A Employment and qualifications

Name: Mathew James Owens

Date of birth: 27/9/1977

Present appointments:

Professor of Space Physics	Aug 2017-present	Department of Meteorology, University of Reading (Full-time, indefinite, T/R)
Visiting Professor	2010-present	Department of Physics, Imperial College London (Honorary position)

Education and qualifications obtained:

Apr 2010 – Jul 2012:

Postgraduate Certificate in Academic Practice (Merit). Fellow of the HEA	2010-2012	University of Reading
Ph.D. in Space Physics	2000-2003	Department of Physics, Imperial College London
MSci. (Hons) in Physics with space science, 1st class	1996-2000	University College London

Previous appointments:

Associate Professor	2013-2017	Department of Meteorology, University of Reading
Lecturer	2010-2013	Department of Meteorology, University of Reading
Lecturer	2010	Institute of Maths and Physics, Aberystwyth University
Research Associate	2008-2009	Department of Physics, Imperial College London
Sessional Lecturer and Senior Research Associate	2007-2008	Department of Astronomy, Boston University
Research Associate	2004-2007	Center for Space Physics, Boston University

B Research and scholarship

1. Research outputs

230 published (or in-press) articles in international refereed journals, 8 additional articles under review.

As of 15 Jun 2024: 7784 citations. H-index of 50 and i10-index of 166.
Citations for individual papers: https://scholar.google.co.uk/citations?user=DnTx9d4AAAAJ&hl=en

Estimated contribution as percentage of total effort is given in parentheses:
Dominant >= 50%;
Major >= 20%;
Minor < 20%.

Published articles, all in international peer-reviewed journals

230. S.L. Yardley et al (inc. **M.J. Owens**), Multi-source connectivity drives solar wind variability in the heliosphere, *Nature Astro*., doi:10.1038/s41550-024-02278-9, 2024 (Minor)

229. Kepko et al. (inc. **M. Owens**), Heliophysics Great Observatories and international cooperation in Heliophysics: An orchestrated framework for scientific advancement and discovery, *Adv. Space Res*., 73, 10, 5383-5405, doi:10.1016/j.asr.2024.01.011, 2024 (Minor)

228. L.A. Canizares, S.T. Badman, S.A. Maloney, **M.J. Owens,** D.M. Weigt, E.P. Carley and P.T. Gallagher, Tracking solar radio bursts using multilateration with a novel Bayesian approach, *Astron. & Astrophys.*, A182, 12, doi: 10.1051/0004-6361/202347747, 2023 (Minor)

227. H. Hayakawa, K. Murata, **M.J. Owens** and M. Lockwood, Analyses for Graphical Records for a Total Solar Eclipse in 1230 May: A Possible Reference for the "Medieval Grand Maximum", *M.N. Roy. Astro. Soc.*, 530, 3, doi: 10.1093/mnras/stad3874, 2024 (Major)

226. S.G. Heinemann, **M.J. Owens**, et al., On the Origin of the sudden Heliospheric Open Magnetic Flux Enhancement during the 2014 Pole Reversal, *Astrophys. J.,* 965, 151, doi:10.3847/1538-4357/ad2b69, 2023 (Major)

225. M. Lockwood and **M.J. Owens**, Reconstruction of Carrington Rotation Means of Open Solar Flux over the Past 154 Years, *Solar Phys.,* 299, 28, doi:10.1007/s11207-024-02268, 2024 (Major)

224. K.A. Bunting, L. Barnard, **M.J. Owens** and H. Morgan, Constraints on Solar Wind Density and Velocity Based On Coronal Tomography and Parker Solar Probe Measurements, *Astrophys. J.,* 961, 64, doi: 10.3847/1538-4357/ad1506, 2024 (Minor)

223. **M.J. Owens**, M. Lockwood, L.A. Barnard, I. Usoskin, H.H. Hayakawa, B.J.S. Pope, K. McCracken, Reconstructing sunspot number by forward-modelling open solar flux, *Solar. Phys.,* 299, 3, doi:10.1007/s11207-023-02241-3, 2024 (Dominant)

222. N. Chakraborty, **M.J. Owens**, H. Turner and M. Lang, Causal Analysis of Influence of the Solar Cycle and Latitudinal Solar-Wind Structure on Corotation Forecasts, *Solar Phys*., 298, 142, doi:10.1007/s11207-023-02232-4, 2023 (Major)

221. **M.J. Owens**, M. Lockwood, L.A. Barnard, S. Yardley, H. Hietala, A. LaMoury and L. Vuorinen, Annual variations in the near-Earth solar wind, *Solar Phys*., 298, 111, doi: 10.1007/s11207-023-02193-8, 2023 (Dominant)

220. A.A. Pevtsov et al. (inc. **M.J. Owens**), Long-term solar variability: ISWAT S1 cluster review for COSPAR Space Weather Roadmap, *Adv. Space Res*., doi:10.1016/j.asr.2023.08.034, 2023 (Minor)

219. D. Nandy et al. (inc. **M.J. Owens**), Exploring the Solar Poles: The Last Great Frontier of the Sun, *Bulletin of the AAS*, doi:10.3847/25c2cfeb.1160b0ef, 2023 (Minor)

218. B. Yu, Y. Chi, **M.J. Owens**, et al., Tianwen-1 and MAVEN observations of the response of Mars to an interplanetary coronal mass ejection, *Astrophys. J.*, 953, 105, doi: 10.3847/1538-4357/acdcf8, 2023 (Minor)

217. M. Temmer et al. (inc **M.J. Owens**), CME Propagation Through the Heliosphere: Status and Future of Observations and Model Development, *Adv. Space Res.*, doi: 10.1016/j.asr.2023.07.003, 2023 (Minor)

216. S. Yardley et al. (inc **M.J. Owens**), Slow Solar Wind Connection Science during Solar Orbiter's First Close Perihelion Passage, *Astrophys. J. Supp.*, 267, 11, doi: 10.3847/1538-4365/acd24b, 2023 (Minor)

215. Y. Chi, C. Shen, J. Lu, Z. Zhong, **M. Owens**, C. Scott, L. Barnard, B. Yu, D. Heyner and H.-U. Auster, The Dynamic Evolution of Mulitpoint Interplanetary Coronal Mass Ejections Observed with BepiColumbo, Tianwen-1 and MAVEN, *Astrophys. J. Lett*., 951, L14, doi:10.3847/2041-8213/acd7e7, 2023 (Minor)

214. L.A. Barnard, **M.J. Owens**, C. Scott, M. Lang and M. Lockwood, SIR-HUXt – a particle filter data assimilation scheme for assimilating CME time-elongation profiles, *Space Weather*, 21, e2023SW003487, doi:10.1029/2023SW003487, 2023 (Major)

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212. L.A. James, C.J. Scott, L.A. Barnard, **M.J. Owens**, M.S. Lang and S. Jones, Sensitivity of Model Estimates of CME Propagation and Arrival Time to Inner Boundary Conditions, *Space Weather*, 21, e2022SW003289, doi:10.1029/2022SW003289, 2023 (Minor)

