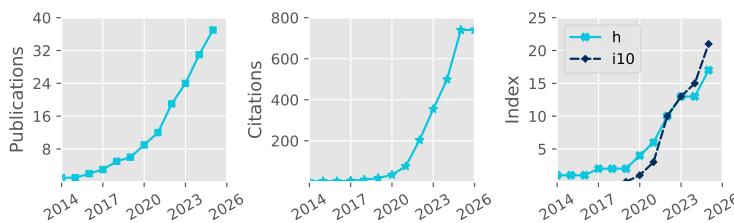


# Denis Sergeev

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Total Pub. 37  
Refereed 36  
First Author 8  
Citations 741  
h-index 17

Updated: 12 Dec 2025

## Career history

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

## Academic Qualifications

|                   |   |
|-------------------|---|
| Oct 2014–Aug 2018 | <b>PhD in Meteorology</b><br>Thesis title (shortened): 'Characteristics of Polar Lows in the Nordic Seas' <a href="#">🔗</a><br>School of Environmental Sciences, University of East Anglia<br>Supervisors: Ian A. Renfrew, Thomas Spengler, Stephen Dorling |
| Sep 2009–May 2014 | <b>Specialist Diploma (1<sup>st</sup> class)</b><br>Thesis title: 'Idealised Numerical Modelling of Polar Mesocyclone Dynamics' <a href="#">🔗</a><br>Department of Meteorology and Climatology, Moscow State University<br>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 (Exoclimes VI and ExoSLAM)   RAS          | £5000            |
| 2022                               | Undergraduate Student Bursary (awarded; student declined)   RAS        | £1200            |
| 2017                               | Best Presentation Award   CEEADA 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?

Publications (see below):

#17, 20, 22, 24, 27, 29, 34

### Atmospheric convection on exoplanets:

- How does convection shape global energy redistribution?

#8, 17, 30, 35

### Extraterrestrial lightning:

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

#19, 35

|  |                                    |
|--|------------------------------------|
| <b>Atmospheric dynamics on Earth and other planets:</b>            | #2, 3, 4, 5, 7, 10, 11, 13, 14, 16 |
| ▪ How do wind jets and cyclones form in planetary atmospheres?     |                                    |
| <b>Planet formation and atmospheric evolution:</b>                 | #25, 28, 31, 32, 33, 36, 37        |
| ▪ How does atmospheric composition relate to the planet's history? |                                    |
| <b>Model development and intercomparison:</b>                      | #12, 15, 16, 17, 18, 23, 30, 36    |
| ▪ 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>                              | 22        |
| 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>   | 25        |
| 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>   | 6         |
| 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> | 18        |
| 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>   | 13        |
| 22 | Cohen, M., Bollasina, 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         |

