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Dorian Schuyler Abbot

curriculum vitae

Assistant Professor
Department of Geophysical Sciences
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Areas of Interest:

Climate dynamics and modeling, Paleoclimate, Climate of extrasolar planets and habitability

Professional Preparation and Positions Held:

Assistant Professor	University of Chicago	2011-	Geophysical Sciences
Postdoctoral Fellow	University of Chicago	2009-2011	Geophysical Sciences
Postdoctoral Fellow	Harvard University	2008-2009	Earth and Planet. Sci.
Ph.D. (Ad: Eli Tziperman)	Harvard University	2008	Applied Mathematics
S.M.	Harvard University	2004	Applied Mathematics
A.B.	Harvard College	2004	Physics

Honors:

Junior Fellow of the Canadian Institute for Advanced Research (2009)
University of Chicago TC Chamberlin Postdoctoral Fellowship (2009)
Harvard University Certificate of Distinction in Teaching (2002, 2004, 2008)
National Science Foundation Graduate Research Fellowship (2004)
National Defense Science and Engineering Graduate Fellowship (2004)
Harvard University DEAS Pierce Graduate Fellowship (2004)
NERC/NIGEC Undergraduate Research Fellowship (2003)

Outreach and Service:

Reviewer for: *CP*, *ESD*, G^3, *GRL*, *JAS*, *JGR*, *JOC*, *Nature*, *NPG*, NSF, *SIADS*, *WRR*
Conference Sessions Coörganized: "The Geophysical and Atmospheric Science of Extrasolar Planets" (12/11, AGU); "Earth and Planetary Catastrophic Ice-fluid Interactions" (12/11, AGU); "Arctic Sea Ice and Climate Change: Bifurcations in Mathematical and Computational Models" (5/11, SIAM Snowbird)
Public Lectures: GeoUnion (10/11, 11/10, Chicago, IL); Chicago Council on Science and Technology (5/10, Chicago, IL); US EPA (3/10, Chicago, IL); Chicago Center for Inquiry (1/10, Chicago, IL); Stratford Elementary School (12/09, Freemont, CA); Guest, Enrico Fermi Institute Compton series (12/09, Chicago, IL); Sippican Philosophical Society (4/08, Marion, MA)
Other: Hosted Chicago high school student for summer research experience as part of the Collegiate Scholars program (2011)

Peer-Reviewed Publications:

21. Burton, J.C., J.M. Amundson, D.S. Abbot, A. Boghosian, L. Mac. Cathles, S. Correa-Legisos, K.N. Darnell, N. Guttenberg, D.M. Holland, and D.R. MacAyeal (2012), Laboratory investigations of iceberg-capsize dynamics, energy dissipation and tsunamigenesis, *Journal of Geophysical Research*, accepted.

20. Abbot, D.S., M. Silber, and R.T. Pierrehumbert (2011), Bifurcations Leading to Summer Arctic Sea Ice Loss, *Journal of Geophysical Research*, 116, D19120, doi:10.1029/2011JD015653.

19. Abbot, D.S., A. Voigt, and D. Koll (2011), The Jormungand Global Climate State and Implications for Neoproterozoic Glaciations, *Journal of Geophysical Research*, 116, D18103, doi:10.1029/2011JD015927.

18. Cathles, L.M., D.S. Abbot, J.N. Bassis, D.R. MacAyeal (2011), Modeling surface-roughness/solar-ablation feedback: Application to small-scale surface channels and crevasses of the Greenland Ice Sheet, *Annals of Glaciology*, 52(59), 99-108.

17. Guttenberg, N., D.S. Abbot, J.M. Amundson, J.C. Burton, L.M. Cathles, D.R. MacAyeal, and W.W. Zhang (2011), A computational investigation of iceberg capsize as a driver of explosive ice-shelf disintegration, *Annals of Glaciology*, 52(59), 51-59.

16. Abbot, D. S. and E.R. Switzer (2011), The Steppenwolf: A proposal for a habitable planet in interstellar space, *Astrophysical Journal Letters*, 735:L27, doi:10.1088/2041-8205/735/2/L27.

15. MacAyeal, D.R., D.S. Abbot, and O.V. Sergienko (2011), Iceberg capsize tsunamigenesis, *Annals of Glaciology*, 52(58), 51-56.

14. Voigt, A., Abbot, D. S., Pierrehumbert, R. T., and Marotzke, J. (2011), Initiation of a Marinoan Snowball Earth in a state-of-the-art atmosphere-ocean general circulation model, *Climate of the Past*, 7, 249-263, doi:10.5194/cp-7-249-2011.

13. Abbot, D.S., I. Eisenman, and R.T. Pierrehumbert (2010), The Importance of Ice Resolution for Snowball Climate and Deglaciation, *Journal of Climate*, 23(22), 6100-6109, DOI: 10.1175/2010JCLI3693.1.