211. M. Lockwood, **M.J. Owens** and L. Barnard, Universal Time Variations in the Magnetosphere and the Effect of CME Arrival Time: Analysis of the February 2022 Event that Led to the Loss of Starlink Satellites, *J. Geophys. Res*., doi: 10.1029/2022JA03117, 2023 (Minor)

210. F. Clette et al. (inc M.J. Owens), Recalibration of the Sunspot Number: Status Report, *Solar Physics*, 298, 44, doi: 10.1007/s11207-023-02136-3, 2023 (Minor)

209. O. Price, G.H. Jones, K. Battams and **M.J. Owens**, Fine–Scale Structure in Cometary Dust Tails II: Further Evidence for a Solar Wind Influence on Cometary Dust Dynamics from the Analysis of Striae in Comet C/2011 L4 Pan-STARRS, *Icarus*, 115218, doi:10.1016/j.icarus.2022.115218, 2023 (Minor)

208. Q. Zhang, U. Sharma, J. Dennis, A. Scifo, M. Kuitems, M.W. Dee, **M.J. Owens** and B.J.S. Pope, Modelling cosmic radiation events in the tree-ring radiocarbon record, *Proc. A Roy. Soc*., 478, 20220497, doi.:10.1098/rspa.2022.0497, 2022 (Minor)

207. L. Barnard and **M. Owens**, HUXt - A computationally efficient reduced physics solar wind model, *Front. Astron. Space Sci.*, 10, doi: 10.3389/fphy.2022.1005621, 2022 (Major)

206. M.T. Walach, O. Agiwal, O. Allanson, **M.J. Owens**, I.J. Rae, J.K. Sandhu and A. Smith, UK Magnetosphere, Ionosphere & Solar-Terrestrial (MIST) Awards Taskforce: A Perspective, *Front. Astron. Space Sci.*, 9, doi:10.3389/fspas.2022.1011839, 2022 (Minor)

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Maximum. 2. Solar observations*. Front. Astron. Space Sci*., 9, doi:10.3389/fspas.2022.976444, 2022 (Minor)

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199. M.A. Reiss et al (inc **M.J. Owens**), Unifying the Validation of Large-Scale Solar Wind Models, *Adv. Space Res*., doi:10.1016/j.asr.2022.05.026, 2022 (Minor)

198. A.M. Frost, **M.J. Owens**, A. Macneil and M. Lockwood, Estimating the open solar flux from in situ measurements, *Sol. Phys*., 297:82, doi: 10.1007/s11207-022-02004-6, 2022 (Major)

197. F. Rahmanifard, A. P. Jordan, W. C. de Wet, N. A. Schwadron, J. K. Wilson, **M. J. Owens**, H. E. Spence, P. Riley, Evidence from Galactic Cosmic Rays That the Sun Has Entered A Secular Minimum in Solar Activity, *Space Weather*, 20, e2021SW002796, doi: 10.1029/2021SW002796, 2022 (Minor)

196. C. Haines, **M.J. Owens**, L. Barnard, M. Lockwood, C.D. Beggan and A.W.P. Thompson, Towards GIC forecasting: Increasing the time resolution of magnetic field forecasts using statistical downscaling, *Space Weather*, 20, e2021SW002903, doi:10.1029/2021SW002903, 2022 (Major)

195. L. Barnard, **M.J. Owens**, C.J. Scott, M. Lockwood, C.A. de Konig, T. Amerstorfer, J. Hinterreiter, C. Mostl, J. Davies, Quantifying the uncertainty in CME kinematics derived from geometric modelling, *Space Weather*, 19, e2021SW002841, doi: 10.1029/2021SW002841, 2021 (Major)

194. A.R. Macneil, **M.J. Owens**, A.J. Finley and S.P. Matt, A statistical evaluation of ballistic backmapping for the slow solar wind: The interplay of solar wind acceleration and corotation, *M.N. Roy. Astro. Soc.*, 509, 2, p2390-2403, doi: 10.1093/mnras/stab2965, 2021 (Major)

193. E.E. Davies, C. Mostl, **M.J.Owens**, A.J. Weiss, T. Amerstorfer, J. Hinterreiter, M. Bauer, R.L. Bailey, M.A. Reiss, R.J. Forsyth, T.S. Horbury, H. O'Brien, V. Evans, V. Angelini, D. Heyner, I. Richter, H.U. Auster, W. Magnes, W. Baumjohann, D. Fischer, D. Barnes, J.A. Davies and R.A. Harrison, In-Situ

Multi-Spacecraft and Remote Imaging Observations of the First CME Detected by Solar Orbiter and BepiColombo, *Astron. Astrophys*., 656, A2, doi:10.1051/0004-6361/202040113, 2021 (Minor)

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190. Y. Chi, C. Scott, C. Shen, L. Barnard, **M. Owens**, M. Xu, J. Zhang, S. Jones, Z. Zhong, B. Yu, M. Lang, Y. Wang and M. Lockwood, Modelling the observed distortion of multiple (ghost) CME fronts in STEREO Heliospheric imagers, *Astrophys. J. Lett*., 917, L16, doi: 10.3847/2041-8213/ac1203, 2021 (Minor)

189. J.A. Linker, S.G. Heinemann, M. Temmer, **M.J. Owens**, R.M. Caplan, C.N. Arge, E. Asvestari, V. Delouille, C. Downs, S.J. Hofmeister, I.C. Jebaraj, M.S. Madjarska, R.F. Pinto, J. Pomoell, E. Samara, C. Scolini and B. Vrsnak, Coronal hole detection and open magnetic flux, *Astrophys. J*., 918, 21, doi: 10.3847/1538-4357/ac090a, 2021 (Minor)

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187. H. Turner, **M.J. Owens**, M. Lang and S. Gonzi, The Influence of Latitudinal Solar-Wind Structure on the Accuracy of Corotation Forecasts, *Space Weather*, 19, e2021SW002802, doi:10.1029/2021SW002802, 2021 (Major)

186. G.A. Graham, M.R. Bakrania, I.J. Rae, C.J. Owens, A.P. Walsh and **M.J. Owens**, Constraining Suprathermal Electron Evolution in a Parker Spiral Field with Cassini Observations, *J. Geophys. Res*., 126, e2020JA028669, doi:10.1029/2020JA028669, 2021 (Minor)

185. C. Haines, **M.J. Owens**, L.A. Barnard, M. Lockwood, A. Ruffenach, K. Boykin and R. McGranaghan, Forecasting Occurrence and Intensity of Geomagnetic Activity with Pattern-Matching Approaches, *Space Weather*, 19, e2020SW002624, doi:10.1029/2020SW002624, 2021 (Major)

184. T. Bloch, C.E.J. Watt, **M.J. Owens**, R.L. Thompson and O. Agiwal, Constraining the location of the Outer Boundary of the Earth's Outer Radiation Belt, *Earth and Space Sci*., 8, e2020EA001610, doi:10.1029/2020EA001610, 2021 (Minor)

