

Dr. Jawad Taleb Al-Bakri

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PROFILE

- An associate professor at the Department of Land, Water and Environment, University of Jordan.
- Specialization in applications of remote sensing (Passive and Active) and GIS in land resources management, climate change and desertification.
- Working experience extending over 14 years in land resources management and climate change using earth observation data and GIS.
- Design of environment monitoring and impact assessment methods using remote sensing and GIS.
- Design and build-up of Geo-databases for land resources management.

KEY QUALIFICATIONS

- PhD in Remote Sensing and Environment Monitoring, 2000, Cranfield University, UK.
- MSc Soils and Irrigation, 1996, University of Jordan, Amman, Jordan.
- BSc Soils and Irrigation, 1992, University of Jordan, Amman, Jordan.
- Vast experience in satellite image processing and GIS applications.

CV DETAILS

1. EDUCATION

2. JOBS

3. EXPERTISE

4. SKILLS

5. TEACHING COURSES

6. TRAINING COURSES (TUTOR)

7. RESEARCH PROJECTS

8. PUBLICATIONS

8.1 Journal Articles

8.2 Books and Book Chapters

8.3 Proceedings and reports

8.4 Articles in preparation

9. GRADUATE STUDENTS

9.1 MSc students

9.2 PhD students

10. SCIENTIFIC COMMITTEES AND MEMBERSHIPS

11. PERSONAL DETAILS

1. EDUCATION

- 1997-2000 Cranfield University, Silsoe, Bedfordshire, UK. PhD Remote Sensing and Environmental monitoring.
- Graduate Courses of GIS, Remote Sensing and image processing, Aerial Photography Interpretation, Geostatistics, EIA, Environmental monitoring, resources survey and modelling of environmental systems.
 - Research related to arid and semiarid zones of Jordan.
 - Training on the use and applications of Image processing and GIS software.
 - Dissertation “Remote Sensing Techniques for environmental monitoring of the semiarid zone of Jordan”.
- 1994-1996 University of Jordan, Amman, Jordan, MSc Soils and Irrigation.
- Graduate Courses in water resources, irrigation, statistics and soils.
 - Teaching Assistant and research assistant with consultancies on water resources studies.
 - Dissertation: The effects of soil moisture content and management practices on some physical properties of vertisol under three course rotation.
- 1988-1992 University of Jordan, Amman, Jordan, BSc Soils and Irrigation.

2. JOBS

- Permanent Associate Professor, Dept. Land, Water and Environment, Faculty of Agriculture, University of Jordan, Amman, Jordan.
- 2010-2011 Sabbatical leave, Researcher and a Geo-database Manager, The Hashemite Fund for the Development of Jordan Badia, Amman, Jordan.
- 2009-2010 Chairperson, Dept. Land, Water and Environment, Faculty of Agriculture, University of Jordan, Amman, Jordan.
- 2007-2009 Assistant Dean for Development Affairs, Faculty of Agriculture, University of Jordan.
- 2000-2007 Assistant Professor, Dept. of Land, Water and Environment, Faculty of Agriculture, University of Jordan, Amman, Jordan.
- 1996 Research and Teaching Assistant, Faculty of Academic Research, University of Jordan, Amman, Jordan.

3. EXPERTISE

1. Application of Remote Sensing and GIS in agriculture, environment, climate change and desertification studies.
2. Land Resource Management with GIS – RS techniques
3. Application of remote sensing to map land cover/use, soils and vegetation.
4. Modelling of environment with remote sensing techniques.

5. Design and the implementation of methodologies of RS and GIS for monitoring soils and vegetation.
6. Development of remotely sensed indices for land degradation.
7. Preparation of strategies for land resources management.
8. EIA practitioner: Impact identification and assessment, environment monitoring and report writing in EIA studies.

4. SKILLS

IT

Image Processing Software (EASI/PACE, ERDAS, ENVI, IDRISI), GIS software (ArcGIS, ArcGIS Server), SQL/Oracle 10g, statistical packages (Genstat and Minitab), Microsoft applications.

