

Mari R. Tye PhD CEng MICE

National Center for Atmospheric Research (NCAR)

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EDUCATION AND QUALIFICATIONS

Jun 2012 PhD Statistical Climatology, Newcastle University, UK
Jun 2011 National Centre for Atmospheric Research, Advanced Study Program Summer Colloquium
Oct 2006 Chartered Professional Review, Institution of Civil Engineers (PE equivalent)
Jul 2001 MEng (Hons) Civil Engineering with French, School of Civil Engineering, University of Nottingham, UK
1999-2000 ERASMUS Génie Civile: Bâtiment et Urbanisme, INSA Toulouse, France

PROFESSIONAL EXPERIENCE

2014- present Project Scientist I
Mesoscale and Microscale Meteorology Division, NCAR
2012-2014 Post-Graduate Scientist
Mesoscale and Microscale Meteorology Division, NCAR Earth System Laboratory
2008-2012 Post-Graduate Researcher
School of Civil Engineering and Geosciences, Newcastle University, Newcastle-upon-Tyne, UK
Aug-Oct 2010 Student Intern
Climate Change Adaptation Team, The Scottish Government, Edinburgh, UK
Aug 2008 Volunteer Water Resources Engineer
Quicken Trust, Kabbubu, Uganda
2005-2008 Acting Principal Engineer
Infrastructure and Transportation, AECOM, Bristol, UK
2003-2005 Engineer
Ports and Coastal Engineering, CH2M, Swindon, UK
2001-2003 Graduate Engineer
Coastal and Fluvial Flood Design, CH2M, Peterborough, UK
Jun-Sep 2001 Student Engineer in the Highways, Transport and Property section, Powys County Council, UK
1998, 1999 Assistant Site Engineer, Alun Griffiths (Contractors) Ltd., Abergavenny, UK
1996-1997 Year in Industry Student, sewerage networks division, Bechtel Water Technology, Warrington, UK

COMMUNITY SERVICE, LEADERSHIP AND EDUCATION ACTIVITIES

Service and Leadership - External

2014-present Visiting Scientist at Colorado State University
2012-present Visiting Researcher and Guest Lecturer at Newcastle University

Workshop / Conference / Symposium Organization

2015 Organizing Committee "Engineering for Climate Extremes Partnership" workshop. NCAR, Boulder
2014 Session Chair Fall 2014 American Geophysical Union meeting session "Exploring "Graceful Failure" to Improve Societal Resilience to Weather and Climate Extremes"
2014 Organizing Committee "Engineering for Climate Extremes Partnership" workshop. NCAR, Boulder
2013 Organizing Committee "Rethinking Failure: Engineering for Climate Extremes" workshop. NCAR, Boulder
2012 Organizing Committee for BHS Third International Symposium. Newcastle University, Newcastle upon Tyne

Education and Outreach

March 2016 UCAR Connect Science Feature
October 2015 Interview on Building Resilience with Boulder Daily Camera
May 2014 Lecturer, Introduction to Climate Extremes. UFRN, Natal, Brazil
Mar 2013 Guest Lecturer, CU Seminar Series. Colorado University, Boulder.
2013-present Lecturer, Regional Climate Tutorial. NCAR, Boulder
2013 Science Assistant, UCAR Significant Opportunities in Atmospheric Research and Science Program

2008-2012 Lecturer, Civil Engineering Undergraduate Stages 1-3 Construction Management
2009, 2010 Lecturer, Civil Engineering Water Resources Masters Programme Hydrology and Statistics

Supervisory and Mentoring Experience

2015-present Motasem Darwish (Co-advisor) Postgraduate Researcher at Newcastle University
2014-present Zachary Weller (Co-advisor) Postgraduate Researcher at Colorado State University
2009-2014 Ruth Kennedy-Walker, Supervising Civil Engineer for ICE Professional Review
2005-2008 Supervising Civil Engineer for CIWEM/ICE Professional Review

