Prof. Kwasi Preko

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PROFILE

Dr Kwasi Preko is currently a Professor in Physics at the Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. He obtained his PhD in Geophysics from the University of Karlsruhe, Germany (now KIT). His area of research focuses on Geophysical methods in Groundwater and Mineral Exploration, Pavement and Asphalt Thickness Investigations using the Ground Penetrating Radar, Volumetric Soil Water Content analysis in the Vadose Zone using the Ground Penetrating Radar Technique and Electrical Resistivity Methods, Investigation into Soil Moisture, Climate Change and Agricultural Yield using Geophysical Techniques and Meteorological Models. He has published 61 papers in journals and conferences as author/co-author.

RESEARCH

Interests	Geophysics · Meteorology and Climate Science
Areas	Geophysics · Global and Planetary Change · Ocean Engineering · Artificial Intelligence · Atmospheric Science · Biomedical Engineering

RESEARCH SUMMARY

68	1,399	20	32	1.50	19%
Publications	Citations	h-index	i10-index	Field-weighted impact	World top 10%

Counted from the 68 publications listed below, 2007–2026. Field-weighted impact is the mean over the 43 works scored for it; 1.00 is the world average for works of the same field, type and year. 8 of the 43 papers scored for it are among the world's most cited tenth for their field, type and year.

POSITIONS

Kwame Nkrumah University of Science and Technology College of Science
Physics, Kumasi, Ghana

EDUCATION AND QUALIFICATIONS

Karlsruhe Institute of Technology
Karlsruhe, Germany

Dr rer nat 2005–2007
Geophysics, Karlsruhe Institute of Technology, Karlsruhe, Germany

PUBLICATIONS

Journal articles 65

1. Cyril Dziedzorm Boateng, Mutalabi Alhassan, Thomas Dwomoh, Mark Seyram Amenyo-Xa, Gideon Agyare, Kennedy Atsutse, **Kwasi Preko** (2026). Integrating ground-penetrating radar and stratigraphic excavation at Fort Tantumquery, Ghana: sub-surface imaging of a colonial-era fort in a tropical environment. *Azania Archaeological Research in Africa*. https://doi.org/10.1080/0067270x.2026.2674423
2. Alfred K. Bienibuor, **Kwasi Preko**, Akwasi A. Aning, Aboagye Menyeh, David D. Wemegah, Michael K. Appiah, Amatus Gyilbag (2025). Application of the electrical resistivity tomography (ERT) method in

identifying high groundwater potential sites in the Atebubu municipality of Ghana. *Discover Geoscience*. https://doi.org/10.1007/s44288-025-00120-x