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|----|---|----|
| 20 | McCulloch, D., <b>Sergeev, D. E.</b> , Mayne, N., Bate, M., et al., 2023, A modern-day Mars climate in the Met Office Unified Model: dry simulations, Geosci. Model Dev. <a href="#">↗</a>  | 6  |
| 19 | Braam, M., Palmer, P. I., Decin, L., Ridgway, R. J., et al. (incl. <b>Sergeev, D. E.</b> ), 2022, Lightning-induced chemistry on tidally-locked Earth-like exoplanets, MNRAS <a href="#">↗</a>  | 17 |
| 18 | Christie, D. A., Lee, E. K. H., Innes, H., Noti, P. A., et al. (incl. <b>Sergeev, D. E.</b> ), 2022, CAMEMBERT: A Mini-Neptunes General Circulation Model Intercomparison, Protocol Version 1.0.A CUISINES Model Intercomparison Project, Planet. Sci. J. <a href="#">↗</a>                 | 9  |
| 17 | <b>Sergeev, D. E.</b> , 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. <a href="#">↗</a>   | 71 |
| 16 | Turbet, M., Fauchez, T. J., <b>Sergeev, D. E.</b> , Boutle, I. A., et al., 2022, The TRAPPIST-1 Habitable Atmosphere Intercomparison (THAI). I. Dry Cases-The Fellowship of the GCMs, Planet. Sci. J. <a href="#">↗</a>   | 60 |
| 15 | Fauchez, T. J., Villanueva, G. L., <b>Sergeev, D. E.</b> , Turbet, M., et al., 2022, The TRAPPIST-1 Habitable Atmosphere Intercomparison (THAI). III. Simulated Observables-the Return of the Spectrum, Planet. Sci. J. <a href="#">↗</a>   | 53 |
| 14 | <b>Sergeev, D. E.</b> , Lewis, N. T., Lambert, F. H., Mayne, N. J., et al., 2022, Bistability of the Atmospheric Circulation on TRAPPIST-1e, Planet. Sci. J. <a href="#">↗</a>  | 30 |
| 13 | Cohen, M., Bollasina, M. A., Palmer, P. I., <b>Sergeev, D. E.</b> , et al., 2022, Longitudinally Asymmetric Stratospheric Oscillation on a Tidally Locked Exoplanet, ApJ <a href="#">↗</a>  | 15 |
| 12 | Fauchez, T. J., Turbet, M., <b>Sergeev, D. E.</b> , Mayne, N. J., et al., 2021, TRAPPIST Habitable Atmosphere Intercomparison (THAI) Workshop Report, Planet. Sci. J. <a href="#">↗</a>   | 38 |
| 11 | Terpstra, A., Renfrew, I. A., & <b>Sergeev, D. E.</b> , 2021, Characteristics of Cold-Air Outbreak Events and Associated Polar Mesoscale Cyclogenesis over the North Atlantic Region, J. Cli. <a href="#">↗</a>   | 28 |
| 10 | Renfrew, I. A., Barrell, C., Elvidge, A. D., Brooke, J. K., et al. (incl. <b>Sergeev, D.</b> ), 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. <a href="#">↗</a> | 70 |
| 9  | Eager-Nash, J. K., Reichelt, D. J., Mayne, N. J., Hugo Lambert, F., et al. (incl. <b>Sergeev, D. E.</b> ), 2020, Implications of different stellar spectra for the climate of tidally locked Earth-like exoplanets, A&A <a href="#">↗</a>   | 25 |
| 8  | <b>Sergeev, D. E.</b> , 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 <a href="#">↗</a>  | 64 |
| 7  | Joshi, M. M., Elvidge, A. D., Wordsworth, R., & <b>Sergeev, D.</b> , 2020, Earth's Polar Night Boundary Layer as an Analog for Dark Side Inversions on Synchronously Rotating Terrestrial Exoplanets, ApJ <a href="#">↗</a>   | 18 |
| 6  | Renfrew, I. A., Pickart, R. S., Väge, K., Moore, G. W. K., et al. (incl. <b>Sergeev, D.</b> ), 2019, The Iceland Greenland Seas Project, BAMS <a href="#">↗</a>   | 27 |
| 5  | <b>Sergeev, D.</b> , Renfrew, I. A., & Spengler, T., 2018, Modification of Polar Low Development by Orography and Sea Ice, Mon. Wea. Rev. <a href="#">↗</a>   | 17 |
| 4  | Shestakova, A. A., Toropov, P. A., Stepanenko, V. M., <b>Sergeev, D. E.</b> , et al., 2018, Observations and modelling of downslope windstorm in Novorossiysk, Dyn. Atm. Ocean. <a href="#">↗</a>   | 6  |
| 3  | <b>Sergeev, D. E.</b> , Renfrew, I. A., Spengler, T., & Dorling, S. R., 2017, Structure of a shear-line polar low, Q. J. R. Meteorol. Soc. <a href="#">↗</a>  | 22 |
| 2  | Spengler, T., Renfrew, I. A., Terpstra, A., Tjernström, M., et al. (incl. <b>Sergeev, D.</b> ), 2016, High-Latitude Dynamics of Atmosphere-Ice-Ocean Interactions, BAMS <a href="#">↗</a>   | 7  |
| 1  | Eliseev, A. V., & <b>Sergeev, D. E.</b> , 2014, Impact of subgrid-scale vegetation heterogeneity on the simulation of carbon-cycle characteristics, Izv. Atmos. Ocean. Phys. <a href="#">↗</a>  | 9  |

## Conferences and Seminars

### 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

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

## Contributed Talks

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

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

## Undergraduate and Summer Internship Supervision

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

## Teaching and Mentoring

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

- 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, pvista, xarray                      |
| Python libraries (creator/contributor) | aeolus, cartopy, pvista, geovista   |
| Parallel computing                     | Dask, MPI, OpenMP   |
| Version control                        | Git, Subversion   |
| Document preparation                   | L <sup>A</sup> T <sub>E</sub> X, 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

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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