

ANDREW I.L. WILLIAMS

Atmospheric and Ocean Sciences Program, Princeton University

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EDUCATION

University of Oxford
DPhil (PhD) in Climate Physics

October 2019 - July 2023
Advisor: Philip Stier

University of Oxford
Masters degree in Physics

October 2015 - June 2019
Classification: 1st

EMPLOYMENT

Postdoctoral Research Associate
Princeton University & NOAA GFDL

August 2023 - present

Visiting Researcher
TU Delft

June 2022 - July 2022

Visiting Researcher
Max Planck Institute for Meteorology

April 2022 - May 2022

Research Associate
Massachusetts Institute of Technology

June 2019 - January 2020

Summer Undergraduate Research Fellow
California Institute of Technology

Summer 2018

AWARDS

Outstanding Early Career Presentation Award
CFMIP-GASS meeting, Paris

2023

CIMES Postdoctoral Fellowship
Princeton University

2023-2025

NOAA Climate & Global Change Postdoctoral Fellowship (declined)
Yale University

2023-2025

Outstanding Student and PhD candidate Presentation Award
EGU

2022

Outstanding Student Presentation Award
AGU Fall Meeting

2022

NERC PhD Studentship
Awarded fully funded place on NERC Environmental Research Doctoral Programme at the University of Oxford, covering tuition, stipend and research grant (Approx. £100,000).

2019-2023

Laidlaw Research and Leadership Scholarship
Awarded £10,000 to fund research at MIT with Prof. Paul O’Gorman.

2019

Caltech Summer Undergraduate Research Fellowship
Awarded \$8,000 to fund research at Caltech with Prof. Tapio Schneider.

2018

Moritz-Heyman Scholarship

2015-2019

Scholarship for low-income students who won a place at Oxford University (£16,000 total).

St. Hilda's College, 125th Anniversary Scholarship

2019

Prize for high grades in first year examinations at Oxford (£1,250 total)

PUBLICATIONS

in preparation

Risi, C. & co-authors including Williams, A. I. L.: Temperature lapse rate in the tropical and subtropical troposphere and along mountain slopes: present, past, future

Herbert, R. J., Williams, A. I. L., Weiss, P., Klocke, D. & Stier, P.: Isolating aerosol-climate interactions in global storm-resolving simulations

Williams, A. I. L., Wang, J. & Watson-Parris, D.: Exploring the sensitivity of regional precipitation to SSTs using a linear Green's function approach

Williams, A. I. L. & Gregory, J. M.: Sea-surface warming patterns capture inter-model spread in atmospheric radiative cooling, but not hydrological sensitivity

submitted/in review

Dagan, G., Yeheskel, N. & Williams, A. I. L.: Enhanced radiative forcing from aerosol-cloud interactions due to large-scale circulation adjustments
Nature Geoscience

Schmidt, H. & co-authors including Williams, A. I. L.: Effects of vertical grid spacing on the climate simulated in the ICON-Sapphire global storm-resolving model
Geoscientific Model Development

Bloch-Johnson, J. and co-authors including Williams, A. I. L.: The Green's Function Model Intercomparison Project (GFMIP) Protocol
Journal of Advances in Modeling Earth Systems

2023

Williams, A. I. L., Watson-Parris, D., Dagan, G. & Stier, P.: Dependence of fast changes in global and local precipitation on the geographical location of absorbing aerosol
Journal of Climate
[10.22541/au.167364749.93845737/v1](https://doi.org/10.22541/au.167364749.93845737/v1)

Williams, A. I. L., Jeevanjee, N. & Bloch-Johnson, J.: Circus Tents, Convective Thresholds and the Non-Linear Climate Response to Tropical SSTs
Geophysical Research Letters
[10.1029/2022GL101499](https://doi.org/10.1029/2022GL101499)

2022

Williams, A. I. L., Stier, P., Dagan, G. & Watson-Parris, D.: Strong control of effective radiative forcing by the spatial pattern of absorbing aerosol
Nature Climate Change
([Press coverage](#))
[10.1038/s41558-022-01415-4](https://doi.org/10.1038/s41558-022-01415-4)

Dagan, G., Stier, P., Dingley, B. & Williams, A. I. L.: Examining the regional co-variability of the atmospheric water and energy imbalances in different model configurations - linking clouds and circulation
Journal of Advances in Modeling Earth Systems
[10.1029/2021MS002951](https://doi.org/10.1029/2021MS002951)

Williams, A. I. L. & O'Gorman, P. A.: Summer-Winter Contrast in the Response of Precipitation Extremes to Climate Change over Northern Hemisphere Land
Geophysical Research Letters
[10.1029/2021GL096531](https://doi.org/10.1029/2021GL096531)

2021

Watson-Parris, D., Williams, A. I. L., Deaconou, L. & Stier, P.: Model calibration using ESEm v1.0.0 - an open, scalable Earth System Emulator
Geoscientific Model Development
[10.5194/gmd-14-7659-2021](https://doi.org/10.5194/gmd-14-7659-2021)

PRESENTATIONS

2024 (upcoming)

Hebrew University of Jerusalem **Invited talk**
Why does the tropical circulation weaken with warming? From theory to global cloud-resolving simulations and back again

Columbia University **Invited talk**
Why does the tropical circulation weaken with warming? From theory to global cloud-resolving simulations and back again

2023

University of East Anglia **Invited talk**
Non-linear climate response to tropical SSTs explained by a convective threshold

Center for Atmosphere Ocean Science, NYU **Invited talk**
Non-linear climate response to tropical SSTs explained by a convective threshold

Reading University **Invited talk**
Do convective mass fluxes constrain the tropical circulation response to warming?