3. S.U. Yunusa, E. Mensah, **K. Preko**, S. Narra, A. Saleh, S. Sanfo, F. Dembele (2025). Development and optimization of rice husk composite briquettes as a sustainable cooking energy solution in Nigeria. *Next Energy*. https://doi.org/10.1016/j.nxener.2025.100360
4. Alfred K. Bienibuor, **Kwasi Preko**, Akwasi A. Aning, Aboagye Menyeh, David D. Wemegah, Michael K. Appiah (2025). Groundwater potential and quality assessment of the Oti Pendjari and Obosum Groups of the Atebubu municipality. *Applied Water Science*. https://doi.org/10.1007/s13201-025-02465-7
5. Christopher Uche Ezeh, **Kwasi Preko**, Kwaku Adjei, Sarah Schönbrodt-Stitt, Yaw Mensah Asare, Ogbonnaya Igwe (2025). Mapping spatiotemporal variations in soil erosion using RUSLE model in Anambra State, Nigeria. *Results in Earth Sciences*. https://doi.org/10.1016/j.rines.2025.100115
6. S. U. Yunusa, E. Mensah, S. Narra, A. Saleh, **K. Preko** (2025). Strategies for Improving the Quality of Low-Pressured Rice Husk Briquette: A Mini-Review. *World sustainability series*. https://doi.org/10.1007/978-3-031-87043-9_4
7. Christopher Uche Ezeh, Ogbonnaya Igwe, Mensah Yaw Asare, Dominic C. Ndulue, Romanus U. Ayadiuno, **Kwasi Preko** (2024). A review of soil erosion modeling in Nigeria using the Revised Universal Soil Loss Equation model. *Agrosystems Geosciences & Environment*. https://doi.org/10.1002/agg2.20471
8. S.U. Yunusa, E. Mensah, **K. Preko**, S. Narra, A. Saleh, Safietou Sanfo (2024). Assessing the nexus between household dynamics and cooking energy choice: Evidence from Kaduna state, northwestern Nigeria. *Energy Nexus*. https://doi.org/10.1016/j.nexus.2024.100310
9. **K Preko** (2024). Biomass briquette production using a novel binder. *18*. *Rostocker Biomasseforum*. https://agris.fao.org/search/en/providers/125104/records/69e2126f920f500389b21e4c
10. Christopher Uche Ezeh, **Kwasi Preko**, Kwaku Adjei, Ogbonnaya Igwe, Sarah Schönbrodt -Stitt, Mensah Yaw Asare, Romanus Ayadiuno (2024). IMPACT OF THE LS-FACTOR ESTIMATION METHODS ON MEAN ANNUAL SOIL LOSS. *LIFE International Journal of Health and Life-Sciences*. https://doi.org/10.20319/lijhls.2024.9.5161
11. S. U. Yunusa, E. Mensah, **K. Preko**, S. Narra, A. Saleh, I. B. Dalha, M. Abdulsalam (2024). Optimizing selected quality metrics of rice husk briquettes: a response surface methodology approach. *Biomass Conversion and Biorefinery*. https://doi.org/10.1007/s13399-024-05906-6
12. Suleiman Usman Yunusa, Satyanarayana Narra, Ebenezer Mensah, **Kwasi Preko**, Aminu Saleh (2024). Physical and Thermochemical Properties of Selected Wood Species in Nigeria: A Fuel Suitability and Pelleting Potential Assessment. *Fuels*. https://doi.org/10.3390/fuels5030015
13. C. U. Ezeh, K. A. Adjei, S. Schönbrodt-Stitt, O. Igwe, M. Y. Asare, **K. Preko** (2024). Scale-Related Variations in Soil Loss and Validation of the RUSLE Model in Anambra State, Nigeria. *Eurasian Soil Science*. https://doi.org/10.1134/s1064229324600015
14. S. U. Yunusa, E. Mensah, **K. Preko**, S. Narra, A. Saleh, Safietou Sanfo (2023). A comprehensive review on the technical aspects of biomass briquetting. *Biomass Conversion and Biorefinery*. https://doi.org/10.1007/s13399-023-04387-3
15. S.U. Yunusa, E. Mensah, **K. Preko**, S. Narra, A. Saleh, Safietou Sanfo, M. Isiaka, I.B. Dalha, M. Abdulsalam (2023). Biomass cookstoves: A review of technical aspects and recent advances. *Energy Nexus*. https://doi.org/10.1016/j.nexus.2023.100225
16. S Christiana, **K Preko**, SK Danuor (2023). Estimation of temperature change in the human brain during magnetic resonance imaging procedure. *Journal of Science and Technology*. https://journal.knust.edu.gh/index.php/just/article/view/1471
17. **K Preko** (2023). Evaluation of selected physical and thermochemcial properties of rice husk of one-and two-stage milling for briquette production. *Proceedings of the Nigerian Institution of Agricultural Engineers,*. https://agris.fao.org/search/en/providers/125104/records/67a0cd0020478411b02768fb
18. **K Preko**, DD Wemegah (2023). Identification of high groundwater potential locations in the Atebubu Municipality of Ghana using the Electrical Resistivity Method. *Asric Journal on Natural Sciences*. https://

www.researchgate.net/profile/Saheed-Adesokan/publication/380396594_Isotherm_Kinetic_and_Thermodynamic_Terms_of_Adsorption_of_Pyrimethamine_from_Binary_Aqueous_Solutions/links/663a837608aa54017ae41763/Isotherm-Kinetic-and-Thermodynamic-Terms-of-Adsorption-of-Pyrimethamine-from-Binary-Aqueous-Solutions.pdf#page=227

19. Quentin Fiacre Togbévi, Martine van der Ploeg, Kéhounbiova Audrey Tohoun, Sampson K. Agodzo, **Kwasi Preko** (2022). Assessing the Effects of Anthropogenic Land Use on Soil Infiltration Rate in a Tropical West African Watershed (Ouriyori, Benin). *Applied and Environmental Soil Science*. https://doi.org/10.1155/2022/8565571

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. **Kwasi Preko**, Augustina Angelina Sylverken, Philip El-Duah, Godfred Acheampong, Mohammed Mutocheluh, Yaw Adu-Sarkodie (2021). Sero-epidemiology of human coronaviruses in three rural communities in Ghana. *Pan African Medical Journal*. https://doi.org/10.11604/pamj.2021.38.244.26110

22. Quentin Fiacre Togbévi, Aymar Yaovi Bossa, Yacouba Yira, **Kwasi Preko**, Luc Ollivier Sintondji, Martine van der Ploeg (2020). A multi-model approach for analysing water balance and water-related ecosystem services in the Ouriyori catchment (Benin). *Hydrological Sciences Journal*. https://doi.org/10.1080/02626667.2020.1811286

