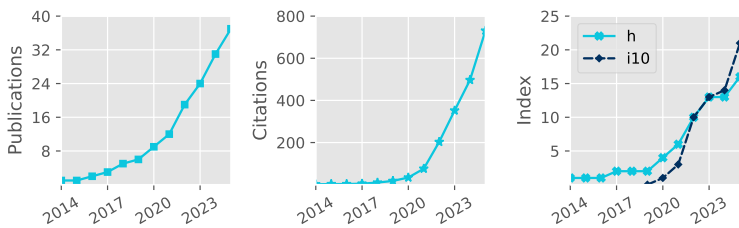


# Denis Sergeev

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Total Pub. **37**  
Refereed **36**  
First Author **8**  
Citations **732**  
h-index **16**

Updated: 24 Nov 2025

## Career history

Jan 2025–now	<b>Lecturer in Astrophysics</b> School of Physics, University of Bristol
Sep 2021–Dec 2024	<b>Postdoctoral Researcher</b> Project: Exascale Exoplanet Modelling Department of Physics & Astronomy, University of Exeter
Sep 2018–Aug 2021	<b>Postdoctoral Researcher</b> Project: Climate Modelling of Rocky Exoplanets Department of Mathematics & Statistics, University of Exeter

## Academic Qualifications

Oct 2014–Aug 2018	<b>PhD in Meteorology</b> Thesis title (shortened): 'Characteristics of Polar Lows in the Nordic Seas' <a href="#">↗</a> School of Environmental Sciences, University of East Anglia Supervisors: Ian A. Renfrew, Thomas Spengler, Stephen Dorling
Sep 2009–May 2014	<b>Specialist Diploma (1<sup>st</sup> class)</b> Thesis title: 'Idealised Numerical Modelling of Polar Mesocyclone Dynamics' <a href="#">↗</a> Department of Meteorology and Climatology, Moscow State University Supervisor: Victor Stepanenko

## Funding and Awards

Direct Funding, PI		Est. Total Value
2024	Above & Beyond Silver Award   University of Exeter	£1000
2023	Meeting Organisation Funding (Exoclines VI and ExoSLAM)   RAS	£5000
2022	Undergraduate Student Bursary (awarded; student declined)   RAS	£1200
2017	Best Presentation Award   CEEDA Symposium	~£100
2016	Travel Bursary   Polar Prediction School	~£1000
2015	Travel Award   High-Latitude Dynamics workshop	~£1000
2014	Lord Zuckerman PhD scholarship   School of Environmental Sciences, UEA	~£112 000
2014	Young Scientist Travel Award   EGU General Assembly	~£200
2014	Russian Academy of Sciences Young Scientist Medal	~£1000
Direct Funding, co-I		
2024	UKSA Studentships: Mars Exploration Science	■
2024	Research Software Engineer Support   DiRAC HPC	~£45 000
Observational Facilities Resources		
2023	JWST: 49.21 Primary Spacecraft Hours in Cycle 2 (GO 3838, PI: J. Kirk)	■

## Research Interests

### Atmospheric aerosols:

- How do clouds, hazes and dust shape planetary climates?

### Atmospheric convection on exoplanets:

- How does convection shape global energy redistribution?

### Extraterrestrial lightning:

- How is lightning generated on exoplanets and can we detect it?

Publications (see below):  
#17, 20, 22, 24, 27, 29, 34  
  
#8, 17, 30, 35  
  
#19, 35

## Atmospheric dynamics on Earth and other planets:

#2, 3, 4, 5, 7, 10, 11, 13, 14, 16

- How do wind jets and cyclones form in planetary atmospheres?

## Planet formation and atmospheric evolution:

#25, 28, 31, 32, 33, 36

- How does atmospheric composition relate to the planet's history?

## Model development and intercomparison:

#12, 15, 16, 17, 18, 23, 30

- How do we build robust and reproducible exoplanet models?