183. R. McGranaghan, J. Ziegler, T. Bloch, S. Hatch, E. Camporeale, K. Lynch, **M. Owens**, J. Gjerloev, B. Zhang and S.H. Skone, Next generation particle precipitation: Mesoscale prediction through machine learning (a case study and framework for progress), *Space Weather*, 19, e2020SW002684, doi: 10.1029/2020SW002684, 2021 (Minor)

182. R.L. Bailey, M.A. Reiss, C.N. Arge, C. Mostl, **M.J. Owens**, U.V. Amerstorfer, C.J. Henney, T. Amerstorfer, A.J. Weiss and J. Hinterreiter, Using gradient boosting regression to improve ambient solar wind model predictions, *Space Weather*, 19, e2020SW002673, doi:10.1029/2020SW002673, 2021 (Minor)

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180. **M.J. Owens**, O. Allanson and M. Maunder, Autumn MIST 2020: Zooming through the MIST, *Astron. & Geophys*., 62, 3, 24-27, doi: 10.1093/astrogeo/atab067, 2021 (Dominant)

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178. T. Bloch, C. Watt, **M. Owens**, L. McInnes and A.R. Macneil, Unsupervised Classification of Solar Wind Source Regions, in "*Machine Learning, Statistics and Data Mining for Heliophysics*", ed. M. Bobra and J. Mason, doi: 10.5281/zenodo.1412824, 2021 (Minor)

177. M. Lockwood, C. Haines, L.A. Barnard, **M.J. Owens**, C.J. Scott, A. Chambodut and K.A. McWilliams, Semi-annual, annual and Universal Time variations in the magnetosphere and in geomagnetic activity: 4. Polar Cap motions and origins of the Universal Time effect, *J. Space Weather Space Clim*., 11, 15, doi: 10.1051/swsc/2020077, 2021 (Minor)

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174. H. Hayakawa, M. Lockwood, **M.J. Owens** and M. Soma, Graphical Evidence for the Solar Coronal Structure during the Maunder Minimum: Comparative Study of the Total Eclipse Drawings in 1706 and 1715, *Space Weather & Space Climate*, in press, doi: 10.1051/swsc/2020035, 2020 (Minor)

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30. J.G. Luhmann, S.A. Ledvina, D. Odstrcil, **M.J. Owens**, X.-P. Zhao, Y. Liu and P.Riley, Cone model-based SEP event scheme for applications to multipoint observations, *J. Adv. Space*. Res, 46, 1-21, doi:10.1016/j.asr.2010.03.011, 2010 (Minor)

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25. M. Lockwood, **M.J Owens,** and A.P. Rouillard, Excess open solar magnetic flux from satellite data: I. Analysis of the 3rd perihelion Ulysses pass*, J. Geophys. Res*, 114, A11103, doi:10.1029/2009JA014449, 2009 (Major)

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23. M. Lockwood and **M.J. Owens**, The accuracy of using the Ulysses result of the spatial invariance of the radial heliospheric field to compute the open solar flux, *Astrophys. J.,* 701, 964-973, doi:10.1088/0004-637X/701/2/964,2009 (Major)

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21. **M.J. Owens**, Combining remote and in situ observations of coronal mass ejections to better constrain magnetic cloud reconstruction, *J. Geophys. Res*., 113, A12102, doi:10.1029/2008JA013589, 2008 (Dominant)

20. **M.J. Owens**, C.N.Arge, N.U. Crooker, N.A. Schwadron and T.S. Horbury, Estimating total heliospheric magnetic flux from single-point in situ measurements*, J. Geophys. Res*., 113, A12103, doi:10.1029/2008JA013677, 2008 (Dominant)

19. **M.J. Owens**, N.U. Crooker, N.A. Schwadron, T.S. Horbury, S. Yashiro, H. Xie, O.C. St Cyr and N, Gopalswamy, Conservation of open solar magnetic flux and the floor in the heliospheric magnetic field, *Geophys. Res. Lett*., L20108, doi:10.1029/2008GL035813, 2008 (Dominant)

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17. A.W. Case, H.E. Spence, **M.J. Owens**, et al., The ambient solar wind's effect on ICME transit times, *Geophys. Res. Lett*., 35, L15105, doi:10.1029/2008GL034493, 2008 (Major)

16. **M.J. Owens** et al., Metrics for solar wind prediction models: Comparison of empirical, hybrid and physics-based schemes with 8-years of L1 observations, *Space Weather Journal*, 6, S08001, doi:10.1029/2007SW000380, 2008 (Dominant)

15. S. McGregor, W.J. Hughes, C. Arge and **M.J. Owens**, Analysis of the Magnetic Field Discontinuity at the PFSS and Schatten Current Sheet Interface in the WSA Model, *J. Geophys. Res*., 113, A08112, doi:10.1029/2007JA012330, 2008 (Minor)

14. N. Schwadron, **M.J. Owens**, and N. Crooker, The Heliospheric Magnetic Field Over the Hale Cycle, *Astrophysics and Space Sciences Transactions*, 4 (1), 19-26, 2008 (Major)

13. V. Merkin, **M.J. Owens**, et al., Predicting magnetospheric dynamics with a coupled Sun-to-Earth model: challenges and first results, *Space Weather Journal*, 5, S12001, doi:10.1029/2007SW000335, 2007 (Major)

12. **M.J. Owens** and N.U. Crooker, Reconciling the electron counterstreaming and dropout occurrence rates with the heliospheric flux budget*, J. Geophys. Res*., 112, A06106, doi:10.1029/2006JA012159, 2007 (Dominant)

11. **M.J. Owens**, et al., Role of coronal mass ejections in the heliospheric Hale cycle, *Geophys. Res. Lett.,* 34, L06104, doi:10.1029/2006GL028795, 2007 (Dominant)

10. **M.J. Owens**, Magnetic cloud distortion resulting from propagation through a structured solar wind: Models and observations, *J. Geophys. Res*., 111, A12109, doi:10.1029/2006JA011903, 2006 (Dominant)

9. **M.J. Owens** and N.U. Crooker, Coronal mass ejections and magnetic flux buildup in the heliosphere, *J. Geophys. Res.*, 111, A10104, doi:10.1029/2006JA011641, 2006 (Dominant)

8. **M.J. Owens**, V.G. Merkin and P. Riley, A kinetically-distorted flux-rope model for magnetic clouds, *J. Geophys. Res*., 111, A03104, doi:10.1029/2005JA011460, 2006 (Dominant)

7. **M.J. Owens**, C.N. Arge, H.E. Spence and A. Pembroke, An event-based approach to validating solar wind speed predictions: High speed enhancements in the Wang-Sheeley-Arge model, *J. Geophys. Res.*, 110, A12105, doi:10.1029/2005JA011343, 2005 (Dominant)

