

WALID W SABBABH



Assistant Professor of GIS and Hydrological Modeling

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Citizenship: Dual citizen of the U.S. and Palestine

Education

- **PhD in Civil and Environmental Engineering** with GIS & Hydrological Modeling Emphasis at Brigham Young University (Provo, Utah) **2004**
- **MS in Hydrogeology** at the University of Jordan (Amman, Jordan) **1991**
- **BS in Earth & Environmental Sciences** at Yarmouk University (Irbid, Jordan) **1988**

Professional Experience

September 2014 - Current: Assistant Professor for GIS and Hydrological Modeling (2014 - current) and chairman of the GIS department (2014 - 2016), Faculty of Engineering and Information Technology, Arab American University, Palestine

- I teach GIS and hydrological modeling related classes including: Principles of Geology, Principles of maps, Computer Skills for GIS, Introduction to GIS, Intermediate GIS, Advanced GIS, Introductory Remote Sensing and Image Processing, Advanced Remote Sensing for GIS Applications, GIS Applications in Hydrology and Spatial Modeling, Meteorology and Climate, Geopolitics of Natural Resources, Geodatabase Design and Management, GIS Applications in Geological Studies, etc.
- I integrate Climate Change with most topics that I teach and help explain its effects on our society and the world as an effort to open up the eyes of my students and encourage them to think of solutions to these issues.
- I was the chairman of my department for two consecutive years and I provided my own expertise and knowledge to help see the bigger picture of the effects of water, climate change, and global warming on the world and life as we know it.
- I also ran the department's GIS program, established the GIS curriculum and advisory study plan, and established the first GIS & Remote Sensing laboratory in my university.

February 2006 - September 2014: GIS and Hydrological Modeling Specialist
at Utah Geological Survey, Department of Natural Resources, Salt Lake City,
Utah, USA.

- I assessed environmental and water resources using ArcGIS and other related software.
- I used hydrological and spatial GIS modeling for evaluating regional surface water and ground-water flow budgets for various watersheds and ground-water basins.
- I used advanced GIS tools to facilitate the US census on the town, city, county, and state levels.
- I constructed ground-water flow models to simulate flow and pollution transport for various aquifers and calibrated them to be used for future water resources planning and management in Utah.
- I set up hydrological models to simulate and quantify pollutants leaked from septic tanks, fertilizers, pesticides, and other human related activities into surface water and ground-water.
- I set up drinking water source protection plans to ensure safe drinking water by protecting it from pollution.
- I ran water quality sampling, interpretation, and quality modeling studies to identify suitability of water for various water use purposes.

August 2005 - December 2005: Visiting Assistant Professor at Brigham Young University, Provo, Utah, USA.

I replaced a professor during his sabbatical leave for teaching groundwater classes.

June 2004 - December 2005: Hydrological Modeling Consultant & Adjunct Assistant Professor at Utah Valley University, Orem, Utah, USA.

- I taught environmental geology, hydrology, and groundwater classes.
- I conducted research on hydrological and GIS modeling for small projects conducted by the Earth Science Department.
- I set up a drinking water source protection plan for a well to be used as a research outdoor facility for Utah Valley University at Sleeping Rainbow Ranch in the Capitol Reef National Park of Utah.
- I helped run an environmental assessment for Utah Lake with the help of a wonderful and cooperative team of geologists.

January 2000 - April 2004: PhD Candidate/Research and Teaching Assistant at Brigham Young University, Provo, Utah, USA.

- I was a teaching assistant and substitute instructor for the following classes:
 - Undergraduate classes: Fluid Mechanics, Hydrology, and Hydraulic Engineering.
 - Graduate classes: Geo-Environmental Engineering, Ground-water Modeling, and Water Quality Management. I received excellent feedback from the students.

- I was also a research assistant for testing Groundwater Modeling System (GMS) software in cooperation with the team of developers of that software with the main focus on the use of geo-statistical interpolation techniques for 3-D Plume Characterization.

