

# DOMINICK SPRACKLEN

## PERSONAL DETAILS

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*Nationality:* British

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## EMPLOYMENT

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2007- Research Fellow, School of Earth & Environment, University of Leeds.

2005 - 2007 Research Fellow, Engineering & Applied Science, Harvard University.

2004 - 2005 Teaching Fellow, School of Earth & Environment , University of Leeds.

## EDUCATION

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2001 - 2005 PhD Global atmospheric modelling, University of Leeds

1995 - 1999 MChem Chemistry, University of Leeds. First Class.

## HONOURS AND AWARDS

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2007 Invited ACCESS (Atmospheric Chemistry Colloquium for Emerging Senior Scientists) participant.

2006 Ye Prize for best poster, Young Scientists' Conference for Global Change, START, Beijing.

## FUNDING AWARDS

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2008 Faculty EKT Wild Land Research Institute (Co-I) (£5000)

2008 British Council Academic Research Collaboration, Visiting scientist to Max-Planck Institute for Chemistry, Mainz, Germany (£2500)

2008 VOCBAS (Volatile Organic Compounds in the Biosphere-Atmosphere System) Visiting Scientist to University of Frankfurt (£1000)

2007 British Council Researcher Exchange Program. Visiting Scientist to National University of Singapore (£5000)

2005 Royal Geographical Society Grant (£1500), British Ecological Society (£2000), Carbon balance of tropical montane cloud forests.

2003 Winston Churchill Fellowship (£3500), Royal Geographical Society Grant (£750), Dudley-Stamp Trust Fund (£350). Cloud forest canopy structure and atmospheric deposition

## TEACHING EXPERIENCE

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2004-2008 Level 2 Conservation and Sustainability fieldwork. Coordinate a day of practical conservation work with NGO Moor Trees.

2008 Teach 1/3 of Level 1 atmospheric physics module.

- 2007 Co-supervise two Masters students.
- 2004 Module leader for both undergraduate (Level 2: Climate Change; Level 1: Introductory Fieldwork) and Masters model (Climate Change: Impacts, Adaptation and Mitigation).
- 2001-2003 Level 1 Environmental Skills fieldwork (Ecology)

### **PROFESSIONAL ACTIVITIES**

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**Reviewer:** Nature, Atmospheric Chemistry and Physics, Journal of Geophysical Research, Geophysical Research Letters, Tellus, Environmental Science and Technology.

### **KNOWLEDGE EXCHANGE**

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- 31st October 2008 Recent research results on boreal forests and climate covered in the Guardian.
- October 2008 Presented written evidence to the House of Commons Environmental Audit Committee report on Reducing Greenhouse Gas Emissions from Deforestation.
- August 2008 Policy report on climate mitigation, deforestation and biofuels covered widely in print media including BBC News, Telegraph, Guardian, Yorkshire Post, Scotsman and Metro.
- January 2008 Presented oral and written evidence to the House of Commons Environmental Audit Committee report on Biofuels.
- August 2007 Science paper on biofuels and climate appears widely in print and radio media including Nature, BBC News, Wall Street Journal, Guardian, New Scientist, Chemistry World, Telegraph, The Hindu, The Province, Ottawa Citizen, Iran Daily and Business Week.

### **SYERGYSTIC ACTIVITIES**

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- 2008-present Scientific advisor to United Bank of Carbon on forestry carbon projects.
- 2002-present Scientific advisor to the NGO World Land Trust on climate change and forestry carbon projects.
- 2002-present Collaboration with the Forestry Commission coordinating research and practical management activities. This has led to 3 Masters dissertation projects (Biology and Geography) and over 450 person days of student involvement in practical conservation.

### **PEER REVIEWED PUBLICATIONS**

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**Submitted:**

Martin, S.T., M.O. Andreae, P. Artaxo, D. Baumgardner, Q. Chen, A.H. Goldstein, A. Guenther, C.L. Heald, O.L. Mayol-Bracero, P.H. McMurray, T. Pauliquevis, U. Poschl, K.A. Prather, G.C. Roberts, S.R. Saleska, M.A. Silva Dias, **D.V. Spracklen**, E. Swietlicki, I. Trebs (2009), Sources and Properties of Amazonian Aerosol Particles, *Reviews of Geophysics*.

