

CURRICULUM VITAE

Prof. Emmanuel Quansah

PhD (Meteorology and Climate Science), MSc (Environmental Physics), BSc (Physics),
and Diploma (Management of Information Systems)

Department of Meteorology and Climate Science

Faculty of Physical and Computational Sciences

College of Science

Kwame Nkrumah University of Science and Technology
Kumasi, Ghana

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PERSONAL INFORMATION

Name: Emmanuel Quansah
Nationality: Ghanaian
Marital Status: Married
Number of Children: Three (3)

Address: Department of Meteorology and Climate Science
KNUST
PMB, UPO
Kumasi, Ghana

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ResearchGate:

<https://www.researchgate.net/profile/Emmanuel-Quansah-4>

Staff Profile:

<https://webapps.knust.edu.gh/staff/dirsearch/profile/summary/4f4a0a62cf75.html>

Google Scholar:

<https://scholar.google.com/citations?hl=en&pli=1&user=dkcDtfAAAAJ>

ORCID ID:

<http://orcid.org/0000-0002-3382-1775>

Current Position: Head, Department of Meteorology and Climate Science, KNUST, Kumasi-Ghana.

ACADEMIC EDUCATION

2012 – 2015: PhD Meteorology and Climate Science, Federal University of Technology, Akure, Nigeria.
2005 – 2007: Diploma Management of Information Systems, IMIS, UK.
2002 – 2004: MSc Environmental Physics, University of Bremen, Germany.
1994 – 1999: BSc Physics, University of Cape Coast, Ghana.

FELLOWSHIPS HELD WITH DATE

2012 – 2015: Doctoral Fellowship from the German Ministry of Education and Research (BMBF) under the West African Science Service Centre on Climate Change and Adapted Land Use (WASCAL).
2003 – 2004: MSc Studneship from Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany.

PROJECT EXPERIENCE

2024 – Present: Wellcome Trust Climate Impact Study: Building a Climate Cohort to Monitor the Health Impacts of Climate Change in Ghana.
2023 – 2025: School on Air Quality and Pollution Prevention. Funded by CleanAir Fund (CAF).
2021 – Present: WASCAL II: Greenhouse gas emissions and mitigation options under climate and land use change in West Africa: A concerted regional modelling and observation assessment (CONCERT-West Africa). Funded

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by the German Ministry of Education and Research (BMBF) through WASCAL under the WRAP2.0 Project.

2012 – 2019: Estimation of Carbon and Energy Fluxes over Contrasting Ecosystems in the Sudanian Savanna Region of West Africa. Funded by the German Ministry of Education and Research (BMBF) through WASCAL under the WRAP1.0 Project.

GRANTSMANSHIP

Wellcome Trust Climate Impact Study in Ghana (2024 – Present)

WASCAL II: CONCERT-West Africa (2021 - 2024).

MEMBERSHIP IN PROFESSIONAL BODIES/ASSOCIATIONS

Member, Ghana Science Association (2008 - Present).

Licentiate Member, Institute for the Management of Information Systems (IMIS), England, United Kingdom (2007 – Present).

TEACHING AND RESEARCH EXPERIENCE WITH DATES

- i. **Associate Professor**, Meteorology and Climate Science, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana (2022).
- ii. **Senior Lecturer**, Meteorology and Climate Science, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana (2018).
- iii. **Part-Time Lecturer**, Africa Centre of Excellence in Coastal Resilience (ACECOR), University of Cape Coast, Ghana (2020).
- iv. **Lecturer**, Physics/Meteorology and Climate Science, Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana (2008).
- v. **Research Scientist**, Institute of Meteorology and Climate Research KIT/IMK-IFU, Garmisch-Partenkirchen, Germany (2013).
- vi. **Research Scientist**, Alfred Wegener Institute for Polar and Marine Research, Bremerhaven, Germany (2003).
- vii. **Physics and Mathematics teacher**, Koforidua, Secondary Technical School, Koforidua Ghana (1999).

SUBJECTS TAUGHT/TEACHING AT THE UNIVERSITY BSC / MPhil / PhD LEVELS

Experimental Physics, Introduction to Nuclear Physics, Classical Mechanics, Atmospheric and Ocean Dynamics, Introduction to Oceanography, Atmosphere and Ocean Climate Processes, Control of air pollution/Dispersion Meteorology, Environmental Pollution, Climate Change: Science, Policy and Management, Applied Meteorology, Atmospheric Dynamics, Advanced Boundary-Layer Meteorology, Scientific Writing, and Presentation Techniques, and Environmental Measurement Techniques.

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CONTRIBUTION TO CAPACITY BUILDING

2008 – Present: Supervising and mentoring 9 PhD and 11 MPhil Students at KNUST. I have also supervised over thirty (30) BSc project works.

SUPERVISION OF PHD THESES

- i. **Patrick Davies** (Ongoing): Estimation of Soil Moisture Using Cosmic Ray Neutron Sensing Technology in the Savanna Ecosystem. KNUST, Kumasi, Ghana.
- ii. **Afi Amen Christèle ATTIOGBE** (Ongoing): Drought Resilience of Cocoa Agroforest Systems in the Ghana-Togo Transboundary Cocoa Belt. WASCAL CCLU Centre, KNUST, Kumasi, Ghana.
- iii. **Samuel Guug** (Ongoing): Estimation of Carbon dioxide and Methane Emissions from the Sudanian Savanna Zone in West Africa from Eddy Covariance Measurements. KNUST, Kumasi, Ghana.
- iv. **Francis Kudjoe** (Ongoing): Satellite and Ground-Based Remote Sensing of Aerosol Loading in West Africa: Causes, Effect, and Assessment of Environmental and Climatic Impacts. KNUST, Kumasi, Ghana.
- v. **Mubarick Raj Salifu** (Ongoing): Dynamic Modelling of Storm and Coastal Flooding along the Coast of Ghana, UCC, Cape Coast, Ghana.
- vi. **Cosmos Womegah** (Ongoing): Investigation of Urbanisation Impact on Heat Waves and its Contribution to Extreme Weather Events.
- vii. **Jacob Agyekum** (2023): The Changing Climate: Assessment of present-day and future changes of Extreme Climate Events over the Volta Basin using CMIP6 models.
- viii. **Kwabena Fosu-Amankwah** (2023): Assessment of aerosol burden and dynamics over Ghana. KNUST, Kumasi, Ghana.
- ix. **Osei Marian Amoakowaah** (2021): Influence of Atmospheric Dynamics on Wet and Dry Spells over the Pra Catchment, Ghana.

