
Kenneth D. Mankoff

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Department of Earth and Planetary Sciences
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Education

University of California at Santa Cruz

Santa Cruz, CA

Graduate student in Earth and Planetary Sciences

2009 - Present

- Research Focus: Ice-ocean interactions at the Antarctic continental margin.
- Recipient of 2010 NASA Earth and Space Science Fellowship [F1].
- Advisors: Slawek Tulaczyk and Sharon Stammerjohn.

Ecole Polytechnique Fédérale de Lausanne (EPFL)

Lausanne, Switzerland

Graduate level coursework in microtechnology and robotics

2002 - 2003

- Assisted in design of European Space Agency (ESA) funded Martian terrain simulation software.
- Team leader and first prize winner of ESA Aurora space mission design competition [P9].

University of Colorado at Boulder

Boulder, CO

Bachelor of Science in Computer Science; Minor in Geological Science

1996 - 2001

Professional Experience

Columbia University, Goddard Institute for Space Studies

New York, NY

PROGRAMMER/ANALYST

2004 - 2009

- Worked on global climate model (GCM) development team.
- Developed EdGCM: A NASA GCM with a graphical interface [P6].

ANDRILL

Antarctica & Elsewhere

OUTREACH EDUCATOR

2007 - 2008

- Performed outreach and informal education via software and lectures while off ice [F5, J2, P3].
- Assisted with diatom abundance count in sediment core in Antarctica [X1].
- Helped sea ice based seismic survey with deep-field work [X2].
- Invited to Amundsen-Scott South Pole Station to present talk on climate change [T2].

Honeybee Robotics

New York, NY

TECHNOLOGY DEVELOPMENT

2003 - 2004

- Designed robotic systems for planetary exploration, industrial automation, and other uses.

Laboratory for Atmospheric and Space Physics

Boulder, CO

PROFESSIONAL RESEARCH ASSISTANT

2001 - 2002

UNDERGRADUATE RESEARCH ASSISTANT

1998 - 2001

- Processed, documented, visualized, and published spacecraft (SNOE) data [P13].
- Worked with flight team to plan and execute observations. Monitored spacecraft health and orbit.
- Assisted with landing and launch site analysis for Mars Sample Return Mission study.
- Received Outstanding Student Paper Award for research [P18]. Work resulted in two undergraduate publications [J7, J6] and seven AGU poster presentations [P16]-[P22].

Fieldwork

- 2009 THE DRAKE PASSAGE. LMG09-09
Helped collect oceanographic data.
- 2009 AMUNDSEN SEA AND PINE ISLAND BAY, ANTARCTICA. NBP09-01
Collected oceanographic and ice shelf data [P1].
- 2007 GRANITE HARBOR, ANTARCTICA. G-041
Assisted mini-ANDRILL seismic site survey for future drilling location [X2].
- 2007 MCMURDO STATION, ANTARCTICA. G-049
Performed diatom abundance count for ANDRILL. Developed outreach and education material [P3].

Miscellaneous

- **Astronaut Candidate**, European Space Agency, 2008. Selected to final 200 of 8413 applicants.
- Proficient in French.
- Swiss and American citizen.

Funding: Grants, Fellowships, and Scholarships

- [F1] S. Tulaczyk and **K. D. Mankoff**. Sub-Ice-Shelf Channels and Their Impact on Ice Shelf Melting, Stability, and Sea Level Rise. NASA Earth and Space Science Fellowship. \$90,000 over three years, 2010 – 2013.
- [F2] **K. D. Mankoff**. Marine Technology Society scholarship for graduate students. \$2,000, 2010-2011.
- [F3] **K. D. Mankoff** and H. R. Mankoff. Field Video Packages highlighting The Climate Project Presenters. The Climate Project grant for \$1,600, 2009.
- [F4] J. Richardson, **K. D. Mankoff**, and The Climate Project. Raising environmental awareness and presenter effectiveness with Google Earth. Google.org grant for \$25,000, 2008.
- [F5] **K. D. Mankoff**. PACE: Paleo Antarctic Cores for Education. ANDRILL ARISE award for \$15,470, 2007.

