Francis Nkrumah

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RESEARCH

Interests	Solar Geoengineering · Atmospheric Physics · climate modeling · rainfall extremes · extreme statistics · Extreme Events · Time Series · Meteorology · Extreme Value Analysis · Climate Research
Areas	Global and Planetary Change · Atmospheric Science · Oceanography · Ecology, Evolution, Behavior and Systematics · Aerospace Engineering · Artificial Intelligence

RESEARCH SUMMARY

26	1,183	11	12	2.86	25%
Publications	Citations	h-index	i10-index	Field-weighted impact	World top 10%

Counted from the 26 publications listed below, 1994–2026. Field-weighted impact is the mean over the 24 works scored for it; 1.00 is the world average for works of the same field, type and year. 6 of the 24 papers scored for it are among the world's most cited tenth for their field, type and year.

POSITIONS

Lecturer 2021–present
Physics, University of Cape Coast, Cape Coast, Ghana

Research Associate 2018–2021
Physics, University of Cape Coast, Cape Coast, Ghana

PUBLICATIONS

Journal articles 25

1. Kwesi Akumenyi Quagraine, Kwesi Twentwewa Quagraine, **Francis Nkrumah**, Bruce Hewitson, Mark Tadross, Nana Ama Browne Klutse (2026). An Index to Characterize the South Indian Ocean High-Pressure System and Its Variability. *Atmospheric Science Letters*. https://doi.org/10.1002/asl2.70056
2. John Kwaku Prosper Adotey, Caleb Mawuli Agbale, Samuel Tetteh, Christiana Odumah Hood, Samuel Acheampomg, Carlos Kwesi Tettey, Rosemond Godbless Dadzie, Emmanuel Ogyiri Adu, **Francis Nkrumah**, Mandela Toku, Agnes Tutuwaa, Aaron Tettey Asare (2026). Characterization of Starch From Four Cassava Varieties Using Fourier Transform Infrared Spectroscopy, Powder x-ray Diffraction, and Scanning Electron Microscopy. *Starch - Stärke*. https://doi.org/10.1002/star.70185
3. Yusif Owusu, Bapentire Donatus Angnuureng, Komlan Agbéko Kpogo-Nuwoklo, Anthony Twum, **Francis Nkrumah**, Blessing Nwanosike (2026). Comprehensive analysis of extreme wave events along the West African Coast: a study using WAVERYS data and peak over threshold (pot) method. *African Geographical Review*. https://doi.org/10.1080/19376812.2025.2611302
4. **Francis Nkrumah**, Kwesi A. Quagraine, Gandome Mayeul Leger Davy Quenum, Daniele Visioni, Hubert A. Koffi, Nana Ama Browne Klutse (2025). Assessing Regional Climate Trends in West Africa Under Geoengineering: A Multimodel Comparison of UKESM1 and CESM2. *Journal of Geophysical Research Atmospheres*. https://doi.org/10.1029/2024jd043117
5. Kwesi Twentwewa Quagraine, Kwesi Twentwewa Quagraine, Kwesi Akumenyi Quagraine, **Francis**

Nkrumah, Temitope Egbebiyi, Nana Ama Browne Klutse (2025). Assessing the Impact of the South Indian Ocean High-Pressure System Using a Novel Index. *International Journal of Climatology*. https://doi.org/10.1002/joc.70031

