

*Curriculum Vitae*  
**ERIC J. STEIG**

Rabinowitz Endowed Professor and Chair, Department of Earth and Space Sciences, University of Washington

<b>EDUCATION</b>	Postdoctoral Research, 1996-1997, Institute of Arctic and Alpine Research, University of Colorado PHD, 1996, Glaciology MS, 1992, Geochemistry BA, 1988, Geology and Philosophy of Science, Hampshire College	}	University of Washington, Department of Geological Sciences	
<b>APPOINTMENTS</b>				
University of Washington, current	Chair Rabinowitz Endowed Professor Adjunct Professor	}	Department of Earth and Space Sciences Department of Atmospheric Sciences	2020 – present 2019 – present 2012 – present
University of Washington, previous appointments	Professor Associate Professor Assistant Professor Director	}	Department of Earth and Space Sciences Quaternary Research Center	2008 – 2019 2004 – 2008 2001 – 2004 2008 – 2013
Other Institutions	Leverhulme Trust Visiting Professor, School of Geosciences, University of Edinburgh Visiting Professor, University of Copenhagen, Niels Bohr Institute Visiting Professor, Université Aix-Marseille, CEREGE Assistant Professor, U. Pennsylvania, Department of Earth and Environmental Science Research Associate II, University of Colorado, Institute of Arctic and Alpine Research	}		2014 – 2015 2014 2007 – 2008 1999 – 2001 1997 – 1999
<b>AWARDS &amp; FELLOWSHIPS</b>	Fellow of the American Geophysical Union (AGU) Fellow of the American Association for the Advancement of Science (AAAS) National Academy of Sciences Kavli Fellow Bassett Distinguished Teaching Award, Earth & Space Sciences, University of Washington Outstanding Researcher Award, College of the Environment, University of Washington Leverhulme Trust Visiting Professorship Department of Energy Global Change Fellowship Johnston Award, Department of Geological Sciences, University of Washington			2023 2019 2005 2016 2014 2014 1990 – 1996 1993
<b>JOURNAL EDITORSHIPS</b>	Review Editor, <i>Science</i> Editor, <i>Quaternary Research</i> Guest Editor, <i>Geografiska Annaler</i>			2013 – 2018 2002 – 2008 1999 – 2000
<b>SYNERGISTIC ACTIVITIES (selected)</b>	Convener, various national meeting ice core sessions (AGU, EGU, Goldschmidt) Founder and co-convener: Annual US Ice Core Open Science Workshop Co-founder and contributor, <i>RealClimate.org</i> Polar Science Subcommittee on Diversity and Inclusion, National Science Foundation Advisory Committee for Office of Polar Programs, National Science Foundation Chair: Academic Program Review, Earth & Atmospheric Sciences, Georgia Tech. Member: Academic Program Review, Earth & Environmental Systems Institute, Penn. State Panelist, NASA Cryospheric Science funding panel Advisory Committee for Office of Polar Programs, National Science Foundation			1996 – present 2022 – present 2004 – present 2021 – 2022 2018 – 2022 2021 2020 2020 2018 – 2022

Convener, First International Conference on Clumped Isotope Geochemistry	2014
Member, International Partnerships in Ice Core Sciences, IGBP-PAGES	2008 – 2014
Panelist, Canadian Foundation for Climate and Atmospheric Sciences	2005
Member, Paleoenvironmental Arctic Science, National Science Foundation	2002 – 2004
Member, West Antarctic Ice Sheet Initiative, National Science Foundation	2000 – 2016
Member, Ice Core Working Group, National Science Foundation	1996 – 1998, 2008 – 2019

**TEACHING** Courses taught regularly at the University of Washington  
 Graduate: *Paleoclimatology, History and Philosophy of Earth Sciences, Introduction to Research*  
 Undergraduate: *The Earth's Climate System, Great Geological Issues, Isotope Geochemistry*

## PUBLICATIONS

° = student or postdoc as lead or corresponding author; doi's are hyperlinks to papers  
 175 peer reviewed publications

Web of Science data: H index 65; Citing articles 10,296; Citations 14,038 (no self-citation); Average cit's per paper: 79.

## SCIENCE PLANNING DOCUMENTS

Hoffman G, Hayden L, Steig EJ, and others *Report from the Office of Polar Program's Subcommittee on Diversity and Inclusion, National Science Foundation* (2022).