Gordon Research Conference on Radiation and Climate **Poster**
Circus tents, convective thresholds and the non-linear climate response to tropical SSTs

CFMIP-GASS meeting **Talk**
Circus tents, convective thresholds and the non-linear climate response to tropical SSTs (Winner of an Outstanding Early Career Presentation Award)

ECS & Cloud Feedbacks Virtual Symposium **Talk**
Circus tents, convective thresholds and the non-linear climate response to tropical SSTs

4th biennial workshop on the regional climate response to aerosol **Talk**
Understanding the dependence of fast changes in global and local precipitation on the geographical location of absorbing aerosol

2022

AGU Fall Meeting **Talk**
Circus tents, convective thresholds, and the non-linear climate response to tropical SSTs

NOAA GFDL Strong control of effective radiative forcing by the spatial pattern of absorbing aerosol	Invited talk
Princeton University Circus tents, convective thresholds, and the non-linear climate response to tropical SSTs	Invited talk
Yale University Non-linearities in the pattern effect explained by a convective threshold	Invited talk
3rd Pan-GASS Meeting, Monterey Impact of warm-rain suppression on the climate of a mock-Walker circulation	Poster
TU Delft Clouds, aerosols and the global circulation	Invited talk
2nd Workshop on Cloud Organization, Utrecht Aerosol-cloud-circulations in cloud-resolving simulations with an imposed SST gradient	Poster
CLIVAR Pattern Effect Workshop SST Green's Functions for regional precipitation	Poster
EGU General Assembly Meeting Strong control of effective radiative forcing and precipitation by the spatial pattern of absorbing aerosol (Winner of an Outstanding Student Presentation Award)	Invited talk

2021

AGU Fall Meeting Contrasting Seasonal Response of Northern Hemisphere Precipitation Extremes to Climate Change (Winner of an Outstanding Student Presentation Award)	Talk
AGU Fall Meeting Understanding the “pattern effect” of absorbing aerosol	Poster

2019

EGU General Assembly Meeting Optimizing the number of convective plumes in EDMF cloud parameterization schemes using high-resolution LES simulations	Poster
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DIVERSITY & OUTREACH EFFORTS

Harlem StreetSquash volunteer Providing weekly math and physics tuition to students and young adults in Harlem, with the aim to ensure all participants graduate from high school, enroll in and complete a post-secondary program, and gain meaningful employment. I also assist in running weekly squash training sessions for the students.	2023 – present
GFDL Diversity, Equity, Inclusion & Accessibility Committee Development and execution of DEIA efforts to monitor and enhance lab culture and community at GFDL.	2023 – present
AOPP Equality, Diversity & Inclusion Committee Organized the department's first student-led EDI group, which aims to develop and sustain a diverse, inclusive, and equitable academic environment and community. Activities included collecting demographic data	2020 – 2023

on student applicants to inform access efforts, setting up a community EDI library and arranging accessible coffee breaks and social events for the department.

PhD mentoring scheme 2021 – 2023
Developed a mentoring scheme which matches incoming PhD students with a postdoc or more senior PhD student who can provide advice on adjusting to graduate study at Oxford. Scheme was trialed at a small-scale before being rolled out across the entire Oxford Physics department.

Oxford Sparks 2020 – 2021
Recorded an [outreach video about clouds](#) which has reached over 150,000 people across social media.

Seren Hub 2016 – 2023
Provided interview practice and entrance exam help for Welsh students from disadvantaged backgrounds who want to study Physics or Mathematics at university.

ACADEMIC SERVICE

Peer reviewer for *Journal of Climate*, *Scientific Reports*, *Atmospheric Chemistry and Physics*, *Geophysical Research Letters*.

Organizing Committee 2023-present
GFDL's Climate Sensitivity Journal Club

Steering Committee 2023-present
ECS & cloud feedback virtual symposia

Session chair 2022
Chair of session on “Absorbing Aerosols: Experiments, Observations, and Modelling” at the EGU General Assembly Meeting 2022

Policy briefing Nov-Dec 2020
Commissioned by Shadow Secretary for Health and Social Care to research the intersection between ‘Pandemics and Climate Change’. Findings were written in a [white paper](#) and presented to the Government.

TEACHING

Co-supervising a Masters Thesis 2022-2023
Day-to-day supervision of a Master's student studying the response of regional precipitation to SST anomalies

Teaching Assistant: Atmospheric Physics Master's Course 2020-2022

Workshop lead 2020-2023
Leader of a yearly workshop for first year PhD students on modelling the global-mean climate using energy balance models.

HOBBIES

Music

Self-taught, grade eight-level guitarist with a speciality in rock and blues.

Sports

Squash / long-distance cycling / running