## Publications

#	(preprints in grey)	Citations
37	Ahrer, E., Fairman, C., Kirk, J., Wakeford, H. R., et al. (incl. <b>Sergeev, D. E.</b> ), 2025, BOWIE-ALIGN: weak spectral features in KELT-7b's JWST NIRSpec/G395H transmission spectrum imply a high cloud deck or a low-metallicity atmosphere, MNRAS <a href="#">🔗</a>	2
36	Lichtenberg, T., Schaefer, L., Krissansen-Totton, J., Miguel, Y., et al. (incl. <b>Sergeev, D. E.</b> ), 2025, Coupled atmospHere Interior model Intercomparison (CHILI) Protocol Version 1.0: A CUISINES Intercomparison Project of Magma Ocean Models, arXiv:2511.16142 <a href="#">🔗</a>	▪
35	Mak, M. T., <b>Sergeev, D. E.</b> , Mayne, N. J., Zamyatina, M., et al., 2025, The impact of different haze types on the atmospheres and observations of hot Jupiters: 3D simulations of HD 189733b, HD 209458b, and WASP-39b, MNRAS <a href="#">🔗</a>	▪
34	<b>Sergeev, D. E.</b> , McDermott, J. W., Woods, L., Braam, M., et al., 2025, Lightning activity on a tidally locked terrestrial exoplanet in storm-resolving simulations for a range of surface pressures, MNRAS <a href="#">🔗</a>	▪
33	Meech, A., Claringbold, A. B., Ahrer, E., Kirk, J., et al. (incl. <b>Sergeev, D. E.</b> ), 2025, BOWIE-ALIGN: substellar metallicity and carbon depletion in the aligned TrES-4b with JWST NIRSpec transmission spectroscopy, MNRAS <a href="#">🔗</a>	8
32	Kirk, J., Ahrer, E., Claringbold, A. B., Zamyatina, M., et al. (incl. <b>Sergeev, D. E.</b> ), 2025, BOWIE-ALIGN: JWST reveals hints of planetesimal accretion and complex sulphur chemistry in the atmosphere of the misaligned hot Jupiter WASP-15b, MNRAS <a href="#">🔗</a>	21
31	Penzlin, A. B. T., Booth, R. A., Kirk, J., Owen, J. E., et al. (incl. <b>Sergeev, D. E.</b> ), 2024, BOWIE-ALIGN: how formation and migration histories of giant planets impact atmospheric compositions, MNRAS <a href="#">🔗</a>	24
30	<b>Sergeev, D. E.</b> , Boutle, I. A., Lambert, F. H., Mayne, N. J., et al., 2024, The Impact of the Explicit Representation of Convection on the Climate of a Tidally Locked Planet in Global Stretched-mesh Simulations, ApJ <a href="#">🔗</a>	8
