Walid Ouaret

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EDUCATION

Ph.D. in Geographical Sciences, University of Maryland, College Park   Ongoing
         Area of Specialization: Agriculture, Remote Sensing, Climate, Food Security
         Advisors: Molly E Brown, Tatiana V Loboda

MS in Climate, Land Use and Ecosystem Services, Université Paris-Saclay/ AgroParisTech   2017

Engr. in Agronomy, Ecole Nationale Superieure Agronomique, Algiers   2013

SELECT POSITIONS AND APPOINTMENTS

Research Assistant   1/23 - present

Department of Geographical Sciences, University of Maryland College Park

- Conduct research on agricultural drought early warning systems
- Conducting research on remote sensing use in cropland estimation, drought monitoring and forecasting, and Early Warning Systems design.
- Obtain funding for and work on international research projects focused on agriculture and the impact of climate change in Northern Africa.
- Development and translation of Open Climate Computation Curriculums and the organization, facilitation and delivery of workshops in Northern Africa.

Research and Teaching Assistant   8/21 – 01/23

Geospatial Analysis Center, Miami University, Ohio

- Teaching assistant in graduate and undergraduate classes in Geo-Information systems.
- Research assistant in multiple remote sensing and GIS Projects such as NASA ACCDAM and NASA IDS. Using various remote sensing data: GRACE, SMAP, MODIS, VIIRS, Planet, Sentinel, Landsat, WorldView, SPOT, and Pleiades.
- Advising and managing undergraduate research.

Remote Sensing Specialist Intern   3/21 – 8/21

UMR SELMET-INRAe, Montpellier, France,

- Conduct natural landscape characterization using open sources and accessible tools.
- Create Python scripts for Object-Based Image Analysis, enabling landscape segmentation and land cover classification across various remote sensing products (Sentinel, Landsat, SPOT, Pleiades) and in-field data.
- Integrate data from multiple sources to achieve a comprehensive analysis, yielding valuable insights for environmental management and research.

Co-Founder and CEO of Field Factory   12/16 – 3/20

- Development of an innovative in-field biorefinery process for producing bio-filaments in 3D printing and extracting valuable bio by-products.
- Conducting a comprehensive territorial analysis to identify suitable locations and resources for the biorefinery while creating a circular economic model for sustainable operations.
- Led fundraising efforts and managed a team of 10 individuals to ensure the successful implementation of the biorefinery process and circular economic model.

Research Assistant   10/18 − 2/20
Landscape Modeling Team,UMR LISAH-IRD-INRAe, Montpellier, France
- Data collection through farmer interviews and seasonal crop monitoring in the Lebna Watershed using remote sensing techniques.
- Data analysis, expert elicitation, and model development to create a crop allocation model for Tunisia's rainfed smallholder farming system.
- Model validation using historical data and real-world observations, leading to recommendations for policymakers and farmers to optimize crop distribution and promote sustainable agriculture.

Research Assistant   1/18 − 8/18
Plant Production System Group, Wageningen University, Wageningen, Netherlands
- Conducted a literature search to gather field experiment data on lime use in maize cultivation in Sub-Saharan Africa.
- Developed a comprehensive database by consolidating and organizing the collected information.
- Performed a trade-off analysis, connecting lime application's yield impacts to greenhouse gas emissions and farm income in west Kenya, to gain valuable insights into the region's agricultural productivity and environmental considerations.

Data Scientist Intern   2/17 − 7/17
Global Agronomy Team, UMR Agronomie-INRAe, Paris, France
- Constructed an extensive database by collating data from global research comparing organic and conventional treatments on various crop species.
- Developed a strategy to elicit quantitative expert knowledge on organic agriculture yields, complementing the database.
- Conducted statistical analysis on the collected data and presented research findings, contributing valuable insights to the discussion of sustainable agriculture practices.

Research Assistant   9/15 − 8/16
Mediterranean Agronomic Institute of Chania, Greece
- Conducted two hydroponic experiments to study plants' assimilation of nitrogen and sulfate.
- Utilized remote sensing technologies for nutrition assessment at the plant level.
- Carried out laboratory analyses and statistically interpreted the findings from the experiments and nutrition assessments.

