

**Steven Edward George**  
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## Employment History

### **2020 - present NCAS, Department of Meteorology, University of Reading, Reading, UK**

Modelling the decadal and longer impacts of Arctic and Antarctic sea ice on ocean and atmosphere circulation (results feeding into Polar Amplification MIP).

### **2015 – 2020 NCAS, Department of Meteorology, University of Reading, Reading, UK**

Modelling ice-sheets, climate and sea-level during the last glacial cycle; specifically, coupling an AOGCM to an ice-sheet model, with interactive SMB/topography.

### **2010 – 2015 ACE CRC, University of Tasmania, Hobart, Tasmania, AU**

Sea Level Rise Specialist. Development of second-generation web tools to assess the impact of sea-level rise on the Australian coast (Canute 2). Utilisation of storm surge modelling.

### **2008-2010 Department of Geography, University of Canterbury, ChCh, NZ**

Application of mesoscale models (WRF/RAMS) to atmospheric research over both NZ and Antarctic regions. Coupling the WRF dynamical model with an offline microphysical Polar Stratospheric Cloud (PSC) model (investigating gravity-wave production of PSC).

### **2006-2008 Department of Physics and Astronomy, University of Canterbury, ChCh, NZ**

Modelling atmospheric changes associated with variability in solar-forcing and chemical constituent species: study uses a Chemistry-Climate-Model (CCM, installed on the University supercomputer). The project involved coding a new gravity-wave scheme into the CCM.

### **2005-2006 CPTEC, Cachoeira Paulista, SP, Brazil**

Studying the variability and mechanisms of the South Atlantic Convergence Zone (SACZ): the SACZ is seen to have significant impact on seasonal precipitation patterns over Brazil. The work required the introduction of a realistic diurnal cycle into the coupled atmosphere-ocean model.

### **2002-2005 CGAM, Department of Meteorology, University of Reading, Reading, UK**

Investigating the role of the Atlantic Ocean in potential seasonal predictability for the European region (and beyond). The project was in close association with ECMWF, and utilised an adapted version of their coupled ocean/atmosphere modelling system

### **1997- 1998 NIWA, Wellington, NZ**

Installing, and applying, the UK Met Office's coupled ocean/atmosphere model (HadCM2). Developed a new scheme to more accurately represent daily sea-surface temperatures and sea-ice characteristics. Also worked on developing a mesoscale model, and an investigation into the Chatham Rise.

### **1995-1997 Hadley Centre, UK Meteorological Office, Bracknell, UK**

Anthropogenic induced changes in daily precipitation/temperature extremes and variability. This employed the results of HadCM2 perturbed runs, and observational verification of the model control climate.

### **1993-1995 UK Meteorological Office, Bracknell, UK**

Involved with various software development projects on an assortment of hardware platforms (mainframe to workstation). Editor of a suite of Met Office adopted programming standards, and also taught at the company training college.

## Academic record

### **9/1998-2/2002 Dept. Space and Climate Physics, MSSL, University College London, UK**

PhD Thesis: United Kingdom Windspeed: Measurement, Climatology, Predictability and Link to Tropical Atlantic Variability.

### **10/91-10/92 Dept. of Physics, King's College London, UK**

PgD X-Ray Science & Technology

Dissertation Title - Investigation into the effects of pore surface roughness, on the X-ray focusing efficiency of micro-channel plates (in association with the University of Leicester).