The Advisory Committee to the Office of Polar Programs (Weingartner T, Flanner M, Arnaudo R, Fleener C, Bartlett D, Fuentes J, Crowell A, Heimbach P, DeGrandpre M, Kosseff A, Loose B, Nettles M, Lynch A, Quinn P, Mack M, Stammerjohn S, Marsh A, Steig EJ, Mossey C, Vierregg A), *An Overview of Advisory Studies for the Office of Polar Programs*, 33 pp. (2019).

AMAP Working Group. Arctic Pollution 2002. (Oslo, Norway: Arctic Monitoring and Assessment Program, 2002).

Conway H, Neumann S, Price S, Waddington ED, Morse DL, Taylor KT, Mayewski PA, Dixon D, Pettit E, Steig EJ. Candidate drill site near the Ross-Amundsen ice divide, West Antarctica. (Report to NSF Ice Core Working Group), March 22<sup>nd</sup>, 2005.

Fischer H, Fisher D, Taylor K, McConnell J, Mulvaney R, Frezzotti M, Steig EJ, Wolff, E. Processes of climate change: synopsis of ice cores documenting the sequence of events from the last glacial to the present. (Report for International Partnerships in Ice Core Sciences planning meeting, Brussels, October 2005).

Ice Core Working Group. Ice Core Contributions To Global Change Research: Past Successes and Future Directions. NSF-OPP, 1998. [www.nicl-smo.sr.unh.edu/documents/1998]

Steig EJ, Fischer H, Fisher D, Frezzotti M, McConnell J, Mulvaney R, Taylor K, Wolff, E. IPICS 2k Array: a network of ice core climate records for the last two millennia. (Report for International Partnerships in Ice Core Sciences planning meeting, Brussels, October 2005).

Steig EJ. Reducing and representing uncertainties in ice core data. (Contribution to Workshop on Reducing and Representing Uncertainties in High-Resolution Proxy Data, International Centre for Theoretical Physics, Trieste, Italy, June 9 -11, 2008).

## INVITED EDITORIALS AND PERSPECTIVES

Steig EJ. How fast will the Antarctic ice sheet retreat? *Science* 364: 936-937, doi:10.1126/science.aax2626 (2019).

Steig EJ & Neff PD. The prescience of paleoclimatology and the future of the Antarctic ice sheet. *Nature Communications* 9: 2730, doi:10.1038/s41467-018-05001-1 (2018).

Steig EJ, Anderson DM, Hakim GJ. Stable isotopes in paleoclimate reanalysis. *EOS* 98, doi:10.1029/2017EO082589 (2017).

Emile-Geay J, Erb MP, Hakim GJ, Steig EJ, Anderson DM, Noone DC. Climate dynamics with the Last Millennium Reanalysis. Past Global Changes (PAGES) Magazine 25: 162, doi:10.22498/pages.25.3.162 (2017).

Steig EJ. Cooling in the Antarctic. *Nature* 535, 358-359, doi:10.1038/535358a (2016).

Steig EJ & Orsi AJ. The heat is on in Antarctica. *Nature Geoscience* 6, 87-88, doi:10.1038/ngeo1717 (2013).

Steig EJ. Brief but warm Antarctic summer. *Nature*, 489: 39-40, doi:10.1038/nature11483 (2012).

Steig EJ. Alarming or Alarmist? A review of *Six Degrees* by Mark Lynas. *Conservation Magazine* 9(1) 38-39 (2008).

Steig EJ. Review: *Ice mud and blood* by Chris Turney. *Nature Reports Climate Change*, doi:10.1038/climate.2008.71;

published online 10 July (2008).

- Steig EJ. Review: Thin ice: unlocking the secrets of climate in the world's highest mountains, by Mark Bowen. *Bulletin of the American Meteorological Society* **89**(1): 95-97 (2008).
- Steig EJ & Wolfe AP. Sprucing up Greenland. *Science* **320**: 1595-1596, doi:10.1126/science.1160004 (2008).
- Steig EJ. Climate change: the north-south connection. *Nature* **444**: 152-153, doi:10.1038/444152a (2006).
- Steig EJ. *Antarctic Peninsula Climate Variability: Historical and Paleoenvironmental Perspectives* (American Geophysical Union, 2003; E. Domack and others, eds.). *Antarctic Science* **16** (3): 359-360 (2004).
- Steig EJ. *Quaternary Climates, Environments and Magnetism* (Cambridge University Press, 1999; Maher BA & Thompson R, eds.). *PALAOIS* 16: 126-127 (2001).
- Steig EJ. No two latitudes alike. *Science* **293**: 2015-2016, doi:10.1126/science.1061941 (2001).
- Steig EJ. Mid-Holocene climate change. *Science* **286**: 1485-1487 (1999).
- White JWC & Steig EJ. Timing is everything in a game of two hemispheres. *Nature* **394**: 717-718, doi:10.1038/29386 (1998).