29	Natchiar, S. R. M., Webb, M. J., Lambert, F. H., Vallis, G. K., et al. (incl. <b>Sergeev, D. E.</b> ), 2024, Reduction in the Tropical High Cloud Fraction in Response to an Indirect Weakening of the Hadley Cell, JAMES <a href="#">🔗</a>	1
28	Zamyatina, M., Christie, D. A., Hébrard, E., Mayne, N. J., et al. (incl. <b>Sergeev, D. E.</b> ), 2024, Quenching-driven equatorial depletion and limb asymmetries in hot Jupiter atmospheres: WASP-96b example, MNRAS <a href="#">🔗</a>	14
27	Mak, M. T., <b>Sergeev, D. E.</b> , Mayne, N., Banks, N., et al., 2024, 3D simulations of TRAPPIST-1e with varying CO <sub>2</sub> , CH <sub>4</sub> , and haze profiles, MNRAS <a href="#">🔗</a>	5
26	Villanueva, G. L., Fauchez, T. J., Kofman, V., Alei, E., et al. (incl. <b>Sergeev, D. E.</b> ), 2024, Modeling Atmospheric Lines by the Exoplanet Community (MALBEC) Version 1.0: A CUISINES Radiative Transfer Intercomparison Project, Planet. Sci. J. <a href="#">🔗</a>	11
25	Kirk, J., Ahrer, E., Penzlin, A. B. T., Owen, J. E., et al. (incl. <b>Sergeev, D. E.</b> ), 2024, BOWIE-ALIGN: A JWST comparative survey of aligned versus misaligned hot Jupiters to test the dependence of atmospheric composition on migration history, RAS Techniques and Instruments <a href="#">🔗</a>	17
24	Mak, M. T., Mayne, N. J., <b>Sergeev, D. E.</b> , Manners, J., et al., 2023, 3D Simulations of the Archean Earth Including Photochemical Haze Profiles, J. Geophys. Res.: Atmospheres <a href="#">🔗</a>	7
23	<b>Sergeev, D. E.</b> , Mayne, N. J., Bendall, T., Boutle, I. A., et al., 2023, Simulations of idealised 3D atmospheric flows on terrestrial planets using LFRic-Atmosphere, Geosci. Model Dev. <a href="#">🔗</a>	12
22	Cohen, M., Bolasina, M. A., <b>Sergeev, D. E.</b> , Palmer, P. I., et al., 2023, Traveling Planetary-scale Waves Cause Cloud Variability on Tidally Locked Aquaplanets, Planet. Sci. J. <a href="#">🔗</a>	8
21	Eager-Nash, J. K., Mayne, N. J., Nicholson, A. E., Prins, J. E., et al. (incl. <b>Sergeev, D. E.</b> ), 2023, 3D Climate Simulations of the Archean Find That Methane has a Strong Cooling Effect at High Concentrations, J. Geophys. Res.: Atmospheres <a href="#">🔗</a>	6