SUPERVISION OF MPhil THESES

- i. **Felicia Dogbey** (Ongoing): Mapping High-resolution Actual Evapotranspiration in the Veve Wetland Agroecosystem.
- ii. **Abigail Kafui Adu** (2024): Assessment of West African Rainfall Predictability from QBO Pattern and Dynamics.
- iii. **Odoom Ebenezer** (2022): Estimation of Surface Energy and Carbon Dioxide Fluxes over a Grassland Savanna Ecosystem in Ghana using a Land Surface Model.
- iv. **Patrick Davies** (2021): Variability of Surface Radiation Fluxes over West Africa.

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- v. **Kwakye Samuel Kwabena** (2019): Overview of the Atmospheric Environment using Radiosonde Measurements over Coastal and Inland Stations: A Case Study of Accra and Kumasi.
- vi. **Nii Ayi Christian** (2019): Estimation of Carbon Dioxide Sequestrations and Effluxes over a Mixture of Fallow and Cropland Savanna Ecosystems in Ghana.
- vii. **Prince Asilevi Junior** (2016): Estimating the Spatial Distribution of Monthly Mean Global Solar Radiation over Ghana using the Angstrom-Prescott Model.

INTERNAL AND EXTERNAL ASSESSOR / EXAMINER PHD / MPhil THESES

- i. **Godfred Abbey Torsah** (2024) Drivers of Extreme Rainfall and Intensity-Duration-Frequency (IDF) Curves for Ashanti Region, Ghana. *PhD Thesis*, Department of Meteorology and Climate Science, KNUST, Kumasi, Ghana.
- ii. **Danso Owusua Charity Jnr** (2024): Utilizing Machine Learning to Assess Climate-Crop Yield Nexus in the Akyemansa District of Ghana, *MPhil Thesis*, Department of Meteorology and Climate Science, KNUST, Kumasi, Ghana.
- iii. **Rebecca Naa Merley Larbi** (2024): Smallholder Cashew Farmers' Perceptions and Adaptation Practices to Climate Variability in the Bono Region, Ghana, *MPhil Thesis*, Department of Environmental Science, KNUST, Kumasi, Ghana.
- iv. **Yusif Owusu** (2024): Wave Conditions in West Africa: Comparison of ERA5 Reanalysis and CMENS Reanalysis to Estimate Wave Climate. *MPhil Thesis*, University of Cape Coast, Ghana.
- v. **Felix Kpenekuu** (2024): Climate-Smart Agricultural Adaptation in Vulnerable Agro-ecological Zones of Ghana. *PhD Thesis*, Department of Environmental Science, KNUST, Ghana.
- vi. **George Raymond Eshun** (2023): An Assessment of the Contribution of Traditional Fish Smoking to Greenhouse Gas Emissions in Selected Communities of Coastal Ghana. *MPhil Thesis*, University of Cape Coast, Ghana.
- vii. **Vincent Antwi Asante** (2023): Impact of EL-Nino Southern Oscillation on Meteorological Drought in Ghana. *MPhil Thesis*, Department of Atmospheric and Climate Sciences, University of Energy and Natural Resources, Sunyani, Ghana.
- viii. **Enock Yeleliere** (2023): The Effects of Climate Variability on the Yields of Cowpea, Groundnut and Soybeans in the Wa East District of the Upper West Region, Ghana. *MSc Thesis*, Department of Environmental Science, KNUST, Kumasi, Ghana.
- ix. **Leonard Addae** (2023): Estimating the Inter-Annual Gross Primary Productivity of Tropical Moist Forest Over South-Western Ghana Using Joint UK Land

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- Environment Simulator (JULES)” *MPhil Thesis*, Department of Atmospheric and Climate Sciences, University of Energy and Natural Resources, Sunyani, Ghana.
- x. **Frank Baffour-Atta** (2022): Addressing the Effects of Climate Variability in Food Systems using Climate Information Services in Northern Ghana, *PhD Thesis*, Department of Environmental Science, KNUST, Kumasi, Ghana.
 - xi. **Lassana Keita** (2019): Assessment and Prediction of Drought during the Rainy Season and its Impact on Maize Farming in the Dioila, Koulikoro Region, Mali, *MPhil Thesis*, Department of Physics, KNUST, Kumasi, Ghana.
 - xii. **Adu Tiekou Sampson** (2019): Assessment of Physics Parameterization Scheme Combination of the Weather Research and Forecasting Model (WRF) in Replicating Onset, Cessation and Duration of the Rainy Season over Ghana, *MPhil Thesis*, Department of Physics, KNUST, Kumasi, Ghana.
 - xiii. **Enoch Agyei-Boateng** (2019): Dry Season Extreme Events: Evaluation of Coordinated Regional Downscaling Experiment (CORDEX) GCM-RCM Combinations over Ghana, *MPhil Thesis*, Department of Physics, KNUST, Kumasi, Ghana.
 - xiv. **Joseph Tetteh Portuphy** (2019): Rainfall Gauge Data Analysis and Validation for TRMM and CRV Precipitation Data over the Agro-Ecological Zone of Ghana, *MSc Thesis*, Department of Physics, KNUST, Kumasi, Ghana.
 - xv. **Victoria Owusu-Tawiah** (2019): Evaluation of Physics Parameterization Scheme Combination of the WRF Model in Reproducing Extreme Precipitation over Ghana, *MPhil Thesis*, Department of Physics, KNUST, Kumasi, Ghana.
 - xvi. **Aryee Jeffrey Nii Armah** (2018): Dynamics of Planetary Boundary Layer over West Africa: Assessments from AMMA and DACCIIWA Field Observations *PhD Thesis*, Department of Physics, KNUST, Kumasi, Ghana.
 - xvii. **Richard Yao Kuma Agyeman** (2017): Optimal Parameterization Schemes Combination of the Weather Research and Forecasting (WRF) Model for Seasonal Precipitation Forecast over Ghana, *MPhil Thesis*, Department of Physics, KNUST, Kumasi, Ghana.
 - xviii. **Samuel Kyei-Manuh** (2017): Assessment of Mesoscale Induced Severe Weather from Thunderstorm Frequency and Derived Stability Indices, *MPhil Thesis*, Department of Physics, KNUST, Kumasi, Ghana.
 - xix. **Jacob Agyekum** (2017): Regional Differences in Precipitation over the Volta Basin: An Evaluation of Some Selected CMIP5 Global Climate Models, *MPhil Thesis*, KNUST, Department of Physics, Kumasi, Ghana.