Industrial Sales Account Manager   1/14 − 10/14
IMC-BioMérieux, Algiers, Algeria
- Led market development efforts for in vitro diagnostic machines, expanding their presence and exploring new opportunities.
- Managed a diverse customer base in the industrial sector as a dedicated portfolio manager nationwide.
- Achieved exceptional sales performance, setting a corporate record by successfully deploying two robots worth two million euros each.

PUBLICATIONS
Refereed Papers

W. Ouaret, M. E. Brown and L. Shumilo, "Mapping Agricultural Greenhouses in Algeria: A Deep Learning Approach," 2024 IEEE Mediterranean and Middle-East Geoscience and Remote Sensing Symposium (M2GARSS), Oran, Algeria, 2024, pp. 103-107,
Doi: 10.1109/M2GARSS57310.2024.10537540 .

Messaoudi A, Labdelli F, Rebouh NY, Djerbaoui M, Kucher DE, Hadjout S, **Ouaret W**, Zakharova OA, Latati M. Investigating the Potassium Fertilization Effect on Morphological and Agrophysiological Indicators of Durum Wheat under Mediterranean Rain-Fed Conditions. Agriculture. 2023; 13(6):1142. Doi: 10.3390/agriculture13061142

Kaci, G., **Ouaret, W**., & Rahmoune, B. (2022). Wheat-Faba bean intercrops improve plant nutrition, yield, and availability of nitrogen (N) and phosphorus (P) in soil. Agronomy Research 20(3), 603–616, 2022 . Doi: 10.15159/AR.22.047

Kherif, O., Seghouani, M., Zemmouri, B., Bouhenache, A., Keskes, M.I., Yacer-Nazih, R., **Ouaret, W**. and Latati, M., 2021. Understanding the response of wheat-chickpea intercropping to nitrogen fertilization using agro-ecological competitive indices under contrasting pedoclimatic conditions. Agronomy, 11(6), p.1225. Doi:10.3390/agronomy11061225

Hijbeek, R., van Loon, M. P., **Ouaret, W**., Boekelo, B., & van Ittersum, M. K. (2021). Liming agricultural soils in Western Kenya: Can long-term economic and environmental benefits pay off short term investments?. Agricultural Systems, 190, 103095.
Doi: 10.1016/j.agsy.2021.103095

Kherif O, Keskes MI, Pansu M, **Ouaret W**, Rebouh YN, Dokukin P, Kucher D, Latati M. Agroecological modeling of nitrogen and carbon transfers between decomposer micro-organisms, plant symbionts, soil and atmosphere in an intercropping system. Ecological Modelling. 2021 Jan 15;440:109390. Doi: 10.1016/j.ecolmodel.2020.109390

Onofrei, V., Benchennouf, A., Jancheva, M., Loupassaki, S., **Ouaret, W**., Burducea, M., Lobiuc, A., Teliban, G.C. and Robu, T., 2018. Ecological foliar fertilization effects on essential oil composition of sweet basil (Ocimum basilicum L.) cultivated in a field system. Scientia Horticulturae, 239, pp.104-113. Doi: 10.1016/j.scienta.2018.05.021

TALKS, PRESENTATIONS, AND POSTERS
2024
Oral Presentation – **Ouaret W,** Brown ME, Shumilo L. Mapping Agricultural Greenhouses in Algeria: A Deep Learning Approach. In2024 IEEE Mediterranean and Middle-East Geoscience and Remote Sensing Symposium (M2GARSS) 2024 Apr 15 (pp. 103-107). IEEE. Oran, Algeria.

On demand Round table - The Anthropologist as Vulnerable Observer: Compounding Disasters and Anxiety in the Face of Climate Catastrophe (SMA). In Society for Applied Anthropology 84th Annual Meeting, Santa Fe, NM. Gonzalez, M. (Chair). K. Scott Ford (UCLA), **W. Ouaret** (UMD), M. Araujo (OR State U), C. Fowler (Wofford Coll), M. Gonzalez (Georgetown U).

2023
Stage Talk – **Ouaret W,** Praying for data, does it work?. Ignite AGU, In AGU Fall Meeting 2023. California, USA , presentation link : https://tinyurl.com/5n6z5m5.