- 20 McCulloch, D., **Sergeev, D. E.**, Mayne, N., Bate, M., et al., 2023, A modern-day Mars climate in the Met Office Unified Model: dry simulations, *Geosci. Model Dev.* [↗](#) **6**
- 19 Braam, M., Palmer, P. I., Decin, L., Ridgway, R. J., et al. (incl. **Sergeev, D. E.**), 2022, Lightning-induced chemistry on tidally-locked Earth-like exoplanets, *MNRAS* [↗](#) **16**
- 18 Christie, D. A., Lee, E. K. H., Innes, H., Noti, P. A., et al. (incl. **Sergeev, D. E.**), 2022, CAMEMBERT: A Mini-Neptunes General Circulation Model Intercomparison, Protocol Version 1.0.A CUISINES Model Intercomparison Project, *Planet. Sci. J.* [↗](#) **9**
- 17 **Sergeev, D. E.**, Fauchez, T. J., Turbet, M., Boutle, I. A., et al., 2022, The TRAPPIST-1 Habitable Atmosphere Intercomparison (THAI). II. Moist Cases-The Two Waterworlds, *Planet. Sci. J.* [↗](#) **71**
- 16 Fauchez, T. J., Villanueva, G. L., **Sergeev, D. E.**, Turbet, M., et al., 2022, The TRAPPIST-1 Habitable Atmosphere Intercomparison (THAI). III. Simulated Observables-the Return of the Spectrum, *Planet. Sci. J.* [↗](#) **52**
- 15 Turbet, M., Fauchez, T. J., **Sergeev, D. E.**, Boutle, I. A., et al., 2022, The TRAPPIST-1 Habitable Atmosphere Intercomparison (THAI). I. Dry Cases-The Fellowship of the GCMs, *Planet. Sci. J.* [↗](#) **60**
- 14 **Sergeev, D. E.**, Lewis, N. T., Lambert, F. H., Mayne, N. J., et al., 2022, Bistability of the Atmospheric Circulation on TRAPPIST-1e, *Planet. Sci. J.* [↗](#) **30**
- 13 Cohen, M., Bollasina, M. A., Palmer, P. I., **Sergeev, D. E.**, et al., 2022, Longitudinally Asymmetric Stratospheric Oscillation on a Tidally Locked Exoplanet, *ApJ* [↗](#) **14**
- 12 Fauchez, T. J., Turbet, M., **Sergeev, D. E.**, Mayne, N. J., et al., 2021, TRAPPIST Habitable Atmosphere Intercomparison (THAI) Workshop Report, *Planet. Sci. J.* [↗](#) **38**
- 11 Terpstra, A., Renfrew, I. A., & **Sergeev, D. E.**, 2021, Characteristics of Cold-Air Outbreak Events and Associated Polar Mesoscale Cyclogenesis over the North Atlantic Region, *J. Cli.* [↗](#) **28**
- 10 Renfrew, I. A., Barrell, C., Elvidge, A. D., Brooke, J. K., et al. (incl. **Sergeev, D.**), 2021, An evaluation of surface meteorology and fluxes over the Iceland and Greenland Seas in ERA5 reanalysis: The impact of sea ice distribution, *Q. J. R. Meteorol. Soc.* [↗](#) **70**
- 9 Eager-Nash, J. K., Reichelt, D. J., Mayne, N. J., Hugo Lambert, F., et al. (incl. **Sergeev, D. E.**), 2020, Implications of different stellar spectra for the climate of tidally locked Earth-like exoplanets, *A&A* [↗](#) **25**
- 8 **Sergeev, D. E.**, Lambert, F. H., Mayne, N. J., Boutle, I. A., et al., 2020, Atmospheric Convection Plays a Key Role in the Climate of Tidally Locked Terrestrial Exoplanets: Insights from High-resolution Simulations, *ApJ* [↗](#) **64**
- 7 Joshi, M. M., Elvidge, A. D., Wordsworth, R., & **Sergeev, D.**, 2020, Earth's Polar Night Boundary Layer as an Analog for Dark Side Inversions on Synchronously Rotating Terrestrial Exoplanets, *ApJ* [↗](#) **18**
- 6 Renfrew, I. A., Pickart, R. S., Våge, K., Moore, G. W. K., et al. (incl. **Sergeev, D.**), 2019, The Iceland Greenland Seas Project, *BAMS* [↗](#) **27**
- 5 **Sergeev, D.**, Renfrew, I. A., & Spengler, T., 2018, Modification of Polar Low Development by Orography and Sea Ice, *Mon. Wea. Rev.* [↗](#) **17**
- 4 Shestakova, A. A., Toropov, P. A., Stepanenko, V. M., **Sergeev, D. E.**, et al., 2018, Observations and modelling of downslope windstorm in Novorossiysk, *Dyn. Atm. Ocean.* [↗](#) **6**
- 3 **Sergeev, D. E.**, Renfrew, I. A., Spengler, T., & Dorling, S. R., 2017, Structure of a shear-line polar low, *Q. J. R. Meteorol. Soc.* [↗](#) **22**
- 2 Spengler, T., Renfrew, I. A., Terpstra, A., Tjernström, M., et al. (incl. **Sergeev, D.**), 2016, High-Latitude Dynamics of Atmosphere-Ice-Ocean Interactions, *BAMS* [↗](#) **7**
- 1 Eliseev, A. V., & **Sergeev, D. E.**, 2014, Impact of subgrid-scale vegetation heterogeneity on the simulation of carbon-cycle characteristics, *Izv. Atmos. Ocean. Phy.* [↗](#) **8**

