Senior Research Scientist

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Degrees

BSc, PhD - Civil Engineering, Kwame Nkrumah University of Science and Technology (KNUST), Ghana

MSc- Environmental Resources Engineering, State University of New York College Environmental Scien

Profile

Deborah Darko is a Research Scientist at Water Research Institute of the Council for Scientific and Industrial Research. She holds a PhD in Water Resources Engineering from Kwame Nkrumah University of Science and Technology (KNUST), a Master's degree in Environmental Resources Engineering from SUNY-ESF/ Syracuse University, United States of America and a Bachelor's degree in Civil Engineering from KNUST. Her research and development activities are in the areas of water resources planning and development; hydrological and lake modeling; climate change and adaptation studies; and ecosystem restoration and redevelopment.

She has been a key partner to research focused on adaptive and resilient water systems and lake-climate nexus modelling-related projects including *Design and assessment of water-energy-food-environment mega-systems*
– funded by UK Research Council;
Climate Change Effects on Lake Volta Resources
– funded by the Danish Ministry of Foreign Affairs/DANIDA;
Rainwater Harvesting for Resilience to Climate Change Impact on Water Availability in Ghana
– funded by the Nordic Fund; and
Adaptive Management of Groundwater for Small Scale Irrigation in Sub-Saharan Africa – funded by the National Environmental Research Council (NERC)/DFID
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Her research interest lies in exploring holistic approaches to water resources development, restoration and redevelopment through the use of modelling tools and interdisciplinary approach that combines fundamental science and engineering principles to address contemporary environmental problems. Her publications are on catchment-lake-climate nexus modeling, climate and sediment fluxes studies.

Awards and Recognitions

2014 – 2017: DANIDA Fellowship
2014, 2016: Netherlands Fellowship Programme Award
2013: Australian Award Scholarship – Africa fellowship
2011: MASHAV scholarship – Israel's Agency for International Development Cooperation, Ministry of Foreign Affairs, State of Israel
2010: Academic, scholarship and leadership award (SUNY-ESF)

Research Interests

My research interest lies in exploring holistic approaches to water resources development, restoration and redevelopment through the use of modelling tools and interdisciplinary approach that combines fundamental science and engineering principles to address contemporary environmental problems.

Current Research

My research is in the area of applied hydrology, specifically in water resources planning and management; hydrological and lake modelling; climate change and adaptation studies and environmental remediation and restoration. I key partner to research focused on adaptive and resilient water systems and lake-climate nexus modelling-related projects including, Climate Change Effects on Lake Volta Resources – funded by the Danish Ministry of Foreign Affairs/DANIDA; Design and Assessment of resilient and sustainable interventions in water-energy-food-environment Mega-Systems – funded by UK Research Councils; Rainwater Harvesting for Resilience to Climate Change Impact on Water Availability in Ghana – funded by the Nordic Fund; and Adaptive Management of Groundwater for Small Scale Irrigation in Sub-Saharan Africa – funded by the National Environmental Research Council (NERC)/DFID

Current Projects

2017 Design and Assessment of resilient and sustainable interventions in water-energy-food-environment Mega-Systems (FutureDAMS) [2017-2022]
2013 Climate Change Impacts on Lake Volta Fishery Resources (VOLTRES), [2014-2018]
2013 Water Infrastructure Solutions from Ecosystem Services Underpinning Climate Resilient Policies and Programmes (WISE-UP to Climate), [2013-2017]
2013 Rainwater Harvesting for Resilience to Climate Change Impact on Water Availability in Ghana, [2013-2015]
2013 Adaptive Management of Groundwater for Small Scale Irrigation in Sub-Saharan Africa (AMGRAF), [2013-2014]
2013 Restoration and Renaturation of Fosu Lagoon, [2013]
2009 Groundwater in sub-Saharan Africa: Implications for food security and livelihoods (GSSA), [2009-2012]

Publications

Journal Papers

1. Darko, D., Trolle, D., Asmah, R., Bolding, K., Adjei., K.A., Odai, S.N. (2019). Modeling the impacts of climate change on the thermal and oxygen dynamics of Lake Volta. Journal of Great Lakes Research 45, pp. 73-86. https://doi.org/10.1016/j.jglr.2018.11.010

2. Darko, D., Adjei, K.A., Odai, S.N., Obuobie, E, Asmah, R. and Trolle, D. (2018). Climate trends over a recent climatological period for the Volta Basin in West Africa. Weather, 99(99), pp1-10.

3. Darko, D., Adjei, K.A., Appiah-Adjei, E.K., Odai, S.N., Obuobie, E and Asmah, R. (2018). Simulation of climate characteristics and extremes of the Volta Basin using CCLM and RCA regional climate models. Theoretical and Applied Climatology. https://doi.org/10.1007/s00704-018-2485-6

4. Ofori, D., Amisigo, B.A., Logah, F.Y. and Kankam-Yeboah, K (2016). Suspended sediment transport into a water supply reservoir in southern Ghana. Ghana Journal of Science, 56, pp 3-14.

5. Ofori, D., Kankam-Yeboah, K and Logah, F.Y. (2015). Climate change and river basin-level management of water resources in Ghana. Journal of the Ghana Science Association, 16(1), pp 93-108.

6. Logah, F.Y., Kankam-Yeboah, Ofori, D. and Gyau-Boakye, P. (2014) Flood Pulse Alterations of Some River Basins in Ghana, Ghana Journal of Science, Vol.54, pp 19-32.

7. Obuobie, E., Ofori, D., Agodzo, S., and Okra, C. (2013). Groundwater potential for dry-season irrigation in north-eastern Ghana. Water International (2013), pp 1-16.

8. Kankam-Yeboah, K., Okrah, C., Agyekum, W.A., Duah, A. A., Ofori, D. and Logah, F. (2013). Water Resources Management of Shared Transboundary Aquifer Systems – The Case of the Keta Basin, Ghana Journal of Science, Vol.53, pp 39 – 51.

9. Kankam-Yeboah, K., Logah, F., Amisigo, B., Bekoe, E.O. Ofori, D. and Akudago, J. A. (2013). Low Flow Analysis of the Black Volta River at Lawra in Ghana, Journal of Environmental Hydrology, Vol. 21, Paper 2, pp 1-16.

10. Logah, F.Y., Obuobie, E., Ofori, D. and Kankam-Yeboah, K. (2013). Analysis of Rainfall Variability in Ghana, International Journal of Latest Research in Engineering and Computing, Vol. 1, Issue 1, pp 1-8.

11. Obuobie, E., Kankam-Yeboah, K., Amisigo, B., Opoku-Ankomah, Y. and Ofori, D. (2012). Assessment of Vulnerability of River Basins in Ghana to Water Stress Conditions under Climate Change, Journal of Water and Climate, 03.4, pp 276-286.

12. Kwabena B. Nyarko, Esi Awuah, Deborah Ofori (2008). Local Initiative in Community Water Supply: Case Study in Ashanti Region, Ghana. Water and Sanitation in International Development and Disaster Relief Workshop, Edinburgh, United Kingdom 28-30 May 2008. Desalination 252 (2010) 233–240.

View a list of current publications

https://link.springer.com/article/10.1007/s00704-018-2485-6
https://www.sciencedirect.com/science/article/pii/S0380133018302211
https://rmets.onlinelibrary.wiley.com/doi/abs/10.1002/wea.3303