Oral Presentation - **Ouaret W,** Kaci G, Brown ME. Divine Insight: Uncovering the Climate Information Potential of Rain Prayer Events in the Middle East and North Africa Region. In AGU Fall Meeting Abstracts 2023 Dec (Vol. 2023, pp. SY13A-05). California, USA

Poster - **Ouaret W**, Endsley A, Brown ME, Latati Mourad LM, Nabil M. Seeds of Change: Equipping Scientists with NASA's Climate-Sensitive Agricultural Tools. In AGU Fall Meeting Abstracts 2023 Dec (Vol. 2023, No. 529, pp. U53B-0529). California, USA

Poster **- Ouaret W**, Brown ME. Enhancing Early Warning Systems for Drought Resilience in Agriculture: The Case of Algeria's Drought Shield Program. InAGU Fall Meeting Abstracts 2023 Dec (Vol. 2023, No. 982, pp. GC13F-0982).

Poster - Kaci G**, Ouaret W**, Belaroui A, Akziz D, Bourtache M, Tachi SE, Khaloui S. Impact of Agricultural Practices and Forest Fires on GHG Emissions and Soil Carbon Dynamics in Northern Algerian Regions. In AGU Fall Meeting Abstracts 2023 Dec (Vol. 2023, pp. GC18-03). California, USA

Poster - Bourtache M, Kaci G, Akziz D, Madani H, Belaroui A, Tachi SE, **Ouaret W**. Investigating the Link Between Illegal Dumping and Wildfires Occurrences in North East Algeria Using Remote Sensing and In-Situ Data. AGU23. 2023 Dec 14. California, USA

Poster - Belaroui A, Akziz D, Kaci G, Madani H, Tachi SE, Bourtache M, **Ouaret W**, Yalaoui R, Zerrouki C. Remote Sensing for Assessing Drought Impact on Agricultural Irrigation: A Case Study in Eastern Mitidja, Algeria. InAGU Fall Meeting Abstracts 2023 Dec (Vol. 2023, pp. GC05-01). California, USA

Poster - **Ouaret, W**., Kaci, G., Brown, M. E., (2023, June). Charting Two Decades of Algerian Agriculture: Unveiling the Evolution of Cropland Area and Yield Estimation (1998-2021). In AgMIP9, New York, USA.

2022
Poster - **Ouaret, W**., Endsley, K. A., Brown, M. E., & McCarty, J. L. (2022, December). Spatiotemporal Climatic and Hydrological Trends for Algerian Smallholder Agriculture. Using Remotely Sensed Data. In AGU Fall Meeting Abstracts (Vol. 2022, pp. H12N- 0862).

Poster - McCarty, J.L., **Ouaret, W**., Adzhar, R.B., Zamanialaei, M., Sackeyfio, N., Pincham, C., Lubanovic, S., Somers, B., Cabrera, A. and Maingi, J.K., 2022, December. A Systematic and Semi-Critical Review of Land-Cover/Land-Use Change Modeling in the African Context. In AGU Fall Meeting Abstracts (Vol. 2022, pp. SY52C-0213).

Poster - Kaci, G., **Ouaret, W**., Adzhar, R.B., Zamanialaei, M., Belaroui, A., Makdeche, L., Sayah, A. and McCarty, J.L., 2022, December. The Impact of the Summer 2021 Wildfires Events on Local Community Livelihoods in Mountainous Mediterranean Coastal Regions of Algeria. In AGU Fall Meeting Abstracts (Vol. 2022, pp. B51F-0

Oral Presentation - McCarty, J.L., Hain, C., Brown, M.E., Grace, K., White, A., Sackeyfio, N., Adzhar, R.B., **Ouaret, W.**, Zamanialaei, M. and Freitag, B., 2022, December. Quantifying the Impact of Urban Expansion until 2030 on Peri-Urban Agriculture, Hydrometeorology, Food Security and Human Health. In AGU Fall Meeting Abstracts (Vol. 2022, pp. GC33D-05).

