to Analyze the Free Surface Flow, Proc. 5th Sci. Conf. SRC, Vol. 1, Part 3, Baghdad-Iraq, pp 146-155, 1989.
17. Alawi, A. J., and **Rahi, K. A.**, Defining the Free Surface for Heterogeneous Aquifer, Journal of Irrigation and Drainage Engineering (ASCE) Vol. 114, No. 4, pp 713-716, November, 1988.

## PROFFESIONAL DEVELOPMENT

- Certifications.
  - State of Oklahoma, State Board of licensure for Professional Engineers and Land Surveyors, Engineer Intern Certificate No. EI 15011, Issued Oct. 12<sup>th</sup>, 2012
- Conferences.
  - **Rahi, K. A.**, The 0g the Turkish GAP on the Iraqi Surface Water Resources, Our Waters are our Existence Let us Conserve and Protect them, University of Summer, Thi Qar, Iraq, November, 2016



- **Rahi, K. A.**, Restoration of the Iraqi southern marshes and Shatt al Arab: Fundamental limits to sustainability, Sustainability Symposium, the College of Engineering, University of al Mustansiriah, Baghdad, Iraq, Nov. 2014
  - **Rahi, K. A.**, and Halihan, T., Shatt al Arab salinity assessment and restoration measures, International Workshop, Basrah Water Crisis, Shatt al Arab Increasing Salinity and Measures to Control, Basrah, Iraq, 2014.
  - **Rahi, K. A.**, and Halihan, T., Environmental flow of the Shat al Arab, 6th National Conference on Environmental and natural Resources, University of Basrah, 2013.
  - **Rahi, K. A.**, and Halihan, T., Salinity Changes of the Tigris River Downstream of Baghdad, Water Scarcity and Policy in the Middle East and Mediterranean, Cornell University, New York, November, 2011.
  - **Rahi, K. A.**, and Halihan, T., Analyzing water-level time series to identify aquifer type, GSA North-Central Section (44th Annual) and South-Central Section (44th Annual) Joint Meeting, Branson, Missouri, 2010.
  - **Rahi, K. A.**, and Halihan, T., Analyzing naturally-induced stresses to determine the storage coefficient of the Arbuckle-Simpson aquifer, GSA South-Central Section-43rd Annual Meeting, Dallas, Texas, March 2009.
  - **Rahi, K., A.**, and Halihan, T., An improved method for determining the barometric efficiency, Abstract H51I-0996, AGU Fall Meeting, San Francisco, December, 2008.
  - **Rahi, K., A.**, and Halihan, T., Estimating the Storativity of the Arbuckle-Simpson Aquifer from the Analysis of the Naturally-Induced Stresses-Strains, Geological Society of America abstracts with programs, Vol. 40, No. 3. p. 30, April 2008.
  - **Rahi, K., A.**, and Halihan, T., Assessing the Euphrates River Salinity within Iraq, 2007 Ground Water Summit, National Ground Water Association, Albuquerque, New Mexico, 2007.
  - **Rahi, K. A.**, Rainwater harvesting project at al Rasoul Farm, Wasit Governorate, Iraq, the Seventh Iraqi Technological Conference, Univ. of Technology, Baghdad, Iraq, 2001
  - **Rahi, K. A.**, The Rule Al-Eiz River in Improving the Shatt Al-Arab Water Quality, 2nd Sci. Conf. Proceedings, College of Engineering, Univ. of Mustansiriah, Baghdad, Iraq, Aug., 1998.
  - **Rahi, K. A.**, and Alshami, A. H., Hor Al-Shiwiacha and its Use for Flood and Irrigation Purposes, 4th Sci. Conf. (abstracts), Saddam Research Center, Mosul University, Iraq, April, 1997.
  - **Rahi, K. A.**, Groundwater of Diwaniah City, Case study, Iraqi 12th Geologists Union Conf., Iraqi Geologist Union, Baghdad, Iraq, May 1996.
  - **Rahi, K. A.**, and Evans, D. D., Unsaturated-Hydraulic Conductivity Assessment for Consolidated Rock Cores, EOS, Trans. Amer. Geoph. Union, Vol. 67, No. 16, p.376, 1986.
- Workshops
    - Introduction to Python 2.5 Programming, Summer 2011, Texas State Uni., online course
    - ArcHydro Groundwater Subsurface Analyst, April 20-21, 2011, TNRIS Workshop, Austin, Texas
    - Introduction to Geoprocessing Scripts Using Python, March 2-4, 2011, ESRI of San Antonio, San Antonio, Texas
    - ArcHydro ESRI (TNRIS), August 4-6, 2010, Austin, Texas
    - ArcGIS Desktop II ESRI (TNRIS), July 29-August 2, 2010, Austin, Texas
    - ArcGIS Desktop I ESRI (TNRIS), May 4-6, 2010, Austin, Texas.
    - NSF Workshop Participant. Preparing for an Academic Career in Geosciences: Workshop for Graduate Students and Post-Doctorate Fellows. July 31 to August 3, 2009 at the University of Oklahoma. (Conveners: Heather Macdonald, College of William and Mary and Robyn Wright Dunbar, Stanford University).



- Southwest Research Institute, San Antonio, TX, MODFLOW training, March 13-17, 2006, Supervisor: Ronald T. Green.