Publications (peer-reviewed: 7; WoS citations: 70; h-index: 4; Erdős: ≤ 6)

Journal Papers

- [J1] S. P. Shukla, M. A. Chandler, J. Jonas, L. E. Sohl, **K. Mankoff**, and H. J. Dowsett. Impact of a Permanent El Niño and Indian Ocean Dipole in Warm Pliocene Climates. *Paleoceanography*, 24(PA2221), 2009. doi:10.1029/2008PA001682.
- [J2] L. T. Huffman, R. H. Levy, L. Lacy, D. M. Harwood, M. Berg, M. Cattadori, J. Diamond, J. Dooley, L. Dahlman, R. Frisch-Gleason, J. Hubbard, R. Lehmann, **K. D. Mankoff**, V. Miller, K. Pound, G. S. di Clemente, A. Siegmund, J. Thomson, E. Trummel, R. Williams, and the ANDRILL MIS and SMS Project Science Team. Education and Outreach in the ANDRILL McMurdo Ice Shelf (MIS) and the Southern McMurdo Sound (SMS) Projects, Antarctica. *Terra Antarctica*, 2008.
- [J3] S. M. Petrinec, W. L. Imhof, C. A. Barth, **K. D. Mankoff**, D. N. Baker, and J. G. Luhmann. Comparison of thermospheric high-latitude nitric oxide observations from SNOE and global auroral X-ray bremsstrahlung observations from PIXIE. *J. Geophys. Res.*, 108(A3):1223, 2003. doi:10.1029/2002JA009451.
- [J4] C. A. Barth, **K. D. Mankoff**, S. M. Bailey, and S. C. Solomon. Global observations of nitric oxide in the thermosphere. *J. Geophys. Res.*, 108(A1):1027, 2003. doi:10.1029/2002JA009458.
- [J5] C. A. Barth, D. N. Baker, **K. D. Mankoff**, and S. M. Bailey. Magnetospheric control of the energy input into the thermosphere. *Geophys. Res. Lett.*, 29(13):1629, 2002. doi:10.1029/2001GL014362.

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- [J6] D. N. Baker, **K. D. Mankoff**, S. G. Kanekal, S. M. Bailey, G. M. Mason, and J. E. Mazur. Relationships between precipitating auroral zone electrons and lower thermospheric nitric oxide densities: 1998-2000. *J. Geophys. Res.*, 106(A11):24465 – 24480, November 2001.
- [J7] C. A. Barth, D. N. Baker, **K. D. Mankoff**, and S. M. Bailey. The northern auroral region as observed in nitric oxide. *Geophys. Res. Lett.*, 38(8):1463 – 1466, April 2001.

Conference Posters

- [P1] **K. D. Mankoff**, S. S. Jacobs, K. C. Leonard, C. M. Little, K. A. Gavahan, and F. O. Nitsche. Pine Island Glacier Ice Shelf: Draft, Outflow Channels, and Polynyas as Observed via Fieldwork, Modeling, and Spacecraft. *American Geophysical Union, Fall Meeting*, December 14 - 18, 2009.
- [P2] M. A. Chandler, J. Haller, **K. D. Mankoff**, A. Mckeeon, and L. E. Sohl. Acting on Inevitable Climate Change: How Should Scientists Participate? In *2008 Joint Meeting of The Geological Society of America*. Houston, TX, October 5 - 9, 2008.
- [P3] **K. D. Mankoff** and The ANDRILL SMS Project Science Team. An ANDRILL SMS ARISE Educational Software Package: From a microscope in Antarctica 20 million years ago to a global overview 100 years in the future. In *SCAR / IASC Open Science Conference*. St. Petersburg, Russia, July 8 - 11, 2008.
- [P4] S. P. Shukla, M. A. Chandler, L. E. Sohl, H. J. Dowsett, J. Jonas, and **K. D. Mankoff**. Impact of the Indian Ocean Dipole and El Padre SSTs on Mid-Pliocene Atmospheric Circulation. In *Pliocene Model Intercomparison Project*. New York, NY, June 4 - 6 2008.
- [P5] M. A. Chandler, L. E. Sohl, and **K. D. Mankoff**. Global Climate Models in the Classroom: Tools for Exploring the Impacts of Climate Change and Energy Policies. In *2007 GSA Denver Annual Meeting*. Denver, CO, October 28 - 31 2007.
- [P6] **K. D. Mankoff**, M. A. Chandler, S. J. Richards, L. E. Sohl, and M. F. Shopsis. A Sampling of EdGCM Experiments: Paleo to Future, Regional to Global. In *Teaching Climate Change Workshop*. Bozeman, MT, August 14 - 15, 2006.
- [P7] D. Mankoff, A. Dey, J. Mankoff, and **K. D. Mankoff**. Supporting interspecies social awareness: using peripheral displays for distributed pack awareness. In *Proceedings of the 18th annual ACM symposium on User interface software and technology*, pp. 253–258. ACM New York, NY, USA, 2005.
- [P8] **K. D. Mankoff**, S. Michaud, J. Braure, F. Sommer, J. Ferriero, and S. Javor. PREMARS: Plant and Rocket Experiment for Mars Aurora Research Support. ESA/ESTEC Industry Space Days, Noordwijk, The Netherlands, November 24 - 26, 2003.
- [P9] **K. D. Mankoff**, S. Michaud, J. Braure, F. Sommer, and J. Ferriero. PREMARS: Plant and Rocket Experiment for Mars Aurora Research Support. ESA Aurora Student Design Competition, Barcelona, Spain, September 8 - 9, 2003. **First Prize**.
- [P10] K. E. Simmons, **K. D. Mankoff**, A. R. Hendrix, and C. A. Barth. Mars ultraviolet reflectance compared with imaging, topography and geology. In *EGS-AGU-EUG Joint Assembly*. Nice, France, April 6 - 11 2003.
- [P11] A. R. Hendrix, **K. D. Mankoff**, and K. E. Simmons. Characterizing the oxidizing properties of Mars' polar regions. In *Sixth International Conference on Mars*. Pasadena, CA, July 20 - 25 2003.
- [P12] D. N. Baker, T. A. Fisher, C. A. Barth, **K. D. Mankoff**, S. G. Kanekal, S. M. Bailey, S. M. Petrinec, J. G. Luhmann, G. M. Mason, J. E. Mazur, and D. S. Evans. Precipitating auroral electrons and lower thermospheric nitric oxide densities: SNOE, POLAR, SAMPEX, and NOAA/POES Comparisons for Geomagnetic Storms in 1998-2001. In *American Geophysical Union, Spring Meeting*. Washington, DC, May 30 - June 3, 2002.

