

## Curriculum Vitae

**Ibrahim M. Oroud**

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### Degrees Obtained

<b>Ph.D.</b>	<b>Arizona State University</b>
<b>Master of Science</b>	<b>Oregon State University</b>
<b>Bachelor Degree</b>	<b>University of Jordan, Jordan</b>

### Administration

<b>1- Chair</b>	<b>Department of Geography, Mu'tah University,</b>	<b>1993-1994</b>
<b>2- Dean</b>	<b>College of Social Sciences,</b>	<b>2006-2010</b>
<b>3- Dean</b>	<b>Faculty of Educational Sciences and Arts,</b>	<b>2012-2014</b>

### Sabbatical Leave

- 1- Environmental Fluid Dynamics Program, Arizona State University, 1997-1998**
- 2- King Saud University, Riyadh, 1999-2000**
- 3- University of Jordan, 2002-2003**

### Academic Positions

- 1-** Editorial Board, Jordanian Journal of Social Sciences, 2006-present.
- 2-** International Advisory Board of the Arab World Geographer Journal, 2011-present
- 3-** Associate Editor: International Journal of Climate Change Strategy and Management, Emerald, Great Britain, 2020-2021

### Professional Skills

- 1-Mathematical modeling with special focus on applied environmental and geophysical issues (atmospheric pollution, radiative exchange, surface- atmosphere interactions, paleoenvironment),
  - 2- Surface hydrology (dynamics of evaporation from free water, saline, and vegetation- covered surfaces),
  - 3- Solar energy applications (heating and energy savings),
  - 4- Remote sensing with special focus on geophysical exploration: land use changes, urban expansion, ecosystem degradation, desertification.
  - 5- Global climate change with special focus on water resources, water yield, eco-hydrology, productivity, drought, desertification, energy consumption, environmental pollution, thermal comfort.
- Current environmental issues with special focus on global change, biodiversity, land degradation, population dynamics, environmental awareness and ethics, environmental perception and sustainable management, climate change adaptation and mitigation.

### Courses Taught:

Physical Geography, Environmental Ethics, climatology, physical climatology, meteorology, physical sciences, Climate Change, Research Methods, Water Resources and Management, Quantitative Methods, Natural and Environmental Hazards, Population Dynamics, Current Environmental Issues, GIS, spatial analysis, spatial modeling, advanced remote sensing, numerical modeling

### Supervision

A supervisor of more than 100 MS and Ph.D students in GIS, remote sensing, climatology, evaporation, environmental awareness and environmental ethics

### Publications

- 1- I. M. Oroud (1992). The influence of surface water specific gravity on evaporation and thermal regime of the upper layer of the Dead Sea. *Mu'tah Journal for Research and Studies*. Vol. 7, no. 1, 291-306.
- 2- I. M. Oroud (1993). Potential Damage to exposed domestic water pipes in Jordan during freezing conditions. *Mu'tah Journal for Research and Studies*. Vol. 8, no. 4, 281-300

