Dr. Marian Amoakowaah Osei

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RESEARCH

Areas: Global and Planetary Change · Atmospheric Science · Environmental Engineering · Water Science and Technology · Ecology, Evolution, Behavior and Systematics · Geochemistry and Petrology

RESEARCH SUMMARY

26	395	10	10	2.23	12%
Publications	Citations	h-index	i10-index	Field-weighted impact	World top 10%

Counted from the 26 publications listed below, 2016–2026. Field-weighted impact is the mean over the 26 works scored for it; 1.00 is the world average for works of the same field, type and year. 3 of the 26 papers scored for it are among the world's most cited tenth for their field, type and year.

POSITIONS

Climate Scientist - Application Ready Data Team 2025–present
Scalable Climate Services, Met Office, Exeter, United Kingdom

Research Fellow 2022–2024
Climate Systems, UK Centre for Ecology & Hydrology, Wallingford, United Kingdom

Lecturer 2021–2022
Meteorology and Climate Science, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

Research Fellow 2021–2022
Surface Water, Council for Scientific and Industrial Research, Accra, Ghana

Research Scientist 2018–2022
Meteorology and Climate Science, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

EDUCATION AND QUALIFICATIONS

PHD Meteorology and Climate Science 2017–2021
Department of Meteorology and Climate Science, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

MPhil Meteorology and Climate Science 2015–2017
Department of Physics, Kwame Nkrumah University of Science and Technology College of Science, Kumasi, Ghana

