

Abdou KHOUAKHI

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- *Data science and Big data*
- *Climate and environmental data analysis*
- *Data visualization*
- *Statistics*
- *Extreme events*

PROFESSIONAL EXPERIENCE

- 2015-present:** Postdoctoral research scholar, IIHR- Hydrosience & Engineering, University of Iowa, USA
- *Climate, weather and environmental data analysis*
 - *Extreme sea levels / rainfall*
 - *Flood risk analysis*
 - *Tropical cyclones / atmospheric rivers*
 - *Statistics*
- 2013-2015:** Project manager in the National Mutual Aid Government department in Morocco
- *Updating the Human Resources Database Management System*
 - *Developing cooperation with associations and NGOs*
- 2010-2014:** Consultant for PEGASO Project (People for Ecosystem Based Governance in Assessing Sustainable Development of Ocean and Coast) FP7-ENV.2009.2.2.1.4, <http://www.pegasoproject.eu/>
- *Geospatial analyst and mapping*
- 2009-2011:** Consultant PAP/RAC (Mediterranean Action Plan): (CAMP-Morocco). <http://www.pap-thecoastcentre.org/>
- *Cartography and Development of a GIS database*
- 2011-2012:** Junior GIS Consultant for Agriconsulting Maroc S.A.
- *Development of a GIS database within the project Development of a strategy for marine protected areas (MPAs) for fisheries in Morocco*
- 2010:** Junior IUCN Consultant (Project MedR-Alboran-Morocco), <http://www.uicnmed.org/medras>
- *GIS Database for the Project*

EDUCATION

- 2008-2013:** **Ph.D. in Geoscience (coastal environments)**, Faculty of Science, Rabat Morocco.
- *Dissertation:* Contribution to the development of scientific tools to support Integrated Coastal Zone Management (ICZM) in the Moroccan Mediterranean.
 - *Key elements:* Coastal vulnerability Index to flooding and erosion, Coastal setback line for erosion, sustainability indicators.
- 2006-2008:** **Masters in Coastal management**, Faculty of Science, Rabat Morocco
- *Dissertation:* Assessment of the risk of coastal flooding due to sea level rise and storm surges (Coast of Mohammedia, Moroccan Atlantic).
 - *Key elements:* IPCC sea level rise scenarios, GIS modelling, wind waves.
- 2003-2006:** **Bachelors in Geology and Geomatics**, Polydisciplinary Faculty of Taza/ Morocco.

GRANTS AND AWARDS

- Fulbright grant (3 months) to visit The Center of Applied Coastal Research, at the University of Delaware.
- DAAD-EXCEED summer school grant in Coastal erosion and management for safer coasts in a changing climate (CEMSAC). Recife, Brazil, September 9-22, 2013.
- Summer Institute on Earth-Surface Dynamics (SIEDS, NSF-funded National Center for Earth-Surface Dynamics, fully-funded participant), August 8-17, 2012; University of Minnesota, USA.
- Ninth International Training Medcoast Workshop (grant) on Integrated Coastal Management in the Mediterranean and the Black Sea. 25 September – 11 October 2012 Dalyan - Aegean Coast - Dalyan Turkey.
- Ocean Teacher Academy Training course: Marine GIS applications using ArcGIS organized by the UNESCO/IOC project office for IODE. 13-23 March 2012 Oostende, Belgium.
- FORM-OSE Post-graduate Training School 'Coastal hazard assessment and risk management' 19-25 June 2011 University of Caen Basse-Normandie – France.
- International training workshop: Science in Digital society, Lisbon 19-25 May 2011.
- Training on "Science Communication for Public Debate" at the Joint Research Center (JRC) of the European Commission, Ispra, Italy; 12-14 July 2010.
- Best Master's thesis of the department of Geosciences 2008, Faculty of Science, Rabat

TRANSFERABLE SKILLS

Technical skills

- Data analysis/ Big data/ Data mining (R, Python)
- Machine learning and predictive modelling
- High performance computing (HPC)
- Proficient in GIS (Geographical Information Systems: R, ArcGIS, QGIS, Python)
- Integrated computer-aided design (ArcGIS, Illustrator, Photoshop, Flash, MapPublisher...)
- Web mapping and geographical content management systems
- Some experience in Simulating WAVes Nearshore (SWAN) model
- BBN, NETICA applications
- Good knowledge of SDI (Spatial Data Infrastructure)

Field skills

- Quantitative and qualitative field analysis
- Mapping/cartography techniques
- LIDAR, DGPS, Hand-held GIS, Laser
- Geomorphological survey
- Geological survey
- Inclinometry, Theodolite, sedimentology, etc.

Management

- Founding member of the Moroccan Association of Geomaticians.
- Founding of the Leo club 'Leo FSR, Rabat' (Lions club parent organization)
- Responsible for a team of 14 people for a database construction project for human resources management within the Moroccan department of Mutual Aid

Peer-reviewed journals (ongoing, under review, published)