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- xx. **Jeffrey Aryee** (2015): Development of High-Resolution Rainfall Climatology for Ghana, *MPhil Thesis*, Department of Physics, KNUST, Kumasi, Ghana.

MANAGERIAL AND OTHER PROFESSIONALLY RELATED EXPERIENCE

- i. **External Assessor for promotion** at the CSIR-Science and Technology Policy Research Institute, Ghana (2024).
- ii. **External Assessor for promotion** at the Department of Atmospheric and Climate Sciences, University of Energy and Natural Resources, Sunyani, Ghana (2024).
- iii. **External Assessor of Thesis**, *MPhil Thesis*, Department of Physics, University of Cape Coast, Cape Coast, Ghana. (2024).
- iv. **Interview Panellist**, for the WASCAL International Research Programmes in Informatics for Climate Change and Climate Change and Marine Science in Burkina Faso and Cabo Verde respectively (2024).
- v. **Facilitator**, Network of Clusters Training Workshop on Transdisciplinary and Capacity Building for Early Career Researchers in Africa, June 26 – 28, 2024, IDL Conference Centre, KNUST, Kumasi, Ghana.
- vi. **Member**, College of Science Strategic Plan Review Committee, KNUST, (2024).
- vii. **External Moderator**, Department of Atmospheric and Climate Science, University of Energy and Natural Resources, Sunyani, Ghana (2024 – Present).
- viii. **Chairman of Organising Committee**, CS4RRA hybrid Webinar on Climate-smart Agriculture and Sustainable Landscapes, Amonoo-Neizet (IDL Conference Centre), May 15, 2024, KNUST, Kumasi, Ghana.
- ix. **Head**, Department of Meteorology and Climate Science, KNUST, Kumasi, Ghana (2023 – Present).
- x. **Board Member**, Training of Trainers Curriculum Development by RUFORUM and WASCAL, 19 - 21 September 2023, FM HOTELS, Rue L155 Abidjan, Cote d'Ivoire.
- xi. **Postgraduate Coordinator**, Department of Meteorology and Climate Science, KNUST, Kumasi, Ghana (2022 – 2023).
- xii. **Examination Officer**, Meteorology and Climate Science Programme, KNUST, Ghana (2020 – 2023).
- xiii. **KNUST Nominee**, for the Faculty Development Symposium (FDS) under the 3+11+IADP KNUST-ASU Partnership, 8 – 12 March 2023, Elmina, Cape Coast, Ghana.
- xiv. **Facilitator**, AICCRA Training Workshop Planning Committee on Mainstreaming CSA and CIS into Universities' Curricula: Training West African Universities' lecturers on four thematic modules in Africa, 13 – 15 September 2023, KNUST, Kumasi, Ghana.

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- xv. **Member**, Faculty of Physical and Computational Sciences Wall of Fame Committee, College of Science, KNUST, Ghana (2023).
- xvi. **KNUST Nominee** to the Launch of the National Meteorological Society & Ghana National Framework for Climate Services in Accra, Ghana (2023).
- xvii. **Member**, Seminar and Conference Committee, College of Science, KNUST, Kumasi, Ghana (2023).
- xviii. **Member**, Committee for the Professorial Inaugural Lecture of Prof. L. K. Amekudzi, KNUST, Ghana (2023).
- xix. **Reviewer**, Scientific Africa Journal, Heliyon Journal, and Journal of Atmospheric and Climate Sciences (2019 – Present).
- xx. **Chair**, Committee of Peer-to-Peer Assessment, Department of Meteorology, KNUST, Kumasi, Ghana (2023).
- xxi. **Member**, Committee to Investigate Allegations of Misconduct against KNUST Students/Staff (2017, 2019, and 2022).
- xxii. **Member**, SDG (13) – Climate Action Committee, KNUST, Kumasi, Ghana (2022).
- xxiii. **Member**, Organising Committee, KNUST-GCRF African-SWIFT-GMet Meteorological Seminars (2022 – Present).
- xxiv. **KNUST Nominee** to the training and stakeholder consultation event for the “Accelerating Impacts of CGIAR Climate Research for Africa” (AICCRA) Project Cluster in Ghana (2022).
- xxv. **Member**, organising committee WASCAL@10 Alumni Homecoming Conference on Climate Change Education and Research for Ghana’s Development, 29 – 30 November 2022, KNUST, Kumasi, Ghana.
- xxvi. **Academic Tutor**, Department of Physics, KNUST, Kumasi, Ghana (2020 – 2022).
- xxvii. **Coordinator**, Meteorology and Climate Science Programme, Department of Physics, KNUST, Kumasi, Ghana (2019 – 2021).
- xxviii. **Reviewer**, Office of Grant and Research, KNUST, Kumasi, Ghana (2015 – Present).
- xxix. **Member**, Committee on Proposal for the Establishment of a Centre for Environment and Climate Studies/Research at the College of Science, KNUST, Kumasi, Ghana (2021).
- xxx. **Member**, Committee to Draft Development of Sustainability Strategy and Policy for KNUST, Ghana (2021).