Editorial Boards and Professional Reviews

2013-present Editorial review board *Frontiers in Environmental Science: Interdisciplinary Climate Studies*
ongoing Journal article reviews for: *Journal of Geophysical Research – Atmospheres*; *Bulletin of the American Meteorological Society*; *Climatic Change*; *Environmental Science & Technology*; *Extremes*; *Geography*; *International Journal of Climatology*; *Climate Dynamics*; *Climate Research*; *Journal of Applied Meteorology and Climatology*; *Journal of Physics and Chemistry of the Earth*; *Journal of Hydrology*; *Nature Geoscience*

HONOURS AND AWARDS

2014 MMM Recognition Award for the Engineering for Climate Extremes Partnership activities
2011 NCAR/US CLIVAR Advanced Study Program Summer Colloquium scholarship
2010 NERC awarded Policy Placement with the Scottish Government
2010 School of Civil Engineering Post Graduate Researcher Conference, 1st Prize (Water) oral presentation
2009 School of Civil Engineering Post Graduate Researcher Conference, 1st Prize (Water) poster presentation
2009 British Hydrological Society Young Hydrologists Symposium, 2nd Prize poster presentation
2008-2011 NERC (University awarded) Post Graduate Research Studentship
1999-2000 Erasmus Scholarship: awarded for the period of study in Toulouse
1997-2001 Queen's Jubilee Scholarship (ICE); Thomas Evans Bursary (Brecknock Borough Council); Top Flight Bursary (Engineering Council, UK)

FUNDED GRANTS AND AWARDS

2015 Co-Investigator, Assessing and Understanding Tropical Cyclone Risks, Insurance Australia Group
2014 MMM Visitors Allowance for collaboration with David Keellings
2013 Early Career Scientists Visitor Funding for collaborations with Christiana Photiadou and David Keellings
2009 Royal Meteorological Society Early Career Researcher Travel Award

PUBLICATIONS

PhD Thesis

"Characterising and modelling time-varying precipitation extremes and their climatic drivers."
Newcastle University, June 2012. Advisors: Hayley J. Fowler and Chris G. Kilsby

Peer-reviewed Publications - Journal Papers (* maiden name)

Tye, M.R., Blenkinsop, S., Fowler, H.J., Stephenson, D.B., Kilsby, C.G. (2016). Simulating multimodal seasonality in extreme daily precipitation occurrence, *Journal of Hydrology* doi:10.1016/j.jhydrol.2016.03.038

Prein, A. F., Holland, G. J., Rasmussen, R. M., Clark, M. P., & **Tye, M. R.** (2016). Running dry: The U.S. Southwest's drift into a drier climate state. *Geophysical Research Letters*, 43. doi:10.1002/2015GL066727

Tye, M. R., & Cooley, D. (2015). A spatial model to examine rainfall extremes in Colorado's Front Range. *Journal of Hydrology*, 530, 15–23. doi:10.1016/j.jhydrol.2015.09.023

Tye, M.R., 2015. "Understanding the risks from extreme precipitation" *ICE Proceedings: Forensic Engineering* DOI:10.1680/feng.14.00002

Tye, M.R., Holland, G., Done, J.M., 2015. "Rethinking failure: Time for closer Scientist-Engineer Collaborations in Design" *ICE Proceedings: Forensic Engineering*. DOI:10.1680/feng.14.00004

Tye, M.R., Stephenson D.B., Holland, G., Katz, R.W., 2014. "A Weibull approach for recalibrating climate model projections of tropical cyclone wind-speed distributions" *Journal of Climate*, 27(16), 6119-6133, DOI: 10.1175/JCLI-D-14-00121.1

***Jones, M. R.**, G. J. Holland, and J. M. Done, 2013: "Integrating Science and Engineering to Reduce Vulnerability to Climate Extremes". *Eos, Trans. Am. Geophys. Union*, 94(49), 474–474, doi:10.1002/2013EO490006.