Languages

Arabic, English.

Writing

Excellent experience in technical writing and synthesis of information. Excellent experience in writing strategies for land resources management and development programs.

- Writing the country's strategy to combat desertification.
- Currently involved in preparing the strategy for Badia Development.
- Participation in report writing with different national and international projects.

Training courses (Trainee)

- Oracle 10g Developer & Report, May-June 2010, Consultation Centre, University of Jordan, Amman, Jordan.
- Use of Synthetic Aperture RADAR (SAR) for agricultural monitoring. Canada Space Agency and MDA, October, 2009, Kananaskis, Alberta, Canada.
- Watershed Modelling System: Hands on Training, June, 2001, WERSC, University of Jordan, Amman, Jordan.
- Remote Sensing and long-term global data sets for climate studies. August, 1999, University of Dundee, UK.
- Estimation of Rangelands Vegetation Production, 1998, JAZPP, UOJ.
- Agronomy of production systems, March, 1996, ICARDA, Aleppo, Syria.

5. Teaching Courses

Remote Sensing (UOJ, Hashemite University , Cologne ITT)

Remote Sensing Applications

Geographic Information Systems (GIS), (UOJ, German Jordanian University)

Advanced Remote Sensing

Environmental Impact Assessment

Environmental Monitoring

Environmental Soil Physics

Irrigation principles and practices

Training in Agricultural Resources and Environment

6. Training Courses (Tutor)	
May, 2011	Processing of SAR images for monitoring soil and water resources, University of Jordan, Amman, Jordan.
March 2011	Advanced GIS course on spatial analysis, Badia Restoration Program and Hashemite Fund for development of Jordan Badia, Amman, Jordan.
July, 2010	Introductory ArcGIS, the Hashemite Fund for Development of Jordan Badia, Amman, Jordan.
July, 2009	Use of GIS-RS to support ground surveys, Training workshop on methodology standardization of data collection and analysis of the baseline study of the Badia Restoration Program (BRP).
March, 2009	Application of GIS based models to map land degradation, NCARE.
13-17 July, 2008	Roles of remote sensing in monitoring climate change, 11 th International course on Wadi Hydrology: Impact of climate change on watershed management, Amman, Jordan
15/7-31/7/2008	Drought monitoring with remote sensing, NCARE, Amman, Jordan.
22-26 July, 2007	Application of GIS in wadi hydrology, 10 th International Training course on Wadi Hydrology: Watershed Management, UNESCO University of Jordan, Amman, Jordan.
25/8/2008	Environmental Impact Assessment, Jordan Environment Society, Amman, Jordan.
3-7 March, 2007	Environmental Impact Assessment, Ministry of Municipal Affairs, Environment and Water, Muscat, Oman.
7-15 Feb., 2007	Desertification monitoring, assessment and Control, "on job training course" Ministry of Environment, Amman, Jordan.
Sept., 2006	Environmental Impact Assessment, Jordan University Consultancy Centre, 2006.
August, 2006	Remote sensing and digital image processing. A course for participants from Yemen, WERSC, UOJ, Amman, Jordan,
19-23 June, 2005	Advanced training on ERDAS image processing software and ARCGIS spatial and 3-D analysts, NCARTT, Amman, Jordan.
14-17 Feb., 2005	Remote sensing and image processing, NCARTT, Amman, Jordan.
22-25 Nov., 2004	UNESCO/IIEP School Mapping Workshop, UNESCO, Amman. "Using GIS to improve decision-making in school planning".
13-21 June, 2001	Advanced GIS-Based hydrological modelling using ArcView, WERSC, University of Jordan, Amman, Jordan.
January, 2002	Remote sensing and image processing, University House for

	Consultation and Studies (UHCS), Amman, Jordan.
May, 2002	Remote sensing and land cover mapping, Voluntary training course at the Amman Baccalaureate School, Amman, Jordan
July, 2001	Watershed Modelling System (WMS), WERSC, University of Jordan, Amman, Jordan.
May, 2000	Application of remote sensing and GIS for monitoring rangeland, NCARTT, Amman, Jordan.