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5. C. Pagel, N.U. Crooker, D.E. Larson, S.W. Kahler and **M.J. Owens**, Understanding electron heat flux signatures in the solar wind*, J. Geophys. Res*., 110, A01103, doi:10.1029/2004JA010767, 2005 (Minor)

4. **M.J. Owens** and P. Cargill, Non-radial solar wind flows induced by the motion of interplanetary coronal mass ejections, *Ann. Geophys*., 22, 4397-4395, 2004 (Dominant)

3. P.G. Hanlon, M.K. Dougherty, R.J. Forsyth, **M.J. Owens**, et al., On the evolution of the solar wind between 1 and 5AU at the time of the Cassini-Jupiter flyby, *J. Geophys. Res*., 109, A09S03, doi:10.1029/2003JA010112, 2004 (Minor)

2. **M.J. Owens** and P. Cargill, Predictions of the arrival time of Coronal Mass Ejections at 1 AU: an analysis of the causes of errors, *Ann. Geophys*., 22 (2), 661-671, 2004 (Dominant)

1. **M.J. Owens** and P.J. Cargill, Correlation of magnetic field intensities and solar wind speeds of events observed by ACE, J. Geophys. Res., 107 (A5), 1050, doi:10.1029/2001JA000238, 2002 (Dominant)

2. Postgraduate research student supervision

All students completed (or on track to complete within) 4 years FTE.

Student	Supervision	Funding	Status
Dr Sarah McGregor	Co-supervisor*	US National Science Foundation	Completed within NSF limits
Dr Tony Case	Co-supervisor*	US National Science Foundation	Completed within NSF limits
Dr Simon Thomas	Lead supervisor	NERC quota	Completed (in 3 years, 2 months)
Dr Kim Tucker-Hood	Co-supervisor	NERC Case award (Met Office)	Completed (in 3 years 8 months)
Dr Sarah Bentley	Co-supervisor	NERC SCENARIO DTP	Completed (in 3 years 3 months)
Dr Shannon Jones	Co-supervisor	University of Reading	Completed (in 3 years, 9 months)
Dr Téo Bloch	Lead supervisor	STFC funded	Completed (in 3 years, 7 months)
Dr Carl Haines	Lead supervisor	NERC SCENARIO DTP	Completed (in just

		with Case award (EDF Energy)	under 3 years)
Austin Jones	Co-supervisor	NERC SCENARIO DTP	Suspended studies for health reasons
Dr Anna Frost	Lead supervisor	STFC funded	Completed (in 3 years, 11 months)
Dr Lauren James	Co-supervisor	STFC funded	Completed (in 3 years, 7 months)
Dr Harriet Turner	Lead supervisor	NERC SCENARIO DTP with Case award (Met Office)	Completed (in 3 years, 3 months)
Sarah Watson	Co-supervisor	STFC funded	Currently in 2nd year
Nathaniel Edward-Inatimi	Lead supervisor	NERC SCENARIO DTP with Case award (Met Office)	Currently in 1st year

*During my time as a Senior Research Associate at Boston University (BU), I undertook the supervision of these students. While BU does not have an official "co-supervisor" role, I was part of the supervisor-student weekly meetings, steered the direction of the students' research and was a co-author on all publications resulting from the students' thesis work (#15, #16, #17 and #40).

3. Research grants and contracts

Research contracts/grants won. All from external sources

Funding line	Role	Collaborators	Value	Value to Reading	Outcome
NERC Case studentship	PI	UK Met Office	£90k	£90k	Funded (10/10/2023)
NERC Pushing the Frontiers **NE/Y001052/1**	PI	UK Met Office	£395k	£395k 20% FTE	Funded (1/4/2024 – 31/3/2027)
UKRI SWIMMR S4 grant **ST/V00235X/1**	UoR PI	PI Morgan (Aberystwyth)	£450k	£140k 15% FTE	Funded (1/10/2020 – 1/4/2023)
RAS summer student bursary	PI		£1.4k	£1.4k	Funded (1/6/2020 – 1/8/2020)
STFC consolidated grant **ST/V000497/1**	PI	Chris Scott, Mike Lockwood	£812k	£812k 17% FTE (+25% CoI)	Funded (1/4/2021 – 31/3/2024)
STFC consolidated grant **ST/R000921/1**	PI (as of 2020)	Giles Harrison, Clare Watt	£1M	£1M 15% FTE (+30% CoI)	Funded (1/4/2018-31/3/2021), became PI in 2020
STFC Doctoral Training Programme (DTP)	PI	Giles Harrison, Clare Watt, Chris Scott, David Ferreira	£546k	£546k	Funded (ongoing) – approx. £78k per student. 1 student in 2018, 2 in 2019, 1 in 2020, 1 in 2021, 1 in 2022, 1 in 2024
NERC Case studentship	PI	UK Met Office	£90k	£90k	Funded (10/10/2020)
NERC Case studentship	PI	EDF Energy	£90k	£90k	Funded (10/10/2019)
ESA targeted call **UKRI/RS02344/TP**	UoR PI	PI C. Perry (RAL)	€450k	€44k 15% FTE	Funded (1/10/20 – 1/4/22)
NERC standard grant **NE/S010033/1**	PI	Co-I A. Lawless (Reading)	£357k	£357k 15% FTE (+10% CoI)	Funded (1/4/2019 – 31/3/2022)
NERC Highlight Topic **NE/P016928/1**	UoR PI	PI A. Thomson (BGS) With institutional leads at RAL, Imperial, BAS, Lancaster, Southampton, Leeds, MSSL and Edinburgh	£3.0M	£307k 5% FTE (+5% CoI)	Funded (1/4/2018 – 31/3/2021)
STFC consolidated grant **ST/M000885/1**	PI	Co-I M. Lockwood (Reading)	£300k (£600k total)	£600k 10% FTE (+30% CoI)	Funded (1/4/2015 – 31/3/2018)
Leverhulme (Philip Leverhulme prize)	PI	-	£70k	£70k	Funded (1/11/2014 – 1/5/2015)
NERC standard	Joint PI	Joint PI C. Scott	£270k	£270k	Funded (1/10/2012

grant **NE/J024678/1**		(Reading)		10% FTE (+10% CoI)	– 1/10/2015)
NERC Case studentship	Co-I	PI C. Scott	£90k	£90k	Funded (6/6/2012)