12. Abbot, D.S. and I. Halevy (2010), Dust Aerosol Important for Snowball Earth Deglaciation, *Journal of Climate*, 23(15), 4121-4132, DOI: 10.1175/2010JCLI3378.1.

11. Abbot, D.S., and R.T. Pierrehumbert (2010), Mudball: Surface dust and Snowball Earth deglaciation, *Journal of Geophysical Research*, 115, D03104, doi:10.1029/2009JD012007.

10. Abbot, D.S., C.C. Walker, and E. Tziperman (2009), Can a convective cloud feedback help to eliminate winter sea ice at high CO_2 concentrations? *Journal of Climate*, 22(21), 5719–5731, DOI: 10.1175/2009JCLI2854.1.

9. Abbot, D.S., M. Huber, G. Bousquet, and C.C. Walker (2009), High-CO_2 Cloud Radiative Forcing Feedback over both Land and Ocean in a Global Climate Model, *Geophysical Research Letters*, 36, L05702, doi:10.1029/2008GL036703.

8. Crouch, R.C. and D.S. Abbot (2009), Is Green Education Blue or Red? State-level Environmental Education Program Development through the Lens of Red- and Blue-State Politics, *Journal of Environmental Education*, 40(3), 52–62.

7. Abbot, D.S. and E. Tziperman (2009), Controls on the Activation and Strength of a High Latitude Convective Cloud Feedback, *Journal of the Atmospheric Sciences*, 66(2), 519–529, DOI: 10.1175/2008JAS2840.1.

6. Abbot, D.S. and E. Tziperman (2008), Sea Ice, High Latitude Convection, and Equable Climates, *Geophysical Research Letters*, 35(3), L03702, doi:10.1029/2007GL032286.

5. Abbot, D.S. and E. Tziperman (2008), A High Latitude Convective Cloud Feedback and Equable Climates, *Quarterly Journal of the Royal Meteorological Society*, 134(630), 165–185, DOI: 10.1002/qj.211.

4. Abbot, D.S. and K.A. Emanuel (2007), A Tropical and Subtropical Land-Sea-Atmosphere Drought Oscillation Mechanism, *Journal of the Atmospheric Sciences*, 64(12), 4458–4466, DOI: 10.1175/2007JAS2186.1.

3. Palmer, P. I., D.S. Abbot, et al. (2006), Quantifying the seasonal and interannual variability of North American isoprene emissions using satellite observations of formaldehyde column, *Journal of Geophysical Research*, 111(D12), D12315, doi:10.1029/2005JD006689.

2. Shim, C., Y. Wang, Y. Choi, P. I. Palmer, D. S. Abbot, and K. Chance (2005), Constraining global isoprene emissions with GOME formaldehyde column measurements, *Journal of Geophysical Research*, 110(D24), D24301, doi:10.1029/2004JD005629.

1. Abbot, D.S., P. I. Palmer, R. V. Martin, K. V. Chance, D. J. Jacob, and A. Guenther (2003), Seasonal and interannual variability of isoprene emissions as determined by formaldehyde column measurements from space, *Geophysical Research Letters*, 30(17), doi:10.1029/2003GL017336.

Reviews and Other Publications:

2. Pierrehumbert, R.T., D.S. Abbot, A. Voigt, and D. Koll (2011), Climate of the Neoproterozoic, *Annual Review of Earth and Planetary Sciences*, 39, 417-60, DOI:10.1146/annurev-earth-040809-152447.

1. Abbot, D.S. (2008), A High-Latitude Convective Cloud Feedback, PhD Thesis, advised by Eli Tziperman, Harvard University, Cambridge, MA.

Talks and Seminars:

2011: Alfred Wegener Institute, Institut de Physique du Globe de Paris, Northwestern, Utrecht University, Max Planck Institute
2010: Purdue, Bowdoin, Dalhousie, Argonne Nat. Lab., CalTech, Cambridge U., MIT, University College London, Johns Hopkins
2009: MIT, Columbia, UCLA, CalTech, Cambridge U., Max Planck Institute, Yale, Princeton
2008: MIT, U. of Chicago

Conferences:

2011: AGU (invited), SAMSI-LLNL, SIAM Snowbird (invited), AMS (math) Eastern Sectional (invited)
2010: AGU (invited), IGS, SIAM, IMAGe at NCAR
2009: AGU (invited), CBEP
2008: AGU
2007: AGU
2006: AGU

Teaching:

Courses: What makes a planet habitable? (Graduate, winter 2012)
Summer School Instructor: IMAGe summer graduate school on mathematics of climate change at NCAR (7/10)
PhD Committee Member: Ian N. Williams (2011), Lawrence MacLagan Cathles IV (2011)
Teaching Assistant: 7 courses at undergraduate and graduate level at Harvard (in Chemistry, Applied Math, and Earth Science)