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- [P13] **K. D. Mankoff**, C. A. Barth, and S. M. Bailey. The Student Nitric Oxide Explorer (SNOE) Database. In *American Geophysical Union, Fall Meeting*. San Francisco, CA, December 10 - 14, 2001.
- [P14] S. M. Petrinec, D. L. Chenette, W. L. Imhof, D. N. Baker, C. A. Barth, **K. D. Mankoff**, J. G. Luhmann, G. M. Mason, J. E. Mazur, and D. S. Evans. A Multi-spacecraft Study of the Magnetospheric Influence on Ionospheric Chemistry - a Detailed Examination of Recent Geomagnetically Active Periods. In *American Geophysical Union, Fall Meeting*. San Francisco, CA, December 10 - 14, 2001.
- [P15] C. A. Barth, S. M. Bailey, and **K. D. Mankoff**. Energy Input into the Auroral Region Lower Thermosphere. In *American Geophysical Union, Fall Meeting*. San Francisco, CA, December 10 - 14, 2001.
- [P16] D. N. Baker, C. A. Barth, **Kenneth E. Mankoff**, S. G. Kanekal, S. M. Bailey, G. M. Mason, and J. E. Mazur. Relationships between precipitating auroral zone electrons and lower thermospheric nitric oxide densities- 1998-2000. In *American Geophysical Union, Spring Meeting*. Boston, MA, May 29 - June 2, 2001.
- [P17] S. M. Petrinec, D. L. Chenette, W. L. Imhof, C. A. Barth, **K. D. Mankoff**, D. N. Baker, and J. G. Luhmann. Comparing Energetic Auroral Precipitation as Observed by PIXIE and Nitric Oxide Observed by SNOE. In *S-RAMP*. Sapporo, Japan, October 2-5, 2000.
- [P18] **K. D. Mankoff**, C. A. Barth, D. N. Baker, A. W. Merkel, S. M. Petrinec, D. L. Chenette, W. L. Imhof, J. G. Luhmann, S. G. Kanekal, and G. M. Mason. Comparison of SNOE, POLAR, and SAMPEX Observations of the Magnetosphere-Thermosphere Interaction During the 1998 Geomagnetic Storms. In *American Geophysical Union, Spring Meeting*. Washington, DC, May 30 - June 3, 2000. Received **Outstanding Student Paper Award**.
- [P19] A. R. Hendrix, C. A. Barth, and **K. D. Mankoff**. SNOE Observations of Auroral Ultraviolet Emissions and Nitric Oxide Density During Geomagnetic Storms. In *American Geophysical Union, Spring Meeting*. Washington, DC, May 30 - June 3, 2000.
- [P20] S. M. Petrinec, D. L. Chenette, W. L. Imhof, C. A. Barth, **K. D. Mankoff**, D. N. Baker, and J. G. Luhmann. Comparisons of X ray mappings from PIXIE and nitric oxide emissions from SNOE for magnetospheric storm intervals. In *American Geophysical Union, Spring Meeting*. Washington, DC, May 30 - June 3, 2000.
- [P21] D. N. Baker, C. A. Barth, **K. D. Mankoff**, S. C. Solomon, S. G. Kanekal, J. G. Luhmann, S. Petrinec, D. L. Chanette, G. M. Mason, and J. E. Mazur. Large Solar Disturbances and Their Geospace Impacts: SNOE, SAMPEX, and POLAR Observations. In *American Geophysical Union, Spring Meeting*. Washington, DC, May 30 - June 3, 2000.
- [P22] C. A. Barth, S. Solomon, S. M. Bailey, and **K. D. Mankoff**. Global Images of Nitric Oxide in the Thermosphere. In *American Geophysical Union, Fall Meeting*. San Francisco, CA, December 13 - 17, 1999.

