

r.p.allan@reading.ac.uk

@rpallanuk

+44 (0)118 3785568

Professor of Climate Science, Department of Meteorology & National Centre for Earth Observation, University of Reading www.met.reading.ac.uk/~sgs02rpa

A professor of climate science specialising in Earth Observation, radiative processes and the global water cycle;
over 150 peer-reviewed publications, strong Met Office links and Intergovernmental Panel on Climate Change lead author

Career Outline

2013-2024: Professor of Climate Science, Department of Meteorology (joint head, 2017-2019) and National Centre for Earth Observation (2008-present), University of Reading

2009-2013: Reader in Climate Science, Department of Meteorology, University of Reading, UK

2003-2009: Research Fellow; NERC Advanced Fellow, ESSC, University of Reading

1999: Visiting scientist, Geophysical Fluid Dynamics Laboratory, Princeton, NJ, USA

1998-2003: Research Scientist, Hadley Centre, Met Office;

1995-1998: PhD, Meteorology Department, University of Reading (CASE award, Met Office)

Professional activities

- Intergovernmental Panel on Climate Change, AR6 lead author (including Chapter 8 on Water Cycle Changes and Summary for Policymakers); contributing author AR4/5/6
- NERC Peer Review College Member (2007-present)
- Fellow of the Higher Education Academy (2016-present)
- Geostationary Earth Radiation Budget (GERB) International Science Team member (1999-present); GERB advisory board member (2013-present); CMSAF review board chair
- NASA Clouds and the Earth's Radiant Energy System (CERES) science team member (2003-present); CERES follow-on NASA Earth Venture Continuity science team (Libera)
- Associate Editor, Journal of Climate (2009-present); Special Issue Editor: Current Climate Change Rep. (2015/16), Surveys in Geophysics, (2010/12); Environ. Res. Lett. (2009/2010)
- Organising committees: NCAS/RMetS national conference (2017-2018); EGU Leonardo Conference (2015-2016); American Meteorological Soc., Atmos. Radiation (2012-2018)

Grants awarded

- INDECIS EU ERA4CS call, Reading Principal Investigator 2017-2021
- MOAP water vapour Met Office Academic Partnership (Reading lead), 2019-2022.
- Rain-from-space, NERC standard grant, Co-I, 2019-2023.
- MARS consortium, Co-I, 2017-2022
- SMURPHS consortium, NERC highlight, Reading Principal Investigator, 2016-2020 (~£1M)
- DEEP-C NERC responsive, Principal Investigator 2013-2017 (~£1M)
- SINATRA NERC FIR directed, Worktask Leader Co-I 2013-2016 (~£1M)
- DACCIIWA EU FP7, Co-I, 2013-2018 (~EUR 10M)
- CALM NERC CMIP5 directed, Principal Investigator, 2010-2012 (£103k)
- HYDEF NERC CWC directed program, primary Co-I 2010-2014 (£224k)
- PAGODA NERC CWC directed, WP leader Co-I 2010-2013 (£971k + £14k NCEO PI)
- PREPARE NERC responsive, Principal Investigator, 2010-2013 (£318k)
- HadIR/MW JWCRP Principal Investigator with Met Office, 2009-2012
- Royal Society Incoming Short Visits, Principal Investigator 2008 (£3785)
- NERC Advanced Fellowship, Principal Investigator 2005-2010 (£282k)

Awards

2024 University of Reading Research Awards runner up, Public Engagement with Research
2024 Long Service Award, University of Reading
2023 University top 10 media spokesperson 2022, 2023
2023 IPCC recipient of Council of Europe 2022 North South Prize
2022 IPCC joint winner of Gulbenkian prize for humanity
2021 Reuters hot list of top 500 climate scientists
2016 Publons Sentinels of Science reviewers award
2015 Buchan Prize, Royal Meteorological Society
2008 Outstanding reviewer, JGR-Atmospheres
2003 HJE Reid award, NASA Langley Research Center
1993 Cann prize for Environmental Science, University of East Anglia;
1992 First Year prize for Environmental Science, University of East Anglia

Teaching and Outreach

Teaching: Climate Change (MT2CLC, co-convenor); Hydrology and Global Environmental Change (MTMG44 convenor). Recent: Science of Climate Change (MT1CC/MT2CC/MTMCC, co-convenor), Climate Change (MTMG16, convenor); Adult Education courses (Weather and Climate; Climate Change: past, present and future; mentor); Summer school lectures (NCAS, NCEO, WAVACS, University of Stockholm)

PhD supervisor: Nedim Slavic (2024-) Thea Stevens (2022-), Daniel Watters (2021), Caroline Dunning (2018), Zahra Mousavi (2017), Kerian Ferreira (2017), Ross Maidment (2014), Claire Barber (2012), Nicky Chalmers (2011), Ruth Comer (2008)

