# Denis Sergeev


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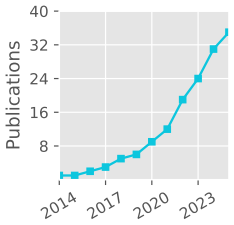


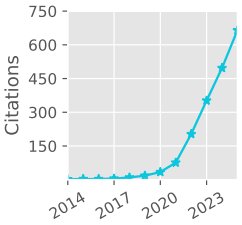


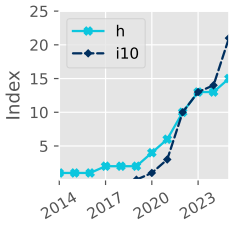


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|---|---|
| Total Pub. | **35** |
| Refereed | **35** |
| First Author | **8** |
| Citations | **665** |
| h-index | **15** |

Updated: 13 Sept 2025

## Career history

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

## Academic Qualifications

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

## Funding and Awards

| | | Est. Total Value |
|---|---|---|
| **Direct Funding, PI** | | |
| 2024 | Above & Beyond Silver Award \| University of Exeter | £1000 |
| 2023 | Meeting Organisation Funding (Exoclimes 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

| | Publications (see below): |
|---|---|
| **Atmospheric aerosols:** | #17, 20, 22, 24, 27, 29, 34 |
| ▪ How do clouds, hazes and dust shape planetary climates? | |
| **Atmospheric convection on exoplanets:** | #8, 17, 30, 35 |
| ▪ How does convection shape global energy redistribution? | |
| **Extraterrestrial lightning:** | #19, 35 |
| ▪ How is lightning generated on exoplanets and can we detect it? | |

**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:** #25, 28, 31, 32, 33
- 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 |
|---|---|---|
| 35 | Mak, M. T., **Sergeev, D. E.**, 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 | ▪ |
| 34 | **Sergeev, D. E.**, 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 | ▪ |
| 33 | Meech, A., Claringbold, A. B., Ahrer, E., Kirk, J., et al. (incl. **Sergeev, D. E.**), 2025, BOWIE-ALIGN: substellar metallicity and carbon depletion in the aligned TrES-4b with JWST NIRSpec transmission spectroscopy, MNRAS | **3** |
| 32 | Kirk, J., Ahrer, E., Claringbold, A. B., Zamyatina, M., et al. (incl. **Sergeev, D. E.**), 2025, BOWIE-ALIGN: JWST reveals hints of planetesimal accretion and complex sulphur chemistry in the atmosphere of the misaligned hot Jupiter WASP-15b, MNRAS | **11** |
| 31 | Penzlin, A. B. T., Booth, R. A., Kirk, J., Owen, J. E., et al. (incl. **Sergeev, D. E.**), 2024, BOWIE-ALIGN: how formation and migration histories of giant planets impact atmospheric compositions, MNRAS | **18** |
| 30 | **Sergeev, D. E.**, 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 | **8** |
| 29 | Natchiar, S. R. M., Webb, M. J., Lambert, F. H., Vallis, G. K., et al. (incl. **Sergeev, D. E.**), 2024, Reduction in the Tropical High Cloud Fraction in Response to an Indirect Weakening of the Hadley Cell, JAMES | ▪ |
| 28 | Zamyatina, M., Christie, D. A., Hébrard, E., Mayne, N. J., et al. (incl. **Sergeev, D. E.**), 2024, Quenching-driven equatorial depletion and limb asymmetries in hot Jupiter atmospheres: WASP-96b example, MNRAS | **13** |
| 27 | Mak, M. T., **Sergeev, D. E.**, Mayne, N., Banks, N., et al., 2024, 3D simulations of TRAPPIST-1e with varying $CO_2$, $CH_4$, and haze profiles, MNRAS | **4** |
| 26 | Villanueva, G. L., Fauchez, T. J., Kofman, V., Alei, E., et al. (incl. **Sergeev, D. E.**), 2024, Modeling Atmospheric Lines by the Exoplanet Community (MALBEC) Version 1.0: A CUISINES Radiative Transfer Intercomparison Project, Planet. Sci. J. | **10** |
| 25 | Kirk, J., Ahrer, E., Penzlin, A. B. T., Owen, J. E., et al. (incl. **Sergeev, D. E.**), 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 | **11** |
| 24 | Mak, M. T., Mayne, N. J., **Sergeev, D. E.**, Manners, J., et al., 2023, 3D Simulations of the Archean Earth Including Photochemical Haze Profiles, J. Geophys. Res.: Atmospheres | **6** |
| 23 | **Sergeev, D. E.**, 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. | **12** |
| 22 | Cohen, M., Bollasina, M. A., **Sergeev, D. E.**, Palmer, P. I., et al., 2023, Traveling Planetary-scale Waves Cause Cloud Variability on Tidally Locked Aquaplanets, Planet. Sci. J. | **8** |
| 21 | Eager-Nash, J. K., Mayne, N. J., Nicholson, A. E., Prins, J. E., et al. (incl. **Sergeev, D. E.**), 2023, 3D Climate Simulations of the Archean Find That Methane has a Strong Cooling Effect at High Concentrations, J. Geophys. Res.: Atmospheres | **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. **8**

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. **66**

16 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. **54**

15 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. **48**

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. **27**

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. **36**

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. **26**

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. **65**

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 **61**

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. **15**

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

### Invited Talks

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
Exoclimes 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

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 Martha (Mei Ting) Mak (U. Exeter)
Project: Hazes in Planetary Atmospheres
Co-supervisors: N. J. Mayne, J. Manners, E. Hébrard

### Masters Supervision

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
Co-supervisors: M. Bate, N. J. Mayne
Jan 2021–May 2022 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 & Oakley Young
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 Jake Eager-Nash & 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 Oakley Young
Project: Ekman Ocean Model
Co-supervisors: J. Eager-Nash, F. H. Lambert

Jun–Sep 2022 **James McDermott & Lottie Woods**
**Project: Simulations of Lightning Storms on Tidally Locked Rocky Exoplanets**

Jun–Aug 2021 Oakley Young
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 Isobel Parry
Project: Water Cycle on Proxima Centauri b
Co-supervisor: F. H. Lambert

## Teaching and Mentoring

2025–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
Invited lecturer | University of Exeter | ∼20 students

Feb 2024 Physics of Climate Change
Workshop lead | University of Exeter | ∼30 students

Jul 2023 Climatematch 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)
Lecturer | University of Exeter | ∼50 students

2016–2018 Introduction to Python in Environmental Sciences
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

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

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 External Activities

2017–now Reviewer for: Nat. Astron., MNRAS, Planet. Sci. J., Geophys. Res. Lett., ApJ, Planet. Space Sci., Q. J. R. Meteorol. Soc.
2023–now Expert reviewer for: the James Webb Space Telescope General Observer Programs (Exoplanets & Disks, Cycles 3 & 4)
2021–now Member of: the Royal Astronomical Society, Europlanet Society

## Skills

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|---|---|
| Languages | English (fluent), French (basic), Russian (native) |
| Numerical models | LFRic, Unified Model, SOCRATES, LAGRANTO, Isca |
| Programming languages | Python, Bash, 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 | LaTeX, Quarto, Jupyter Notebooks, Markdown, HTML, CSS, reST |

## Vocational Training

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

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