Research grants and contracts submitted. All from external sources

Funding line	Role	Collaborators	Value	Value to Reading	Outcome
ERC Synergy	Reading PI	PI R. Muscheler (Lund), Co-I K. Herbst (Kiel), Co-I S. Dalla (UCLan)	€10M	€1.8M	Under review
STFC standard grant	PI	Researcher Co-I Luke Barnard	£500k	£500k	Under review
Leverhulme Research Centre	Co-I	PI Clare Watt (Northumbria)	£10M	£1M	Not funded, but encouraged to resubmit
NERC standard grant	Co-I	PI Chris Scott	£350k	£350k	Not funded (Rated 8/10)
STFC Consolidated grant	Co-I	PI Amos Lawless (Reading)	£350k (£2.1M total)	£330k	Not funded
Leverhulme Research Project	Co-I	PI C. Chen (Queen Mary)	£300k	£60k	Not funded
ESA targeted call	Co-I	PI S. Poedts (KU Leuven)	€1.2M	€50k	Not funded
NERC standard grant	Co-I	PI M. Freeman (BAS) Co-I J. Turner (Leeds)	£444k	£43k	Not funded (Rated 7/9)
NERC standard grant	Co-I	PI Chris Ramsey (Oxford)	£450k	£30k	Not funded
STFC consolidated grant	Co-I	PI Peter Jan van Leeuwen (Reading)	£350k (£3.5M total)	£350k	Not funded
ERC Consolidator Grant	PI	Co-Is G. Harrison, PJ van Leeuwen, A. Lawless, C. Scott (Reading), J. Wilkinson, E. Henley, F. Bocquet (Met Office)	€2.0M	€2.0M	Not funded (Rated Outstanding/Excellent. On 50% percentile of final round proposals, funding to 47% percentile)
NERC large grant	Co-I	PI Mai Mai Lam, PI G. Harrison, Co-Is C. Scott, K. Nicoll (Reading), K. Aplin (Oxford), M. Fullekrug (Bath), W. Feng, J.	£2.9M	£1.5M	Not funded. (Rated 5/6)

		Plane (Leeds), M. Freeman (BAS)			
ERC Consolidator Grant	PI	Co-Is G. Harrison, PJ van Leeuwen, C. Scott (Reading), J. Wilkinson, F. Bocquet (Met Office)	€1.8M	€1.8M	Not funded (Rated Outstanding/Excellent)
RAS200 outreach funding	Co-I	PI R. Harrison Co-I C. Scott (Reading	£50k	£50k	Not funded (No rating given)
NERC standard grant	PI	Co-Is PJ van Leeuwen, A. Lawless, C. Scott (Reading)	£317k	£317k	Not funded (Rated 7/10)
NERC standard grant	PI	Co-I T. Horbury (Imperial)	£274k	£262k	Not funded (Rated 7/10)
NERC standard grant	PI	-	£256k	£256k	Not funded (Rated 6/10)
NERC New Investigator	PI	-	£80k	£80k	Not funded (Rated 4/6)

Non-UK research funding, or with no direct income to Reading.

As an international collaborator on the following grants, I've received funding generally to attend workshops and team meetings (value < £5k)

Funding line	PI(s)
Theo Murphy Royal Society Meeting	M. Dee (Groningen, Germany)
International Space Science Institute (ISSI) team	G. Barnes (NWRA, USA)
International Space Science Institute (ISSI) workshop	T. Dudok de Wit (CNRS, France)
International Space Science Institute (ISSI) team	M. Temmer (University of Graz)
International Space Science Institute (ISSI) team	Me. Funding to host a team of 15 international sciences for 2 week-long meetings (c. £80k total)
International Space Science Institute (ISSI) team	E. Camporeale and M. McGranaghan (Boulder)
Lorentz Center workshop	E. Doornbos, J. Guerra, S. Murray.
European Space Astronomy Centre working group	Anik De Groof (ESAC Madrid)
International Space Science Institute (ISSI) team	Leif Svalgaard (Stanford), J. Beer (ETH Zurich)
NASA Targeted Research and Technology (TR&T)	Thomas Zurbuchen, University of Michigan
NASA Targeted Research and Technology (TR&T)	Pete Riley, Predicitive Science Inc, San Diego

Post-doctoral researcher supervision.

2024 - Dr Harriet Turner, NERC funded (NE/Y001052/1)
2021 - 23 Dr Stephanie Yardley, STFC funded (ST/V000497/1)

2021 - 22 Dr Martin Airey, Departmental funding
2019 - 22 Dr Bingkun Yu, STFC funded (ST/R000921/1)
2019 - 22 Dr Nachi Chakraborty, STFC funded (ST/R000921/1)
2019 - 23 Dr Matthew Lang, NERC funded (NE/S010033/1)
2018 - 21 Dr Allan Macneil, STFC funded (ST/R000921/1)
2017 - 18 Dr Maria Valdivieso, STFC funded (ST/M000885/1)
2017 - 18 Joel Keeble, STFC funded (ST/M000885/1)
2013 - 14 Dr Mai Mai Lam (Philip Leverhulme Prize funded)
2012 - Dr Luke Barnard, STFC funded (ST/R000921/1. Previously NERC NE/P016928/1, STFC, ST/M000885/1, and NERC, NE/J024678/1)

4. Evidence of research or scholarship esteem

2013 Philip Leverhulme Prize for Astronomy and Astrophysics
"*The prize recognises the achievements of researchers at an early stage of their career, whose work has already made an international impression, and whose future research holds exceptional promise. Prize winners receive £70,000 which they can use to assist them in further advancing their research.*"

2012 Fowler Prize (Royal Astronomical Society) - In recognition of "*outstanding contribution to geophysics from an early-career researcher.*" The first part of the citation reads: *"Dr Owens is an outstanding and prolific young scientist … whose work has already had a major impact. ... He is notable in terms of the breadth and depth of his research activity, making use of analytical and numerical models as well as observations, and tackling a wide range of important problems. He has produced an extensive body of highly-cited publications in prestigious journals; the international standing of Dr Owens' work is further evidenced by a number of significant review talks, as well as a strong network of collaborations with leading workers in the field."*

I was submitted to **REF2014** with 4 research outputs (despite qualifying as a new member of staff, which allowed submission of only 2 outputs). For **REF2021**, I have around 5 possible 4-star outputs at present, and my work with the Met Office Space Weather Operations Centre (MOSWOC) will form part of an Impact Case Study.

I participated in the mock REF exercise for the physics submission of Imperial College London.

International and national collaborations
- *Visiting Professor, Imperial College London* – aids close collaboration with research scientists and hardware development teams in the Space and Atmospheric Physics group, particularly as part of my Co-Investigator status on the upcoming European Space Agency *Solar Orbiter* mission.
- *Met Office, UK* - I collaborate closely with the Met Office Space Weather Operations Centre (MOSWOC), headed by Prof. David Jackson. We have previously co-supervised two PhD students (Kim Tucker-Hood and Harriet Turner) and are currently supervising a third (Nathaniel Edward-Inatimi), all through Met Office CASE awards. MOSWOC are unfunded collaborators on three successful NERC standard grants that I have led. MOSWOC's operational forecast uses a number of techniques I have developed. My solar wind model, HUXt, is currently in pre-operational forecast use as part of the STFC/SWIMMR programme.