- Villarini, G., **Khouakhi, A.**, (submitted), On the Impacts of Computing Daily Temperatures as the Average of the Daily Minimum and Maximum Temperatures. *Int. J. Climatol*
- **Khouakhi A.**, Villarini G. (2017): Contribution of tropical cyclones to rainfall at the global scale. *Journal of climate*. DOI: <http://dx.doi.org/10.1175/JCLI-D-16-0298.1>
- **Khouakhi, A.**, and Villarini, G. (2016), On the relationship between atmospheric rivers and high sea water levels along the U.S. West Coast, *Geophys. Res. Lett.*, 43, doi: 10.1002/2016GL070086. <http://doi.wiley.com/10.1002/2016GL070086>
- **Khouakhi, A.**, and Villarini, G. (2016), Attribution of annual maximum sea levels to tropical cyclones at the global scale. *Int. J. Climatol.* doi:10.1002/joc.4704. <http://doi.wiley.com/10.1002/joc.4704>
- Raji, O., Dezileau, L., Niazi, S., Von-Grafenstein, U., & **Khouakhi, A.** (Under review). Extreme precipitation events over the last 500 years at the Nador region (Morocco). *Bull. Inst. Sci., Rabat*.
- **Khouakhi, A.**, Niazi, S., Raji, O., & Fahchouch, A. N. E. (2015). Vulnerability assessment of seawater intrusion using hydro-geological indices in Moroccan Mediterranean aquifers. *Int. J. of Hydrology Science and Technology*, 5(2), 133-148. <http://dx.doi.org/10.1504/IJHST.2015.070087>
- **Khouakhi, A.**, Snoussi, M., Niazi, S., & Raji, O. (2013). Vulnerability assessment of Al Hoceima bay (Moroccan Mediterranean coast): a coastal management tool to reduce potential impacts of sea-level rise and storm surges. *Journal of Coastal Research*, 1(65), 968. <http://dx.doi.org/10.2112/SI65-164.1>
- Raji, O., Niazi, S., Snoussi, M., Dezileau, L., & **Khouakhi, A.** (2013). Vulnerability assessment of a lagoon to sea level rise and storm events: Nador lagoon (NE Morocco). *Journal of Coastal Research*, 65(sp1), 802-807. <http://dx.doi.org/10.2112/SI65-136.1>
- **Khouakhi, A.**, Snoussi, M., Niazi, S., & Raji, O. (2013). Le Système d'Information Géographique (SIG) : un outil pour l'évaluation des terres à risque d'inondation côtière liée aux changements climatiques: Cas du littoral de Mohammedia. *Bull. Inst. Sci., Rabat, Série géologie et géographie physique N°:23* (2012).
- Snoussi M., Ouchani T., **Khouakhi A.**, Niang-Diop I. (2009): Impacts of sea-level rise on the Moroccan coastal zone: Quantifying coastal erosion and flooding in the Tangier Bay. *Geomorphology, Elsevier*, 107(1), 32-40. <http://dx.doi.org/10.1016/j.geomorph.2006.07.043>

Books and book chapters

- Snoussi M., Niazi S., **Khouakhi A.**, and Raji O., (2010): A GIS-Based Vulnerability and Impact Assessment, The case of the Moroccan Coast In: Maanan M. & Robin M. (dir.) *Geomatic solutions for coastal environments*. Nova Science Publishers.
- Contribution to the report *Gestion Intégrée de la Zone Côtière du Rif central : Rapport de synthèse final*. The central Rif. CAMP Morocco Project. <http://www.papthecoastcentre.org/pdfs/WEB%20Rapport%20Final%20GIZC.pdf>

Presentations

- **Khouakhi, A.**, and Villarini, G., On the relationship between atmospheric rivers and high sea water levels along the U.S. West Coast. *AGU fall meeting 2016, San Francisco USA*,

- **Khouakhi, A.,** and Villarini, G., Contribution of tropical cyclones rainfall at the global scale. *EGU General Assembly 2016, Vienna, Austria.*
- **Khouakhi, A.,** and Villarini, G., Attribution of annual maximum sea levels to tropical cyclones at the global scale. *AGU fall meeting 2015, San Francisco USA,*
- **Khouakhi, A.,** Snoussi, M., Niazi, S., & Raji, O., Vulnerability assessment of Al Hoceima bay (Moroccan Mediterranean coast): a coastal management tool to reduce potential impacts of sea-level rise and storm surges. *12th International Coastal Symposium (ICS 2013), Plymouth University, UK, 8-12 April 2013.*
- **Khouakhi, A.,** Snoussi, M., Niazi, S., & Raji, O. Le Système d'Information Géographique (SIG) : un outil pour l'évaluation des terres à risque d'inondation côtière liée aux changements climatiques: Cas du littoral de Mohammedia. *Rencontre Internationale des Sciences Géomatiques, 8-9 April 2013, Faculté des Sciences, Rabat, Morocco.*
- **Khouakhi, A.,** Snoussi, M. Set back lines for coastal erosion in Al Hoceima bay (Moroccan Mediterranean). *Conference "Relation man / Environment". Algeria, 06-09 June 2011.*
- **Khouakhi, A.,** Snoussi, M. *Fourth European Conference on Coastal Lagoon Research, Research and Management for the Conservation of Coastal Lagoon Ecosystems, South - North comparisons, Montpellier, France, 14-18 December 2009.*

OTHER

Professional memberships

- Iowa informatics initiative
- American of Geophysical Union (AGU)
- Iowa Flood Center (IFC)
- Moroccan association of Geomaticians (founding member)
- Moroccan coastal community (MCC) founder
- Association of Young Researchers of the Faculty of Sciences of Rabat (founding member)
- Leo FSR, Rabat (Lions club parent organization) (founding member)

Communication skills

- Mother tongues: Berber and Arabic
- Fully fluent in French and English
- Experience in teaching (GIS, remote sensing and R programming classes for Earth science students)
- Good report-writing and presentation skills (as a consultant)
- Latin dance instructor (Salsa, Bachata)