## Conferences and Seminars

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### Invited Talks

- Oct 2025 CUISINES — a framework for exoplanet model intercomparison projects  
Atmospheric and interior evolution of planetary magma oceans | Leiden, the Netherlands
- Jun 2025 Atmospheric dynamics on other planets [↗](#)  
Durham HPC Days | Durham, UK
- Feb 2025 Exoplanet climate modelling with LFRic

- University of East Anglia | Norwich, UK
- May 2024 3D simulations of exoplanet atmospheres with the next-generation Met Office model  
University of Leicester | Leicester, UK
- Apr 2024 Shall I compare thee to a distant world? Inter-planet and inter-model comparative studies  
EGU General Assembly | Vienna, Austria
- Jul 2023 Simulations of idealised 3D atmospheric flows on terrestrial planets using LFRic-Atmosphere  
NASA GISS Seminar | Online
- Mar 2023 First results of using LFRic for exoplanet climate modelling  
NIWA Seminar | Wellington, New Zealand
- Feb 2023 Atmospheric dynamics and chemistry on exoplanets  
UQ Astro Group Meeting | Brisbane, Australia
- Feb 2023 Atmospheric dynamics and chemistry on exoplanets [↗](#)  
UniSQ Exoplanet Group Seminar | Brisbane, Australia
- Feb 2023 Atmospheric dynamics and chemistry on exoplanets  
UNSW AstroSeminar | Sydney, Australia
- Apr 2022 Dichotomy of the atmospheric circulation on TRAPPIST-1e [↗](#)  
NASA GISS Seminar | Online
- Jan 2022 Dichotomy of the atmospheric circulation on TRAPPIST-1e  
NASA GSFC Extrasolar Planets Seminar | Online
- Nov 2021 TRAPPIST-1 Habitable Atmosphere Intercomparison (THAI)  
MPIA APEX Exocoffee | Online
- May 2021 Overcast on TRAPPIST-1e [↗](#)  
RCC MSU Geophysical Seminar | Online
- Sep 2020 Simulations of convection over a range of atmospheric conditions on TRAPPIST-1e [↗](#)  
THAI Workshop | Online
- Apr 2020 Atmospheric convection plays a key role in the climate of tidally locked exoplanets [↗](#)  
University of Reading Meteorology Seminar | Online
- Apr 2020 Atmospheric convection plays a key role in the climate of tidally locked exoplanets [↗](#)  
NASA GISS Seminar | Online

## Contributed Talks

- Sep 2023 Introducing GeoVista - Cartographic rendering and mesh analytics powered by PyVista (joint talk)  
Met Office Seminar | Exeter, UK
- Jul 2022 Bistability of the atmospheric circulation on TRAPPIST-1e  
Rocky Worlds II | Oxford, UK
- Apr 2022 Dichotomy of the atmospheric circulation on TRAPPIST-1e  
Exoplanet Modelling in the James Webb Era II: Terrestrial planets and sub-Neptunes | Online
- Nov 2020 Explicit convection on tidally locked rocky exoplanets simulated with the UM nesting suite [↗](#)  
Unified Model users workshop | Online
- Aug 2019 Simulations of moist convection on tidally-locked rocky exoplanets [↗](#)  
Exoclines V | Oxford, UK
- Jun 2019 North Atlantic polar mesoscale cyclones in ERA5 and ERA-Interim reanalyses [↗](#)  
IGP workshop | Norwich, UK
- Apr 2019 Atmospheric convection on tidally-locked Earth-like exoplanets  
UK Exoplanet Community Meeting | London, UK
- Jun 2018 Modification of Polar Low Development by Sea Ice and Svalbard Orography [↗](#)  
POLAR2018 | Davos, Switzerland
- Oct 2017 The influence of Svalbard orography and sea ice on polar low development [↗](#)  
18th Cyclone Workshop | Sainte-Adèle, Canada
- Apr 2017 Polar lows and how background environment can influence their development [↗](#)  
Cambridge Earth Systems Science EnvEast Doctoral Alliance Symposium | Cambridge, UK
- May 2016 Structure of the shear-line polar low south of Svalbard  
NORPAN meeting | Tokyo, Japan
- Apr 2016 Structure of the shear-line polar low south of Svalbard [↗](#)