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24. Leonard K. Amekudzi or Leonard Amekudzi, **K Preko** (2020). Characterization of groundwater recharge using the water table fluctuation method in the Koda catchment, Mali. *International Journal of Advanced Earth Science and Engineering*. https://www.researchgate.net/profile/Hamadoun-Bokar/publication/338660457_Characterization_of_Groundwater_Recharge_Using_the_Water_Table_Fluctuation_Method_in_the_Koda_Catchment_Mali/links/5e260d7e92851c89c9b59e20/Characterization-of-Groundwater-Recharge-Using-the-Water-Table-Fluctuation-Method-in-the-Koda-Catchment-Mali.pdf

25. **Kwasi Preko**, Courage Y. Deh, Jacob K. Agbenorhevi, Gilbert O. Sampson, Fidelis M. Kpodo (2020). Effect of Okra Pectin on the Sensory, Physicochemical and Microbial Quality of Yoghurt. *Food and Nutrition Sciences*. https://doi.org/10.4236/fns.2020.116032

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29. Evans Manu, William A. Agyekum, Anthony A. Duah, Ralph Tagoe, **Kwasi Preko** (2019). Application of vertical electrical sounding for groundwater exploration of Cape Coast municipality in the Central Region of Ghana. *Arabian Journal of Geosciences*. https://doi.org/10.1007/s12517-019-4374-4

30. **Kwasi Preko**, Jacob Kwaku Agbenorhevi, Katerina Alba, Vassilis Kontogiorgos (2019). Emulsifying properties of Ghanaian grewia gum. *International Journal of Food Science & Technology*. https://doi.org/10.1111/ijfs.14389

31. J.N.A. Aryee, L.K. Amekudzi, **K. Preko**, W.A. Atiah, S.K. Danuor (2019). Estimation of planetary boundary

layer height from radiosonde profiles over West Africa during the AMMA field campaign: Intercomparison of different methods. *Scientific African*. https://doi.org/10.1016/j.sciaf.2019.e00228

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33. Kwaku Takyi-Kyeremeh, David Dotse Wemegah, **Kwasi Preko**, Aboagye Menyeh (2019). Integrated geophysical study of the Subika Gold Deposit in the Sefwi Belt, Ghana. *Cogent Geoscience*. https://doi.org/10.1080/23312041.2019.1585406
34. Fosu Brempong, David Dotse Wemegah, **Kwasi Preko**, Thomas Armah, Benjamin Boadi, Aboagye Menyeh, Isaac Amankwah Oppong, Mariam Maku Quarshie, Akwasi Acheampong Aning, Vandycke Sarpong Asare, Reginald Mensah Noye (2019). Interpretation of Geological Structures Hosting Potential Gold Deposits in the Konongo Gold Mine Using Airborne Magnetic, Electromagnetic and Radiometric Datasets. *Journal of Geoscience and Environment Protection*. https://doi.org/10.4236/gep.2019.76016
35. Winifred A. Atiah, Leonard K. Amekudzi, Emmanuel Quansah, **Kwasi Preko** (2019). The Spatio-Temporal Variability of Rainfall over the Agro-Ecological Zones of Ghana. *Atmospheric and Climate Sciences*. https://doi.org/10.4236/acs.2019.93034
36. 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
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38. S. Aggrey-Smith, **K. Preko**, F. W. Owusu, J. K. Amoako (2016). Study of Radiation Shielding Properties of selected Tropical Wood Species for X-rays in the 50-150 keV Range. *The Open Access Journal of Science and Technology*. https://doi.org/10.11131/2016/101150
39. Samuel Aggrey-Smith, **K Preko** (2016). Study of Thermal Properties of Some Selected Tropical Hard Wood Species. *International Journal of Materials Science and Applications*. https://doi.org/10.11648/j.ijmsa.20160503.15
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41. Leonard K. Amekudzi or Leonard Amekudzi, **K Preko** (2016). The use of magnetic susceptibility measurements to determine pollution of agricultural soils in road proximity. *African journal of environmental science and technology*. https://academicjournals.org/journal/AJEST/article-full-text/90F125859930
42. 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
43. David Dotse Wemegah, **Kwasi Preko**, Reginald Mensah Noye, Benjamin Boadi, Aboagye Menyeh, Sylvester Kojo Danuor, Thomas Amenyoh (2015). Geophysical Interpretation of Possible Gold Mineralization Zones in Kyerano, South-Western Ghana Using Aeromagnetic and Radiometric Datasets. *Journal of Geoscience and Environment Protection*. https://doi.org/10.4236/gep.2015.34008
44. IS Jakalia, AA Aning, **K Preko**, SK Danuor (2015). Implications of soil resistivity measurements using the electrical resistivity method: a case study of A maize farm under different soil preparation modes at knust

agricultural …. *International Journal of Scientific and Technology Research*. https://www.researchgate.net/profile/Akwasi-Aning/publication/306264655_Implications_Of_Soil_Resistivity_Measurements_Using_The_Electrical_Resistivity_Method_A_Case_Study_Of_A_Maize_Farm_Under_Different_Soil_Preparation_Modes_At_KNUST_Agricultural_Research_Station_Kumasi/links/57b5b48a08aede8a665baa72/Implications-Of-Soil-Resistivity-Measurements-Using-The-Electrical-Resistivity-Method-A-Case-Study-Of-A-Maize-Farm-Under-Different-Soil-Preparation-Modes-At-KNUST-Agricultural-Research-Station-Kumasi.pdf

