

Catherine Ann Senior
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Posts held

2005-present Head of Understanding Climate Change, Climate Science, Met Office Hadley Centre,
1995-2005 Manager Climate feedbacks and sensitivity, Climate Research, Met Office Hadley Centre
1986–1995 Research Scientist, Climate Research, Met Office Hadley Centre

Qualifications

B.Sc., Hons Mathematics, University of Leeds (1986)

Research experience

I have 26 years of experience engaged in research on climate modelling and evaluation, understanding climate processes and feedbacks under climate change leading a team of ~25 research scientists at the Met Office Hadley Centre. I was a lead author on chapter 9 of the WG-1 IPCC third assessment report (TAR) and have contributed to or acted as a reviewer on all 5 IPCC assessments. I am co-chair of the World Climate Research Programme (WCRP) Working Group on Climate Modelling (WGCM) and have been a member since 2009. From 2010-2014, I co-chaired the joint Met Office-NERC Joint weather and climate research programme (JWCRP) science strategy group (SSG). Since 2010, I have led Output 1 (Understanding the drivers of African Climate) of the Climate Science Research Partnership (CSRP) between DFID and the Met Office.

Personal profile

1990 Contributing author, Chapter 4, IPCC FAR.
1995 Contributing author, Chapter 6, IPCC SAR.
1998-2003 Associate Editor, Quarterly Journal of the Royal Met Soc.
2000 - 2007 Member of steering committee for NERC Thematic programme on Clouds, Water vapour and Climate (CWVC)
1998-2000 Lead author, Chapter 9, IPCC Third Assessment Report (TAR).
2005- 2010 Member of Scientific advisory committee for joint Met Office - Exeter University School of Mathematics and computational science chairs in Climate System Dynamics and Earth System Science
2005- 2006 Reviewer and contributing author on Chapters 8 and 10, IPCC Working group 1 of the AR4
2005- 2009 Member of UK Climate Modelling Strategy Group
2006-2009 Member of AMS committee on Climate variability and Change (CVCC)
2009-present Member of WCRP WGCM
2010-present Member of Met Office-Leeds University Research Academic Partnership (RAP)
2010-present Co-chair of Met Office-NERC JWCRP SSG
2011 Reviewer of WG-1 chapters of IPCC AR5
2010-present Leader of Output 1 (Understanding the drivers of African Climate) of the DFID-MO Climate Science Research Partnership (CSRP)

Recent, selected publications:

Senior, C.A., Arribas, A., Brown, A.R., Cullen, M.J.P., Johns, T.C., Martin, G.M., Milton, S.F., Webster, S and Williams, K.D. Synergies between numerical weather prediction and general circulation climate models' in 'The development of Atmospheric General Circulation Models: Complexity, Synthesis and Computation' edited by Donner, L., Schubert, W. and Somerville, R., 2010. CUP.

Martin G.M., S. F. Milton, **C. A. Senior**, M. E. Brooks, S. Ineson, T. Reichler, J. Kim. 2010. Analysis and Reduction of Systematic Errors through a Seamless Approach to Modeling Weather and Climate, *J. Climate*, vol 23, 5933–5957, DOI: 10.1175/2010JCLI3541.1

Martin, G. M., N. Bellouin, W. J. Collins, I. D. Culverwell, P. R. Halloran, S. C. Hardiman, T. J. Hinton, C. D. Jones, R. E. McDonald, A. J. McLaren, F. M. O'Connor, M. J. Roberts, J. M. Rodriguez, S. Woodward, M. J. Best, M. E. Brooks, A. R. Brown, N. Butchart, C. Dearden, S. H. Derbyshire, I. Dharssi, M. Doutriaux-Boucher, J. M. Edwards, P. D. Falloon, N. Gedney, L. J. Gray, H. T. Hewitt, M. Hobson, M. R. Huddleston, J. Hughes, S. Ineson, W. J. Ingram, P. M. James, T. C. Johns, C. E. Johnson, A. Jones, C. P. Jones, M. M. Joshi, A. B. Keen, S. Liddicoat, A. P. Lock, A. V. Maidens, J. C. Manners, S. F. Milton, J. G. L. Rae, J. K. Ridley, A. Sellar, **C. A. Senior**, I. J. Totterdell, A. Verhoef, P. L. Vidale, and A. Wiltshire. 2011. The HadGEM2 family of Met Office Unified Model Climate configurations. *Geoscientific Model Development*. Volume: 4 Issue: 3 Pages: 723-757 DOI: 10.5194/gmd-4-723-2011

W.J. Collins, N. Bellouin, M. Doutriaux-Boucher, N. Gedney, P. Halloran, T. Hinton, J. Hughes, C.D. Jones, M. Joshi, S. Liddicoat, G. Martin, F. O'Connor, J. Rae, **C. Senior**, S. Sitch, I. Totterdell, A. Wiltshire and S. Woodward, 2011. Development and evaluation of the HadGEM2 Earth-System model. *Geosci. Model Dev*, 4, 1051-1075.

Sanchez, C., Williams, K. D., Shutts, G. J., McDonald, R. E., Hinton, T. J., **Senior, C. A.** and Wood, N. 2012, Towards the development of a robust model hierarchy: investigation of dynamical limitations at low resolution and possible solutions. *Q.J.R. Meteorol. Soc.* doi: 10.1002/qj.1971

Kendon, E, J., N. M. Roberts, **C. A. Senior** and M. J. Roberts. 2012. Realism of Rainfall in a Very High-Resolution Regional Climate Model. *Journal of Climate* Volume 25, Issue 17 (September 2012) pp. 5791-5806. doi: <http://dx.doi.org/10.1175/JCLI-D-11-00562.1>

Sandrine Bony, Bjorn Stevens, Isaac Held, John Mitchell, Jean-Louis Dufresne, Kerry Emanuel, Pierre Friedlingstein, Stephen Griffies and **Catherine Senior**. 2013. Carbon Dioxide and Climate : Perspectives on a Scientific Assessment. *Climate Science for Serving Society: Research, Modelling and Prediction Priorities*. G. R. Asrar and J. W. Hurrell, Eds. Springer, in press.

Williams, K. D.; Bodas-Salcedo, A.; Deque, M; Fermepin, S; Medeiros, B; Watanabe, M; Jakob, C; Klein, SA; **Senior, CA** and Williamson, DL, 2013. The Transpose-AMIP II Experiment and Its Application to the Understanding of Southern Ocean Cloud Biases in Climate Models. *Journal of Climate* Volume: 26 Issue: 10 Pages: 3258-3274

Kendon, EJ, Roberts, NM, Fowler, HJ, Roberts, MJ, Chan, SC and **Senior, CA, 2014**. Heavier summer downpours with climate change revealed by weather forecast resolution model. *Nature Climate Change* Volume: 4 Issue: 7 Pages: 570-576 DOI: 10.1038/NCLIMATE2258