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- xxxi. **Vice Patron**, Physics Students Association of Ghana, KNUST Branch, Kumasi (2017 – 2021).
- xxxii. **Academic Editor**, Journal of Geography, Environment and Earth Science International (2017 – 2021).
- xxxiii. **Assistant Examinations Officer**, Meteorology and Climate Science Programme, Department of Physics, KNUST, Kumasi, Ghana (2016 – 2020).
- xxxiv. **Member**, Committee for the Development and Mounting of New Programmes in the Department of Physics, KNUST, Kumasi (2020).
- xxxv. **Mentor**, Meteorology and Climate Science Unit, Department of Physics, KNUST, Kumasi, Ghana (2020).
- xxxvi. **Member**, Department of Physics MPhil and PhD Environmental Physics Programme Committee, KNUST, Ghana (2020).
- xxxvii. **KNUST Representative** at the National Consultative Workshop on Implementing the IWAVE Methodology for Water Resources Management in Ghana (2020).
- xxxviii. **Invigilator**, Tewa Registered General Nursing (RGN) Invigilation Team for the Ministry of Health Diploma Terminal Examination, Ghana (2020).
- xxxix. **Mentor**, WASCAL CCLU PhD Programme, KNUST, Kumasi, Ghana (2020 – 2023).

- xl. **Coordinator**, School Science Laboratory Apparatus Production Unit (SSLAPU) of the Physics Department, KNUST, KNUST, Kumasi, Ghana (2019 – 2023).
- xli. **Member**, College of Science Seminar and Conference Committee, KNUST, Kumasi, Ghana (2019 – 2022).
- xlii. **Member**, Committee to prepare PhD Taught Courses, Department of Physics, KNUST, Kumasi, Ghana (2019).
- xliii. **Chair**, Committee to Review MSc Applied Meteorology Programme, Department of Physics, KNUST, Kumasi, Ghana (2019).
- xliv. **KNUST Nominee**, GMES and Africa (Marine) National Stakeholders Meeting in Accra, Ghana (2019).
- xlv. **Interview Panellist**, for the Africa Centre of Excellence in Coastal Resilience (ACECOR), University of Cape Coast, Ghana (2019).
- xlvi. **Mentor**, Unity Hall, KNUST, Kumasi, Ghana (2017 – 2019).
- xlvii. **Facilitator**, 8th KNUST Summer School, (2018).

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- xlviii. **Member**, Committee to review Environmental Physics Syllabus, Department of Physics, KNUST, Kumasi, Ghana (2018).
- xliv. **Reviewer**, Journal of Agricultural and Forest Meteorology (Elsevier), and Journal of Energy Research and Reviews (2018).
 - i. **Reviewer**, International Foundation for Science (IFS), Karlavägen 108, 5th floor SE-115 26 Stockholm, Sweden (2016).
 - ii. **KNUST Representative**, Workshop on Launching the Ghana Meteorological Agency's new Datasets and Climate Information Products, 19th December 2016, Accra, Ghana.
 - iii. **Rapporteur**, Stakeholder Consultation Workshop on Climate Change, 13th January 2016, WASCAL CCLU Centre, KNUST, Kumasi, Ghana.
 - iv. **Member**, Editorial Board for the College of Science Magazine, KNUST, Kumasi, Ghana (2011 – 2012).
 - v. **Examiner**, West Africa Examination Council (WAEC) (2010 – 2011).
 - vi. **Member**, AFUF Committee, Physics, Department of Physics, KNUST, Ghana (2011).
 - vii. **Guest Speaker**, PHYSAG Week Launch, KNUST, Kumasi, Ghana 24 – 30th October, (2010).
 - viii. **Convener**, Seminars and Colloquia, Department of Physics, KNUST, Ghana (2009 – 2011).
 - ix. **Member**, organising committee 2nd Ewiem Nimdiε International Summer School on “Weather and Climate Forecasting in Africa and its Application to Agriculture and Water Resources Management” 19th – 31st July 2010 KNUST-Ghana.
 - x. **Member**, organising committee, 1st Ewiem Nimdiε International Summer School on “Tropical Meteorology and Climate”, 21st July to 1st August 2008, KNUST-Ghana.

TRAINING WORKSHOPS / POSTERS / CONFERENCES / SEMINARS / SYMPOSIUM ATTENDED WITH DATES

- i. Kick-off meeting of the Advancing Knowledge for Long-Term Benefits and Climate Adaptation through Holistic Climate Services and Nature-Based Solutions (ALBATROSS) Project, at the Impact Building, August 29, 2024, KNUST, Ghana.
- ii. Afi A. C. Attiogbe; **E. Quansah**; U. Nehren; S. Salack; E. Bessah; JM Sogbedji; Sampson Agodzo Navigating the drought's grip: Cocoa yield dynamics in Agroforestry Systems in Ghana and Togo. The Annual Interdisciplinary Conference on research in tropical and subtropical agriculture, natural resource management and rural development (Tropentag), September 11 - 13, 2024, Vienna (BOKU), Austria.

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- iii. Starting or Driving One? Workshop by KNUST School of Business, July 24, 2024, KNUST, Ghana.
- iv. Systematic Reviews and Meta-analyses, 29th July to 1st August 2024, KNUST, Kumasi, Ghana.
- v. Cocoa Farmers Perceptions of Drought and Adaptive Models in the Ghana-Togo Transboundary Cocoa Belt, Network of Clusters Training Workshop on Transdisciplinarity and Capacity Building for Early Career Researchers in Africa, June 26 – 28, 2024, IDL Conference Centre, KNUST, Kumasi, Ghana.
- vi. Workshop on Carbon Zero Transport Plan for Lumasi, June 19, 2024, Golden Bean Hotel, Kumasi, Ghana.
- vii. Stakeholders Workshop on Current and Future Risks of Urban and Rural Flooding in West Africa, June 18, 2024, IDL Conference Centre, KNUST, Kumasi, Ghana.
- viii. Inception and Stakeholder Consultation Workshop of the AI4PEP Project, Monday, May 20, 2024, at the Impact Building, KNUST, Kumasi, Ghana.
- ix. Regional Technical Workshop on Greenhouse Gas Emission and Mitigation Options under Climate and Land Use Change in West Africa: A Concerted Regional Modelling and Observation Assessment (Concert-West Africa Project. 6 – 7th May 2024, True Vine Hotel, Kumasi, Ghana.
- x. Davies, P., Baatz, R., Bogena, H., **Quansah, E.**, and Amekudzi, L.: Revisiting the barometric effect on cosmic-ray neutron soil moisture sensing, EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-16814, <https://doi.org/10.5194/egusphere-egu24-16814>, 2024.
- xi. Bliedernicht, J., Guug, S., Steinbrecher, R., Neidl, F., Spangenberg, I., Amekudzi, L. K., **Quansah, E.**, Davies, P., Bogena, H., Baatz, R., Gessner, U., Jagdhuber, T., Oussou, F., Salack, S., Diallo, B., Ogunjobi, K. O., Sy, S., Sawadogo, W., Huber Garcia, V., and Kunstmann, H.: Developments and Challenges in Operating a Hydrometeorological Research Observatory in the Western Sudanian Savanna - Ten Years of WASCAL Observatory Experience, EGU General Assembly 2024, Vienna, Austria, 14–19 Apr 2024, EGU24-6712. <https://doi.org/10.5194/egusphere-egu24-6712>, 2024.
- xii. Training Workshop on Enhancing Publication Impact and Research Visibility by the Office of Grants and Research in Collaboration with the Library, at the Impact Building, KNUST, Kumasi, Ghana, March 14, 2024.
- xiii. Workshop on Understanding the Factors Driving Land Use, Land Use Change and Forestry Impacts in Sub-Saharan Africa, September 25 – 26, 2023, University of Energy and Natural Resources, Sunyani, Ghana.
- xiv. Bliedernicht J., Guug S., Steinbrecher, R., Neidl, F., Spangenberg, I., Amekudzi, L. K., **Quansah, E.**, Davies P. et al....Current Developments and Challenges in Operating an Environmental Research Observatory in the Sudan Savanna in West