## PEER-REVIEWED

° = student or postdoc as lead or corresponding author [contribution number in brackets]

### published 2023

- °Christ AJ, Rittenour TM, Bierman PR, Keisling BA, Knutz PC, Thomsen TB, Keulen N, Fosdick JC, Hemming SR, Tison J-L, Blard P-H, Steffensen JP, Caffee MW, Corbett L, DahlJensen D, Dethier DP, Hidy AJ, Perdrial N, Peteet DM, Steig EJ, Thomas EK. Deglaciation of northwestern Greenland during Marine Isotope State 11. *Science* **381**: 330-335, doi:10.1126/science.ade4248 (2023). [175]
- °Christie FDW, Steig EJ, Gourmelen N, Tett SFB, Bingham RG. Inter-decadal climate variability induces differential ice response along Pacific-facing West Antarctica. *Nature Communications* **14**: 93, doi:10.1038/s41467-022-35471-3 (2023). [174]
- °Dütsch M, Steig EJ, Blossey PN, Pauling AG. Response of water isotopes in precipitation to a collapse of the West Antarctic Ice Sheet in high-resolution simulations with the Weather Research and Forecasting model. *Journal of Climate*, doi:10.1175/JCLI-D-22-0647.1 (2023). [173]
- °Hoffman AO, Holschuh N, Mueller M, Paden J, Muto A, Ariho G, Brigham C, Christian JE, Davidge L, Heitmann E, Hills BH, Horlings AN, Morey S, O'Connor GK, Fudge TJ, Steig EJ, Christianson K. Scars of tectonic extension promote ice-sheet nucleation from Hercules Dome into West Antarctica. *Nature Geoscience* doi:10.1038/S41561-023-01265-5 [172]
- Jones TR, Markle BR, Roberts WHG, Cuffey KM, Steig EJ, Stevens CM, Valdes PJ, Fudge TJ, Sigl M, Hughes AG, Morris V, Vaughn BH, Garland J, Vinther BM, Rozmiarek KS, Brashear CA, White JWC. Seasonal temperatures in West Antarctica during the Holocene, *Nature* **613**: 292-297, doi:10.1038/s41586-022-05411-8 (2023). [172]
- O'Connor GK, Holland PR, Steig EJ, Dutrieux P, Hakim GJ Characteristics and rarity of the strong 1940s westerly wind event over the Amundsen Sea, West Antarctica. *The Cryosphere*, in press (2023). [170]
- °Pauling AG, Bitz CM Steig EJ. Linearity of the climate system response to raising and lowering West Antarctic and coastal Antarctic topography. *Journal of Climate* **36**: 6195-6212, doi:10.1175/JCLI-D-22-0416.1 (2023). [169]

### published 2022

- °Badgeley JA, Steig EJ, Dütsch M. Uncertainty in reconstructing paleo-elevation of the Antarctic Ice Sheet from temperature-sensitive ice core records. *Geophysical Research Letters* **49**: e2022GL100334, doi:10.1029/2022GL100334 (2022). [168]
- °Davidge L, Steig EJ, Schauer AJ. Improving continuous-flow analysis of triple oxygen isotopes in ice cores: insights from replicate measurements. *Atmospheric Measurement Techniques* **15** (24): 7337-7351, doi:10.5194/amt-15-7337-2022 (2022). [167]
- Fudge TJ, Hills B, Horlings AN, Holschuh N, Christian JE, Davidge L, Hoffman A, O'Connor GK, Christianson K, Steig EJ. A site for deep ice coring at West Hercules Dome: results from ground-based geophysics and modeling. *Journal of Glaciology*, <https://doi.org/10.1017/jog.2022.80> [166]
- °Hills B, Christianson K, Hoffman A, Fudge TJ, Holschuh N, Kahle EC, Conway H, Christian JE, Horlings A, O'Connor G, Steig EJ. Geophysics and thermodynamics at South Pole Lake indicate stability and a regionally thawed bed. *Geophysical Research Letters* **49**: e2021GL096218, doi:10.1029/2021GL096218 (2022). [165]