- *Predictive Science Incorporated, San Diego, USA* – I am an International Collaborator on the NASA Living With A Star multi-institution project "Robust Prediction of the Interplanetary Magnetic Field using Statistical and Physics-Based Model Approaches," lead by Pete Riley of Pred Sci Inc. I visited Pred Sci Inc. as part of my 2017 sabbatical and maintain strong research links. Pete and I have collaborated on around 30 peer-reviewed articles.
- *EDF Energy Research & Development* - I have collaborate with EDF Energy to quantify the risk to power infrastructure from space weather events. To date, this has taken the form of a short research contract and a CASE PhD studentship, with Alexis Ruffenach of EDF Energy as a co-supervisor. My PhD student, Carl Haines, undertook a 6-month secondment with EDF Energy.
- *International Space Science Institute, Bern, Switzerland* - International team Leader for "Recalibration of the sunspot number" (2018-2019). International team member for "Novel approaches to multiscale geospace particle transfer: Improved understanding and prediction through uncertainty quantification and machine learning" organized by E. Camporeale and M. McGranaghan (2019-2020). International team member for "Long-term reconstructions of solar and solar wind parameters" organized by L. Svalgaard, M.Lockwood and J.Beer (2011-2012). International team member for "Open solar magnetic flux" organized by M. Temmer (2021-2022). International team member for "Surface flux transport" organized by G. Barnes (2024-2025). Member of the workshop on "Switchbacks" organized by T. Dudok de Wit (2023-2024).
- *University of Oulu, Finland* – I have a large number of internal collaborators, but have forged a particularly productive research relation with Prof. Ilya Usoskin, working together on around 20 peer-reviewed articles. I hosted Ilya's PhD student for a research visit of around 2 months in 2019.

Invited talks and seminars - In the last 5 years, I have received around 60 invitations to speak at national and international conferences, as well as seminars at UK and international universities. To balance focussed workshops and reaching a broad audience, I accepted the following invites:

- Invited seminar, University of St Andrews, UK, April 2024
- Invited talk, International Space Science Institute, Bern, Switzerland, Feb 2024
- Invited talk, International Space Science Institute, Bern, Switzerland, Sept 2023
- Contributed talk, The 2023 SWIMMR Symposium, Cardiff, UK, Sept 2023
- Invited talk, IUGG General Assembly, Berlin, Germany, June 2023
- Contributed talk, Spring MIST conference, Birmingham, UK, April 2023
- Invited seminar, Dublin Institute for Advanced Studies, Ireland, March 2023
- Invited seminar, University of Birmingham, UK, March 2023
- Invited seminar, University of Warwick, UK, March 2023
- Contributed talk, European Space Weather Week, Zagreb, Croatia, Oct 2022
- Contributed talk, European Space Weather Week, Zagreb, Croatia, Oct 2022
- Guest lecture, Natural Hazards for Insurers MSc, University College London, Oct 2022
- Invited talk, The 2022 SWIMMR Symposium, UK Met Office, Exeter, Sept 2022
- Invited talk, International Astronomical Union General Assembly, Busan, South Korea, Aug 2022
- Invited talk, National Astronomy Meeting, University of Warwick, UK, July 2022
- Invited talk, ESA Space Weather Network Workshop, ESOC, Darmstadt (online), May 2022
- Invited talk, NERC SWIGS annual meeting, online (British Geological Society, UK), Nov 2021
- Invited seminar, NASA Goddard "Magnetosphere" seminar series, Oct 2021
- Invited talk, NERC/STFC/BEIS SWIMMR symposium, online (hosted by BEIS), Sept 2021

- Invited lecture, STFC Introductory Space Summer School, online (Durham Uni, UK), Aug 2021
- Invited seminar, Observatorium Davos, Switzerland, (online) Jun 2021
- Invited talk, NERC/SWIGS spring meeting, online (British Geological Society, UK), May 2021
- Invited lecture, STFC Summer School, online (hosted by Birmingham, UK), Aug 2020
- Invited talk, EGU General Assembly, online (hosted by Vienna, Austria), May 2020
- Contributed talk, EGU General Assembly, online (hosted by Vienna, Austria), May 2020
- Public lecture, Kennedy Space Center, Florida, US, Feb 2020
- Invited talk, MIST autumn meeting, UK, Jan 2020
- Invited seminar, University of Central Lancashire, UK, Nov 2019
- Invited talk, Machine Learning Symposium, Eindhoven Technical University, Netherlands, Nov 2019
- Contributed talk, Solar Orbiter MAG team meeting, Imperial College London, UK, Nov 2019
- Invited review talk, Ensembles in Space Weather, Lorentz Center, Leiden, Netherlands, Sept 2019
- Invited seminar, University of Leicester, UK, Aug 2019
- Contributed talk, Solar Orbiter workshop, University College London, UK, June 2019
- Invited talk, Reading-Exeter Ensemble Verification workshop, ECMWF, April 2019
- Contributed talk, Royal Astronomical Society discussion meeting, London, March 2019
- Invited seminar, Mullard Space Science Laboratory, UK, Feb 2019
- Invited workshop talk, International Space Science Institute, Bern, Switzerland, Feb 2019
- Invited talk, Fall AGU meeting, Washington DC, USA, Dec 2018
- Invited review talk, Fall AGU meeting, Washington DC, USA, Dec 2018
- Invited seminar, Queen Mary University, UK, Dec 2018
- Invited lecture, STFC summer school, University of Southampton, UK, September 2018
- Contributed talk, European Meteorological Society, Budapest, Hungary, September 2018
- Invited seminar, University of Exeter, UK, June 2018
- Invited seminar, University of Sheffield, UK, May 2018
- Invited webcast talk, University of New Hampshire, April 2018
- Invited review talk, International Astronomical Union 340, Jaipur, India, Feb 2018
- Invited review talk, Royal Meteorological Society, Reading, UK, Dec 2017
- Contributed talk, International Astronomical Union Symposium 335, Exeter, UK, July 2017
- Invited review talk, National Astronomy Meeting, Hull, UK, July 2017
- Invited seminar, Boston University, USA, April 2017
- Invited seminar, Predictive Science Incorporated, San Diego, USA, April 2017
- Invited plenary talk, 7th Solar Orbiter Workshop, Grenada, Spain, April 2017
- Invited review talk, RMetSoc meeting, Met Office, Exeter, UK Mar 2017
- Contributed talk, CTR Wilson group meeting, University of Bath, UK, Nov 2016
- Invited seminar, University of Warwick, UK, Oct 2016
- Invited review talk, Solar Orbiter, Royal Astronomical Society, London, UK, Oct 2016
- Invited talk, Space Climate 6, Levi, Finland, April 2016
- Invited talk, AGU Fall meeting, San Francisco, USA, Dec 2015
- Invited talk, CTR Wilson group meeting, University of Bath, UK, Nov 2015
- Invited review talk, National Astronomy Meeting, Llandudno, UK, July 2015

5. Evidence of research/scholarship leadership within the School/Dept

Acting Research Division Leader for Earth Observation and Space (Sept 2018 – Jan 2019). Through the ROSS assessment of outputs within the EOS division and working with the REF Environment lead,

I input to the REF process. I fed into the SMPCS 5-year plan, particularly with regards to the financial viability of research income. As part of this role, I also represented the University in the Space Academic Network with the aim of Reading being included in future cross-institute doctoral training programmes.