6. Atanas Dommo, **Francis Nkrumah**, Kwesi A. Quagraine, Nana Ama Browne Klutse, Gandome Mayeul Léger Davy Quenum, Hubert A. Koffi (2025). Assessing the Response of Surface Cloud Radiative Effects to Stratospheric Aerosol Injections Over West and Central Africa. *Journal of Geophysical Research Atmospheres*. https://doi.org/10.1029/2025jd043576
7. Kwesi A Quagraine, Mari R Tye, Kwesi T Quagraine, Simone Tilmes, Isla R Simpson, **Francis Nkrumah**, Temitope S Egbebiyi, Romaric C Odoulami, Nana Ama Browne Klutse (2025). Assessing the impact of stratospheric aerosol injection on precipitation extremes in Africa using the ARISE-SAI-1.5 dataset. *Environmental Research Climate*. https://doi.org/10.1088/2752-5295/adee3c
8. **Francis Nkrumah**, Gandome Mayeul Leger Davy Quenum, Kwesi A Quagraine, Simone Tilmes, Nana Ama Browne Klutse, Atanas Dommo, Hubert A Koffi, Patrick Essien, Rebecca Bediako (2025). Climate response to stratospheric aerosol injection during the Harmattan season in West Africa. *Environmental Research Climate*. https://doi.org/10.1088/2752-5295/adaa0c
9. Kwesi A. Quagraine, Bruce Hewitson, **Francis Nkrumah**, Kwesi T. Quagraine, Temitope S. Egbebiyi (2024). A simple subtropical high-pressure system index over the South Atlantic. *Atmospheric Science Letters*. https://doi.org/10.1002/asl.1266
10. Nana Ama Browne Klutse, Babatunde J. Abiodun, Kwesi A. Quagraine, **Francis Nkrumah**, Abayomi A. Abaton, Jimmy Adekoke, Mouhamadou Bamba Sylla, Rebecca Berkoh-Oforiwaa, Hubert A. Koffi, Patrick Essien (2024). Projected Changes in Rainfall Extremes over West African Cities Under Specific Global Warming Levels Using CORDEX and NEX-GDDP Datasets. *Earth Systems and Environment*. https://doi.org/10.1007/s41748-024-00425-w
11. **Francis Nkrumah**, Cornelia Klein, Kwesi Akumenyi Quagraine, Rebecca Berkoh-Oforiwaa, Nana Ama Browne Klutse, Patrick Essien, Gandomè Mayeul Leger Davy Quenum, Hubert Azoda Koffi (2023). Classification of large-scale environments that drive the formation of mesoscale convective systems over southern West Africa. *Weather and Climate Dynamics*. https://doi.org/10.5194/wcd-4-773-2023
12. Patrick Essien, Cosme Alexandre Oliveira Barros Figueiredo, Hisao Takahashi, Nana Ama Browne Klutse, Cristiano Max Wrasse, João Maria de Sousa Afonso, David Pareja Quispe, Solomon Otoo Lomotey, Tunde Toyese Ayorinde, José H. A. Sobral, Moses Jojo Eghan, Samuel Sanko Sackey, Diego Barros, Anderson V. Bilibio, **Francis Nkrumah**, Kwesi Akumenyi Quagraine (2022). Intertropical Convergence Zone as the Possible Source Mechanism for Southward Propagating Medium-Scale Traveling Ionospheric Disturbances over South American Low-Latitude and Equatorial Region. *Atmosphere*. https://doi.org/10.3390/atmos13111836
13. **Francis Nkrumah**, Kwesi Akumenyi Quagraine, Kwesi Twentwewa Quagraine, Caroline Wainwright, Gandomè Mayeul Leger Davy Quenum, Abraham Amankwah, Nana Ama Browne Klutse (2022). Performance of CMIP6 HighResMIP on the Representation of Onset and Cessation of Seasonal Rainfall in Southern West Africa. *Atmosphere*. https://doi.org/10.3390/atmos13070999
14. Mohammed Braimah, Vincent A. Asante, Maureen A. Ahiataku, Samuel O. Ansah, Frederick Otu-Larbi, Bashiru Yahaya, John B. Ayabilah, **Francis Nkrumah** (2022). Variability of the Minor Season Rainfall over Southern Ghana (1981–2018). *Advances in Meteorology*. https://doi.org/10.1155/2022/1861130
15. Nana Ama Browne Klutse, Kwadwo Owusu, **Francis Nkrumah**, Ohene Asa Anang (2021). Projected rainfall changes and their implications for rainfed agriculture in northern Ghana. *Weather*. https://doi.org/10.1002/wea.4015
16. Gandomè Mayeul Leger Davy Quenum, **Francis Nkrumah**, Nana Ama Browne Klutse, Mouhamadou Bamba Sylla (2021). Spatiotemporal Changes in Temperature and Precipitation in West Africa. Part I: Analysis with the CMIP6 Historical Dataset. *Water*. https://doi.org/10.3390/w13243506
17. Nana Ama Browne Klutse, Kwesi Akumenyi Quagraine, **Francis Nkrumah**, Kwesi Twentwewa Quagraine, Rebecca Berkoh-Oforiwaa, Joshua Fafanyo Dzrobi, Mouhamadou Bamba Sylla (2021). The Climatic Analysis of Summer Monsoon Extreme Precipitation Events over West Africa in CMIP6 Simulations. *Earth Systems and Environment*. https://doi.org/10.1007/s41748-021-00203-y