***Jones, M.R.**, Blenkinsop, S., Fowler, H.J., Kilsby, C.G., 2014: "Objective classification of extreme rainfall regions for the UK and updated estimates of trends in regional extreme rainfall". *Int. J. Clim.*, , 34(3), 751-765 10.1002/joc.3720

Photiadou, C., *Jones, M.R., Keellings D.J., Dewes, C.F, 2014, "Modelling European Hot Spells Using Extreme Value Analysis" *Climate Research*, **58**(3), 193-207, DOI: 10.3354/cr01191

Burton, A., Glenis, V., *Jones, M.R., Kilsby, C.G., 2013: "Models of daily rainfall cross-correlation for the United Kingdom" *Environmental Modelling & Software*. **49**, 22–33. DOI: 10.1016/j.envsoft.2013.06.001

*Jones, M.R., Fowler, H.J., Kilsby, C.G., Blenkinsop, S., 2013: "An assessment of changes in seasonal and annual maxima in the UK between 1961-2009". *Int. J. Clim.* **33**(5), 1178-1194. DOI: 10.1002/joc.3503

Journal Papers (in preparation)

Tye, M.R., Katz, R.W., Rajagopalan, B., "Assessing the evidence for climate regimes in Argentine Pampas extreme Precipitation (*Climatic Research*)

Tye, M.R., Keellings D.J., and Bruyère C.L., "Statistically assessing the performance of extremes in a 24 model physics ensemble"

Tye, M.R., Llewellyn, D. and Sperling, J., "Graceful failure: Uncomfortable Concept or Brave New World?"

Moser S., **Tye, M.R.**, et al. "Towards greater resilience in a world of possibility" (*Nature Climate Change*)

Non-Peer-reviewed Publications

*Jones, M.R., Blenkinsop, S., Fowler, H.J., Stephenson, D.B., and Kilsby, C.G., 2013, Generalized additive modeling of daily precipitation extremes and their climatic drivers. *NCAR Technical Note*, Boulder, CO.

*Jones, M.R., Fowler, H.J., Kilsby, C.G., Blenkinsop, S., 2010: "An updated regional frequency analysis of United Kingdom extreme rainfall 1961-2009". In: *BHS 2010: Role of Hydrology in Managing Consequences of a Changing Global Environment, Proc. BHS Third International Symposium, Newcastle, 19-23 July 2010*.

Presentations

Tye, M.R., 2016 "Resilience to Weather and Climate Extremes through Graceful Failure". Sustainable Infrastructure Symposium, ASCE, CU Boulder, CO, *May 23 2016*.

Tye, M.R., 2016 "Promoting interactive collaboration to strengthen societal resilience". From Experimentation to Global Prediction, AnaEE International Conference, Paris, France, *March 2 2016*.

Tye, M.R., Holland, G., Done, J., 2016 "Leading the way in reducing risk and increasing resilience". Brown bag seminar, Willis Towers Watson, London UK, *March 1 2016*.

Tye, M.R., 2016 "Resilience to weather and climate events through Graceful Failure". Presentation to American Energy Association, NCAR, *January 22 2016*

Tye, M.R., 2016 "Making Climate Information Available to Decision Makers". American Meteorological Society Annual Meeting, Fourth Symposium on the Weather, Water, and Climate Enterprise, *January 13 2016*

Bruyère, C., **Tye, M.R.**, and Holland, G., 2015 "What Can ECEP do for Global Resilience". American Geophysical Union Fall Meeting, San Francisco CA, *8 December 2015*.

McGinnis, S., Mearns, L., McCrary R., **Tye, M.R.**, 2015 "Evaluation of Statistical Downscaling Skill at Reproducing Extreme Events". American Geophysical Union Fall Meeting, San Francisco CA, *December 9 2015*.