- Holland, PR, O'Connor GK, Bracegirdle TJ, Dutrieux P, Naughten KA, Steig EJ, Schneider DP, Jenkins A, Smith J. Anthropogenic and internal drivers of wind changes over the Amundsen Sea, West Antarctica, during the 20<sup>th</sup> and 21<sup>st</sup> centuries. *The Cryosphere* **16**: 5085-5105, doi:10.5194/tc-16-5085-2022 (2022). [164]
- Markle BR, Steig EJ. Improving temperature reconstructions from ice-core water-isotope records. *Climate of the Past* **18**: 13221-1368, doi:10.5194/cp-18-1321-2022 (2022). [163]

published 2021

- Buizert C, Fudge TJ, Roberts WHG, Steig EJ, Sherriff-Tadano S, Ritz C, Lefebvre E, Edwards J, Kawamura K, Oyabu I, Motoyama H, Kahle EC, Jones T, Obase T, Abe-Ouchi A, Obase T, Martin C, Corr H, Severinghaus JP, Beaudette R, Epifanio J, Siler N, Brook EJ, Martin K, Chappellaz J, Aoki S, Nakazaka T, Sowers TA, Alley RB, Ahn J, Sigl M, Severi M, Dunbar NW, Svensson A, Fegyveresi JM, He C, Liu Z, Zhu J, Otto-Bliesner BL, Lipenkovmasaa VY, Kageyama M, Shwander J. Antarctic surface temperature and elevation during the Last Glacial Maximum. *Science* **372**: 109701101, doi:10.1126/science.abd2897 (2021). [162]
- °Christ AJ, Bierman PR, Schaefer JM, Dahl-Jensen D, Steffensen JP, Corbett LB, Peteet D, Thomas EK, Steig EJ, Rittenour TM, Tison J-L, Blard P-H, Perdrial N, Dethier D, Lini A, Hidy AJ, Caffee M, Southon J. A multi-million-year-old record of Greenland vegetation and glacial history preserved in sediment beneath 1.4 km of ice at Camp Century. *Proceedings of the National Academy of Sciences* **118**: e2021442118, doi:10.1073/pnas.2021442118 (2021). [161]
- °Feng X, Ding Q, Wu L, Jones C, Baxter I, Tardif R, Stevenson S, Emile-Geay J, Mitchell J, Carvalho LMV, Wang H, Steig EJ. A multidecadal-scale tropically-driven global teleconnection over the past millennium and its recent strengthening. *Journal of Climate* **34**: 1-51, doi:10.1175/JCLI-D-20-0216.1 (2021). [160]
- Gkinis V, Holme C, Kahle EC, Stevens MC, Steig EJ, Vinther BM. Numerical experiments on firn isotope diffusion with the Community Firn Model. *Journal of Glaciology* **67**: 450-472, doi:10.1017/jog.2021.1 (2021). [159]
- °Kahle E, Steig EJ, Jones TR, Fudge TJ, Fudge TJ, Koutnik MR, Stevens MC, Waddington ED, Buizert C, Epifanio J, Morris V, Vaughn BH, White JWC, Schauer AJ. Reconstruction of temperature, accumulation rate and layer thinning from an ice core at South Pole using a statistical inverse method. *Journal of Geophysical Research* **126**: e2020JD033300, doi:10.1029/2020JD033300 (2021). [158]
- °Li X, Cai W, Meehl GA, Chen D, Yuan X, Raphael M, Hollan DM, Ding Q, Fogt RL, Markle BR, Wang G, Bromwich DH, Tunrner J, Xie S-P, Steig EJ, Gille ST, Xiao C, Wu B, Lazzara MA, Chen X, Stammerjohn S, Holland PR, Holland MM, Cheng X, Price SF, Wang Z, Bitz CM, Shi J, Gerber EP, Liang X, Goosse H Yoo C, Ding M, Geng L, Xin M, Li C, Dou T, Liu C, Sun W, Wang X, Song C. Tropical teleconnection impacts on Antarctic climate changes. *Nature Reviews Earth & Environment* **2**: 680-698 doi:10.1038/s43017-021-00204-5 (2021). [157]
- O'Connor GK, Steig EJ, Hakim GJ. Strengthening Southern Hemisphere westerlies and Amundsen Sea Low deepening over the 20<sup>th</sup> century revealed by proxy-data assimilation. *Geophysical Research Letters*, 10.1029/2021GL095999 (2021) [156]
- °Saenger CP, Schauer AJ, Heitmann EO, Huntington KW, Steig EJ. How <sup>17</sup>O excess in clumped isotope reference-frame materials and ETH standards affects reconstructed temperature. *Chemical Geology* **563**: 1200592, doi: 10.1016/j.chemgeo.2021.120059 (2021). [155]
- Steig EJ, Jones TR, Schauer AJ, Kahle EC, Morris VA, Vaughn BH, Davidge L, White JWC. Continuous-flow analysis of  $\delta^{17}\text{O}$ ,  $\delta^{18}\text{O}$ , and  $\delta\text{D}$  of  $\text{H}_2\text{O}$  on an ice core from the South Pole. *Frontiers in Earth Science*, doi:10.3389/feart.2021.640292 (2021). [154]
- °Winski DA, Osterberg EC, Kreutz KJ, Ferris DG, Cole-Dai J, Thundercloud Z, Huang J, Alexander B, Jaeglé L, Kennedy JA, Larris C, Kahle EC, Steig EJ, Jones TR. Seasonally-resolved Holocene sea ice variability inferred from South Pole ice core chemistry. *Geophysical Research Letters* **48**, doi:10.1029/2020GL091602 (2021). [153]