13th European Polar Lows Working Group Workshop | Paris, France

## Poster Presentations

- Nov 2025 Lightning climatology on rocky exoplanets in a global storm-resolving model  
CTR Wilson Meeting on Atmospheric Electricity | Bath, UK
- Jun 2024 The impact of convection on the climate of a tidally locked planet in stretched-mesh simulations  
Exoplanets 5 | Leiden, Netherlands
- Apr 2024 The impact of convection on the climate of TRAPPIST-1e in global stretched-mesh simulations  
EGU General Assembly | Vienna, Austria
- Apr 2024 The impact of convection on the climate of a tidally locked planet in stretched-mesh simulations  
UK Exoplanet Community Meeting | Birmingham, UK
- Nov 2022 Dry Modern-Day Mars Climate in the Met Office Unified Model  
UK Solar System Planetary Atmospheres | London, UK
- Sep 2022 Bistability of the Atmospheric Circulation on TRAPPIST-1e  
UK Exoplanet Community Meeting | Edinburgh, UK
- Jul 2015 Structure and dynamics of a shear-line polar low during a cold-air outbreak over the Norwegian Sea  
Royal Meteorological Society Student Conference | Birmingham, UK
- Mar 2015 Structure and dynamics of a shear-line polar low during a cold-air outbreak over the Norwegian Sea  
Dynamics of Atmosphere-Ice-Ocean Interactions in the High Latitudes workshop | Rosendal, Norway
- May 2014 Numerical modelling of polar mesocyclones dynamics diagnosed by the energy budget  
EGU General Assembly | Vienna, Austria
- Apr 2013 Impact of subgrid-scale vegetation heterogeneity on the carbon cycle  
EGU General Assembly | Vienna, Austria
- Apr 2013 Numerical modelling of polar mesocyclones generation mechanisms  
EGU General Assembly | Vienna, Austria

## Supervision

(Projects with me as the lead supervisor are in **bold**. Students who continued their academic career are underlined.)

### PhD Supervision

- Sep 2025–Sep 2029 **Alex Corbett** (U. Bristol)  
**Project: Convection on Sub-Neptunes**  
Co-supervisors: B. Shipway, Z. Leinhardt
- Sep 2025–Sep 2029 Will Luscombe  
Project: Forecasting Martian dust storms  
Co-supervisors: N. J. Mayne, M. Bate, B. Drummond
- Sep 2021–Apr 2025 Mei Ting (Martha) Mak (U. Exeter)  
Project: Hazes in Planetary Atmospheres  
Co-supervisors: N. J. Mayne, J. Manners, E. Hébrard

### Master's and MSci Supervision

- Sep 2025–May 2026 Freya Evans & Daisy Green  
Project: Atmospheric Dynamics on Ice Giants
- Sep 2025–May 2026 Catherine Kerr & Lily Odhuba  
Project: Lightning Storms on Earth-like Exoplanets
- Jan 2023–May 2024 Tom Batchelor, Luke Benzing, & Alex McGinty  
Project: Mars Atmosphere Modelling  
Co-supervisors: M. Bate, N. J. Mayne, D. McCulloch
- Sep 2020–Sep 2022 Danny McCulloch (MSci by Research)  
Project: Climate Modelling of Modern-Day Mars  
Co-supervisors: M. Bate, N. J. Mayne
- Apr 2021–Sep 2022 Meghan Plumridge (MSci by Research)  
Project: Climate Modelling of Early Mars

Jan 2021–May 2022	Co-supervisors: M. Bate, N. J. Mayne Jasper Chadwick & Esse Sellwood Project: Ocean Heat Transport on Rocky Exoplanets Co-supervisors: F. H. Lambert, J. Eager-Nash
Jan 2021–May 2022	Isabelle Browne & <u>Oakley Young</u> Project: Greenhouse Effect on Early Mars Co-supervisors: F. H. Lambert, N. J. Mayne, J. Eager-Nash
Jan 2020–May 2021	Toby Ferrison Project: Titan Climate Modelling Co-supervisor: F. H. Lambert
Oct 2018–May 2019	<u>Jake Eager-Nash</u> & David Reichelt Project: Implications of Stellar Type on the Climate of Tidally Locked Terrestrial Exoplanets Co-supervisors: F. H. Lambert, N. J. Mayne