Pringle, K.J., Carslaw, K.S., **Spracklen, D.V.**, Mann, G.M. and Chipperfield, M.P., The relationship between aerosol and cloud drop number concentrations in a global aerosol microphysics model, *Atmos. Chem. Phys. Discuss.*, 9, 3207-3241, 2009.

Merikanto, J., **Spracklen, D.V.**, Pringle, K.P. and Carslaw, K.S., Effects of boundary layer particle formation on cloud droplet, number and changes in cloud albedo from 1850 to 2000, *Atmos. Chem. Phys. Discuss.*, 9, 5263-5287, 2009.

J. Merikanto, **D. V. Spracklen**, G. W. Mann, S. J. Pickering, and K. S. Carslaw, Impact of nucleation on global CCN, *Atmos. Chem. Phys. Discuss.*, 9, 12999-13037, 2009.

K. S. Carslaw, O. Boucher, **D. V. Spracklen**, G. W. Mann, J. G. L. Rae, S. Woodward, and M. Kulmala, Atmospheric aerosols in the earth system: a review of interactions and feedbacks, *Atmos. Chem. Phys. Discuss.*, 9, 11087-11183, 2009

In press:

21.) **Spracklen, D.V.**, Mickley, L.J., Logan, J.A., Hudman, R.C., Yevich, R., Flannigan, M.D., Westerling, A.L., Impacts of climate change from 2000 to 2050 on wildfire activity and carbonaceous aerosol concentrations in the western United States, *J. Geophys. Res.*, accepted.

20.) P. T. Manktelow, K. S. Carslaw, G. W. Mann, and **D. V. Spracklen**, Variable CCN formation potential of regional sulfur emissions, *Atmos. Chem. Phys.*, 9, 3253-3259.

19.) Heald, C.L., **Spracklen, D.V.**, Atmospheric budget of primary biological aerosol particles from fungal sources, *Geophysical Research Letters*, 36, L09806, doi:10.1029/2009GL037493.

18.) Arnold, S.R., **Spracklen, D.V.**, Williams, J., Yassaa, N., Sciare, J., Bonsang, B., Gros, V., Peeken, I., Lewis, A.C., Alvain, S., Moulin, C. Evaluation of the global oceanic isoprene source and its impacts on marine organic carbon aerosol, *Atmos. Chem. Phys.*, 9, 1253-1262.

17.) Yassaa, N., Peeken, I., Zöllner, E., Bluhm, K., Arnold, S., **Spracklen, D.**, Wernli, H. Williams, J., Evidence for the marine production of monoterpenes, *Environmental Chemistry*, 5, 391-401.

16.) **Spracklen, D.V.**, Bonn, B., Carslaw, K.S. (2008), Boreal Forests, Aerosols and the Impacts on Clouds and Climate, *Philosophical Transactions of the Royal Society A*, 366, doi:10.1098/rsta.2008.0201.

15.) Jaffi, D., Westerling, A., Chand, D., Hafner, W. and **Spracklen, D.** (2008), Influence of Fires on O<sub>3</sub> Concentrations in the Western U.S., *Environmental Science & Technology*, 42, 16, 5885-5891.