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- Africa -Ten Years of WASCAL Observatory Experience. September 28, 2023, 2nd TERENO-OZCAR Conference, Bonn, Germany.
- xv. Davies, P., Baatz, R. Bogen, H. R., **Quansah, E** and L. K Amekudzi. Optimal Temporal Filtering of the Cosmic-Ray Neutron Signal to Reduce Soil Moisture Uncertainty. September 28, 2023, 2nd TERENO-OZCAR Conference, Bonn, Germany.
 - xvi. Davies, P., Baatz, R. Bogen, H. R., **Quansah, E** and L. K Amekudzi. Improving Soil Moisture Monitoring from Cosmic Ray Neutron Sensors under Various Climate Conditions. Galileo conference A European vision for hydrological observations and experimentation: GC8-Hydro-130, June 12 – 15, 2023.
 - xvii. Guug, S., **Quansah, E.**, Davies, P., Spangenberg, I., Bliefernicht, J., Berger, S., Steinbrech, R., Salack, S., Neidl, F., Diallo, B., Amekudzi, L. K., Ogunjobi, K. O., and H. Kunstmann. Greenhouse Gas (GHG) Observation Network in the Sudanian Savanna Zone: General Overview of Equipment, Data, and Results. WASCAL 2022 Science Symposium, December 6 – 9, 2022, Ouagadougou, Burkina Faso.
 - xviii. Davies, P., Baatz, R., Bogen, H. R., **Quansah, E.**, and L. K. Amekudzi. Optimal Temporal Filtering of the Cosmic-Ray Neutron Signal to Reduce Soil Moisture Uncertainty. WASCAL 2022 Science Symposium December 6 – 9 2022, Ouagadougou, Burkina Faso.
 - xix. WASCAL@10 Alumni Homecoming Conference on Climate Change Education and Research for Ghana's Development, November 29 – 30, 2022, KNUST, Kumasi, Ghana.
 - xx. Davies P., Mamadou O., **Quansah E.**, Aryee J. N. A, Atiah W. A., Amekudzi L. K, Sam F., Galle S., and J. Demarty, Variability of Surface Radiative fluxes over West Africa using Wavelet and Principal Component Analysis, BSUIII, October 4 – 5, 2022, IDL Conference Centre-KNUST, Kumasi, Ghana.
 - xxi. Davies P., Mamadou O., **Quansah E.**, Aryee J. N. A, Atiah W. A., Amekudzi L. K, Sam F., Galle S., and J. Demarty, Variability of Surface Radiative fluxes over West Africa using Wavelet and Principal Component Analysis, Eleventh Ghana Science Association Research Seminar and Poster Presentation on “ The role of Basic Science for Sustainable Development”, June 7 – 8, 2022, Aboagye Menyeh Complex KNUST, Kumasi, Ghana.
 - xxii. Agyekum J., Annor T., **Quansah E.**, and L. K. Amekudzi: Future Changes in Extreme Precipitation Indices over the Volta Basin Using CMIP6 Models, BSUIII, 4 – 5th October 2022, KNUST, Kumasi, Ghana.
 - xxiii. Consolidating Climate Change Research and Enhancing Collaborative Actions for a Sustainable Future, BSUIII, October 4 – 5, 2022, KNUST, Kumasi, Ghana.
 - xxiv. Training and Stakeholders Consultation Event for the “Accelerating Impacts of CGIAR Climate Research for Africa” (AICCRA) Project Cluster in Ghana, 24 May – 02 June 2022, Airport View Hotel, Accra, Ghana.

