Curriculum Vitae: Douglas John Parker

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Languages: English (native); French (high-school); Danish (comprehension).

2021-	Adjunct Professor at NORCE-Climate, Bergen
2021-	60% role as Science Coordinator for National Centre for Atmospheric Science at Leeds
2020-	30% position in School of Mathematics
1997-2010	Lecturer, then Reader, School of Earth and Environment, University of Leeds
1994-1997	Postdoctoral Research Fellow (Reading University), studying North Atlantic cyclones.
1994	PhD Meteorology (Reading): "Interaction of moist processes with frontal systems"
1990	Certificate of Advanced Study in Mathematics ("Part III"), University of Cambridge
1989	MA Mathematics, University of Cambridge.

Academic distinctions

2021	My work formed a significant part of the Queen's Anniversary Prize awarded to the University of Leeds, and I played an academic lead in writing the case.
2017	*Meteorology of Tropical West Africa; the Forecasters' Handbook* (DJ Parker, M Diop-Kane, Eds.) won the 2017 Atmospheric Science Librarians International Choice award (ASLI).
2015	"Vice-Chancellor's Impact Award in Engineering & Physical Sciences and Environmental Sciences" from the University of Leeds, for impact on climate observation networks in Africa.
2014	Parker, Fink, Janicot and Ngamini awarded the "Vaisala Award for Weather Observing and Instrumentation for 2014" by the Royal Meteorological Society, for their work on the African radiosonde network. https://www.rmets.org/our-activities/awards/vaisala-award
1999	L F Richardson Prize, awarded annually for a paper published in the Quarterly Journal of the Royal Meteorological Society by an author under the age of 30.

Project leadership, management and funding

I have played a leading role in the planning, writing and delivery of successful research proposals totalling more than £36 million.

- 2003-2013: I was one of the leadership team of the African Monsoon Multidisciplinary Analysis (AMMA); the most extensive programme into African environment and climate ever conducted. Member of the 6-member 'core group' of the AMMA International Scientific Steering Committee (ISSC) – coordinating a budget of around €100 million FEC.
- 2017-2022: Joint PI of the GCRF African Science for Weather Information and Forecasting Techniques (GCRF African SWIFT) project. This £9 million project is improving the quality and delivery of weather forecasts in sub-Saharan Africa.
- 2009-2017: Coordinator and joint Editor (with Mariane Diop-Kane, ANACIM, Senegal) of the "Forecasters' Handbook for West Africa" (2017). This has been a true Knowledge Exchange between researchers and forecasters, with rapid translation research into forecasting practice.

Since 1997 I have been local PI of 11 NERC and 2 EU projects, 2 NERC-DFID and a GCRF project, with budgets bringing a total of £13.4M to my institution, and a British Council educational project in Africa. I have led two NERC multi-institution projects and a £9M GCRF project (African SWIFT).

Commercialisation

FASTA (2020): I have initiated a not-for-profit spin-off commercialisation venture to market satellite rainfall estimation for Africa, with seedcorn funding from the University of Leeds. The API and app has been released in Kenya (Feb 2022) and is being evaluated now. FASTA has been set up with an ethical constitution to ensure that it invests in African capacity.

Teaching and curriculum development

International programmes:

- I was PI of a collaboration project, to establish **new BSc and MSc degrees in Meteorology and Climate Science at Kwame Nkrumah University of Science and Technology (KNUST), Kumasi, Ghana,** in 2008. The degree programmes have thrived and now have around 360 students registered. The academic programme has enabled a strong research activity also to be established. In climate science, KNUST now employs successful researchers at all levels, from PhD up to senior professor, with participation in international research projects and a good record of research outputs in international journals: they have emerged to become one of the top academic centres in Africa in our field.
- I have led a number of activities enhancing the training of weather forecasters on African and tropical meteorology, with the UK Met Office, overseas weather services, and overseas universities.

Supervision of research students and postdoctoral research fellows

More than 15 completed PhD students, including:

- Wenshou Tian (now Head of School at the University of Lanzhou (top-10 in China));
- Luis Garcia-Carreras (took a fellowship in Sweden, now a lecturer at University of Manchester);

External PhD examiner for more than 15 UK and international students and 2 advanced degrees in France (Habilitation à Diriger des Recherches, 2011 and 2017).

Research and impact

I am a climate scientist researching Earth's future, for Africa, the wider tropics and for extreme rainfall globally. The impact of this work is to reduce hardship due to climate hazards around the world. My group has been at the forefront of international work to predict the future water cycle using km-scale models. My academic work is applied to operational weather and climate forecasting challenges, and has been used in forecaster-training around the world.

My background was as a mathematician and dynamical meteorologist, conducting theoretical and observational studies of weather systems. I have conducted interdisciplinary and transdisciplinary research, leading field campaigns and working with forecasters and forecast users to develop operational solutions. I have collaborated with agricultural scientists, epidemiologists, social scientists, artists and musicians.

I have led and participated in a number of international observational campaigns, including ground measurements and campaigns with the UK's FAAM BAe146 research aircraft. Research highlights:

- Long-standing collaboration with Professor Chris Taylor (CEH Wallingford) has revealed the coupling of land surface patterns in Africa with rainfall, ultimately linking field measurements with global climate models. This knowledge is being used to produce better weather and climate predictions.
- The GCRF African SWIFT project (2017-2022) has pioneered the implementation of "Nowcasting" solutions in Africa for the first time, using new satellite-based forecasting algorithms and building communications pathways to get warnings to the people who need them.
- I led two research-impact cases submitted by University of Leeds for REF2021. These cases were related to operational improvement in African and UK forecasting respectively.

Publication record

144 peer-reviewed publications and an h-index of 42. Recent highlights include

- Parker DJ, & 49 CoAuthors. 2021. The African SWIFT project: growing science capability to bring about a revolution in weather prediction. *Bull. Am. Met. Soc*. https://doi.org/10.1175/BAMS-D-20-0047.1
- Taylor CM, Belušić D, Guichard F, Parker DJ, & CoAuthors 2017. Frequency of extreme Sahelian storms tripled since 1982 in satellite observations. *Nature*. https://doi.org/10.1038/nature22069

One prize-winning book, also published in French:

- Parker DJ; Diop-Kane M (eds.) 2017. Meteorology of Tropical West Africa: The Forecasters' Handbook. Chichester, UK: John Wiley & Sons, Ltd. DOI:10.1002/9781118391297 [*translated:* Parker DJ; Diop-Kane M; Lafore JP (eds.) 2018. Météorologie de l'Afrique de l'ouest tropicale: le manuel du previsionniste.]

Several policy briefs and general-interest articles, e.g.

- Youds L, Parker DJ, & CoAuthors. 2021. GCRF African SWIFT White Paper Policy Brief: The future of African weather forecasting. University of Leeds. https://doi.org/10.5518/100/67