- 14.) **Spracklen, D. V.**, Arnold, S.R., Sciare, J., Carslaw, K.S. and Pio, C. (2008), Globally significant oceanic source of organic carbon aerosol, *Geophys. Res. Lett.*, 35, L12811, doi:10.1029/2008GL033359.
- 13.) Korhonen, H., Carslaw, K.S., **Spracklen, D.V.**, Mann, G.W. and Woodhouse, M.T. (2008), Influence of oceanic dimethyl sulfide emissions on cloud condensation nuclei concentrations and seasonality over the remote Southern Hemisphere oceans: A global model study, *J. Geophys. Res.*, 113, D15204, doi:10.1029/2007JD009718.
- 12.) Trivitayanurak, W., Adams, P.J., **Spracklen, D.V.** and Carslaw, K.S. (2008), Tropospheric aerosol microphysics simulation with assimilated meteorology: model description and intermodel comparison, *Atmospheric Chemistry and Physics*, 8, 3149-3168.
- 11.) Korhonen, H., Carslaw, K.S., **Spracklen, D.V.**, Ridley, D.A. and Strom, J. (2008), A global model study of processes controlling aerosol size distributions in the Arctic spring and summer, *J. Geophys. Res.*, doi:10.1029/2007JD009114, in press.
- 10.) **Spracklen, D.V.**, Carslaw, K.S., Kulmala, M., Kerminen, V-M., Sihto, S-L., Riipinen, I., Merikanto, J., Mann, G.W., Chipperfield, M.P., Wiedensohler, A., Birmili, W. and Lihavainen, H., The contribution of particle formation to global cloud condensation nuclei concentrations, *Geophys. Res. Lett.*, 35, L06808, doi:10.1029/2007GL033038.
- 9.) Jaffi, D., Hafner, W., Chand, D., Westerling, A. and **Spracklen, D.V.** (2008), Inter-annual Variations in PM<sub>2.5</sub> due to Wildfires in the Western United States, *Environmental Science and Technology*, doi:10.1021/es702755v.
- 8.) Righelato, R.; **Spracklen, D.V.**, The carbon benefits of fuels and forests - Response, *Science*, 318, 1066-1068, 2007.
- 7.) **Spracklen, D.V.**, Logan, J.A., Mickley, L.J., Park, R.J., Yevich, R., Westerling, A.L., Jaffe, D. (2007), Wildfires drive interannual variability of organic carbon aerosol in the western U.S. in summer, *Geophys. Res. Lett.*, 34, L16816, doi:10.1029/2007GL030037.
- 6.) Righelato, R., **Spracklen, D.V.** (2007), Carbon Mitigation by biofuels or by saving and restoring forests?, *Science*, 317 (5840), 902-902.
- 5.) Manktelow, P.T., Mann, G.W., Carslaw, K.S., **Spracklen, D.V.**, Chipperfield, M.P. (2007), Regional and global trends in sulfate since the 1980s, *Geophys. Res. Lett.*, 34, L14803, doi:10.1029/2006GL028668.
- 4.) **Spracklen, D.V.**, Pringle, K.J., Carslaw, K.S., Mann, G.W., Manktelow, P. and Heintzenberg, J. (2007), Evaluation of a global aerosol microphysics model against size-resolved particle statistics in the marine atmosphere, *Atmospheric Chemistry and Physics*, Vol. 7, pp 2073-2090.
- 3.) **Spracklen, D.V.**, Carslaw, K.S., Kulmala, M., Kerminen, V-M., Mann, G.W., Sihto, S-L. (2006), The contribution of boundary layer nucleation events to total particle concentrations on regional and global scales, *Atmospheric Chemistry and Physics*, Vol. 6, pp 5631-5648.

2.) **Spracklen, D.V.**, Pringle, K.J., Carslaw, K.S., Chipperfield, M.P. and Mann, G.W. (2005), A global off-line model of size-resolved aerosol microphysics: II. Identification of key uncertainties, *Atmospheric Chemistry and Physics*, Vol. 5, pp 3233-3250.

1.) **Spracklen, D.V.**, Pringle, K.J., Carslaw, K.S., Chipperfield, M.P. and Mann, G.W. (2005), A global off-line model of size-resolved aerosol microphysics: I. Model development and prediction of aerosol properties, *Atmospheric Chemistry and Physics*, Vol. 5, pp 2227-2252.

## COMMISSIONED REVIEW PAPERS

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**Spracklen, D.V.**, Yaron, G., Singh, T., Righelato, R. Sweetman, T., Caldecott, B. (2008) The Root of the Matter: Carbon Sequestration in Forests and Peatlands, Policy Exchange.