PhD examiner: K. Reid (Univ. Melbourne) 2022; A. Mackie (Edinburgh) 2020; K. Johari Chan 2020; A. Todd 2019 (Exeter); J. Elsey, 2018; J. Gristey, 2018; G. Xu, Univ. East Anglia, 2016; A. Dufour, Grenoble, 2016; E. Turner, Edinburgh, 2014; M. Johnston, Chalmers, 2014; T. Philp, 2014; K. Menang, 2012; P. Hill, 2012; A. Ipe, RMIB, 2011; K. Chan, Imperial College, 2011; T. Andrews, Leeds, 2010; R. Holley, 2009; N. Clerbaux, RMIB, 2008; L. Read, Imperial College, 2004;

Media/Policy: including BBC News, BBC Newsnight, BBC radio 4/5-Live/world service, BBC Breakfast, Channel 4, ITN News at 10; Sky News; Guardian, Telegraph, Wall Street Journal, Financial Times, Global Re-insurance, Carbon Brief contributing editor; Science Media Centre workshop panel, IPCC summary for policymakers approval, Deloitte/HSBC climate finance event

Outreach: STEM climate ambassador; recent departmental outreach coordinator; schools/interest group events; Stakeholder events; University of Reading Climate Change MOOC lead of sections, Massolit Climate Change course; podcasts (EV Musings, Electric Evolution, EV Café, Waterfall)

Leadership/Management

Roles: Joint Head of Meteorology Department (2017-2019); Outreach coordinator (2010-2019); Website Coordinator (2019-); Prize Committee (2020-)

Management responsibility: 11 Postdoctoral Research Assistants: Ranjini Swaminathan 2017-, Caroline Wainwright 2019-2022, Philip Craig 2018-2022, Shannon Mason 2018-, Albert Osso 2018-2019, James Mollard 2019, Peter Hill 2017-2019, Adrian Champion 2015-2018, Mark Fielding 2014-2017, Charlie Williams 2011-2012, David Lavers 2011-2013, Chunlei Liu-multiple projects 2010-2020, Matthias Zahn 2010-2013, Kevin Pearson 2008-2011, Viju John 2009-2013

Staff Development Reviewing: Dr N Douglas (2022-); Prof R Plant (2021-); Prof D Feltham (2018-); Prof N Bellouin (2018-); Dr A Chevutuli (2020); Dr L Wilcox (2012-2019); Dr A Turner (2014-2018); Dr M Hegglin (2018); Mr S Burt (2017-2018); Ms K Maskell (2015); Dr P Cook (2015-2017); Dr C Daleu (2014-2016); Prof E Black (2014-2015); Dr M Sandells (2013-2014); Dr B Harvey (2012-2013); Dr D Brayshaw (2012); Dr M Valdivieso (2010-); Dr H Wellar (2011); Dr M Woodage (2009-2010); Dr K Pearson (2009-2010) Dr A Bharmal (2009); Dr J Fytan (2009)

Staff Mentoring: Till Kuhlbrodt (2016-2020); Thorwald Stein (2016-2018); David Brayshaw (2012-2017); Maria Valdivieso (2011-2013); Ali Bharmal (2009); Joanna Fytan (2009); FLAIR academic programme mentor

Visiting Positions Host: Dr Albert Osso (2020-); Dr Chunlei Liu (2019-), Prof Dame Julia Slingo (2016-2019), Prof Liz Bentley/RMetS Chief Executive (2016-2019), Mr Stephen Burt (2018-)

Academic/external: Department website/prizes/social media coordinator (2022-); Department joint head (external affairs, 2017-2019); Department outreach coordinator (2014-2019); REF Internal reviewer (2014, 2021); Interview Panels Chair, New lecturer post interview panel; School Promotions Committee; KE Fellowship committee; RMetS Education committee member 2019; Exams Scrutiny Group chair 2016, 2021; Deputy Fire Warden

Selected Scientific Meetings

See also <http://www.met.rdg.ac.uk/~sgs02rpa/talks.html>

Selected Seminars: “Global changes in Precipitation minus Evaporation” Department of Meteorology, Reading (2023); “Global Water Cycle Changes: Chapter 8 of the IPCC WGI AR6 report” Univ. Oslo/CICERO (2021); “Exploiting EO data for climate”, EUMETSAT (2019); “Changes in Earth’s energy balance and climate” Imperial College (2015); “Current Changes in Earth’s energy and water cycles” Univ. Edinburgh 2012, “Current changes in the water cycle” Deutscher Wetterdienst (2012), Imperial College London (2011), Univ. Sussex (2010), ETH Zurich (2010); “Exploiting observations to seek robust responses in global precipitation”, Met Office (2010)