BSc. Meteorology and Climate Science 2010–2014
Physics, KNUST, Kumasi, Ghana

PUBLICATIONS

Journal articles 24

1. Gilbert Jesse, Cyril D. Boateng, Jeffrey N. A. Aryee, **Marian A. Osei**, David D. Wemegah, Solomon S. R. Gidigasu, Samuel K. Afful (2026). A new workflow for estimating groundwater recharge in data-scarce environments. *Journal of Water and Climate Change*. https://doi.org/10.2166/wcc.2026.329
2. Gilbert Jesse, Cyril D. Boateng, Jeffrey N.A. Aryee, **Marian A. Osei**, Michael Baidu, David D. Wemegah, Solomon S.R. Gidigasu, Samuel K. Afful (2026). Machine learning-based modeling of groundwater recharge under three climate change scenarios in the Densu Basin of Ghana, West Africa. *Groundwater for Sustainable Development*. https://doi.org/10.1016/j.gsd.2026.101611
3. Gilbert Jesse, Cyril D. Boateng, Jeffrey N.A. Aryee, **Marian A. Osei**, David D. Wemegah, Solomon S.R. Gidigasu, Akyana Britwum, Samuel K. Afful, Haoulata Touré, Vera Mensah, Prinsca Owusu-Afriyie (2025). A systematic review of machine learning models for groundwater level prediction. *Applied Computing and Geosciences*. https://doi.org/10.1016/j.acags.2025.100303
4. Samuel K. Afful, Cyril D. Boateng, Emmanuel Ahene, Jeffrey N. A. Aryee, David D. Wemegah, Solomon S. R. Gidigasu, Akyana Britwum, **Marian A. Osei**, Jesse Gilbert, Haoulata Touré, Vera Mensah (2025). A systematic review of neural network applications for groundwater level prediction. *Discover Applied Sciences*. https://doi.org/10.1007/s42452-025-06817-5
5. Emmanuel Obuobie, **Marian Amoakowaah Osei**, Martin Addi, Jacob Agyekum, Bismark Awinbire Akurugu, Prosper Bazaanah, Franz Alex Gaisie-Essilfie, Gabriel Appiah (2025). Analysis of spatio-temporal trends in climate extremes in the Lower Volta Basin, Ghana. *Theoretical and Applied Climatology*. https://doi.org/10.1007/s00704-024-05316-8
6. Emmanuel Obuobie, Jacob Agyekum, **Marian Amoakowaah Osei**, Martin Addi (2025). Changes in extreme precipitation events in the Volta River Basin under 1.5°C, 2°C and 3°C global warming levels. *Theoretical and Applied Climatology*. https://doi.org/10.1007/s00704-025-05639-0
7. Haoulata Touré, Cyril D. Boateng, Solomon S. R. Gidigasu, David D. Wemegah, Vera Mensah, Jeffrey N. A. Aryee, **Marian A. Osei**, Benjamin Boadi, Collins Okrah (2025). Groundwater potential mapping of the central region using integrated geological and geophysical methods. *Applied Water Science*. https://doi.org/10.1007/s13201-025-02708-7
8. Samuel Kyei-Manuh, **Marian Amoakowaah Osei**, Jeffrey N. A. Aryee, Emmanuel Quansah, Emmanuel Obuobie, Leonard K. Amekudzi (2025). Lightning and thunderstorms, the source of severe weather over Ghana, West Africa. *PLOS Climate*. https://doi.org/10.1371/journal.pclm.0000703
9. Emmanuel Obuobie, **Marian Amoakowaah Osei**, Jacob Agyekum, Martin Addi, Yeboah Gyasi-Agyei, Sylvester Afram Boadi, Frank Teye Oblim (2025). Spatiotemporal analysis of past and future precipitation and temperature extremes over Pra River Basin, Ghana. *Modeling Earth Systems and Environment*. https://doi.org/10.1007/s40808-025-02474-0
10. Veronica F. Siaw, Michael Osae, John A. Larbi, Philip K. Baidoo, **Marian A. Osei** (2024). Incidence, prevalence and severity of fall armyworm infestation in Ghana: a case of two maize enclaves in the Ashanti Region of Ghana. *Cogent Food & Agriculture*. https://doi.org/10.1080/23311932.2024.2325106
11. Haoulata Touré, Cyril D. Boateng, Solomon S. R. Gidigasu, David D. Wemegah, Vera Mensah, Jeffrey N. A. Aryee, **Marian A. Osei**, Jesse Gilbert, Samuel K. Afful (2024). Review of machine learning algorithms used in groundwater availability studies in Africa: analysis of geological and climate input variables. *Discover Water*. https://doi.org/10.1007/s43832-024-00109-6
12. G.A. Torsah, **M.A. Osei**, J.N.A. Aryee, J.A.A. Oti, L.K. Amekudzi (2024). Triggers of inland heavy rainfall inducing convective storms in West Africa : Case study of June, 2021. *Weather and Climate Extremes*. https://doi.org/10.1016/j.wace.2024.100740
13. Tom H. Oliver, Prosper Bazaanah, Jeff Da Costa, Nabajyoti Deka, Andre Z. Dornelles, Matthew P. Greenwell, Magesh Nagarajan, Kavin Narasimhan, Emmanuel Obuobie, **Marian A. Osei**, Nigel Gilbert (2023). Empowering citizen-led adaptation to systemic climate change risks. *Nature Climate Change*.

https://doi.org/10.1038/s41558-023-01712-6

14. **Marian Amoakowaah Osei**, Jeffrey N. A. Aryee, Jacob Agyekum, Jesse Ashong, Samuel Owusu Ansah, Maureen Abla Ahiataku, Frank Baffour-Ata, Leonard K. Amekudzi, Winifred Ayinpogbilla Atiah, Michael Padi, Johnson Ameho, Bashiru Yahaya, Joseph Portuphy, Benjamin Lamptey (2023). Environment of severe storm formations over West Africa on the 26-28 June 2018. *Meteorological Applications*. https://doi.org/10.1002/met.2109

15. Edmund I. Yamba, Jeffrey N. A. Aryee, Emmanuel Quansah, Patrick Davies, Cosmos S. Wemegah, **Marian A. Osei**, Maureen A. Ahiataku, Leonard K. Amekudzi (2023). Revisiting the agro-climatic zones of Ghana: A re-classification in conformity with climate change and variability. *PLOS Climate*. https://doi.org/10.1371/journal.pclm.0000023

16. Felix Kpenekuu, Philip Antwi-Agyei, Fred Nimoh, **Marian Amoakowaah Osei**, Lawrence Guodaar (2023). Understanding drought risk management in vulnerable communities in dryland farming systems: Evidence from northwest Ghana. *International Journal of Disaster Risk Reduction*. https://doi.org/10.1016/j.ijdrr.2023.104186