March 1999 - December 1999: Hydrological and Spatial GIS Modeling Consultant for the USAID Water Project, Ramallah, Palestine.

- I established a GIS relational database and I used it for spatial hydrological modeling and groundwater recharge evaluation.
- I used GIS and spatial modeling to integrate a Vulnerability Map for various aquifer basins in the West Bank of Palestine based on sensitivity of various recharge regions to pollution and human land use related activities.

October 1998 - October 1999: Technical Director for GIS and Hydrological Information Systems at the Arab Studies Society (E. Jerusalem, Palestine)

- I established a GIS department and equipped it with all needed software and hardware.
- I established a relational GIS database for the Maps and Survey department.
- I was a technical director of regional planning and land property management project for the Jerusalem District. Various maps and documents on the Palestinian land properties, regional development plans in Jerusalem during the British, Jordanian and Israeli administrations were collected from different sources and integrated into the relational GIS database.
- I established and ran a spatial hydrological database with a special focus on the water and environment of Jerusalem District.

November 1993 - October 1998: Research Associate (until April 1995) and then Director of the Water Research Program at the Applied Research Institute of Jerusalem [ARIJ], Bethlehem, Palestine.

- I ran all water related projects conducted by ARIJ which included establishing a water and agricultural database dependent on different GIS-related software available at the institute.
- I used these various GIS software facilities to identify the inter-related effects between groundwater, irrigation activities, and other land use patterns in Palestine. The target was to identify the potential sources of pollution and to control and protect the groundwater quality which I accomplished.
- I submitted requests of funding for proposed projects on water, environmental, irrigated and non-irrigated agricultural related studies.
- I participated in research teams to conduct environmental studies on water quality of available water, agricultural activities, renewable energy sources, and pollution sources of surface and groundwater.

Scholarships/Fellowships

- PhD Graduate Fellowship (2000-2004), Civil and Environmental Engineering Department at Brigham Young University in Utah
- Research Fellowship Graduate Research Scholarship for the academic year of 2001/2002, Dean of Graduate Studies at Brigham Young University in Utah. It was a competitive scholarship given to support doctorate dissertations based on research importance, student merit, and academic performance.
- Graduate fellowship to support my doctorate dissertation, Palestinian American Research Center, Virginia, USA which is competitive based on research importance and student merit.

Professional Software Skills and Certificates

- Professional Mastery of MapInfo, Global Mapper, and Surface Mapping System (Surfer)
- Professional Mastery of Groundwater Modeling System (GMS 10.x) for advanced use and training
- Professional Mastery of ESRI ArcGIS 10.x software for advanced use and training
- Professional Mastery of ERDAS IMAGINE 2011 software for advanced use and training
- Professional Mastery of Stanford Geo-statistical Modeling Software (S-GeMS) using spatial data mining.

Publications and Conference Presentations

1. Kmail, A., Jubran, J., **Sabbah**, W., **2017**, [Coupling GIS-based MCA and AHP techniques for Hospital Site Selection](#): International Journal of Computer Science and Information Security (IJCSIS), Vol. 15, No. 12, December 2017, pp. 49-56.
2. Murrar, A., Sadaqa A., Rabayah, K., Samhan, S., Tamimi, A., **Sabbah**, W., Barghouthi, I., **2017**, [The Efficiency and Institutional Performance of the Palestinian Water Service Providers](#): American Journal of Environmental and Resource Economics, Vol. 2, No. 5, 2017, pp. 162-174. doi: 10.11648/j.ajere.20170205.13.
3. Jordan, J.L., Inkenbrandt, P., Hurlow, H., and **Sabbah**, W., **2014**, Aquifer tests, Chapter 7 in Hurlow, H., editor, [Hydrogeologic studies and groundwater monitoring in Snake Valley and adjacent hydrographic areas, west-central Utah and east-central Nevada](#): Utah Geological Survey Bulletin 135, p. 195–232.
4. Jordan, J.L., and **Sabbah**, W., **2012**, [Hydrogeology and Simulation of Groundwater Flow in Cedar Valley, Utah County](#), Utah: Utah Geological Survey Special Study 145, 125 p.
5. **Sabbah**, Walid, and Miller, W., **2012**, [Updated Water Budget for the Western Aquifer Basin and Potential for Agricultural Development in the West Bank, Palestine](#). Conference on Water Crisis and Agricultural Development in the West