Invited Speaker: 11th Annual International Conference on Environmental Sciences (ACES 2023); memorial Day for Professor John Harries, Imperial College London (2023); UCISA Sustainability Conference 2023: Digitally sustainable, University of Reading (2023); GRIDSERVE Connect Live conference 2023; “Long term monitoring of Earth’s energy balance and water cycle”, International Space Science Institute (2022); Belgian contributions to Earth Sciences in a Changing World (2022); Royal Society Climate Change, science, responses and research needs (2022); EGU, Global-scale changes in Earth’s energy budget and implications for the water cycle (2021); AGU Fall Meeting, Advances in understanding large-scale responses of the water cycle to climate change (2020); Intensification of short-duration rainfall extremes and implications for flash flood risks, Chicheley Hall Workshop (2020); Royal United Services Institute for Defence and Security Studies at Cabinet Offices (2020), RMetS/NCAS National Atmospheric Science Conference keynote, York (2018); NCEO national conference, Bath (2017); Earth’s Hydrological Sensitivity to Climate Change, Exeter (2016); EUMETSAT workshop on CMSAF products (2016); ECMWF workshop on Earth’s Energy Budget (2016); Royal Society Hiatus Workshop (2014); Decision analysis for policy support in climate change adaptation and mitigation, CliMathNet workshop, Exeter (2014); Royal Society, Next Steps in Climate Change (2013); Gordon Conference: Radiation and Climate (2013); EGU session “Climate, Hydrology and Water Infrastructure” (2012); Earth’s Hydrological Cycle, ISSI (2012), WAVACS water vapour workshop (2011), Royal Meteorological Society Conference (2009), AGU Chapman Conference on water vapour (2008), EGU conference, Surface Radiation Budget (2008); Met Office workshop: Improving Predictions of the Large-scale Hydrological Cycle (2008)

Convenor: American Meteorological Society Atmospheric Radiation Conference (2014); Royal Meteorol. Soc. Clouds & Earth’s Energy Budget (2011); ISSI workshop: Earth’s Energy Flows (2011); AGU Fall, Dynamic/Thermodynamic Controls on Hydrological Cycle (2008).

Publications (>150 publications; > 17,000 citations; h-index 51, WoS Aug 2024)

See also <http://www.met.rdg.ac.uk/~sgs02rpa/publications.html>

John, V.O., L. Shi, E.-S. Chung, **R.P. Allan**, S.A. Buehler, and B.J. Soden (2024), Upper Tropospheric Humidity [in “State of the Climate in 2023”]. Bull. Amer. Meteor. Soc., 105 (8), S59-S60, doi:10.1175/BAMS-D-24-0116.1

Douville H, **Allan RP**, Arias PA, Fisher RA (2024) Call for caution regarding the efficacy of large-scale afforestation and its hydrological effects, Science of The Total Environment, 150, 175299, doi:10.1016/j.scitotenv.2024.175299

Swaminathan R, Quaife T & **Allan RP** (2024) A Machine Learning Framework to Evaluate Vegetation Modeling in Earth System Models, Journal of Advances in Modeling Earth Systems, in press, doi:10.1029/2023MS004097