published 2020

- °Badgeley JA, Steig EJ, Hakim GJ, Fudge TJ. Greenland temperature and precipitation over the last 20,000 years using data assimilation. *Climate of the Past* **16**: 1-21, doi:10.5194/cp-16-1-2020 (2020). [152]
- Briner JP, Cuzzzone JK, Badgeley JA, Young NE, Steig EJ, Morlighem M, Schlegel N-J, Hakim GJ, Schaefer J, Johnson JV, Lesnek AJ, Thomas EK, Allan E, Bennike O, Cluett A, Csatho B, de Vernal A, Downs J, Larour E, Nowick S. Greenland Ice Sheet mass loss rate will exceed Holocene values this century. *Nature* **586**: 70-74, doi:10.1038/s41586-020-2742-6 (2020). [151]
- Epifanio JA, Brook EJ, Buizert C, Edwards J, Sowers TA, Kahle EC, Severinghaus JP, Steig EJ, Winski DA, Osterberg E, Fudge TJ, Hood E. The SP19 chronology for the South Pole Ice Core - Part 2: gas age scale,  $\Delta\text{age}$ , and smoothing of atmospheric records. *Climate of the Past* **16**: 2431-2444, doi: 10.5194/cp-16-2431-2020 (2020). [150]

- °Erb MP, Emile-Geay J, Hakim GJ, Steiger N, Steig EJ. Atmospheric dynamics drove most interannual U.S. droughts over the last millennium, *Science Advances* 6: eaay7268, doi:10.1126/sciadv.aay7268 (2020). [149]
- Fudge TJ, Lilien DA, Koutnik M, Conway H, Stevens CM, Waddington ED, Steig EJ, Schauer AJ. Advection impact on the South Pole Ice Core. *Climate of the Past* 16: 819-832, doi:10.5194/cp-16-819-2020 (2020). [148]
- Goursaud S, Holloway M, Sime L, Wolff E, Valdes P, Steig EJ, Pauling A. Antarctic Ice Sheet elevation impacts on water isotope records during the Last Interglacial. *Geophysical Research Letters* doi:10.1029/2020GL091412 (2020). [147]
- Guarinao M-V, Sime LC, Schroeder D, Malmierca-Vallet I, Rosenblum E, Ringer M, Ridley J, Feltham D, Bitz C, Steig EJ, Wolff E, Stroeve J, Sellar A. A sea ice-free Arctic during the Last Interglacial supports fast future loss. *Nature Climate Change* 10: 928-932, doi:10.1038/s41558-020-0865-2 (2020). [146]
- Souney JM, Twickler MS, Aydin M, Steig EJ, Fudge TJ, Street L, Kahle EC, Nicewonger MR, Johnson JA, Kuhl T, Casey KA, Fegyveresi JM, Nunn RM, Hargreaves GM. Core handling, transportation and processing for the South Pole ice core (SPICEcore) project. *Annals of Glaciology* 1–13, doi:10.1017/aog.2020.80 (2020) [145].