Bank in Palestine, **21-22 May 2012**, Palestine.

6. **Sabbah**, Walid, and Miller, W., **2012**, [Evaluation of Water Budget for the Western Aquifer Basin in the West Bank, Palestine](#), International journal for environment and water, Volume 1, Issue 2, P 89-101, The Euro-Arab Organization for Environment, Water, and Desert Researches, Manchester, UK.
7. Wallace, Janae, Lowe, Mike, King, John, **Sabbah**, Walid, and Thomas, Kevin, **2012**, [Hydrogeology of Morgan Valley, Morgan County, Utah](#): Utah Geological Survey Special Study 139, 137 p.
8. **Sabbah**, Walid, Lowe, Mike, Wallace, Janae, and Thomas, Kevin, **2011**, [Developing a Water Budget for Morgan Valley, Morgan County, Utah](#): Geological Society of America Abstracts with Programs, V. 43, No. 4, p. 73.
9. Lowe, Mike, **Sabbah**, Walid, and Wallace, Janae, **2011**, [Groundwater Model Based Septic-Tank Density Recommendations Using a Mass-Balance Approach to Protect Groundwater Quality, Cedar Valley, Iron County, Utah](#): Geological Society of America Abstracts with Programs, V. 43, No. 4, p. 74.
10. Thomas, Kevin, Oaks, Robert Q., Inkenbrandt, Paul, **Sabbah**, Walid, and Lowe, Mike, **2011**, [Cache Valley Principal Aquifer Storage and Recovery State Assessment: Phase I, Cache Valley, Cache County, Utah](#): Utah Geological Survey Open-File Report 579, 57 p.
11. Lowe, Mike, Wallace, Janae, **Sabbah**, Walid, and Kneedy, J.L., **2010**, [Science-based land-use planning tools to help protect ground-water quality, Cedar Valley, Iron County, Utah](#): Utah Geological Survey Special Study 134, 33 p., scale 1:100,000.
12. Jordan, J.L., and **Sabbah**, Walid, **2010**, [Modeling Ground-water Flow in Cedar Valley, Utah County, Utah](#). Utah Geological Survey, Survey Notes, V. 42, No. 2, p. 1-3, Salt Lake City, Utah.
13. **Sabbah**, Walid, **2009**, [Simulation of ground-water flow in Cedar Valley, Utah County, Utah](#): Geological Society of America Abstracts with Programs, V. 41, No. 6, p. 4.
14. Jordan, Lucy, and **Sabbah**, Walid, **2007**, [Ground-water flow, water-level trends, and the connection between Fairfield Spring and the basin-fill aquifer in Cedar Valley, Utah County, north-central Utah](#), in Willis, G.C., Hylland, M.D., Clark, D.L., and Chidsey, T.C., Jr., editors, Central Utah - diverse geology of a dynamic landscape: Utah Geological Association Publication 36, p. 345-359, Salt Lake City, Utah, U.S.A.
15. **Sabbah**, Walid, and Miller, W., **2007**, [Developing a Spatial Modeling Approach to Integrate Water Sustainability Map for the West Bank Aquifers](#). Proceedings of the International conference on Sustainable Development and Management of Water in Palestine, 26-29 August 2007, Amman, Jordan.
16. **Sabbah**, Walid Wajeih, **2005**, [Developing A GIS And Hydrological Modeling Approach For Sustainable Water Resources Management In The West Bank -- Palestine](#), All Theses and Dissertations. Paper 297,

<http://scholarsarchive.byu.edu/etd/297>, Brigham Young University, Provo, Utah, U.S.A.