### **10/87-6/90 Dept. of Physics, University of Wales, College of Cardiff, UK**

BSc (Hons) in physics: specializations in Solid-State and Mathematical Physics

**Selected Publications**

1. Smith, R.S., **George, S.E.**, and Gregory, J.M., 2020, FAMOUS version sgfjb (FAMOUS-ice): a GCM capable of energy and water conserving coupling to an ice sheet model, GMD (in review)
2. Gregory, J.M., **George, S.E.** and Smith, R.S., 2020. Large and irreversible future decline of the Greenland ice-sheet. *The Cryosphere*.
3. **George, S.E.**, Gregory, J.M. and Smith, R.S., 2020. Eemian: Greenland ice loss and recovery (in preparation).
4. Khader, D, ..., **George, S.** et al., 2019, PaCTS v1.0: A Crowdsourced Reporting Standard for Paleoclimate Data. *Paleoceanography and Paleoclimatology*.
5. McLean, L.J., **George, S.**, Ierodiaconou, D., Kirkwood, R.J., and Arnould, J.P.Y., 2018, Impact of rising sea levels on Australian fur seals. *PeerJ*.
6. Roberts, J., Plummer, C., Vance, T., van Ommen, T., Moy, A., Poynter, S., Treverrow, A., Curran, M., and **George, S.**, 2014. A two thousand year snowfall record for Law Dome, East Antarctica. *Climates of the Past*.
7. **George, S.E.** and Rand, S., 2014. Canute Sea Level Calculator - A Vital Tool for Coastal Adaptation Planning, Sustainability in Public Works (conference proceedings).
8. Haigh, I.D, Wijeratne, E.M.S., MacPherson, L.R., Pattiaratchi, C.B., Mason, M.S., Crompton, R.P., **George, S.**, 2014. Estimating present day extreme water level exceedance probabilities around the coastline of Australia: tides, extra-tropical storm surges and mean sea level. *Climate Dynamics*, 42, no. 1-2, 121-138.
9. Haigh, I.D, Wijeratne, E.M.S., MacPherson, L.R., Pattiaratchi, C.B., Mason, M.S., Crompton, R.P., **George, S.**, 2014. Estimating present day extreme water level exceedance probabilities around the coastline of Australia: tropical cyclone-induced storm surges. *Climate Dynamics*, 42, no. 1-2, 139-157
10. MacPherson, L., Haigh, I., Mason, M., Wijeratne, S., Pattiaratchi, C., and **George, S.**, 2012. Extreme Water Level Exceedance Probabilities Around Australia. *Coastal Engineering Proceedings*, 1, no. 33.
11. Kruezmann, N.C., Rack, W., McDonald, A. J., and **George, S.E.**, 2011. Snow accumulation and compaction derived from GPR data near Ross Island, Antarctica. *The Cryosphere*, 5, 391-404, doi:10.5194/tc-5-391-2011.
12. Zawar-Reza, P., **George, S.**, Storey, B., and Lawson, W., 2010. Summertime boundary layer winds over the Darwin-Hatherton Glacial system. *Antarctic Science*, 22, no. 6, 619-632.
13. McDonald, A.J., **George, S.E.**, and Woollands, R.M., 2009. Can gravity waves significantly impact PSC occurrence in the Antarctic? *Atmos. Chem. Phys*, 9, 8825-8840.
14. Mesoscale modelling of enhanced Antarctic polar stratospheric cloud formation due to orographic gravity waves. NZ MetSoc Meeting, Auckland 2009.
15. Kruezmann, N.C., McDonald, A.J., and **George, S.E.**, 2008, Identification of mixing barriers in chemistry-climate model simulations using Rényi entropy. *Geophysical Research Letters*, 35, no. 6, L06806.
16. Monahan, K.P., Pan, L.L., McDonald, A.J., Bodeker, G.E., Wei, J., **George, S.E.**, Barnet, C.D., and Maddy, E., 2007. Validation of airs v4 ozone profiles in the UTLS using ozonesondes from Lauder, NZ and Boulder, USA. *J. Geophys. Res* 112, D17304.
17. McDonald, A.J., Baumgaertner, A.J.G., Fraser, G.J., **George, S.E.**, and Marsh, S., 2007. Empirical Mode Decomposition of the atmospheric wave field. *Ann. Geophys.*, 25, 375-384
18. **George, S.E.** and Sutton, R.T., 2006. Predictability and skill of boreal winter forecasts made with the ECMWF seasonal forecasting system II, *Quarterly Journal of the Royal Meteorological Society* 132, no. 619, 2031-2053.
19. **George, S.E.** and Saunders, M., 2001. North Atlantic Oscillation impact on tropical north Atlantic winter atmospheric variability. *GRL*, 28,6,1015-1018.
20. Bhaskaran, B., Mullan, B. and **George, S.**, 1999. Modelling of Atmospheric Climate Variations at NIWA, Bhaskaran, Mullan and George, *Weather and Climate*, 19, 23-36.
21. Changes in Extremes and Variability (2050-2070) simulated by the Hadley Centre coupled GCM (HADCM2), presentation at the European Geophysical Society conference, Vienna, April 1997.
22. **George, S.E.**, Simulation and Prediction of Extreme Events and Variability in UK Daily Precipitation and Temperature Fields, DoE Report, July 1996.

**Teaching Experience**

- Geophysical Fluid Dynamics (*300-level, 2009/2010*)
- Antarctic Meteorology (*postgraduate, 2009*)
- Snow morphology/meteorology (*teaching staff. postgraduate infield, Antarctica 2009*)
- Successful supervision of student research at Honours, MSc, and PhD level (atmosphere/cryosphere physics).

**Additional Information**

- Two field trips to Antarctica (2006 & 2009 seasons). The latter trip including logistical planning for experimental equipment transfer from NZ to ice-shelf field site (GPR, ice-coring, weather station, weather balloon ascents).
- Two field to Nigeria (monitoring systems): the work is closely linked with the UC Biology Department, with part of the work looking at localized micro-climates (some of the equipment is mobile) and how they impact organic systems.
- Extensive experience with multiple computer platforms and operating systems (desktop PCs to supercomputers). Programming experience (including software development) in F90, F77, C, PV-WAVE/IDL, MATLAB, Python, R, and shell-scripting. Website development using PHP, JavaScript, Python and backend coupling to F90 executables. System manager for local Linux systems, and Windows (wiki) server.
- Contracted programmer for environmental software development.
- Joint UK/Australian citizenship.

Website: <http://www.met.rdg.ac.uk/~seg/>