#### published 2019

- °Dütsch M, Blossey PN, Steig EJ, Nusbaumer JM. Non-equilibrium fractionation during ice cloud formation in iCAM5: evaluating the common parameterization of supersaturation as a linear function of temperature. *Journal of Advanced in Modeling Earth Systems* 11: 3777-3793, doi:10.1029/2019MS001764 (2019). [144]
- Holland PR, Bracegirdle TJ, Dutrieux P, Jenkins A, Steig EJ. West Antarctic ice loss influenced by internal climate variability and anthropogenic forcing. *Nature Geoscience* 12: 718-724, doi:10.1038/s41561-019-0420-9, (2019). [143]
- Porter TJ, Schoenemann SW, Davies LJ, Steig EJ, Bandara S, Froese D. Recent summer warming in northwestern Canada exceeds the Holocene thermal maximum. *Nature Communications* 10: 1631, doi:10.1038/s41467-019-09622-y, (2019). [142]
- Tardif R, Hakim GJ, Perkins WA, Horlick KA, Erb MP, Emile-Geay J, Anderson DM, Steig EJ, Noone D. Last millennium reanalysis with an expanded proxy database and seasonal proxy modeling. *Climate of the Past* 15, 1251-1273 doi:10.5194/cp-15-1251-2019 (2019). [141]
- °Winski DA, Fudge TJ, Ferris DG, Osterberg EC, Fegyveresi JM, Cole-Dai J, Thundercloud Z, Cox TS, Kreutz KJ, Ortman N, Buizert C, Epifanio J, Brook EJ, Beaudette R, Severinghaus J, Sowers T, Steig EJ, Kahle EC, Jones TR, Morris V, Aydin M, Nicewonger MR, Casey K, Alley RB, Waddington ED, Iverson NA. A 54,300-Year Chronology for the South Pole Ice Core - Part 1: Volcanic matching and annual-layer counting. *Climate of the Past* 15: 1793-1808, doi:10.5194/cp-15-1793-2019 (2019). [140]
- °Zhu F, Emile-Geay J, McKay NP, Khider D, Ault TR, Hakim GJ, Steig EJ, Dee S, Kirchner JW. Climate models can correctly simulate the continuum of global-average temperature variability. *Proceedings of the National Academy of Sciences* 116: 8728-8733; 10.1073/pnas.1809959116 (2019). [139]

#### published 2018

- Buizert C, Sigl M, Severi M, Markle BR, McConnell JR, Pedro JB, Wettsteing JJ, Sodemann H, Goto-Azuma K, Kawamura K, Fujita S, Motoyama H, Hirabayashi M, Uemura R, Stenni B, Parrenin F, Fudge TJ, Steig EJ. Abrupt ice-age shifts in southern westerly winds and Antarctic climate forced from the north. *Nature* 563: 681–685, doi:10.1038/s41586-018-0727-5 (2018). [138]
- Ding Q, Schweiger A, L'Hereux M, Steig EJ, Battisti DS, Johnson NC, Blanchard-Wrigglesworth E, Po-Chedley S, Zhang Q, Harnos K, Bushuk M, Markle BR, Baxter I. Fingerprints of internal drivers of Arctic sea ice loss in observations and model simulations. *Nature Geoscience*, in press (2018) [137].
- °Kahle EC, Holme C, Jones TR, Gkinis V, Steig EJ. A generalized approach to estimating diffusion length of stable water isotopes from ice-core data. *Journal of Geophysical Research*, in press (2018) [136].
- °Markle BR, Steig EJ, Roe GH, Winckler G. Concomitant variability in high-latitude aerosols, water isotopes, and the hydrologic cycle. *Nature Geoscience*, in press, doi:10.1038/s41561-018-0210-9 (2018) [135]
- Baggenstos D, Severinghaus JP, Mulvaney R, McConnell JR, Sigl M, Maselli O, Petit J-R, Grente B, Steig EJ. A horizontal ice core from Taylor Glacier, its implications for Antarctic climate history, and an improved Taylor Dome ice core time scale. *Paleoceanography and Paleoclimate*, in press, doi:10.1029/2017PA003297 (2018). [134]
- °Christie FDW, Bingham RG, Gourmelen N, Steig EJ, Bisste RR, Pritchard HD, Snow K, Tett SFB. Marie Byrd Land glacier change driven by inter-decadal climate-ocean variability, *The Cryosphere*, in press, doi:10.5194/tc-2017-263 (2018). [133]
- Bertler NAN, Conway H, Dahl-Jensen D, Emanuelsson DB, Winstrup M, Vallelonga PT, Lee JR, Brook EJ, Severinghaus JP, Fugot TJ, Keller ED, Baisden WT, Hindmarsh RCA, Neff PD, Blunier T, Edwards R, Mayewski PA, Kipfstuhl rS,