Tye, M.R., 2015 "Risk and resilience", Risk and Resilience in the Face of Global Change, Aspen Global Change Institute, Aspen, CO, *December 6 2015*

Tye, M.R., 2015 "Learning to love volatility". Understanding Risk Boulder, *October 24 2015*

Tye, M.R., 2015 "High Resolution Information vs. High Resolution Models". Workshop on High Resolution Modeling in the Northern Plains, NOAA, Boulder, *September 24 2015*

Tye, M.R., and Holland, G., 2015 "The Engineering for Climate Extremes Partnership". 1st International Conference on Surface Transportation System Resilience to Climate Change and Extreme Weather Events, Washington DC *September 18 2015*

Tye, M.R., 2015 "Achieving resilience through Graceful Failure". Invited seminar. KNMI, Netherlands *June 9 2015*

Tye, M.R., 2015 "The Engineering for Climate Extremes Partnership". Brown Bag Seminar, Newcastle, United Kingdom *January 19 2015*

Tye M.R., 2014 "ECEP: Structure and Activities" ECEP Workshop, NCAR *November 21 2014*

Holland G. and **Tye M.R.**, 2014 "The Engineering for Climate Extremes Partnership: Establishing Future Directions" ECEP Workshop, NCAR *November 19 2014* (Presenting author).

*Jones, M.R., Bruyère C. and Holland G., 2014. "NCAR Regional Climate Modeling Products and Experiments" UFRN Statistical Department Seminar, Natal, Brazil *May 20 2014*.

*Jones, M.R., 2014. Rethinking Failure: Time for a synergistic approach. Eastern Coastal Infrastructure and Climate Change: Science, Impacts, Planning and Response, Washington DC, *27 February 2014*.

- ***Jones, M.R.**, 2014. Quantifying Temporal Changes in UK regional extreme daily precipitation. American Meteorological Society Annual Meeting, 26th Conference on Climate Variability and Change, Atlanta GA 5 February 2014.
- ***Jones, M.R.**, 2014. New strategies to estimate future changes in tropical cyclone maximum wind speeds. American Meteorological Society Annual Meeting, 22nd Conference on Probability and Statistics in the Atmospheric Sciences, Atlanta GA, 4 February 2014.
- ***Jones, M.R.**, 2013. Boulder September 2013: 1 in 1000 year rainfall?. Stats+Climate Workshop, Oslo, Norway, 11 November 2013.
- ***Jones, M.R.**, 2013. Climate and High-Impact Weather. Visiting Researcher Brown Bag Seminar, Newcastle University, Newcastle-upon-Tyne, 7 November 2013.
- ***Jones, M.R.**, 2013. Exploring multi-annual regimes in total and extreme Argentinian precipitation using Hidden Markov Models. 12th International Meeting on Statistical Climatology, Seogwipo, South Korea, 24 June 2013.
- ***Jones M.R.**, 2012. Characterising and modelling time-varying precipitation extremes and their climatic drivers. MMM Monthly Seminar Series, National Center for Atmospheric Research, Boulder, Colorado, 21 September 2012.
- Fowler, H.J., Ekstrom, M., Blenkinsop, S., Kendon, E., ***Jones, M.R.**, 2011. Climate Change and Precipitation Extremes in Regional Climate Models. International Statistical Institute 58th World Congress, Dublin, 21-26 August 2011. (Presenting author)
- ***Jones M.**, 2011. Towards a Climate Hazard Index for Extremes. *Visiting Scientist Brown Bag Seminar*, IMAGE, National Center for Atmospheric Research, Boulder, Colorado, 27 June – 2 July 2011.
- ***Jones, M.R.**, Castella, M., Dewes, C., Keellings, D., Photiadou, C., 2011. Extreme Hot Spells in Europe and atmospheric circulation. Advanced Study Program Summer Colloquium on Statistical Assessment of Extreme Weather Phenomena under Climate Change, National Center for Atmospheric Research, Boulder, Colorado, USA, 6-24 June 2011.
- ***Jones, M.R.**, Fowler, H.J., Kilsby, C.G., Vitolo, R., Stephenson, D., Cook, I. and Michel, G. 2011. UK Rainfall Extremes: trends, non-stationarity and clustering. European Geosciences Union General Assembly1, Vienna, Austria, 4-8 April 201.
- ***Jones, M.R.**, Fowler, H.J., Kilsby, C.G., Blenkinsop, S., 2010. An updated regional frequency analysis of United Kingdom extreme rainfall 1961-2009. British Hydrological Society Third International Symposium: Role of Hydrology in Managing Consequences of a Changing Global Environment, Newcastle, 19-23 July 2010.