17. Jones, Norman, Davis, Jeffrey, and **Sabbah**, Walid, **2003**, [A Comparison of 3D Interpolation Techniques for Plume Characterization](#), Ground Water®. Vol. 41, No. 4, P.411-419. July-August 2003, OH, U.S.A.
18. **Sabbah**, Walid, Abu Amrieh, Mohammad, and Al-Juneidi, Faten, **1998**, Executive summary of results of the study on [Potentials for Sustainable and Equitable Development of Irrigated Agriculture in the West Bank](#), Applied Research Institute, Palestine.
19. Isaac, Jad, and **Sabbah**, Walid, **1998**, [Water Resources and Irrigated Agriculture in the West Bank](#), Applied Research Institute, Palestine.
20. **Sabbah**, Walid, and Isaac, Jad, **1996**, [Evaluation of Water Resources Management in Ramallah District](#), International Symposium of Water Resources Management in Palestine, 8-9 May 1996, An-Najah University, Palestine.
21. Al-Juneidi, Faten, **Sabbah, Walid**, and Isaac, Jad, **1996**, [Irrigation Management and Water Use Efficiency in the West Bank](#), Applied Research Institute, Palestine.
22. **Sabbah**, Walid, Isaac, Jad, **1995**, [Towards a Palestinian Water Policy](#), Regional Seminar on Options & Strategies for Freshwater Development & Utilization in Arab Countries, June 26-28, 1995, Amman, Jordan.
23. Isaac, Jad, **Sabbah**, Walid, **1994**, [The Intensifying Water Crisis in Palestine](#), Applied Research Institute of Jerusalem, Bethlehem, Palestine.
24. **Sabbah**, Walid, **1991**, [Water and Sediment Load Quality of Wadi El-Walah Floods](#), Master Thesis, University of Jordan, Amman, Jordan.

Professional Training

- Annual Technical Writing Workshops (9 workshops from 2006 to 2014) for Utah State Employees on updates of guidelines for proposal writing and publication of scientific research findings in bulletins and journals.
- Professionalism and Professional Responsibility (May 17, 2011). That one-day training course was organized by the Utah Division of Occupational and Professional Licensing (DOPL) and the Board of Licensed Geologists, Salt Lake City, Utah, U.S.A.
- Geo-statistical Analysis of Environmental Data (April 18-22, 2011). That 1-week training course focused on using the Stanford Geo-statistical Modeling Software (S-GeMS) for environmental applications, Utah State University, Logan, Utah, U.S.A.
- Contaminant Chemistry and Pollution Transport in Soil and Groundwater (March 28-29, 2007). That short course was conducted by the Northwest Environmental Training Center (NETC), Salt Lake City, Utah, U.S.A.

Affiliations

- Member of the National Groundwater Association (NGWA), USA, since 2006.
- Member of the American Society of Civil Engineers (ASCE), USA, since 2004.
- Member of the Geological Society of America (GSA), USA, since 2004.

Languages

- Arabic: Native
- English: Fluent

References

1. Dr. Woodruff Miller, Professor of Civil & Environmental Engineering Department, Brigham Young University, Provo, UT 84602, Phone: 801-422-6331, E-mail: wood_miller@byu.edu
2. Dr. Stephen Gasteyer, Associate Professor of Sociology, Michigan State University, East Lansing, MI 48824, Phone: 517-355-3505, E-mail: gasteyer@msu.edu
3. Hugh Hurlow, Groundwater Manager at Utah Geological Survey, Department of Natural Resources, Salt Lake City, UT 84114, Phone: 801-537-3385, E-mail: hughhurlow@utah.gov