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- xxv. Seminar Series for Senior Members on Education Assessment Measurements and Curriculum Development, organised by the Faculty of Biological Sciences, KNUST on 2nd and 9th February 2022.
- xxvi. Davies P., O. Mamadou **E. Quansah**, J.N.A. Aryee, W. Atiah, L.K. Amekudzi, F. Sam, S. Galle, and J. Demarty Variability in Surface Radiative Fluxes over West Africa using Wavelet and Principal Component Analyses, GSA Research Seminar and Poster Presentations, 7 – 8th June 2022.
- xxvii. Osei, M. A., Amekudzi, L. K., Ferguson, C.R., Padi, M., Aryee, J. N. A., Agyekum, J., and **E. Quansah**. The environment of West African MCSs from a recent case study analysis. SWIFT Seminar, February 7 – 11, 2022.
- xxviii. Online Teaching Training Course under the Quality Assurance and Planning Unit, KNUST, in September 2020.
- xxix. KNUST 8th Summer School on Improving Quality of Higher Education Through Effective Measurement and Evaluation, August 20 – 24, 2018 organised by the Quality Assurance and Planning Unit, KNUST.
- xxx. **Quansah E.**, Mauder M., Annor T., Balogun A. A., Amekudzi L. K., Bliefernicht J., Heinzeller D., Berger S., Guug S., and H. Kunstmann. Effects of land use on the net ecosystem carbon dioxide (CO₂) exchange and its components in the West African Sudanian Savanna. June 19 – 21, 2018, Accra, Ghana.
- xxxi. **Quansah E.**, Katata G., Mauder M., Annor T., Amekudzi L. K., Bliefernicht J., Heinzeller D., Balogun A. A., Berger S., Guug S., and H. Kunstmann. One-dimensional (1-D) Simulation of Surface Energy and Water Balances over a Semiarid Grassland Ecosystem in the West African Savanna. June 19 – 21, 2018, Accra, Ghana.
- xxxii. Berger S., Bliefernicht J., Mauder M., Heinzeller D., Guug S., **Quansah E.**, Hingerl L., Aduna A., Salack S., and H. Kunstmann. Analysing the impact of land cover changes on water, energy and CO₂ fluxes in the West African Sudanian Savannah using Eddy Covariance stations. EGU General Assembly, April 8 – 13, 2018, Vienna, Austria.
- xxxiii. Mauder M., **Quansah E.**, Annor T., Balogun A. A., Amekudzi L. K., Bliefernicht J., Heinzeller D., and H. Kunstmann. The impact of land use on the net ecosystem CO₂ exchanges in the West African Sudanian Savanna. European Geosciences Union General Assembly, April 17 – 22, 2016 Vienna, Austria.
- xxxiv. **Quansah E.**, Mauder M., Amekudzi L. K., Annor T., Preko K., and A. A. Balogun. Land use affects the net ecosystem CO₂ exchange and its components in the Sudanian Savanna. Poster Presented at the COS Seminar, KNUST, Kumasi, Ghana, October 28, 2015.
- xxxv. **Quansah, E.**, Katata G., Mauder M., Annor T., Balogun A. A., Amekudzi L. K., Preko K., and H. Kunstmann. Simulating (1-D) atmosphere-soil-vegetation exchange processes using a multi-layer atmosphere-SOil-VEGetation model (SOLVEG) over three contrasting ecosystems. Fourth GSA one-day seminar and

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poster presentations on “The Role of Science and Technology in Maintaining Healthy Environment and Quality Healthcare” April 15, 2015, KNUST, Kumasi.

- xxxvi. Bliedernicht, J., Kunstmann, H., Hingerl, L., Arnault, J., Klein, C., Waongo, M., Rummler, T., Andresen, S., Mauder, M., Steinbrecher, R., Frieß, R., Gochis, D., Gessner, U., **Quansah, E.**, et al. Field and simulation experiments for analysing regional land-atmosphere interactions of the West African Climate System: Experimental set-up and first results. July 24, 2013, IAHS-IAPSO-IASPEI Assembly, Gothenburg, Germany.
- xxxvii. Amekudzi, L. K., Agyakwah, W., Bashiru, Y., and **E. Quansah**. Comparison of QWeCI Automated and GMet Non-Automated Rain Gauges at Different Observatories in Kumasi, 27th GSA Biennial Conference, July 10 – 15, 2011, KNUST, Kumasi, Ghana.
- xxxviii. **Quansah, E.** Preko K., Amekudzi L. K., and B. O. Fosu. Analysis of the effect of Temperature, Relative Humidity, and Rainfall on Longwave radiation at Owabi in the Ashanti region. A presentation at the 27th Biennial conference of GSA 10 – 15th July 2011, KNUST, Kumasi, Ghana.
- xxxix. Annor, T., **Quansah, E.**, and H.-W. Jacobi. Photochemical reaction of hydrogen peroxide and formaldehyde in snow: Poster presented at the ICO Topical Meeting and LAMENETWORK 8th International Workshop, November 19 – 21, 2009, Cape Coast, Ghana.
- xl. Integrating into the vision of KNUST, A workshop organised by the Quality Assurance and Planning Unit (QAPU), KNUST, October 18 – 19, 2010.
- xli. First KNUST Summer School: Equipping Staff for Leading Change in Academic, QAPU, KNUST, August 8 – 12, 2011.
- xlii. Winnable Proposal Writing, QAPU, KNUST, February 21 – 23, 2011.
- xliii. Second KNUST Summer School: Raising Standards for 21st Century University Education, QAPU, KNUST, August 21 – 24, 2012.
- xliv. Climate Change Processes, Mitigation and Adaptation by BSU (Denmark) and KNUST, Kumasi, Ghana, March 11 – 15, 2013.
- xlv. Statistics and Mathematical Methods for Geoscientists Specializing on Climatology, Institute of Meteorology and Climate Research KIT/IMK-IFU, Garmisch-Partenkirchen, Germany, October 7 – 11, 2013.

DETAILS OF RESEARCH WORKS UNDERTAKEN WITH DATES

- i. Establishing a Climate Cohort for Monitoring the Health Impacts of Climate Change in Ghana: A Longitudinal Approach to Assess Vulnerability and Adaptation Strategies (2024 – Present).
- ii. Estimating Greenhouse Gas (CO₂, CH₄, N₂O) Concentrations over the Sudanian Savanna Zone in West Africa using the Eddy Covariance Method (2021 – Present).

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- iii. Improving Soil Moisture Monitoring from Cosmic Ray Neutron Sensors under Various Climate Conditions (2021 – Present).
- iv. Impact of Land Use Changes on the Rainfall Pattern over the Pra Catchment of Ghana (2017 – 2021).
- v. Impact of Meteorological Variables on CO₂ Emissions and Surface Energy Fluxes over the Sudanian Savanna Region of West Africa (2012 - 2019).
- vi. Estimating the Spatial Distribution of Rainfall over Ghana (2018 - 2019).
- vii. Modelling the Spatial Distribution of Global Solar Radiation over Ghana (2018 – 2019).
- viii. Impact of the Variability of Meteorological Variables on Maize in Ghana (2018 – 2019).
- ix. Air pollution, Aerosol-Particle Transports and their Effects on Climate over Ghana (2015 – 2023).