Extended Abstracts and Posters

- Tye, M.R.**, Bruyère C., Done J., Holland, G., Lazrus E., and PaiMazumder D., 2015 The Engineering for Climate Extremes Partnership. *Global Floods Partnership Conference 2015, NCAR, Boulder. 4-6 May 2015.*
- Tye, M.R.** and Cooley, D., 2014. Developing a Spatial Model to Examine Rainfall Extremes in Colorado's Front Range. American Geophysical Union Fall Meeting, San Francisco CA, 19 December 2014.
- ***Jones, M.R.**, Holland, G.J., Done, J.M., 2014. Rethinking Failure: Engineering for Climate Extremes. American Meteorological Society Annual Meeting, Second Symposium on Building a Weather-Ready Nation: Enhancing Our Nation's Readiness, Responsiveness, and Resilience to High Impact Weather Events, Atlanta GA, 3 February 2014.
- ***Jones, M.R.**, Holland, G.J., Stephenson, D.B., Katz, R.W., 2013. New strategies to estimate future changes in tropical cyclone maximum wind speeds. 4th International Conference on Hurricanes and Climate Change, Kos, 14 June 2013.
- Keellings D.J., ***Jones, M.R.**, Dewes, C., Photiadou, C., 2012. Investigating Drivers of European Hot Spells Using Extreme Value Analysis. American Meteorological Society Annual Meeting, 21st Conference on Probability and Statistics in the Atmospheric Sciences, New Orleans, Louisiana, USA, 22-26 January 2012.
- ***Jones, M.R.**, Kilsby, C.G., Fowler, H.J. and Blenkinsop, S. 2010. Changes in the annual largest daily rainfall totals. BHS 2010: Role of Hydrology in Managing Consequences of a Changing Global Environment, Proc. BHS Third International Symposium, Newcastle, 19-23 July 2010.
- ***Jones, M.R.**, Kilsby, C.G., Fowler, H.J. and Blenkinsop, S. 2010. Changes in the annual largest daily rainfall totals. 11th International Meeting on Statistical Climatology, University of Edinburgh, Scotland, 12-16 July, 2010.
- ***Jones, M.R.**, Kilsby, C.G., Fowler, H.J. and Blenkinsop, S. 2010. Robust detection of changes in extreme rainfall? European Geosciences Union General Assembly, Vienna, Austria, 2-7 May 2010.
- ***Jones, M.R.**, Kilsby, C.G., Fowler, H.J., Blenkinsop, S. 2009. Changes in the Ten Largest Storms per year. Risks Rare Events and Extremes Final Conference, EPFL, Lausanne, Switzerland, 9-13 November 2009.
- ***Jones, M.R.**, Kilsby, C.G., Fowler, H.J., Blenkinsop, S. 2009. A Climate Hazard Index for Extreme Events. British Hydrological Society Peter Wolf Symposium for Young Hydrologists, Liverpool University, June 18-19 2009.
- ***Jones, M.R.**, Li, B., Fleming, C. and Reeve, D. E. 2002. Classification of beach behaviour using singular vectors. 28th International Conference on Coastal Engineering, Cardiff, July 2002.