17. **Marian Amoakowaah Osei**, Michael Padi, Bashiru Yahaya, Michael Baidu, Emmanuel Quansah, Jeffrey N. A. Aryee, Edmund I. Yamba, Samuel Owusu-Ansah, Leonard K. Amekudzi (2022). The dynamics of dry and wet monsoon MCS formation over West Africa: Case assessment of February 13, 2018 and June 18, 2018. *Quarterly Journal of the Royal Meteorological Society*. https://doi.org/10.1002/qj.4399

18. **Marian Amoakowaah Osei**, Craig R. Ferguson, Emmanuel Quansah, Michael Padi, Leonard K. Amekudzi, Sylvester Danuor (2022). West Africa's moist convective environment as observed by the Atmospheric InfraRed Sounder (AIRS). *International Journal of Climatology*. https://doi.org/10.1002/joc.7983

19. **Marian Amoakowaah Osei**, Leonard Kofitse Amekudzi, Emmanuel Quansah (2021). Characterisation of wet and dry spells and associated atmospheric dynamics at the Pra River catchment of Ghana, West Africa. *Journal of Hydrology Regional Studies*. https://doi.org/10.1016/j.ejrh.2021.100801

20. **Marian Amoakowaah Osei**, Leonard Kofitse Amekudzi, Akoto Yaw Omari-Sasu, Edmund Ilimoan Yamba, Emmanuel Quansah, Jeffrey N.A. Aryee, Kwasi Preko (2021). Estimation of the return periods of maxima rainfall and floods at the Pra River Catchment, Ghana, West Africa using the Gumbel extreme value theory. *Heliyon*. https://doi.org/10.1016/j.heliyon.2021.e06980

21. **Marian Amoakowaah Osei**, Leonard Kofitse Amekudzi, Craig R. Ferguson, Sylvester Kojo Danuor (2020). Inter-Comparison of AIRS Temperature and Relative Humidity Profiles with AMMA and DACCIWA Radiosonde Observations over West Africa. *Remote Sensing*. https://doi.org/10.3390/rs12162631

22. **Marian Amoakowaah Osei**, Leonard Kofitse Amekudzi, David Dotse Wemegah, Kwasi Preko, Emmanuella Serwaa Gyawu, Kwasi Obiri-Danso (2019). The impact of climate and land-use changes on the hydrological processes of Owabi catchment from SWAT analysis. *Journal of Hydrology Regional Studies*. https://doi.org/10.1016/j.ejrh.2019.100620

23. J. N. A. Aryee, L. K. Amekudzi, W. A. Atiah, **M. A. Osei**, E. Agyapong (2018). Overview of surface to near-surface atmospheric profiles over selected domain during the QWeCI project. *Meteorology and Atmospheric Physics*. https://doi.org/10.1007/s00703-018-0618-1

24. Leonard K. Amekudzi, **Marian A. Osei**, Winifred A. Atiah, Jeffrey N. A. Aryee, Maureen A. Ahiataku, Emmanuel Quansah, Kwasi Preko, Sylvester K. Danuor, Andreas H. Fink (2016). Validation of TRMM and FEWS Satellite Rainfall Estimates with Rain Gauge Measurement over Ashanti Region, Ghana. *Atmospheric and Climate Sciences*. https://doi.org/10.4236/acs.2016.64040

Book chapters 2

1. Olukunle Olaonipekun Oladapo, Leonard Kofitse Amekudzi, Olatunde Micheal Oni, Abraham Adewale Aremu, **Marian Amoakowaah Osei** (2021). Climate Change Impact on Soil Moisture Variability: Health Effects of Radon Flux Density Within Ogbomoso, Nigeria. https://doi.org/10.1007/978-3-030-45106-6_201

2. Olukunle Olaonipekun Oladapo, Leonard Kofitse Amekudzi, Olatunde Micheal Oni, Abraham Adewale Aremu, **Marian Amoakowaah Osei** (2020). Climate Change Impact on Soil Moisture Variability: Health

Effects of Radon Flux Density Within Ogbomoso, Nigeria. https://doi.org/10.1007/978-3-030-42091-8_201-1