45. S. Aggrey-Smith, **K Preko** (2015). Measurement of Elemental Compositions of Selected Tropical Wood Species – a Case Study of Pra Anum Forest, Ghana. *International Journal of Biomedical Science and Engineering*. https://doi.org/10.11648/j.ijbse.20150303.11

46. Leonard Amekudzi, Edmund Yamba, **Kwasi Preko**, Ernest Asare, Jeffrey Aryee, Michael Baidu, Samuel Codjoe (2015). Variabilities in Rainfall Onset, Cessation and Length of Rainy Season for the Various Agro-Ecological Zones of Ghana. *Climate*. https://doi.org/10.3390/cli3020416

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48. Emmanuel Quansah, Leonard K. Amekudzi, **Kwasi Preko**, Jeffrey Aryee, Osei R. Boakye, Dziewornu Boli, Mubarick R. Salifu (2014). Empirical Models for Estimating Global Solar Radiation over the Ashanti Region of Ghana. *Journal of Solar Energy*. https://doi.org/10.1155/2014/897970

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51. R. Manzanas, L. K. Amekudzi, **K. Preko**, S. Herrera, J. M. Gutiérrez (2014). Precipitation variability and trends in Ghana: An intercomparison of observational and reanalysis products. *Climatic Change*. https://doi.org/10.1007/s10584-014-1100-9

52. Leonard K. Amekudzi or Leonard Amekudzi, SK Danuor, **K Preko** (2014). Preliminary Soil Resistivity Survey to Evaluate Physical Properties of Soils in the Southern Suburb of Kumasi, Ghana. *Nat. and Sci*. https://www.academia.edu/download/66551722/Preliminary_Soil_Resistivity_Survey_to_E20210422-13791-1catliv.pdf

53. Leonard K. Amekudzi or Leonard Amekudzi, **K Preko**, DD Wemegah (2013). Application of ground penetrating radar in delineating zones of gold mineralization at the Subenso-North concession of Newmont Ghana gold limited. *Int J Sci Res Publ*. https://www.researchgate.net/profile/Evans-Manu/publication/317886830_Application_of_Ground_Penetrating_Radar_in_delineating_zones_of_Gold_Mineralization_at_the_Subenso-North_Concession_of_Newmont_Ghana_Gold_Limited/links/62aa69b0a920e8693ef75c5b/Application-of-Ground-Penetrating-Radar-in-delineating-zones-of-Gold-Mineralization-at-the-Subenso-North-Concession-of-Newmont-Ghana-Gold-Limited.pdf

54. Leonard K. Amekudzi or Leonard Amekudzi, **K Preko** (2013). Estimating the volumetric soil water content of a vegetable garden using the ground penetrating radar. *International Journal of Scientific and Research Publications*. https://www.academia.edu/download/87209694/ijsrp-p1919.pdf

55. **P Kwasi**, DD Wemegah (2013). Geological and structural interpretation of part of the Buem formation, Ghana, using aerogeophysical data. *Unpublished M. Sc. thesis, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana*. https://www.academia.edu/download/53066331/Grahams_Thesis-1.pdf

56. Leonard K. Amekudzi or Leonard Amekudzi, DD Wemegah, **K Preko** (2013). Geological and structural interpretation of the Konongo area of the Ashanti gold belt of Ghana from aeromagnetic and radiometric data. *International Research Journal of Geology and Mining*. https://scholar.google.com/scholar?cluster=14137857169508868897&hl=en&oi=scholarr

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63. LK Amekudzi, **K Preko** (2011). Ground-based remote sensing of atmospheric trace gases in the tropics using FTIR-spectroscopy. *Africa and the Carbon Cycle*. https://www.researchgate.net/profile/Stephen-Adu-Bredu/publication/284490862_Carbon_stock_under_four_land_use_systems_in_three_varied_ecological_zones_in_Ghana/links/5835c6ba08ae56caa96e410f/Carbon-stock-under-four-land-use-systems-in-three-varied-ecological-zones-in-Ghana.pdf#page=49

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Book chapters 1

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Theses 2

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2. **K Preko** (2007). Determination of volumetric soil water content using ground penetrating radar. *Karlsruhe, Univ., Diss., 2007*. https://scholar.google.com/scholar?cluster=7446424964328455074&hl=en&oi=scholarr