COMPUTATIONAL SKILLS

Windows and Linux-Ubuntu Operating Systems, MATLAB

EXPERTISE

Micrometeorology, Eddy Covariance, Land Surface Modelling, Gas Chromatography

PUBLICATIONS

- i. Attiogbé, A.A.C., Nehren, U., **Quansah, E.**, Bessah, E., Salack, S., Sogbedji, J.M., Agodzo, S.K. Cocoa Farmers' Perceptions of Drought and Adaptive Strategies in the Ghana–Togo Transboundary Cocoa Belt. *Land* 2024, 13, 1737. <https://doi.org/10.3390/land13111737>.
- ii. Asilevi, P. J, Dogbey, F., Boakye, P., Aryee J. N. A., Yamba E. I., Owusu, S. Y., Peprah, D. K., and **Quansah E.**, NAB Klutse et al. (2024): Bias-corrected NASA data for aridity index estimation over tropical climates in Ghana, West Africa. *Journal of Hydrology: Regional Studies*, 21(101610). <https://doi.org/10.1016/j.ejrh.2023.101610>.
- iii. Yamba EI, Aryee JNA, **Quansah E.**, Davies P, Wemegah CS, Osei MA, et al. (2023) Revisiting the agro-climatic zones of Ghana: A re-classification in conformity with climate change and variability. *PLOS Clim* 2(1): e0000023. <https://doi.org/10.1371/journal.pclm.0000023>.
- iv. Osei M. A., Ferguson C. R., **Quansah E.**, Padi M., Amekudzi L. K., and S. Danuor (2022): West Africa's moist convective environment as observed by the Atmospheric InfraRed Sounder (AIRS), *International Journal Climatology*, 1–21. DOI: [10.1002/joc.7983](https://doi.org/10.1002/joc.7983).

CURRICULUM VITAE

- v. Davies, P., Baatz, R., Bogena, H.R., **Quansah, E.**, Amekudzi, L.K. Optimal Temporal Filtering of the Cosmic-Ray Neutron Signal to Reduce Soil Moisture Uncertainty. *Sensors* 2022, 22, 9143. <https://doi.org/10.3390/s22239143>.
- vi. Agyekum, J., Annor, T., **Quansah, E.** et al. Extreme temperature indices over the Volta Basin: CMIP6 model evaluation. *Clim Dyn* (2022). <https://doi.org/10.1007/s00382-022-06503-x>; Shared link: <https://rdcu.be/cZv8l>
- vii. Osei M. A., Padi M., Yahaya B., Baidu M., **Quansah E.** et al. The Dynamics of the Dry and Wet Monsoon MCS Formation over West Africa: Case assessment of 13th February 2018 and 18th June 2018. <https://doi.org/10.1002/qj.4399>.
- viii. Jacob Agyekum, J., Annor, T., **Quansah, E.**, Benjamin Lamptey, B., and G., Okafor (2022): Extreme Precipitation Indices over the Volta Basin: CMIP6 model evaluation *Scientific African* (2022). <https://doi.org/10.1016/j.sciaf.2022.e01181>.
- ix. Asilevi, P. J., Opoku, N. K., Martey, F., Setsoafia, E., Ahafiany, F., **Quansah, E.**, Dogbey, F., Amankwah, S., and M. Padi (2022): Development of High-Resolution Cloud Cover Climatology Databank Using Merged Manual and Satellite Datasets over Ghana, West Africa, *Atmosphere-Ocean*. <https://doi.org/10.1080/07055900.2022.2072266>.
- x. Asilevi, P. J., **Quansah, E.**, and F. Dogbey (2022): Satellite-based estimates of photosynthetically active radiation for tropical ecosystems in Ghana-West Africa. *Tropical Ecology*. <https://doi.org/10.1007/s42965-022-00234-0>
- xi. Osei M. A, Amekudzi, L. K., and **E. 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*, Vol. 34, 100801. <https://doi.org/10.1016/j.ejrh.2021.100801>
- xii. Osei M. A., Amekudzi L. K, Omari-Sasu A. Y, Yamba E. I., **Quansah E.**, Aryee J. N. A., and K. 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* 7 (2021) e06980. <https://doi.org/10.1016/j.heliyon.2021.e06980>
- xiii. Fosu-Amankwah, K., Bessardon, G. E. Q., **Quansah, E.**, Amekudzi, L. K., Brooks, B. J., and R. Damoah (2021): Assessment of aerosol burden over Ghana, *Scientific African*, 14 (2021) e00971. <https://doi.org/10.1016/j.sciaf.2021.e00971>
- xiv. Atiah, W.A., Amekudzi, L.K., Akum R. A., **Quansah, E.**, Antwi-Agyei P., and S. K. Danuor (2021): Climate Variability and Impacts on Maize (*Zea Mays*) Yield in Ghana, West Africa, *Quarterly Journal of the Royal Meteorological Society*. <https://doi.org/10.1002/qj.4199>
- xv. Berger, S., Bliefernicht, J., Linstädter, A., Canak, K., Guug, S., Heinzeller, D., Hingerl, L., Mauder, M., Neidl, F., **Quansah, E.**, Salack, S., Steinbrecher, R., and H., Kunstmann (2019): The impact of rain events on CO₂ emissions from