7. RESEARCH PROJECTS

1. **Assessment and monitoring of desertification in Jordan using remote sensing and bioindicators.** A research project funded by the **NATO-SfP** and carried out jointly with Guelph University, Canada. Duration 3 years 2009-2012, budget 250,000 Euros. Role: PI (PPD).
2. **Modelling of Crop Evapotranspiration in Jordan Valley from Remote Sensing Data.** Funded by the Deanship of Academic Research, University of Jordan. The main experience is in integrating ground data with satellite imagery to estimate reference evapotranspiration in Jordan Valley. Role: Co-Researcher.
3. **Optimisation for Sustainable Water Resources Management (OPTIMA).** Funded, in part, by the European Commission (EC), FP6 INCO-MPC. Responsibility of GIS database and land use in Zarqa Basin. <http://www.ess.co.at/OPTIMA/>
4. **Sustainable Management of Scarce Resources in the Coastal Zone (SMART).** Funded, by the EC under the INCO-MPC programme. Responsibility of GIS database and land use in Aqaba Governorate. <http://www.ess.co.at/SMART/>
5. **MEDCOASTLAND thematic network,** Funded by the EC, FP5- (INCO-MED), <http://medcoastland.iamb.it/index.php>
6. **Deficit Irrigation for Mediterranean Agricultural Systems (DIMAS),** Funded, by the EC under the FP6-INCO.
7. **SOWAMED Network,** for the exchange of methodologies and expertise on sustainable water and land management in the Mediterranean, FP6-INCO <http://www.sowamed.ird.fr/index.php?page=home>
8. Badia Benchmark project: Jordan. Sponsored by; Arab Fund for Economic and Social Development (AFESD), International Fund for Agricultural Development (IFAD).
9. **Developing a Web Resource on Soils and Land Management in Jordan** (Funded by IALC and taken jointly with Arizona State University. Responsibility of producing GIS maps for land region in Jordan and organizing research GIS-based database. Project is available at: <http://alic.arid.arizona.edu/jordansoils/>
10. **Monitoring Rangeland Productivity in Arid Areas Using Remote Sensing Technology.** Funded by the Deanship of Academic Research, University of Jordan. The main experience was on estimating productivity and cover of a protected range reserve of Surra in Mafraq from SPOT XS data.