## SELECTED PRESENTATIONS

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Do boreal forests warm or cool climate?, presented at AGU, San Francisco, USA, 15 December 2008.

Evaluating a sesquiterpene-ozone nucleation mechanism in a global model, presented at AGU, San Francisco, USA, 15 December 2008.

Forest loss and restoration a case study of montane tropical forest, presented at The role of restoration ecology in mitigation of climate change and loss of biodiversity, Linnean Society, London, 27 November 2008.

Boreal forest, aerosol, climate interactions, presented at ILEAPS conference, France, 19 November 2008.

Sources of organic aerosol from the ocean, presented at UEA, UK, 3 November 2008.

New particle formation: From local observations to global impacts, poster presented at IGAC Conference, Annecy, France, September 11, 2008.

Forests and the impacts on aerosols, clouds and climate, presented at National University of Singapore, Singapore, 30 July 2008.

Understanding biogenic aerosol, presented at strategy day for National Centre for Atmospheric Science, 1 July 2008.

Development of a global model to investigate key aerosol and cloud processes, APPRAISE Science meeting, Leeds, June 18-19 2008.

Boreal forests, aerosols and climate, presented at Frankfurt University, Germany, June 2008.

Evaluating a sesquiterpene-ozone nucleation mechanism, presented at EGU, Vienna, April 2008.

Organic carbon aerosol from the global oceans, presented at the Organics over the oceans modifying particles in both hemispheres (OOMPH) project meeting, Budapest, 2-4 April 2008.

Global impacts of particle formation, presented at the Annual Aerosol Conference, Leeds, 7-8th April 2008.

Modeling Primary Biological Aerosol Particles, presented at the Aerosols in the Amazon workshop, Manaus, Brazil, February 18-22, 2008.

New particle formation in the Amazon, presented at the Aerosols in the Amazon workshop, Manaus, Brazil, February 18-22, 2008.

Oceanic sources of organic carbon aerosol, presented at University of East Anglia, October, 2007.

The contribution of nucleation events to global cloud condensation nuclei concentration, presented at the Royal Meteorological Society Annual Meeting, September 2007.

Boreal forests, atmospheric composition and climate change, poster presented at the Atmospheric Chemistry Gordon Conference, Big Sky, Montana, August 30, 2007.

Forest fires, climate change and air quality, presented at ACCESS, Yellowstone, Montana, August 2007.

The contribution of nucleation events to global cloud condensation nuclei concentrations, EGU, Vienna, 2007.

Future climate change increases western U.S. wildfires and summertime organic carbon aerosol concentrations, EGU, Vienna, 2007.

Future climate change drives increases in forest fires and summertime Organic Carbon Aerosol concentrations in the Western U.S., AGU, San Francisco, 2006.

Large contribution of boundary layer particle formation to global aerosol, poster presented at Young Scientist Conference, Beijing, November 2006.

Future Area Burned in the Western U.S, poster presented at AGU, San Francisco, 2005.

What can we learn from a global tropospheric model of aerosol processes, presented at Atmospheric Sciences Seminar Schedule, Harvard University, USA, March 2005.

Simulation of Boundary Layer Aerosol Nucleation Events in a Global Aerosol Microphysics Model, presented at University of Helsinki, Finland, February 2005.

How well do we understand global marine aerosol? Insights from a global model of aerosol processes, poster presented at SOLAS Science, Halifax, Canada.

Characterisation of forest canopy within a tropical montane cloud forest using hemispherical photography, poster presented at proceedings of Second International Symposium on Tropical Montane Cloud Forests, Hawaii, U.S.A., 2004

First Results from a Global Model of Aerosol Processes, presented at proceedings of 15th Aerosol Society Annual Conference, Manchester, U.K.

First Results from a Global Model of Aerosol Processes, presented at proceedings of Aerosols in the UTLs, Oxford, U.K.

Development and application of a global model of aerosol processes, poster presented at EGU, Nice, 2003.