

## **Akintomide Afolayan, Akinsanola**

Postdoctoral Research Associate

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### **Research Interests**

I am a meteorologist and climate scientist focusing on the mechanisms of variability and changes in tropical and mid-latitude precipitation, and the impacts of its changes on human wellbeing. My overall goal is to provide a scientific basis and solutions to real-world problems in the context of climate-related studies and extreme events through research and teaching.

### **Education**

#### **City University of Hong Kong, Hong Kong SAR**

Ph.D. Climate Science (Excellent, 4.0/4.3) 2019

Dissertation: Understanding the Variability and Changes in West African Summer Monsoon Rainfall: Observational Analysis and Climate Model Simulations

#### **Federal University of Technology Akure, Nigeria**

- M.Tech., Meteorology (Distinction, 4.6/5.0) 2015

Thesis: A diagnostic evaluation of precipitation over West Africa in CORDEX models

- B.Tech., Meteorology (3.52/5.0) 2011

Thesis: Analysis of climate variability over Nigeria

### **Research experience**

1. Postdoctoral Research Associate Sep 2019 – now

Department of Geography, University of Georgia, USA

Project: Simulating extreme precipitation in the United States in the Energy Exascale Earth System Model: Investigating the importance of representing

convective intensity versus dynamic structure.

2. Visiting Scientist Aug 2018 – Oct 2018

Geophysical Institute, University of Bergen, Norway

Project: Understanding the dynamics of tropical precipitation

3. Teaching and Research Assistant 2013 – 2016

Federal University of Technology, Akure, Nigeria

I taught and assisted the following undergraduate courses:

- First Semester: Atmospheric Thermodynamics (MET 305), Fluid Dynamics (MET 307), Tropical Meteorology (MET 405), West African Meteorology (MET 503)

- Second Semester: Dynamic Meteorology (MET 302), Mesoscale Meteorology (MET 504), Advanced Dynamic Meteorology and Numerical Weather Prediction (MET 508)

4. *Observer and Forecaster* (intern) April 2010 – Dec 2010

Nigeria Meteorological Agency (NIMET), Ilorin International Airport, Ilorin, Nigeria

Taking measurements from both analog and digital weather stations, providing weather forecasts for pilot every 30 minutes

### **Teaching experience**

1. Assistant Lecturer (equivalent: Assistant Professor) 2016 – now

Federal University of Technology, Akure, Nigeria

[**First Semester:** Tropical Meteorology (MET 405), West African Meteorology (MET 503)]

[**Second Semester:** Dynamic Meteorology (MET 302), Advanced Dynamic Meteorology and Numerical Weather Prediction (MET 508)]

2. Teaching Assistant, City University of Hong Kong, Hong Kong SAR

(Climate Change and Extreme Weather), Semester B: 2016–17; Semester C:

2016–17.

(Climate Change: Science, Adaptation and Mitigation), Semester A: 2017–18

### **Awards**

1. *Postgraduates Studentship Award* Sep 2016 – Aug 2019
  - Awarding body: City University of Hong Kong.
2. *Outstanding Academic Performance Award (twice)* 2017 & 2018
  - Awarding body: City University of Hong Kong.
3. *Research Tuition Scholarship* Sep 2017 – Aug 2018
  - Awarding body: City University of Hong Kong.
4. *Excellence Award*
  - Awarding body: National Youth Service Corp (NYSC) 2012
5. *Academic Merit Award* 2008
  - Awarding body: Senator Isiaka Adeleke

### **Manuscript under review**

1. **Akinsanola AA**, Kooperman GJ, Reed KA, Pendergrass AG and Hannah WM (2020) Projected changes in seasonal precipitation extremes over the United States in CMIP6 simulations. *Submitted to Environ. Res. Lett.*
2. **Akinsanola AA** (2020) Inter-model Diversity in the Spatial Characteristics of Tropical Easterly Jet and its Association with Afro-Asian Summer Monsoon Rainfall in CMIP5 Models. *Submitted to Theoretical and Applied Climatology.*
3. **Akinsanola AA**, AT Abolude, KO Egbo and Orimoloye IR (2020) Investigating the recent global warming hiatus over African continent. *Submitted to Earth Systems and Environment.*

### **Referred Publications**

4. Monrie PA, Wainwright CM, Sidibe M, and **Akinsanola AA** (2020) Model uncertainties in climate change impacts on Sahel precipitation in ensembles of