18. Robert J. H. Dunn, Lisa V. Alexander, Markus G. Donat, Xuebin Zhang, Margot Bador, Nicholas Herold, Tanya Lippmann, Rob Allan, Enric Aguilar, Abdoul Aziz Barry, ... **Francis Nkrumah** and 45 others (2020). Development of an Updated Global Land In Situ-Based Data Set of Temperature and Precipitation Extremes: HadEX3. *Journal of Geophysical Research Atmospheres*. https://doi.org/10.1029/2019jd032263

19. Cornelia Klein, **Francis Nkrumah**, Christopher M. Taylor, Elijah A. Adefisan (2020). Seasonality and Trends of Drivers of Mesoscale Convective Systems in Southern West Africa. *Journal of Climate*. https://doi.org/10.1175/jcli-d-20-0194.1

20. Kwesi Akumenyi Quagraine, **Francis Nkrumah**, Cornelia Klein, Nana Ama Browne Klutse, Kwesi Twentwewa Quagraine (2020). West African Summer Monsoon Precipitation Variability as Represented by Reanalysis Datasets. *Climate*. https://doi.org/10.3390/cli8100111

21. **Francis Nkrumah**, Théo Vischel, Geremy Panthou, Nana Ama Browne Klutse, David C. Adukpo, Arona Diedhiou (2019). Recent Trends in the Daily Rainfall Regime in Southern West Africa. *Atmosphere*. https://doi.org/10.3390/atmos10120741

22. Nana Ama Browne Klutse, Vincent O Ajayi, Emiola Olabode Gbobaniyi, Temitope S Egbebiyi, Kouakou Kouadio, **Francis Nkrumah**, Kwesi Akumenyi Quagraine, Christiana Olusegun, Ulrich Diasso, Babatunde J Abiodun, Kamoru Lawal, Grigory Nikulin, Christopher Lennard, Alessandro Dosio (2018). Potential impact of 1.5 °C and 2 °C global warming on consecutive dry and wet days over West Africa. *Environmental Research Letters*. https://doi.org/10.1088/1748-9326/aab37b

23. Kwesi Akumenyi Quagraine, Nana Ama Browne Klutse, **Francis Nkrumah**, David Cudjoe Adukpo, Kwadwo Owusu (2017). Changes in Rainfall Characteristics in Wenchi and Saltpond Farming Areas of Ghana. *International Journal of Geosciences*. https://doi.org/10.4236/ijg.2017.83015

24. **Francis Nkrumah**, Nana Ama Browne Klutse, David Cudjoe Adukpo, Kwadwo Owusu, Kwesi Akumenyi Quagraine, Alfred Owusu, William Gutowski (2014). Rainfall Variability over Ghana: Model versus Rain Gauge Observation. *International Journal of Geosciences*. https://doi.org/10.4236/ijg.2014.57060

25. **Francis Nkrumah** (1994). Dynamic analysis of the West African monsoon and its variability over Ghana. *Change*. https://ir.ucc.edu.gh/server/api/core/bitstreams/f27d1ea9-e599-4fad-b6ff-9396da60d2f9/content

Theses 1

1. **Francis Nkrumah** (2020). Candidate's Declaration. *University of Cape Coast*. https://ir.ucc.edu.gh/server/api/core/bitstreams/f5edded9-75fb-4546-9ce3-817d140c9fd0/content