- Loeb N, S-H Ham, **RP Allan**, TJ Thorsen, B Meyssignac, S Kato, GC Johnson, JM Lyman (2024) Observational Assessment of Changes in Earth's Energy Imbalance Since 2000, *Surveys Geophys.* (Special Issue: Earth's Changing Water and Energy Cycle), accepted, doi: 10.1007/s10712-024-09838-8 .
- Chen Y, Haywood J, Wang Y, Malavelle F, Jordan G, Peace A, Partridge DG, Cho N, Oreopoulos L, Grosvenor D, Field P, **Allan RP** & Lohmann U (2024), Substantial cooling effect from aerosol-induced increase in tropical marine cloud cover, *Nature Geosci.*, doi:10.1038/s41561-024-01427-z
- Allan D & **RP Allan** (2024) Odden ice melt linked to Labrador Sea ice expansions and the Great Salinity Anomalies of 1970-1995, *J Geophys. Res.- Oceans*, 129, e2023JC019988, doi:10.1029/2023JC019988
- Allan RP** (2024), Droughts are blowing in the wind *Nature Water* 2, 223-224, doi:10.1038/s44221-024-00209-6
- Trancoso R, J Syktus, **RP Allan** et al. (2024), Significantly wetter or drier future conditions for one to two thirds of the world's population. *Nature Comm.* 15, 483, doi:10.1038/s41467-023-44513-3
- Allan RP** & H Douville (2024), An even drier future for the arid lands *PNAS* 121, e2320840121, doi: 10.1073/pnas.2320840121
- De Mora L et al. inc. **RP Allan** (2023), Scenario choice impacts carbon allocation projection at global warming levels *ESD* 14, 1295–1315, doi: 10.5194/esd-14-1295-2023
- Song SY, Yeh SW, **Allan RP**, Xie S-P, An S-I & Park H-S (2021), Climate sensitivity controls global precipitation hysteresis in a changing CO2 pathway, *npj Clim. Atmos. Sci.*, 6, 156, doi:10.1038/s41612-023-00484-2
- Allan RP** (2023) Amplified seasonal range in precipitation minus evaporation, *Environ. Res. Lett.*, doi:10.1088/1748-9326/acea36
- John, V.O., L. Shi, E.-S. Chung, **R.P. Allan**, S.A. Buehler, and B.J. Soden (2023), Upper Tropospheric Humidity [in "State of the Climate in 2021", Blunden, J. et al., Eds.], *Bull. Amer. Meteor. Soc.*, 104 (9), S55-S56, doi:10.1175/2023BAMSStateoftheClimate.1
- Ossó A, P Craig & **RP Allan** (2023), An assessment of CMIP6 climate signals and biases in temperature, precipitation and soil moisture over Europe *Int. J. Clim.*, 43, 5698–5719. doi:10.1002/joc.8169
- Arias PA, ML Rendón, JA Martínez & **RP Allan** (2023) Changes in atmospheric moisture transport over tropical South America: an analysis under a climate change scenario. *Clim Dyn.* doi: 10.1007/s00382-023-06833-4
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- Douville H, **Allan RP**, Arias PA, Betts RA, Caretta MA, Cherchi A, et al.(2022). Water remains a blind spot in climate change policies., *PLOS Water.*, 1(12), e0000058. doi: 10.1371/journal.pwat.0000058
- Andrews T and co-authors including **RP Allan** (2022). On the effect of historical SST patterns on radiative feedback, *J Geophys. Res.*, 127, e2022JD036675. doi:10.1029/2022JD036675
- Allan R.P.**, K.M. Willett, V.O. John & T. Trent (2022), Global changes in water vapor 1979-2020, *J. Geophys. Res.*, 127, e2022JD036728, doi:10.1029/2022JD036728
- Wainwright C.M., **R.P. Allan** & E. Black (2022), Consistent trends in dry spell length in recent observations and future projections, *Geophys. Res. Lett.* 49, e2021GL097231 doi:10.1029/2021GL097231
- Mahmoud S.H., T.-Y. Gan, **R.P. Allan**, J. Li & C. Funk (2022) Worsening drought of Nile basin under shift in atmospheric circulation, stronger ENSO and Indian Ocean dipole. *Sci Rep*, 12, 8049. doi:10.1038/s41598-022-12008-8
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- Allan, R. P.** (2021) How and why Earth's climate is changing. In: *Weather - A force of nature: Spectacular images from weather photographer of the year*. Natural History Museum, London, England, pp. 6-7, pp. 192. ISBN 9780565095253
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- Seneviratne et al. (2021) [**R.P. Allan** contributing author] Weather and Climate Extreme Events in a Changing Climate. In: *Climate Change 2021: The Physical Science Basis*, In Press.
- Gulev et al. (2021) [**R.P. Allan** contributing author] Changing State of the Climate System. In: *Climate Change 2021: The Physical Science Basis*, In Press.
- John, V. O., Shi, L., Chung, E.-S., **Allan, R. P.**, Buehler, S. A. and Soden, B. J. (2021) Upper tropospheric humidity [in "State of the Climate in 2020"]. In: *State of the climate in 2020*. American Meteorological Society, S55-S56. doi: <https://doi.org/10.1175/BAMS-D-21-0098.1>
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- Yeh, S.-W., Song, S.-Y., **Allan, R. P.**, An, S.-I. and Shin, J. (2021) Contrasting response of hydrological cycle over land and ocean to a changing CO2 pathway. *npj Climate and Atmospheric Science*, 4 (1). 53. ISSN 2397-3722 doi: <https://doi.org/10.1038/s41612-021-00206-6>
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- Osso, A., **Allan, R. P.**, Hawkins, E., Shaffrey, L. and Maraun, D. (2021) Emerging new climate extremes over Europe. *Climate Dynamics*. ISSN 0930-7575 doi: <https://doi.org/10.1007/s00382-021-05917-3>
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- Allison, L. C., Palmer, M. D., **Allan, R.P.**, Hermanson, L., Liu, C. and Smith, D. M. (2020) Observations of planetary heating since the 1980s from multiple independent datasets. *Environmental Research Communications*, 2 (10). p. 101001. ISSN 2515-7620 doi: <https://doi.org/10.1088/2515-7620/abbb39>
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