## Undergraduate and Summer Internship Supervision

Jul–Sep 2022	<u>Oakley Young</u> Project: Ekman Ocean Model Co-supervisors: J. Eager-Nash, F. H. Lambert
Jun–Sep 2022	<u>James McDermott &amp; Lottie Woods</u> Project: Simulations of Lightning Storms on Tidally Locked Rocky Exoplanets
Jun–Aug 2021	<u>Oakley Young</u> Project: Climate Modelling of Archean Earth Co-supervisors: J. Eager-Nash, N. J. Mayne
Jun–Aug 2021	Joshua Parkin & Esse Sellwood Project: The Impact of Host Star Spectrum on the Climate of Rocky Exoplanets Co-supervisors: J. Eager-Nash, N. J. Mayne
Jun–Aug 2019	<u>Isobel Parry</u> Project: Water Cycle on Proxima Centauri b Co-supervisor: F. H. Lambert

## Teaching and Mentoring

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2026–now	Environmental Physics Lecturer   University of Bristol   ~40 students
2025–now	Practical Physics III: Research Skills and Group Project Tutor   University of Bristol   2 groups of ~7 students
2025–now	Research Project in Physics Supervisor & assessor   University of Bristol   ~10 students
Jul 2024	Algorithms For Exascale Summer School <a href="#">🔗</a> Invited lecturer   University of Exeter   ~20 students
Feb 2024	Physics of Climate Change Workshop lead   University of Exeter   ~30 students
Jul 2023	Climatemark Academy Mentor   Online   3 groups of ~5 students
Jul 2023	International Sustainability Summer School Lecturer   University of Exeter   ~10 students
Jun 2023	Exoclimes Summer School in Atmospheres and Modelling (ExoSLAM) <a href="#">🔗</a> Lecturer   University of Exeter   ~50 students
2016–2018	Introduction to Python in Environmental Sciences <a href="#">🔗</a> Course creator & lead   University of East Anglia   ~50 students
2015–2017	Modelling Environmental Processes; Meteorology; Numerical Skills Teaching assistant   University of East Anglia

## Research Leadership and Impact

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- 2024–now [Co-lead](#) of [Climates Using Interactive Suites of Intercomparisons Nested for Exoplanet Studies \(CUISINES\)](#) [↗](#)
- Jun 2023 [Co-chair](#) of [Exoclimes Summer School in Atmospheres and Modelling \(ExoSLAM\)](#) [↗](#)
- 2023 [Interview](#) by the University of Exeter about my research [↗](#)
- 2023 [Interview](#) by UKRI/STFC about my outreach [↗](#)
- 2023 [Expert Scientist](#) at the British Science Festival Climate Exhibition [↗](#)
- 2022 [Press releases](#): University of Exeter [↗](#), American University [↗](#), & INSU CNRS [↗](#)
- 2020–now 3D visualisations of exoplanet simulations:  
'Cloudy Skies of Distant Exoplanets' [↗](#) | University of Exeter Images of Research 2023  
'A refined look at tidally locked exoplanets' [↗](#) | DiRAC HPC Research Image Competition 2023  
'Exoplanetary Atmospheres' [↗](#) | Exeter Science Centre, Science as Art Gallery 2020  
'Dusty exoplanet atmospheres' [↗](#) | Nature Press Release  
'Virtual Reality Exploration of Exoplanets' [↗](#) | 360 VR video (contributor)
- 2019 [Science consulting](#) on the 'Exoplanet Explorers' videogame
- 2015 [Blogging](#):  
[Disastrous Disaster Movies](#) [↗](#)  
[Polar Lows: What Fuels Arctic Hurricanes?](#) [↗](#)  
[Worldwide Weird Weather Words](#) [↗](#)