- 3- I. M. Oroud (1994): The sensitivity of surface frost over a bare surface to humidity profiles and soil thermophysical properties, with applications to the Jordan Valley. *Mu'tah Journal for Research and Studies*. Vol. 9, no. 6, 1994
- 4- I. M. Oroud (1994). Evaluation of saturation vapor pressure over hypersaline solutions at the southern edge of the Dead Sea. *Solar Energy*, 53, 497-503.
- 5- I. M. Oroud (1995). Sensitivity of internal space temperature response to alterations of solar radiation in mountainous areas in Jordan. *Abhath AL-Yarmouk*, Vol. 11, 9-23.
- 6- I. M. Oroud & H. Harrasheh (1995). Operational significance of radar remote sensing in semi-arid areas: A case study in Southern Jordan, *Compendium on the State of Radar Remote Sensing Research*. Canada Centre for Remote Sensing, pp. 126-134.
- 7- I. M. Oroud (1995). Effect of salinity upon evaporation from pans and shallow lakes near the Dead Sea. *Theoretical and Applied Climatology*, 52, 231-240.
- 8- I. M. Oroud (1996). Evaporation estimation from existing and proposed dams in the arid and semiarid areas in Jordan (in Arabic). *Mu'tah Journal for Research and Studies*, Vol. 11, no. 5, 55-82.
- 9- I. M. Oroud (1997). Diurnal Evaporation from fresh and hypersaline shallow ponds in a hot, dry environment. *Physical Geography*. 18, no. 4, 363- 382.
- 10- I. M. Oroud (1998). The influence of heat conduction on evaporation from sunken pans in hot, dry environments. *Journal of Hydrology*, 210, 1-10.
- 11- I. M. Oroud and H. Nasrallah, (1998). Incoming long-wave radiation enhancement by cloud cover. *Physical Geography*, 19, no. 3, 256- 270.
- 12- I. M. Oroud (1999). Temperature and Evaporation dynamics of saline solutions. *Journal of Hydrology*, 226, 1-10.
- 13- I. M. Oroud (2001). Evaporation from the Dead Sea: present, past and future trends. *Abhath Alyarmook: Basic Sciences and Engineering*, 10, 2B, 359-376.
- 14- I. M. Oroud (2001). Dynamics of evaporation from saline water bodies. *Journal of Geophysical Research, Atmosphere*, 106, No. (D5), 4695-4701.
- 15- I. M. Oroud (2001). A new formulation of evaporation temperature dynamics of saline solutions, *Water Resources Research*, 37, No. (10), 2513-2520.
- 16- I. M. Oroud and Al- Rousan, N. (2004). Urban encroachment on rain-fed agricultural lands in Jordan during the second half of the 20<sup>th</sup> century. *The Arab World Geographer*, 7, 165-180.
- 17- I. M. Oroud (2006). Land use changes in the Jordan Valley and the impacts of climate change on irrigation water requirements. In: *Climate Change in the Eastern Mediterranean: Past, Present and Future*, pp 341-346, Istanbul, Turkey.
- 18- I. M. Oroud, (2007). Spatial and temporal distribution of frost in Jordan: *The Arab World Geographer*, 10, (2) 82-91.
- 19- I. M. Oroud (2008). The impact of climate change on water resources in Jordan: in: *Zerieni, F. and Hotzl, H. (Eds.), Climatic Changes and Water Resources in the Middle East and North Africa*, pp 109-124, Springer.
- 20- - and I. M. Oroud, (2008). The Land Regime in Jordan: Opinion Survey II—University Students, *The Arab World Geographer*, 11 (3),
- 21- I. M. Oroud, (2010). Climate: Dry, In: *Encyclopedia of Geography*. 2010. SAGE Publications. <[http://www.sage-ereference.com/geography/Article\\_n170.html](http://www.sage-ereference.com/geography/Article_n170.html), pp 428-435.
- 22- \_ and I. M. Oroud, (2010). Agriculture Water Use Efficiency in Wadi Shu'eib Area, Jordan. *Polish Journal of Environmental Studies*, 9, 237-34.

- 23- I. M. Oroud, and Sagarat, O., (2010). Dust storms in desert regions of Jordan: (in Arabic with an English abstract), *Jordan Journal of Social Sciences*, **3**, 311-327.
- 24- I. M. Oroud, (2011). Evaporation from the Dead Sea and its implications on its water balance, *Theoretical and Applied Climatology*, DOI 10.1007/S00704-0452-6.
- 25- I. M. Oroud, (2012). The relative impacts of climate change on water resources in Jordan, in: *National Security and Human Health Implications of Climate Change* (H. Fernando et al., eds.), DOI 10.1007/978-94-007-2430-3-31, **Springer Science**.
- 26- I. M., Oroud, (2012). Climate change impact on green water fluxes in the eastern Mediterranean.: pp 3-15 In: *Leal Filho, W. (ed) "Climate Change and the Sustainable Management of Water Resources"*, Springer, DOI 10.1007/978-3-642-22266-5.
- 27- I. M. Oroud (2015). Water budget assessment within a typical semiarid watershed in the Eastern Mediterranean, *Environmental Process* 06/2015; 3(2):1-15. DOI: 10.1007/s40710-015-0072-8
- 28- I. M. Oroud, (2015). Water balance in a typical watershed in the Karak Plateau, Jordan *Journal of Earth and Environmental Sciences*, **7** (2), 109-117.
- 29- I. M. Oroud et al., (2015). *Recent trends in Precipitation climatology in the Karak Plateau, Jordan, The Arab World Geography*, **18**, (4), 282-298.
- 30- I. M. Oroud, (2016). Assessment of hydro-meteorological data in the Karak Plateau, *Jordan Journal of Social Sciences*, **9**, 369-381.
- 31- I. M. Oroud et al., (2018). *Recent climate change and its influence on vegetation cover in northern Wadi Araba, Jordan, Jordan Journal of Social Sciences*, **11**(3), 347-362.
- 32- I. M. Oroud, (2018). *Global warming and its implications on meteorological and hydrological drought in the southeastern Mediterranean: Environmental Processes*, DOI:10.1007/s4071-018-0301-z
- 33- I. M. Oroud, (2019). Evaporites: Relative humidity control of primary mineral facies revisited, *Hydrological Processes*, **33** (3), 395-404, doi:10.1002/hyp.1334.
- 34- I.M. Oroud (2019). The utility of thermal satellite images and land based meteorology to estimate evaporation from large lakes, *Journal of Great Lakes Research*, **45** (4) 703-714 doi.org/10.1016/j.jglr.2019.05.004.
- 35- I.M. Oroud (2019). The annual surface temperature pattern across the Dead Sea as retrieved from thermal satellite images, *Arabian Journal of Geosciences*, DOI: 10.1007/S12517-019-4862-6 (Springer).