8. Publications	
8.1 Journal Articles	
1.	Al-Bakri J. T., Al-Eisawi D., Damhoureyeh S. and Oran S. 2011. GIS-based analysis of spatial distribution of medicinal and herbal plants in the northwest of Jordan. <i>Annals of Arid zone</i> (In Press).
2.	Al-Bakri J.T., Suleiman A., Abdulla F. and Ayad J. 2011. Potential impacts of climate change on the rainfed agriculture of a semi-arid basin in Jordan. <i>Physics and Chemistry of the Earth</i> 36(5-6):125-134.
3.	Shatanawi M., Suleiman A. A., and Al-Bakri J. 2011. Lemon evapotranspiration and productivity under water deficit in Jordan Valley. <i>Journal of Agricultural Sciences</i> 7(3): 564-574.
4.	Schacht K., Gönster S., Jüscke E., Chen Y., Tarchitzky J., Al-Bakri J., Al-Karablieh E. and Marschner B., 2011. Evaluation of Soil Sensitivity towards the Irrigation with Treated Wastewater in the Jordan River Region. <i>Water</i> 2011, 3(4), 1092-1111; doi: 10.3390/w3041092
5.	Khresat, S., Al-Bakri J. and Buck B. 2010. Formation and distribution of gypsic soils in Jordan. <i>Turkish Journal of Scientific Reviews</i> 3(1): 55-71.
6.	Suleiman A., Al-Bakri J.T., Duqqah M. and Crago R. 2008. Intercomparison of Evapotranspiration Estimates at the Different Ecological Zones in Jordan. <i>Hydrometeorology</i> , 9(5): 903-919.
7.	Al-Bakri J.T., Ajlouni M. and Abu-Zanat M. 2008. Incorporating land use mapping and participation in Jordan: An approach to sustainable management of two mountainous areas. <i>Mountain Research and Development</i> , 28(1): 49-57.
8.	Khresat S., Al-Bakri J. and Tahhan R. 2008. Impacts of land use change on soil properties in the Mediterranean region of northwestern Jordan. <i>Land Degradation & Development</i> , 19: 397–407.
9.	Al-Bakri J. T. and Abu Zanat M. 2007. Correlating Vegetation Cover and Biomass of a Managed Range Reserve with NDVI of SPOT-5 HRV. <i>Jordan Journal of Agricultural Sciences</i> , 3(1): 26-40. (http://journals.ju.edu.jo/JJAS/article/view/1228)
10.	Rababa'a M. M. and Al-Bakri J. T. 2006. Mapping Land Cover in the Dead Sea Basin from Landsat TM Satellite Imagery. <i>Dirasat</i> , 33(2): 103-113. (http://journals.ju.edu.jo/DirasatAgr/article/view/669)
11.	Ziadat F. M. and Al-Bakri J. T., 2006. Comparing existing and potential land use for sustainable land utilization. <i>Jordan Journal of Agricultural Sciences</i> , 2(4):372-386. (http://journals.ju.edu.jo/JJAS/article/view/1242)
12.	Al-Tamimi S. and Al-Bakri J. T. 2005. Comparison between supervised and unsupervised classifications for mapping land use/cover in Ajloun area. <i>Jordan Journal of Agricultural Sciences</i> , 1(1): 73-83. (http://journals.ju.edu.jo/JJAS/article/view/1290)
13.	Al-Bakri J. T. and Suleiman A. 2004. NDVI response to rainfall in different ecological zones in Jordan. <i>International Journal of Remote Sensing</i> , 25(19): 3897–3912.
14.	Al-Bakri J. T. and Taylor J. C., 2003, Application of NOAA-AVHRR for monitoring vegetation conditions and biomass in Jordan, <i>Journal of Arid Environments</i> , 54(3): 579-593.
15.	Al-Bakri J. T., Taylor J. C. and Brewer T. R. 2001. Monitoring land use change in the Badia transition zone in Jordan using aerial photography and satellite imagery.

16. Battikhi A.M., Suifan M. S. and **Al-Bakri** J. T. 1998. Effect of Tillage and Plant Residue Management Practices on Some Physical Properties of vertisols. *Dirasat, Agricultural Sciences*. 25 (3): 362-374.

8.2 Books and book chapters

1. Suleiman, A. and **Al-Bakri**, J. 2011. Estimating Actual Evapotranspiration using ALARM and the Dimensionless Temperature, Evapotranspiration, Leszek Labeledzki (Ed.), ISBN: 978-953-307-251-7, InTech, Available from: <http://www.intechopen.com/articles/show/title/estimating-actual-evapotranspiration-using-alarm-and-the-dimensionless-temperature> .
2. Ziadat F., Oweis T., Mazahreh S., Bruggeman A., Haddad N., Karablieh E., Benli B., Abu-Zanat M., **Al-Bakri** J. and Ali, A. 2006. Selection and characterization of Badia watershed research sites. 105 p. Water Benchmarks of CWANA project. 2. ISBN 92-9127-187-0. (En). ICARDA, Aleppo, Syria.