Oral Presentation - Gargulinski, E., Soja, A.J., McCarty, J.L., Zamanialaei, M., Adzhar, R.B., **Ouaret, W**., Choi, H., Stevens, J., Sablan, O.M., Ford, B. and Magzamen, S., 2022, December. Quantifying Burned Area and Smoke from Prescribed and Smaller Fires: Flint Hills, Kansas 2022. In AGU Fall Meeting Abstracts (Vol. 2022, pp. GH42A-34).

Invited talk at the NASA SMAP Meeting about using SMAP for smallholder agriculture in Africa, July 2022, Online

GRANTS

NASA, Transform to Open Science Training
Period: 2023-2025
Role: Co-Investigator (PI: Arthur K Endsely, University of Montana)
Title: Satellite Observations and Models Informing Agriculture: Training for Open Science Under Climate Change"
Amount: $300,841

NASA Interdisciplinary Research in Earth Science Program
Period: 2021-2023
Title: The impact of urban expansion on peri-urban agriculture, hydrometeorology, food security, and human health
Role: Graduate Research Assistant (PI: Christopher Hain, Marshall Space Flight Center)
Awarded by: Jessica McCarty, Geospatial Analysis Center, Miami University
Funding Agency: NASA
Amount: Graduate Assistantship and tuition remission

IRD-ARTS Research Grant for Students from the South
Period: 2018-2020
Title: Modeling of regional crop rotation (allocation of crops to plots) in Mediterranean landscapes using time series of land cover data from remote sensing, field observations, and surveys of farmers
Role: Research Assistant (PI: Jean Stephane Bailly, AgroParisTech)
Funding Agency: IRD

Université Paris Science et Lettre Institute of Technology and Innovation (PSL-ITI)
Period: 2017-2018
Title: Scientist and Entrepreneur Excellence Grant
Role: Student-Entrepreneur
Amount: € 10,000 and Start-up development and incubation

International Centre for Advanced Mediterranean Agronomic Studies (CIHEAM) Graduate Study Scholarship
Period: 2014-2016
Full Scholarship to pursue Master of Sustainable at the Mediterranean Agronomic Institute of Chania, Greece

AWARDS

2017 Climate-KIC Award for proposing a solution for a better biking experience in the city of Paris in heatwaves context
2016 Climate-KIC Award for presenting a framework for sustainable food waste management in university setting

PROFESSIONAL MEMBERSHIPS

2024 - Present The Society for Applied Anthropology
2023 - Present   The American Meteorological Society (AMS)
2023 - Present   The International Society of Precision Agriculture (ISPA)
2023 - Present   The Algerian Association for Advancing science, technology, and entrepreneurship (AAASTE)
2022 - Present The American Geophysical Union (AGU)
2022 - Present The American Association of Geographers (AAG)
2022 - Present   IEEE Geoscience and Remote Sensing Society (IGARSS)
2020 - Present   International Society for Photogrammetry and Remote Sensing (ISPRS)
2017 - Present   The Ecological Society of America (ESA)

TRAINING AND WORKSHOPS

2023 – September Embodying Climate Change, Warsaw, Poland

2023 – August - 2023 National Soil Moisture Workshop, Maryland

2023 - July - IEEE GRSS-USC MHI 2023 Remote Sensing Summer School, Los Angeles, California

2023 - April - EarthCube A2HRT workshop: Advancing the Analysis of High-Resolution Topography (A2 HRT) workshop, Tempe, Arizona.

2023 - March - Carpentries Instructor Training to be a certified data carpentries instructor - Online

2022 - July - IEEE-GRSS Soil Moisture School at UMass Amherst & the Harvard Forest, Amherst, Massachusetts.

2020 - 2021 Executive Master degree in Geo-Information systems and territorial development at AgroParisTech Executive, in Montpellier, France.

2020 - July - Interdisciplinary PhD Workshop in Sustainable Development (IPWSD), Columbia University, New York.

2019 - September - International Summer School on Agent-Based Modelling & Simulation for Renewable Resources Management (Multi-platform), Agropolis, Montpellier, France.

2018 - June - Summer School: Research Methods in Sustainable Development (Data tools applied to climate policy), Columbia University, Paris, France.

2017 - 2018 Degree in Innovation and Technology and Entrepreneurship at University Paris Science et lettre, in Paris, France.