Buizert C, Caness S, Dadic R, Kjaer HA, Kurbatov A, Zhang D, Waddington ED, Baccolo G, Beers T, Brightley HJ, Carter L, Clemens-Sewall D, Ciobanu VG, Delmonte B, Eling L, Ellis AA, Ganesh S, Golledge NR, Hains SA, Handley M, Hawley RL, Hogan CM, Johnson KM, Korotkikh E, Lowry DP, Mandeno D, McKay RM, Menking JA, Naish TR, Noerling C, Ollive A, Orsi A, Proemse BC, Pyne AR, Pyne RL, Renwich J, Scherer RP, Semper S, Somonsen M, Sneed SB, Steig EJ, Tuohy A, Venugopal AU, Valero-Delgado F, Venkatesh J, Wang F, Wang S, Winski DA, Winton VHL, Whiteford A, Xiao C, Yang J, Zhang J. The Ross Sea Dipole – Temperature, Snow Accumulation and Sea Ice Variability in the Ross Sea Region, Antarctica, over the Past 2,700 Years. *Climate of the Past* **14**: 193-214, doi:10.5194/cp-14-193-2018 (2018). [132]

°Jones TR, Roberts W, Steig EJ, Cuffey KM, Markle BR, White JWC. Southern Hemisphere climate variability forced by Northern Hemisphere ice sheet topography. *Nature* **554**: 351-355, doi:10.1038/nature24669 (2018). [131]

#### published 2017

Ding Q, Schweiger A, L'Heureux, M, Battisti DS, Po-Chedley S, Johnson NC, Blanchard-Wrigglesworth E, Harson K, Zhgna Q, Eastman R, Steig EJ. Influence of recent high-latitude atmospheric circulation changes on summertime Arctic sea ice. *Nature Climate Change*, doi:10.1038/nclimate3241 (2017). [130]

°Jones TR, White JWC, Steig EJ, Vaughn BH, Morris V, Gkinis V, Markle BR, Schoenemann SW. Improved methodologies for continuous flow analysis of stable water isotopes in ice cores. *Atmospheric Measurement Techniques* **10**: 617-632, doi:10.5194/amt-10-617-2017 (2017). [129]

°Jones TR, Cuffey KM, White JWC, Steig EJ, Buizert C, Markle BR, McConnell JR, Sigl JR. Water isotope diffusion in the WAIS Divide ice core during the Holocene and last glacial. *Journal of Geophysical Research*, doi:10.1002/2016JF003938 (2017). [128]

°Markle BR, Steig EJ, Buizert C, Schoeneman SW, Bitz CM, Pedro J, Ding Q, Sowers T. Global atmospheric teleconnections during Dansgaard–Oeschger events. *Nature Geoscience* **10**: 36-40, doi:10.1038/ngeo2848 (2017). [127]

PAGES 2k Consortium (Emile-Geay J., ..., ..., Steig EJ, and 96 others). A global multi proxy database for temperature reconstructions of the Common Era. *Nature Scientific Data* **4**, doi:10.1038/sdata.2017.88 (2017). [126]

Scambos TA, Bell RE, Alley RB, Anandakrishnan S, Bromwich DH, Brunt K, Christianson K, Creyts K, Das S, Deconto R, Dutrieux P, Fricker HA, Holland D, MacGregor J, Medley B, Nicolas JP, Pollard D, Siegfried MR, Smith AM, Steig EJ, Trusel L, Vaughan DG, Yager P, How much, how fast?: a science review and outlook for research on the instability of Antarctica's Thwaites Glacier in the 21st century. *Global and Planetary Change* **153**: 16-34, doi:10.1016/j.gloplacha.2017.04.008 (2017). [125]