8.3 Proceedings and reports

1. **Al-Bakri**, J.T., Suleiman, A., Berg, A., 2011. Application of RADARSAT II for monitoring soil moisture in Yarmouk basin in Jordan. In: Zafar M. Khan (Ed.), Proceedings of the ISNET / RJGC Workshop on Applications of Satellite Technology in Water Resources Management, 18 - 22 Sep 2011, Amman, Jordan, ISNET publication, ISBN 978-969-9081-01-9, pp. 46-50.
2. Aburumman G., Shatanawi M. and **Al-Bakri** J., 2009. Modeling of the land use/cover and the hydrological changes of wadi Kufranji basin using remote sensing and GIS, Proceedings of the remote sensing and GIS applications symposium, 20 April, 2009, Geography Department, Faculty of Arts, the University of Jordan.
3. Al-Naber G., **Al-Bakri** J. and Saba M. 2009. Monitoring drought and desertification in Jordan with remote sensing. Proceedings of the remote sensing and GIS applications symposium, 20 April, 2009, Geography Department, Faculty of Arts, the University of Jordan.
4. Suleiman A., **Al-Bakri** J. and Duqqah M. 2008. Estimation of Actual Evapotranspiration in Jordan from Satellite Data. The 3rd International Conference on Water Resources and Arid Environments (2008) and the 1st Arab Water Forum, 16-19 November 2008, Riyadh, Saudi Arabia.
5. **Al-Bakri** J. T. 2008, Soils of Jordan. In: Zdruli, P. and Trisorio Liuzzi, G. (eds), Status of Mediterranean soil resources: Actions needed to support their sustainable use, Mediterranean Conference proceedings, Tunis, Tunisia 26-31 May 2007. MEDCOASTLAND publication 6. IAM Bari, Italy, 368. ISBN 2-85352-371-3.
6. Shatanawi M., J. **Al-Bakri** and A. A. Suleiman 2007. Lemon evapotranspiration and yield under water deficit in Jordan Valley. In: Lamaddalena, N., Bogliotti, C., Todorovic, M. and Scardigno, A. (eds), Water saving in Mediterranean agriculture and future research needs. Proceedings of the international conference, 14-17 Feb. 2007, Valenzano, Italy. Bari: CIHEAM, Italy. WASAMED Project, Vol. I pp. 63-71. Options Méditerranéennes, Séries B: N.56.
7. Suifan M. S., Shatanawi M. R., **Al-Bakri** J. T., Bali K. M. and Suleiman A. A. 2007. Modeling Evapotranspiration for irrigated crops in Jordan using remotely sensed data. In: G. A. Gibbens and S. S. Anderson (Eds), SCADA and Related Technologies for Irrigation District Modernization, II, Proceedings of the second USCID Water Management Conference, Denver, Colorado, June 6-9, 2007.

8. Suleiman A., **Al-Bakri J. T.** and Duqqah M. M. 2007. A Comparison Study of MODIS and ASCE Alfalfa Evapotranspiration in a Semiarid Climate. Proceedings of the American Society of Agricultural and Biological Engineer's Annual International Meeting. June 17-20, 2007, Minnesota, USA. 2007. ASAE Annual Meeting. <http://asae.frymulti.com/abstract.asp?aid=23236&t=2>.
9. **Al-Bakri J.**, Shatanawi M. and al-Tabini R. 2006, Policies and guidelines related to sustainable land management in Jordan. In: Zdruli, P. and Trisorio Liuzzi, G. (eds), Drafting appropriate policies and guidelines to support sustainable land management in the Mediterranean region, Workshop proceedings, Bari, Italy 6-11 September 2006. MEDCOASTLAND publication 4. IAM Bari, Italy, pp273-282. ISBN 2-85352-341-1.
10. **Al-Bakri J. T.** 2005. Implementation of socio-economic aspects in sustainable land use planning in Jordan. In: Zdruli, P. and Trisorio Liuzzi, G. (eds), Promoting participatory management of the land system to enhance soil conservation. Workshop proceedings, Alexandria, Egypt 9-13 October 2004. MEDCOASTLAND publication 3. IAM Bari, Italy, pp. 319-328. ISBN 2-85352-324-1.
11. **Al-Bakri, J. T.**, 2001, The Application of Remote Sensing Techniques for monitoring arid and semiarid lands in Jordan. In: *Arid Region Monitored by Satellites from Observing to Modelling for Sustainable Management. Conference*, Marrakech, Morocco, 12-15/12/2001.
12. **Al-Bakri J. T.** 2001. The Use of Remote Sensing Techniques and Geographic Information Systems to Monitor Shrub Rangeland in Jordan. ICARDA, Dryland Pasture, Forage and Range Network News: An informed vehicle for communication. Issue No.20: 4-11.
13. Sa'adeddien J., Raddad K.H., Qiblan M., **Al-Bakri J.** and Awamleh, F. 2001. Agricultural Information System and the New Global Economy. In: *The Second National Agricultural Conference, the future of Jordanian Agricultural Sector under the Globalization*. Agricultural Engineering Association and GTZ, Amman, Jordan, July 2001.