- CMIP5 and CMIP6 simulations. *Clim Dyn*. <https://doi.org/10.1007/s00382-020-05332-0>
5. **Akinsanola AA**, Kooperman GJ, Pendergrass AG, Hannah WM, and Reed KA (2020) Seasonal representation of extreme precipitation indices over the United States in CMIP6 present-day simulations. *Environ. Res. Lett.* <https://doi.org/10.1088/17489326/ab92c1>
  6. **Akinsanola AA**, W. Zhou, T. Zhou and N. Keenlyside (2020) Amplification of synoptic to annual variability of West African summer monsoon rainfall under global warming. *npj Clim Atmos Sci* 3,21. <https://doi.org/10.1038/s41612-020-0125-1>
  7. **Akinsanola AA** and W. Zhou (2020) Understanding the variability of West African summer monsoon rainfall: contrasting tropospheric features and monsoon index. *Atmosphere*, 11(3), 309. <https://doi.org/10.3390/atmos11030309>
  8. Abolude AT, Zhou W, **Akinsanola AA** (2020) Evaluation and Projections of Wind Power Resources over China for the Energy Industry Using CMIP5 Models. *Energies*, 13 (10), 2417. <https://doi.org/10.3390/en13102417>
  9. Orimoloye IR, Ololade OO, Mazinyo SP, Kalumba AM, Ekundayo OY, Busayo ET, **Akinsanola AA** and Nel W (2019) Spatial assessment of drought severity in Cape Town area, South Africa. *Heliyon*, 5, e02148 <https://doi.org/10.1016/j.heliyon.2019.e02148>
  10. Gbode IE, Adeyeri OE, Menang KP, Intsiful JDK, Ajayi VO, Omotosho JA and **Akinsanola AA** (2019) Observed changes in climate extremes in Nigeria. *Meteorological Applications*. <https://doi.org/10.1002/met.1791>
  11. **Akinsanola AA** and W. Zhou (2019) Projection of West African summer monsoon rainfall in dynamically downscaled CMIP5 models. *Clim Dyn* 53, 81–95. <https://doi.org/10.1007/s00382-018-4568-6>

12. **Akinsanola AA** and W. Zhou (2019) Dynamic and thermodynamic factors controlling increasing summer monsoon rainfall over the West African Sahel. *Clim Dyn* **52**, 4501–4514. <https://doi.org/10.1007/s00382-018-4394-x>
13. **Akinsanola AA** and W. Zhou (2019) Ensemble-based CMIP5 simulations of West African summer monsoon rainfall: current climate and future changes. *Theor Appl Climatol* **136**, 1021–1031. <https://doi.org/10.1007/s00704-018-2516-3>
14. **Akinsanola AA** and W. Zhou (2019) Projected changes in West Africa summer monsoon rainfall extremes from two CORDEX models. *Clim Dyn* **52**, 2017–2028. <https://doi.org/10.1007/s00382-018-4238-8>
15. **Akinsanola AA**, Ajayi VO, Adejare AT, Adeyeri OE, Gbode IE, Ogunjobi KO, Nikulin G and Abolude AT (2018). Evaluation of rainfall simulations over West Africa in dynamically downscaled CMIP5 global circulation models. *Theor Appl Climatol* **132**, 437–450. <https://doi.org/10.1007/s00704-017-2087-8>
16. Morakinyo TE, Ogungbenro SB, Abolude AT and **Akinsanola AA** (2018) Quantifying the effect of rain events on outdoor thermal comfort in a high-density city, Hong Kong. *Int J Biometeorol*. <https://doi.org/10.1007/s00484-018-1634-z>
17. Ogunjobi KO, Y Adamu, **Akinsanola AA** and IR Orimoloye (2018) Spatio-temporal analysis of land use dynamics and its potential indications on land surface temperature in Sokoto Metropolis, Nigeria. *R. Soc. open sci.* **5**:180661 <http://doi.org/10.1098/rsos.180661>
18. Ogunjobi KO, Daramola MT and **Akinsanola AA** (2018) Estimation of surface energy fluxes from remotely sensed data over Akure, Nigeria. *Spat. Inf. Res.* **26**: 77-89. <https://doi.org/10.1007/s41324-017-0149-8>
19. Odulami RC and **Akinsanola AA** (2018). Recent Assessment of West African Summer Monsoon Daily Rainfall Trends. *Weather*, **73**: 283-287. [doi:10.1002/wea.2965](https://doi.org/10.1002/wea.2965)