## Organisation of Scientific Meetings

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- Mar 2026 [UK Exoplanet Community Meeting \(SOC\)](#) [↗](#) | Bristol, UK
- Oct 2025 [Atmospheric and interior evolution of planetary magma oceans \(SOC\)](#) [↗](#) | Leiden, the Netherlands
- Sep 2025 [BUFFET-5 \(Co-chair\)](#) [↗](#) | Bordeaux, France
- Jul 2025 [Exoclimes VII \(SOC\)](#) [↗](#) | Montreal, Canada
- Jun 2025 [Idealised modelling with LFRic \(Chair\)](#) | Exeter, UK | ~50 attendees
- Oct 2024 [BUFFET-4: Building a Unified Framework For Exoplanet Treatments \(Co-chair\)](#) [↗](#) | Online
- Jun 2024 [What's Cookin' Doc? A CUISINES meeting \(Chair\)](#) | Leiden, the Netherlands | ~20 attendees
- Jun 2023 [ExoSLAM Summer School \(Co-chair\)](#) [↗](#) | Exeter, UK | ~50 attendees
- Jun 2023 [Exoclimes VI \(LOC\)](#) [↗](#) | Exeter, UK | ~200 attendees
- Mar 2023 [Challenge of Science Leadership Short Course](#) | Exeter, UK

## Reviewing and Academic Service

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- Journals [Nat. Astron.](#), [MNRAS](#), [Planet. Sci. J.](#), [Geophys. Res. Lett.](#), [ApJ](#), [Planet. Space Sci.](#), [Q. J. R. Meteorol. Soc.](#)
- Funding [STFC Consolidated Grant](#), [STFC ERF](#)
- Observations [James Webb Space Telescope General Observer Programs \(Exoplanets & Disks, Cycles 3 & 4\)](#)
- Membership [Royal Astronomical Society](#), [Europlanet Society](#)

## Technical Skills

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- |  |  |
|--|--|
| Numerical models                       | LFRic, Unified Model, SOCRATES, LAGRANTO, Isca                         |
| Programming languages                  | Python, FORTRAN, MATLAB, NCL   |
| Python libraries (user)                | cartopy, cython, iris, matplotlib, numpy, pandas, pyvista, xarray      |
| Python libraries (creator/contributor) | aeolus, cartopy, pyvista, geovista                                     |
| Parallel computing                     | Dask, MPI, OpenMP  |
| Version control                        | Git, Subversion  |
| Document preparation                   | $\text{\LaTeX}$ , Quarto, Jupyter Notebooks, Markdown, HTML, CSS, reST |

## Vocational Training

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- Sep 2023 [Belbin Training](#) [↗](#)
- Mar 2023 [Challenge of Science Leadership](#) [↗](#)
- Dec 2022 [Interview Training](#)

Jul 2020 Writing Workshop for Climate Scientists  
Mar 2020 ESA JWST Master Class [↗](#)  
Jul 2019 ICTP Summer School on Convective Organization and Climate Sensitivity [↗](#)  
Apr 2018 Fortran Modernisation Workshop [↗](#)  
Jan 2018 Helicopter Underwater Escape Training Course (CA-EBS) [↗](#)  
Dec 2017 Sea Survival Course  
Jun 2017 Weather Presenting  
Feb 2017 Level 1 First Aid for Field Work Course  
Jan 2017 Raspberry Pi Basics  
Apr 2016 WWRP/WCRP/Bolin Center Polar Prediction School  
Dec 2014 UK Met Office Unified Model Training

## Vocational Experience

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Apr–Jun 2018 Data Technician  
Processing of meteorological data collected in the IGP field campaign [↗](#) | University of East Anglia  
2015–2018 Founder and Leader  
Python Users Group [↗](#) | University of East Anglia  
Feb–Mar 2018 Member of the Meteorology Team  
The Iceland-Greenland Seas Project (IGP) field campaign | Akureyri, Iceland  
Mar 2015 Rapporteur  
Dynamics of Atmosphere-Ice-Ocean Interactions in the High-Latitudes [↗](#) | Rosendal, Norway  
Oct 2013 Research Intern  
Geophysical Institute | University of Bergen, Norway  
Aug–Sep 2013 Trainee Forecaster  
Forecast and Briefing Service | Main Aviation Meteorological Centre, Vnukovo Airport  
Jul 2012 Research Intern  
A.M. Obukhov Institute of Atmospheric Physics | Moscow, Russia