8.4 Articles in preparation

1. Al-Jahmani, Y. Y. and Al-Bakri J. T., Application of Digital Image Processing and GIS Tools to Groundwater Exploration in Wadi Al-Wala Basin in Jordan.(In Review)
2. Al-Bakri J. T., Nickling W., Kundakji T. and Salahat M. Remote sensing indices for monitoring land degradation. (Publication from NATO-SfP 983368).
3. Brown, L., Al-Bakri, Kundakji T. and Salahat M. Assessment of the risk for soil erosion by wind in Yarmouk basin in Jordan (Publication from NATO-SfP 983368).
4. Al-Bakri J. T., Suleiman, Berg A. Estimation of soil moisture content from RADARSAT II. (Publication from NATO-SfP 983368).
5. Al-Bakri J. T., Al-Balbisi H., Brewer T., Duqqah M. and Khresat S. Modeling and assessment of land use change in Amman-Zarqa area from multi-temporal satellite imagery and Markov chain.

9. Graduate Students

9.1 MSc students

Student	Year	Research title
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Mahmoud Hammad	2011	Minimizing Unmet Demand by IWRM approach on Watershed Level using WEAP: Marj Sanour Watershed as a case study
Ibrahim Farhan	2010	Use of GIS and Remote sensing to assess land degradation in the Yarmouk basin
Maram Kilani	2008	Evaluation of environmental management and impacts of development in Aqaba.
Hiba Kharabsheh		Monitoring of vegetation and albedo changes in the Yarmouk basin from remote sensing data.
Fayha'a Shibli	2008	Assessment of National Capacity Constraints for Implementing the International Environmental Conventions
Shereen Abu Smeir	2008	Planning land use around selected wastewater treatment plants using remote sensing and GIS.
Zinah Bedaroo	2007	Modelling soil spatial variability from landsat TM imagery
Luay Salameh	2006	Assessment of Land use/cover changes in the Zarqa basin using remote sensing and Markov model.
Salam Al-Tamimi	2005	Application of remote sensing techniques and GIS to study land use/land cover changes in Ajloun area
Yahya Al-Jahmany	2004	Application of Digital image processing and GIS tools to groundwater exploration in Wadi El-Wala basin.
Mahmoud Rababa'a	2003	The use of SAR and Landsat TM imagery to study vegetation patterns in the Dead Sea basin.
Amal Al-Dababseh	2003	An integrated Approach to groundwater exploration in northern Wadi Araba basin using remote sensing and GIS.

9.2 PhD students

Student	Year	Research title
Nasab Rawashdeh	2011	Distribution of plant biodiversity as affected by different ecosystems and land use in Wadi Shauib/Jordan.
Ghaida'a Abdelkareem	2007	Characterization of the hydrological changes of Jordan River side wadis tributaries using remote sensing and GIS
Marwan suifan	2006	Mapping crop types and evapotranspiration for irrigated crops from remotely sensed data.
Abdelakareem Olimat, "Baghdad University"	2006	Vegetation changes study on Jordanian Badia using temporal Landsat TM images.

10. Scientific committees and memberships

1. National Committee of combating Desertification, Ministry of Environment, Jordan.
2. National Committee of Piloting Environmental Information networking, Ministry of Environment, Amman, Jordan.
3. Agricultural Engineering Association, Amman, Jordan.
4. MEDCOASTLAND thematic group.

11. PERSONAL DETAILS

Date of Birth	12 February 1970
Marital Status	Married, father of a son and two daughters
Nationality	Jordanian
Activities and Habits	Reading, Swimming, Football (Soccer), Gardening.