20. Adeyeri OE, **Akinsanola AA** and Ishola KA (2017) Investigating surface urban heat island characteristics over Abuja, Nigeria: Relationship between land surface temperature and multiple vegetation indices. *Remote Sensing Applications: Society and Environment*. doi.org/10.1016/j.rsase.2017.06.005
21. **Akinsanola AA** and Ogunjobi KO (2017) Evaluation of present-day rainfall simulations over West Africa in CORDEX regional climate models. *Environ Earth Sci* **76**, 366. <https://doi.org/10.1007/s12665-017-6691-9>
22. Raji KB, Ogunjobi KO and **Akinsanola AA** (2017). Radiative effects of dust aerosol on West African climate using simulations from RegCM4. *Model. Earth Syst. Environ.* **3**, 34. <https://doi.org/10.1007/s40808-017-0295-y>
23. **Akinsanola AA**, Ogunjobi KO, Abolude AT, Sarris SCC and Oladipo KO (2017) Assessment of Wind Energy Potential for Small Communities in South-South Nigeria: Case Study of Koluama, Bayelsa State. *J Fundam Renewable Energy Appl* **7**: 227. doi:10.4172/20904541.1000227
24. **Akinsanola AA**, Ogunjobi KO, Ajayi, VO, Adefisan EA, Omotosho JA and Sanogo S (2017). Comparison of five gridded precipitation products at climatological scales over West Africa. *Meteorol Atmos Phys* **129**, 669–689. <https://doi.org/10.1007/s00703-016-0493-6>
25. Babalola OS and **Akinsanola AA** (2016). Change Detection in Land Surface Temperature and Land Use Land Cover over Lagos Metropolis, Nigeria. *J. Remote Sensing & GIS* **5**: 171. doi:10.4172/2469-4134.1000171
26. **Akinsanola AA** and Aroninuola BA (2016). Diagnostic Evaluation of September 29, 2012 Heavy Rainfall Event over Nigeria. *Journal of Climatology & Weather Forecasting* **4**: 155. doi:10.4172/2332-2594.1000155
27. **Akinsanola AA** and Ogunjobi KO (2017). Recent Homogeneity Analysis and Long Term Spatio-temporal Rainfall Trends in Nigeria. *Theor Appl Climatol* **128**, 275–

289. <https://doi.org/10.1007/s00704-015-1701-x>
28. **Akinsanola AA** Ogunjobi KO, Gbode IE and Ajayi VO (2015). Assessing the Capabilities of three Regional Climate Models over CORDEX Africa in Simulating West African Summer Monsoon Precipitation. *Advances in Meteorology*, Vol. 2015, Article ID 935431, 13pages. doi:10.1155/2015/935431
29. Gbode IE, **Akinsanola AA** and Ajayi VO (2015). Recent Changes of Some Observed Climate Extreme Events in Kano. *International Journal of Atmospheric Sciences*, Vol. 2015, Article ID 298046, 6pages, 2015. doi:10.1155/2015/298046
30. **Akinsanola AA** and Ogunjobi KO (2014). Analysis of Rainfall and Temperature Variability over Nigeria. *Global Journal of Human Social Science Geography & Environmental Geosciences*, Volume 14 issue 3 Version 1.0 year 2014, pages 10-28
31. Oluleye A, Ogunjobi KO, Bernard A, Ajayi VO, and **Akinsanola AA** (2012). Multiyear Analysis of Ground-Based Sunphotometer (AERONET) Aerosol Optical Properties and Its Comparison with Satellite Observations over West Africa. *Global Journal of Human Social Science Geography & Environmental Geosciences* Volume 12 Issue 10 Version 1.0 year 2012, pages 1-19

### **Conference presentations/Invited talks**

32. **Akinsanola AA**, Kooperman GJ, Pendergrass AG, Hannah WM and Reed KA (2020) Seasonal extreme precipitation over the United States in CMIP6: Present-day evaluation and projected changes. *Climate Extreme Monthly Meeting*. USA, July 2, 2020 (Oral presentation).
33. **Akinsanola AA** (2020) Understanding the variability of West African summer monsoon rainfall: contrasting tropospheric features and monsoon index. *Association of Nigerian Scholars in Hong Kong Annual Research Forum*. Hong Kong, June 27, 2020 (Guest speaker, Oral presentation).
34. Kooperman GJ, **Akinsanola AA**, Pendergrass AG, Hannah WM and Reed KA

- (2020) Extreme Precipitation in High-Resolution and Convection-Permitting Earth System Models. AMS 100<sup>th</sup> Annual Meeting, Boston Massachusetts, USA. (Poster presentation)
35. **Akinsanola AA**, Kooperman GJ, Pendergrass AG, Hannah WM, and Reed KA (2019) Evaluation of precipitation extremes over the United States in E3SM compared with observations and CMIP6 simulations. Energy Exascale Earth System Model all-hands meeting, Crystal City DoubleTree in **Arlington, VA, USA**. (Poster presentation)
36. **Akinsanola AA** and W. Zhou: “Projection of West African summer monsoon rainfall in CORDEX models”, 15th Annual Meeting, Asia Ocean Geosciences Society (AOGS), **Honolulu, Hawaii, USA**. 03 - 08 Jun 2018. (Oral presentation)
37. **Akinsanola AA** and W. Zhou: “Contrasting features of West African summer monsoon during wet and dry rainfall years: Observational diagnostics”, 14th Annual Meeting, Asia Ocean Geosciences Society (AOGS), **Singapore, USA**. 06 - 11 Aug 2017. (Oral presentation)
38. **Akinsanola AA** and W. Zhou: “Contrasting features of West African summer monsoon during wet and dry rainfall years. 3<sup>rd</sup> NUIST-POSTECH-CITYU Joint Workshop on Climate Dynamics and Future Changes: Towards understanding and predicting climate variability and changes. 20 – 22 December 2017, Hong Kong SAR. (Oral presentation)
39. **Akinsanola AA** and W. Zhou: Projected changes in daily to decadal variability of West African summer monsoon rainfall. International Workshop on the Asian Monsoon in a Warmer World. 20 - 23 August, 2017, China (Oral presentation)
40. **Akinsanola AA** and Ogunjobi KO (2014). Diagnostic Evaluation of Precipitation over West Africa using three of the CORDEX Africa Simulations. Book of Conference Proceedings, the Nigeria Meteorological Society Conference, Markudi,