The **Space and Atmospheric Electric (SPATE) research group** within the Department of Meteorology has no formal group leader. However, I played a key role in establishing our STFC consolidated grant, which has subsequently brought around £3M into the University to date, as well as a steady stream of new PhD studentships. Recently, I expanded the number of proposed projects for the latest round, by bringing in data assimilation and oceanography expertise from outside the group.

Since 2017, I have been part of the **SMPCS promotions panel** and serve as a mentor to a number of staff members thinking about the promotions process. I have also mentored a number of **UKRI FLF**, **ESA, NERC, STFC and RAS fellowship applicants**, including internal review and conducting mock interviews. This has resulting in Luke Barnard securing a prestigious 7-year FLF fellowship and James O'Donoghue securing a 5-year Ernest Rutherford STFC fellowship, both hosted by University of Reading.

6. Research or scholarship activities within the wider University

I am a regular member of the University's **NERC standard grant review panel**, which has significantly increased the proposal success rate and hence increased the cap on the number of proposals the University can submit. I conduct mock interviews and provide mentoring for shortlisted fellowship candidates and ERC grants.

7. Research activities at a national/international level

Space mission involvement – My work forms part of the official science objectives for Solar Orbiter, a $1.1 billion joint ESA/NASA mission due to launch in 2020. In recognition, I have been granted Co-Investigator status on the magnetometer instrument, built at Imperial College London (PI Prof. Tim Horbury). I am part of the Science Organising Committee for the Solar Orbiter workshop series.

Editorial positions and journal duties

2011 - 2014, Associate Editor for the American Geophysical Union's Journal of Geophysical Research (Space), the most widely read journal in solar terrestrial physics.

2016 - present: Associate Editor for Solar Physics, specialising in heliospheric science.

I continue to act as a **regular reviewer** for Nature Astronomy, Nature Communications, Space Weather, Journal of Geophysical Research, Solar Physics, Geophysical Research Letters, Environmental Research Letters, Astrophysical Journal, Astrophysical Journal Letters, Astronomy & Astrophysics, Annales Geophysicae, Journal of Atmospheric and Solar-Terrestrial Physics, New Astronomy, Advances in Space Research, Surveys in Geophysics, Planetary and Space Science, etc.

Mission and grant selection panels – I have served on the selection panel for NASA's Small (<$200 million) and Medium (<$300 million) class Explorer spacecraft in 2012 and 2019. In 2013 I chaired a 3-day NASA "Heliophysics" review panel. I have also served as a panellist and mail-in reviewer for the NSF "Living With A Star" and NASA "Heliophysics" programs. I regularly review consolidated and standard grant proposals for STFC and standard grant proposals for NERC, as well as Leverhulme

Trust, Royal Astronomical Society, NERC, STFC, Belgian, Austrian, Swiss, Czech and Australian national fellowship applications.

Session organiser and chair at international conferences – Including: American Geophysical Union meetings in San Francisco and Florida, European Geophysical meeting in Vienna, National Astronomy meetings in Manchester and Glasgow, Royal Astronomical Society meetings in London.

PhD examiner for University of Reading (three vivas), Aberystwyth University, University College London (three vivas), Imperial College London, University of Helsinki, University of Lund and University of Technology, Eindhoven.

For 2020-2023, I was an **elected councillor of MIST** (Magnetosphere Ionosphere Solar Terrestrial), a Specialist Scientific Group affiliated to the Royal Astronomical Society.

I am additionally a **member of the MIST awards taskforce**, aimed at ensuring underrepresented demographics are receive national and international prize nominations.

Fellow of the Royal Astronomical Society
Fellow of the Higher Education Academy
Member of the Institute of Physics

C Teaching

1. Teaching quality and leadership

Institute of Physics degree accreditation review panel. For the past 4 years I have been part of the IoP panel which sets the criteria for physics degree programmes across the UK. In Dec 2019, we published the first significant revision of the degree criteria for 20 years, taking a more outcomes-based approach than the previous syllabus-orientated criteria.

Program coordinator for the Environmental Physics BSc. (2012-2023) I was heavily involved in the program and module design, developing the degree specification and writing a number of associated new module definitions. I currently oversee the degree and its continual development. In light of recruitment difficulties, I have recently helped make changes to increase the number of students on individual modules (e.g., by enabling the larger MSc cohort access to specialist modules) and thus both improve the student experience and increase the viability of the programme.

Chair of the School Undergraduate Board of Studies. (2011-2015) During my time as the Chair of the BoS, I put together terms of reference and have extended the areas of scrutiny to include student feedback.

PI for STFC doctoral training centre (2020 - present). We receive one or two funded studentships per year as a result of our STFC funding (primarily the consolidated grant).

I was part of the pilot stage of the **Programme Director Community of Practice** and continue to be actively involved in the process.

I am currently an **academic mentor** to a number of members of staff across a range of levels, from PDRA to Associate Professor.

At national and international levels, recognition of my teaching excellence is shown through invitations to teach on STFC's Introductory and Advanced space physics summer schools, as well as Boston University's Space Weather Modeling workshop. I have recently provided chapters for a space physics textbook (Oxford University Press) and have a number of additional requests from major publishers to write a stand-alone space-weather textbook, which I'm currently considering.

In my first term at the University of Reading, I created the 20-credit module, **PH101 – Physics of the Natural World**. The module has been a huge success, with student feedback scoring well over 3.5 out of 4 in all areas (course and lecturer interest, enthusiasm, pace, structure, etc.) in every year. PH101 was singled out in the Staff-Student Liaison Committee as "fantastic." Based on recent feedback from the Student-Staff Liaison Committee about the lack of presentation skills training in Parts 1 and 2 of the Meterology and Environmental Physics degrees, I have implemented a piece of formative assessment within PH101 based upon short student presentations at the start of each lecture.

My most-recent MSc project student described my supervision as "inspirational" and has subsequently expressed an interest in pursuing a PhD in space weather, despite no prior interest in a research career.

During my time at Boston University, my lecture course (AS101 - Introduction to Astronomy) was consistently rated by student feedback as the best in the department.