#### Papers presented in Scientific conferences

- 1- I. M. Oroud. (1994). Interpretation of SAR images for arid land surface processes in Jordan. . *Developing Arid and Semiarid Lands Conference. Mu'tah University*, November, 7- 9, 1994.
- 2- I. M. Oroud (1997). Evaporation from hypersaline water bodies, **AAG, Dallas, Texas, USA**, 4-8 April, 1997.
- 3- I. M. Oroud et al., (1998). Observational and theoretical investigations of the stable boundary layer in a complex urban environment: Phoenix, Arizona, USA. *Arizona Fluid Mechanics Conference*. March, 27- 28, 1998.
- 4- I. M. Oroud et al., (1998). Surface fluxes at the surface- atmosphere boundary in a complex terrain urban environment: Observational results. Phoenix, Arizona, USA. *Arizona Fluid Mechanics Conference*. March, 27- 28, 1998.
- 6- I. M. Oroud (2002). Initiation, Development and Breakdown of the inversion layer in urban areas located in dry climates. Symposium on "Natural and Environmental Problems in Jordan", **Amman, May, 2002**.
- 7- I. M. Oroud (2006). The impact of climate change on water resources in the Eastern Mediterranean, **Bochum, Germany, 26-28, September, 2006**.
- 8- I. M. Oroud (2006). Agricultural potential in the mountainous areas in Jordan following a climate change, *Esslingen, Germany, 19-21, September, 2006*.
- 9- I. M. Oroud, (2007). Climate change as investigated by microclimates of slopes, **Herrenberg**,

**Germany**, 23-28 June, 2007.

- 10- I. M. Oroud, (2008). Soil moisture dynamics in a Mediterranean climate during a very dry year, Glowa Status Conference, **Aqaba**, Jordan, June, 25-28, 2008.
- 11- I. M. Oroud, (2009). Identification and projection of future Dead Sea using simulation models and remote sensing techniques, **Cairo, Egypt, 21/3-25/3/2009**.
- 12- I. M. Oroud, (2009). Social acceptance of reclaimed water use. Presented at **Mu'tah University, October, 12-13, 2009**.
- 13- I. M. Oroud, (2009). The impact of climate and surface properties on water yield in a semiarid environment: Karak Plateau, **Technical University, Braunschweig, Germany, 25/10- 4/11/2009**.
- 14- I. M. Oroud, Green water fluxes in semiarid Mediterranean environment, Glowa Status Conference, **Petra, Jordan**, July, 11-13, 2010.
- 15- I. M. Oroud, (2011). The impact of climate gradient on blue water fluxes, **Limassol, Cyprus, 5-8/9/2011**.
- 16- American Association of Geographers, Boston, USA, APRIL, 2017.
- 17- **Flood risk and potential hazard, Amman, April, 2019**
- 18- **Water resources assessment and management, The British- Jordan Joint Cooperation, Jordan.**
- 19- **Water resources in the Karak Plateau, Mu'tah University, November, 2019.**

#### **Books (single Author)**

- 1- **Principles of Physical Climatology** (in Arabic), Amman, 1997, 208 pp,
- 2- **Climate Change in the Balance** (in Arabic), Amman, 2001, 256 pp,
- 3- **Introduction to Physical Geography** (in Arabic), Amman, 2002, 358 pp.

#### **Awards**

- 1- Hijawi Award for the year 2000 in the field of **Agriculture, Water and Environment**.
- 2- Mu'tah University Award for the year 2001 for **Distinguished Research**.

#### **Consulting Duties**

- 1- Coyne et Bellier (2008-2009) Dead Sea- Red Sea Canal Feasibility Study, Physical changes to the Dead Sea following its connection with the open seas.
- 2- Coyne et Bellier (2009) Dead Sea- Red Sea Canal Feasibility Study, (Review of flash floods in the Wadi Araba Valley)
- 3- ICARDA, water harvesting and management of watersheds in southern Jordan, 2014-2015.

#### **International Cooperation and Funding**

- 1- Glowa-Jordan River Project Phase 1, 2004-2007 (Funded by Ministry of Research and Higher Education, Germany)
- 2- Glowa-Jordan River Project, Phase 2, 2008-20011 ((Funded by Ministry of Research and Higher Education, Germany)
- 3- Glowa-Jordan River Project, Phase 3, 20011-2014 ((Funded by Ministry of Research and Higher Education, Germany)
- 4- Funding from the Research Scientific Fund, Jordan (Global climate change impacts on water resources and agricultural potentials in Jordan).
- 5- Financial support from different sources on environmental issues such as environmental awareness, desertification, urbanization expansion on arable lands, natural hazards assessment including frost, sand and dust movement, atmospheric pollution and their temporal behavior in urban atmospheres, renewable energy.