Nigeria, 120-127. (Oral presentation)

41. Ibitolu HA, Ogunjobi KO, Aderoju MO, **Akinsanola AA** and Daramola MT (2014). Analysis of Climate Change Impacts on Land Surface Temperature and Vegetation over Akure Using Geopotential Techniques. Book of Conference Proceedings, The Nigeria Meteorological Society Conference, Markudi, Nigeria, 65-743 (Published proceedings)
42. **Akinsanola AA** and Ogunjobi KO (2013). Equivalent Potential Temperature: A Diagnostic Tool for Cold Spell Signature in Nigeria: Book of Conference Proceedings, The Nigeria Meteorological Society Conference, Abuja, Nigeria, 65-714 (Published proceedings)
43. Ahmed A Balogun, Adamson A Ogunsusi, **Akintomide A Akinsanola** and Gbode I Ezekiel (2013). Potentials of Organic Fertilizers on the Yield of Leaf Amaranth as an Adaptation to Climate Change: Book of Conference Proceeding, The Nigeria Meteorological Society Conference, Abuja, Nigeria, 155-158 (Published proceedings)
44. **Akinsanola AA**, Gbode IE and Ogunjobi KO (2013). Variability of Sea Surface Temperature and Atmospheric Circulation during the West African Summer Monsoon: Book of Proceeding, The Nigeria Meteorological Society Conference, Abuja, Nigeria, 117-122 (Published proceedings)
45. **Akinsanola AA** and Ogunjobi KO (2011). Analysis of Climate Variability over Nigeria: Book of Conference Proceedings, the Nigeria Meteorological Society Conference, Zaria, Nigeria, 107-111 (Published proceedings)

### **Workshop attended**

1. International Workshop on the Asian Monsoon in a Warmer World. 20 - 23 August, 2017, China
2. Targeted Training Activity (TTA) 2017: Monsoon in a changing climate at The

Abdus Salam International Centre for Theoretical Physics, Trieste, Italy (31 July – 4 August, 2017)

3. 4<sup>th</sup> International Conference on Climate Change (ICCC2017@HK) held on the 21st-22nd April 2017 at Chiang Chen Studio Theatre, Hong Kong Polytechnic University, Hong Kong
4. Workshop on Computational Science Infrastructure and Applications for Academic Development undertaken at The Abdus Salam International Centre for Theoretical Physics, Trieste, Italy (28th September – 9th October)
5. High Performance Computing for Climate Modeling, undertaken at WASCAL, Federal University of Technology Akure, Nigeria (29th June – 2nd July, 2015)
6. UNDP-FMENV-FUTA Climate Change Workshop, undertaken at WASCAL, Federal University of Technology Akure, Nigeria (30th June – 4th July, 2014)

## **Services**

### To the Department of Meteorology and Climate Science, FUTA

- Member of Accreditation planning committee (2014)

### As Anonymous Reviewer for various journals:

Journal of Geophysical Research-Atmospheres, Geophysical Research Letters, Environmental Research Letters, Climate Dynamics, Climatic Change, Theoretical and Applied Climatology, Atmospheric Research Letters, Advances in Atmospheric Sciences, Spatial Information Research, Meteorological Applications, Science of the Total Environment.

### Professional activities

Invited Editorial Board Member, Scientific Data (*Nature*): handled “A dataset of the 2016 southern West Africa monsoon season meteorology - an overview from the DACCIIWA campaign”.

Community services

- Corp liaison officer, National Youth Service Corp (NYSC) 2011 – 2012

Led and coordinated over 5,000 graduates during their service to Nation (Nigeria)

- Chairman Research Committee, Association of Nigerian Scholars in Hong Kong 2019

Led and organized seminars and workshops for members of the association.

Membership of professional bodies:

American Meteorological Society (AMS), Asia Oceania Geoscience Society (AOGS),  
Nigeria Meteorological Society (NMetS)