CURRICULUM VITAE

- contrasting land use systems in semi-arid West African Savannas, *Science of the Total Environment* 647 (2019) 1478–1489.
<https://doi.org/10.1016/j.scitotenv.2018.07.397>
- xvi. Asilevi PJ, **Quansah E**, Amekudzi LK, Annor T, Klutse NAB (2019): Modelling the spatial distribution of Global Solar Radiation (GSR) over Ghana using the Ångström-Prescott sunshine duration model. *Scientific Africa* 4: e00094.
<https://doi.org/10.1016/j.sciaf.2019.e00094>.
- xvii. Atiah, W.A., Amekudzi, L.K., **Quansah, E**, and Preko, K. (2019). The Spatio-Temporal Variability of Rainfall over the Agro-Ecological Zones of Ghana. *Atmospheric and Climate Sciences*, 9, 527-544. DOI: [10.4236/acs.2019.93034](https://doi.org/10.4236/acs.2019.93034).
- xviii. Agyekum J., Annor T., Lamptey B., **Quansah E.**, and R. Y. K. Agyeman (2018): Evaluation of CMIP5 Global Climate Models over the Volta Basin: Precipitation *Advances in Meteorology* Vol. 2018, Article ID 7505321, 15 pages.
<https://doi.org/10.1155/2018/4853681>.
- xix. Bliefernicht, J., Berger, S., Salack, S., Guug, S., Hingerl, L., Heinzeller, D., Mauder, M., Steinbrecher, R., Steup, G., Bossa, A. Y., Waongo, M., **Quansah, E.**, Balogun, A. A., Yira, Y., et al. (2018): The WASCAL Hydro-meteorological Observatory in the Sudan Savanna of Burkina Faso and Ghana. *Hydrological Observatories*. <https://doi.org/10.2136/vzj2018.03.0065>.
- xx. **Quansah E.**, Katata G., Mauder M., Annor T., Amekudzi L. K., Bliefernicht J., Heinzeller D., Balogun A. A., and H. Kunstmann (2017): Numerical Simulation of Surface Energy and Water Balances over a Semiarid Grassland Ecosystem in the West African Savanna. *Advances in Meteorology*, vol. 2017, Article ID 6258180, 11 pages. <https://doi.org/10.1155/2017/6258180>.
- xxi. Aryee, J. N. A., Amekudzi, L. K., **Quansah, E.**, Klutse, N. A. B., Atiah W. A., and C. Yorke (2017): Development of High Spatial Resolution Rainfall Data for Ghana. *International Journal of Climatology*. <https://doi.org/10.1002/joc.5238>.
- xxii. Agyeman R. Y. K., Annor T., Lamptey B., **Quansah E**, Agyekum J., and S. A. Tiekou (2017). Optimal Physics Parameterization Scheme Combination of the Weather Research and Forecasting (WRF) model for seasonal precipitation forecast over Ghana. *Advances in Meteorology* Vol. 2017, Article ID 7505321, 15 pages. doi.org/10.1155/2017/7505321. <https://doi.org/10.1155/2017/7505321>.
- xxiii. Amekudzi, L. K., Osei, M. A., Atiah, W. A., Aryee, J. N. A., Ahiataku, M. A., **Quansah, E.**, Preko, K., Danuor, S. K. and A. H. Fink (2016): Validation of TRMM and FEWS Satellite Rainfall Estimates with Rain Gauge Measurement over Ashanti Region, Ghana. *Atmospheric and Climate Sciences*, 6, 500 – 518. DOI: [10.4236/acs.2016.64040](https://doi.org/10.4236/acs.2016.64040).
- xxiv. N’Datchoh E. Toure, A. Konaré, A. Diedhiou, A. Diawara, **Quansah E.**, and P. Assamoi (2015): Effects of climate variability on savannah fire regimes in West Africa. *Earth Syst. Dynam.*, 6, 1–13. <https://doi.org/10.5194/esd-6-161-2015>.

CURRICULUM VITAE

- xxv. **Quansah, E.**, Mauder, M., Balogun, A. A., Amekudzi, L. K., Hingerl, L., Bliefernicht, J., and H. Kunstmann (2015): Carbon dioxide fluxes from contrasting ecosystems in the Sudanian Savanna in West Africa. *Carbon Balance and Management*, 10(1):1 – 17. <https://doi.org/10.1186/s13021-014-0011-4>.
- xxvi. **Quansah, E.**, Amekudzi, L. K., Preko, K., Aryee, J., Boakye, O. S., Boli, D., and M. R. Salifu (2014): Empirical Models for Estimating Global Solar Radiation over the Ashanti Region of Ghana. *Journal of Solar Energy* Volume 2014, Article ID 897970, 6 pages. <https://doi.org/10.1155/2014/897970>.
- xxvii. Bliefernicht J., Kunstmann H., Hingerl L., Rummler T., Andresen S., Mauder M., Steinbrecher R., Frieß R., Gochis D., Gessner U., **Quansah E.**, Awotuse A., Neidl F., Jahn C., and B. Boubacar (2013): Field and simulation experiments for investigating regional land-atmosphere interactions in West Africa: Experimental setup and first results, In E. Boegh, et al., editors, Climate and land surface changes in hydrology. RedBook Ser. 359. *Int. Assoc. Hydrol. Sci.*, London. p. 226–232.
- xxviii. **Quansah E.**, Amekudzi L. K., and K. Preko (2012), The influence of temperature and relative humidity on indoor ozone concentrations during the Harmattan period. *Journal of Emerging Trends in Engineering and Applied Sciences* 3(5): 863 – 867.
- xxix. **Quansah E.**, K. Preko, and L. K. Amekudzi (2011), First performance assessment of blends of Jatropha, palm oil and soya bean biodiesel with kerosene as fuel for domestic purposes in rural Ghana. *International Journal of Energy and Environment* 2(2), 331 – 336. <http://www.ijee.ieefoundation.org/>.
- xxx. Jacobi, H. W., Annor, T., Kwakye-Awuah, B., Hilker, B., and **E. Quansah** (2007). A mechanism for photochemical reactions in the quasi-liquid layer of snow crystals in polar regions, *Physics and chemistry of ice: [the proceedings of the 11th International Conference on the Physics and Chemistry of Ice held in Bremerhaven, Germany on 23 – 28 July 2006]* ed. by Werner F. Kuhs Cambridge: RSC Publishing, 241 – 248. <https://doi.org/10.1016/j.jphotochem.2006.06.039>.
- xxxi. Jacobi, H. W., Annor, T., and **E. Quansah** (2006). Investigation of the photochemical decomposition of nitrate, hydrogen peroxide, and formaldehyde in artificial snow, *Journal of photochemistry and photobiology a-chemistry*, 179(3), 330-338. <https://doi.org/10.1016/j.jphotochem.2005.09.001>.
- xxxii. Blunier, T., Floch, G., Jacobi, H. W., and **E. Quansah** (2005). Isotopic view on nitrate loss in Antarctic surface snow, *Geophysical research letters*, 32, L13501. <https://doi.org/10.1029/2005GL023011>.

REFERENCES

Available on request