Other

- [O1] G. A. Schmidt, J. Wolfe, and J. D. Sachs. *Climate Change: Picturing the Science*. W. W. Norton & Company, 2009. ISBN 0393331253. Self-portrait photograph at South Pole.
- [O2] V. Gornitz, ed. *Encyclopedia of Paleoclimatology and Ancient Environments*. Springer, 2006. Supplied Scientific Data Visualization Graphics and Artwork.
- [O3] **K. D. Mankoff**. Museum Display. Harvard Museum of Natural History, Fall 2005. Scientific Data Visualization and Artwork for Global Warming Display.
- [O4] S. Michaud, **K. D. Mankoff**, J. Braure, F. Sommer, J. Ferriero, and S. Javor. PREMARS: Plant and Rocket Experiment for Mars Aurora Research Support. Tech. rep., Ecole Polytechnique Fédéral de Lausanne, 2003.

Invited Talks

- [T1] **K. D. Mankoff**. Pale Blue Truth (A live oral presentation of *An Inconvenient Truth* and introduction to EdGCM). Washington, DC, January 13, 2008. Invited talk at National Science Foundations (NSF) Headquarters.
- [T2] **K. D. Mankoff**. Pale Blue Truth: A Live Custom Version of An Inconvenient Truth. South Pole, Antarctica, December 3, 2007. Invited talk at Amundsen-Scott South Pole Station.
- [T3] **K. D. Mankoff**. MarsClock: A Clock for Mars. San Francisco, CA, February 8-10, 2004. Invited keynote talk at Palmsource Developers Conference.

Trained by Al Gore to present a custom live version of *An Inconvenient Truth*. Over 80 lectures since 2007. Audience size from 10 to approximately 1200. Locations include:

- United Nations General Assembly Room (1200)
- Amundsen-Scott South Pole Station, Antarctica (90)
- National Science Foundation Headquarters, Washington, DC (100)
- New York City High Schools (multiple)
- Many more...

Media

- [M1] G. Mattison. Radio interview about Antarctic research, June 10, 2010. WRSU, 88.7 FM, New Brunswick, NJ.
- [M2] V. Elliott. UK team finds ice vanishing at increasing rate. *The London Times*, p. 18, August 15 2009. Supplied Photograph of Pine Island Glacier, Antarctica.
- [M3] P. Taylor and **K. D. Mankoff**. Calls from the Wild. *Financial Times*, April 17 2009. [Http://www.ft.com/cms/s/0/82a30516-2a96-11de-8415-00144feabdc0.html](http://www.ft.com/cms/s/0/82a30516-2a96-11de-8415-00144feabdc0.html).
- [M4] C. Sayre. Al Gore's Foot Soldiers. Time.com, January 2007. [Http://www.time.com/time/printout/0,8816,1583869,00.html](http://www.time.com/time/printout/0,8816,1583869,00.html).

Project Participant & Team Author

- [X1] E. Tuzzi, M. Olney, C. Riesselman, D. M. Harwood, and **The ANDRILL SMS Project Science Team**. Middle Miocene biostratigraphy of the McMurdo Sound region, Antarctica: The first diatom perspective from the ANDRILL Southern McMurdo Sound Project. In *2008 Joint Meeting of The Geological Society of America*. Houston, TX, October 5 - 9, 2008.
- [X2] M. A. Speece, R. H. Levy, D. M. Harwood, S. F. Pekar, R. Powell, T. Patterson, T. Wonik, S. Henrys, D. Handwerker, D. Schmitt, and **The ANDRILL SMS Project Science Team**. Over-sea-ice seismic reflection surveys in Antarctica using a GI air gun. In *33rd International Geological Congress*. Oslo, Norway, August 6 - 14, 2008.