2. Teaching load

Name of module	Dates	Location	UG/PG	Hours in classroom	Number of students
MT12C: Skills for Environmental Science (Part 1)	Jan 23-Mar24	Reading	UG	12	16
MT3SW: Space Weather (Parts 3, 4 and PhD)	Jan 23 – Mar 24	Reading	UG/PGR	10	8
PH101: Physics of the Natural World (Part 1)	Sept 23 – Dec 24	Reading	UG	30	16
PH101: Physics of the Natural World (Part 1)	Sept 22 – Dec 22	Reading	UG	30	16
PH101: Physics of the Natural World (Part 1)	Sept 21 – Dec 21	Reading	UG	30	24
Sun and Climate (STFC introductory summer school)	August 21	Durham (online)	PGR	2	60
PH101: Physics of the Natural World (Part 1)	Sept 20 – Dec 20	Reading	UG	30	12
The solar wind (STFC introductory summer school)	Sept 20	Birmingham (online)	PGR	2	60
PH101: Physics of the Natural World (Part 1)	Sept 19 – Dec 18	Reading	UG	30	10
The solar wind (STFC introductory summer school)	Sept 18	Southampton	PGR	2	40
PH101: Physics of the Natural World (Part 1)	Sept 18 – Dec 18	Reading	UG	30	10
PH101: Physics of the Natural World (Part 1)	Sept 17 – Dec 16	Reading	UG	30	20

PH101: Physics of the Natural World (Part 1)	Sept 15 – Dec 15	Reading	UG	30	20
The heliosphere (STFC introductory summer school)	Sept 14	Imperial	PGT	2	40
PH101: Physics of the Natural World (Part 1)	Sept 14 – Dec 14	Reading	UG	30	20
The solar wind (STFC advanced summer school)	Sept 13	MSSL	PGR	2	40
PH101: Physics of the Natural World (Part 1)	Sep 13 – Dec 13	Reading	UG	30	20
MSc academic tutorials	Oct 12 – Apr 13	Reading	PGT	20	4
Solar variability and climate (STFC introductory summer school)	Sept 12	Armagh Obs.	PGR	2	40
PH101: Physics of the Natural World (Part 1)	Sept 12 – Apr 13	Reading	UG	60	20
Sun's influence on the solar system (Space challenges summer school)	Apr 12	Bulgaria	PGT	2	100
MSc academic tutorials	Oct 11 – Apr 12	Reading	PGT	20	3
MTMG34: Experiencing the weather (MSc)	Oct 11	Reading	PGT	16	40
PH101: Physics of the Natural World (Part 1)	Sept 11 – Apr 12	Reading	UG	60	20
MSc academic tutorials	Oct 10 – Apr 11	Reading	PGT	20	4
MTMG34: Experiencing the weather (MSc)	Oct 10	Reading	PGT	16	40
The solar wind (STFC advanced summer school)	Sept 10	UCLan	PGR	2	40
PH101: Physics of the Natural World (Part 1)	Sept 10 – Apr 11	Reading	UG	60	20
PH1760: Marking light work (Part 1)	Jan 10 – Apr 10	Aberystwyth	UG	30	80
PH3270 Probing Atoms and molecules (Parts 3 and 4)	Jan 10 – Apr 10	Aberystwyth	UG	30	15
AS101 Intro to Astronomy (Part 1 non-science majors)	Sept 07 – Apr 08	Boston, US	UG	60	100

Dissertation project supervision

Student name	Year	Level	Project title	Outcomes
Asher Pembroke	2005	UG (Boston Uni)	Validation of the Wang-Sheeley-Arge solar wind model	Student achieved distinction and was a co-author on paper #7
Martin Walker	2010-2011	UG	How Does the Sun Shield the Earth's Atmosphere from Cosmic Rays?	Student achieved Merit.
Simon Thomas	2011	MSc	Modulation of Galactic Cosmic Rays	Student achieved Distinction and took up a PhD position at UoR
Nira Sumeria	2011-	UG	The effect of space climate	Student achieved Merit.

	2012		change on space weather	
Rosemary Challen	2012	MSc	The 27-day Persistence Forecast for Space Weather	Student achieved Distinction, was awarded the Department dissertation prize and was a co-author on paper #61
Alice Wardle	2013	MSc	Improving a Persistence Forecast of the Near-Earth Solar Wind	Student achieved Distinction and was acknowledged in paper #103
Peter McAward	2014-2015	UG	Fraction Skill Score as a Verification Method for Solar Wind Models	Student achieved Distinction and took up a PhD position at U. Oklahoma.
Shannon Jones*	2016	MSc	Tracking solar flares and coronal mass ejections through the inner heliosphere using data from the Solar Stormwatch project	Student achieved Distinction, was awarded the Department dissertation prize. She is currently employed on my STFC grant to write up her project as a scientific publication
Kate Mansbridge*	2016-2017	UG	Quantifying radiation hazards for aviation	Student achieved Distinction
Dimitrios Tsakyrakis*	2017	MSc	Developing better understanding of higher-impact space weather through extreme value statistics	Student achieved pass
Joel Keeble	2017-2018	UG	Thunderstorm Occurrence	Student achieved merit and conducted a short research contract at Reading with EDF energy, which I supervised.
Austin Jones	2018	MSc	Lightning disturbance of the ionosphere	Student achieved distinction and is currently undertaking a PhD with Chris Scott and me.
Henry French	2020	MSc	Using Solar Rotation for Space Weather Forecasting	Student achieved distinction. Met Office supervision involved.
Dibyo Roy	2020-2021	UG	How good is 'good enough' for space weather forecasts	Student achieved pass
Dechen Gyeltschen	2021-2022	UG	Influence of Ambient Solar Wind on Coronal Mass Ejection Transit Time	Student received highest dissertation mark in cohort
Danny Mengel*	2022-	UG	The progress of solar cycle 25	On going

*My PDRA, Luke Barnard, was encouraged to take the lead supervisory role, so as to gain experience in research student supervision.

D Other activities

Knowledge transfer and outreach

The new space-weather forecasting group at the UK Met Office originally planned to emulate the existing systems in place at the US Space Environment Prediction Center (SWPC). Working with the

Met Office's Prof. David Jackson, I convinced them to also put efforts into a new data-driven modelling effort which I am leading at Reading. As such, they have partnered Reading in both two successful NERC standard grants, and two Case PhD studentships. The outputs of these projects are being transferred into operational use by the Met Office. Additionally, the Met Office now issues alerts based upon a statistical solar wind prediction scheme I developed at Reading. As part of strengthening these ties, in 2018 I established bi-annual MOSWOC-Reading workshops. My solar wind model validation scheme is used by NASA's CCMC, following an extended collaboration.

My solar wind model, HUXt, is used by researchers from multiple institutions in the UK, US, China, Austria, Switzerland, and India have published papers based upon its use. In 2021 I began work on an STFC-funded project to transition HUXt into operational forecasting use at the Met Office.

I have also built a new collaboration with the natural hazards arm of EDF Energy. To date, this has resulted in a CASE award to a NERC PhD studentship and short research contract.

I regularly give interviews for newspapers, radio, etc., on topical space-weather issues. My work or commentary has appeared on UK, US, French, Chinese and German TV, BBC News, CCN, The New York Times, Washington Post, The Telegraph, The Guardian, The Daily Mail and The Independent, as well as radio and on-line sources (e.g., MailOnLine and IFLScience, which has 50M unique visitors per month).

In 2019, I worked with Readipop, a local music charity, on an Arts Council project to provide space-themed activities for primary schools, involving approximately 200 children.

I am regularly invited to lecture on the STFC's Advanced and Introductory Space Science summer schools for PhD students, as well as giving an invited lecture as part of this year's Bulgarian Space Challenges summer school. I gave an invited lecture on space weather forecasting at the *Association for Science Education* annual conference in January 2013.