Stenni B, Curran MAJ, Abram NJ, Orsi A, Goursaud S, Masson-Delmotte V, Neukom R, Goose H, Divine D, van Ommen T, Steig EJ, Dixon DA, Thomas ER, Bertler NAN, Isaksson E, Ekaykin A, Frezzotti M, Werner M. Antarctic climate variability at regional and continental scales over the last 2,000 years. *Climate of the Past* (in press), doi:10.5194/cp-2017-40 (2017) [124]

°Steiger NJ, Steig EJ, Dee SG, Roe GH, Hakim GJ. Climate reconstruction using data assimilation of water-isotope ratios from ice cores. *Journal of Geophysical Research* **122**: 1545-1568, doi:10.1002/2016JD026011 (2017). [123]

#### published 2016

Abram NJ, MacGregor HV, Tierney JE, Evans MN, McKay NP, Kaufman DS, Thirumalai, K, Bartrat B, Goosse H, Phipps SJ, Steig EJ, Kilbourne KH, Saenger CP, Zinke J, Leduc G, Addison JA, Morton PG, Seidenkrantz M-S, Sicre MA, Selvaraj K, Filipsson HL, Neukom R, Greis J, Zurren MAJ, von Gutten L. Early and asynchronous onset of industrial-era warming across the oceans and continents. *Nature* **536**: 411–418, doi:10.1038/nature19082 (2016). [122]

Cuffey K, Glow G, Steig EJ, Buizert C, Fudge TJ, Koutnik M, Waddington E, Alley RB, Severinghaus J. The glacial temperature history of West Antarctica, *Proceedings of the National Academy of Sciences*, **113**(50): 14249-14254, doi:10.1073/pnas.1609132113 (2016). [121]

°Fudge TJ, Markle BR, Cuffey JM, Buizert C, Taylor KM, Steig EJ, Waddington ED, Conway H, Koutnik M. Variable relationship between accumulation and temperature in West Antarctica for the past 31,000 years. *Geophysical Research Letters* **43**: 3795–3803, doi:10.1002/2016GL068356 (2016). [120]

Hakim GJ, Emile-Geay J, Steig EJ, Noone D, Anderson DM, Tardif R, Steiger N, Perkins WA. The Last Millennium Climate Reanalysis project: framework and first results. *Journal of Geophysical Research* **21**: 6745-6764, doi:10.1002/2016JD024751 (2016). [119]

Hein AS, Woodward J, Marrero SM, Dunning SA, Steig EJ, Freeman SPHT, Stuart FM, Winter K, Westoby MJ, Sudden DE. Evidence for the stability of the West Antarctic Ice Sheet divide for 1.4 million years. *Nature Communications* **7**, 10325, doi:10.1038/ncomms10325 (2016). [118]

- Jenkins A, Dutrieux P, Jacobs S, Steig EJ, Gudmundson H, Smith J, Heywood K. Ocean forcing and ice sheet response on decadal timescales: lessons learnt from the Amundsen Sea Sector of Antarctica. *Oceanography* **29**(4): 106–117, doi:10.5670/oceanog.2016.103 (2016). [117]
- Jones JM, Gille ST, Goosse H, Abram NJ, Canziani PO, Charman DJ, Clem KR, Crosta X, de Lavergne C, Eisenman I, England MH, Fogt RL, Frankcombe LM, Marshall GJ, Masson-Delmotte V, Morrison AK, Orsi AJ, Raphael MN, Fenwick JA, Schneider DP, Simpkins GR, Steig EJ, Stenni B, Swingedouw D, Vance TR. Assessing recent trends in high-latitude Southern Hemisphere surface climate. *Nature Climate Change* **6**: 917–926, doi:10.1038/nclimate3103 (2016). [116]
- °Pedro JB, Martin T, Steig EJ, Bochum M, Park W, Rasmussen SO. Southern Ocean deep convection as a driver of Antarctic warming events. *Geophysical Research Letters*, **43**: 2192–2199, doi:10.1002/2016GL067861 (2016). [115]
- °Pedro, J.B., H.C. Bostock, C.M. Bitz, F. He., M.J. Vandergoes, E.J. Steig, B. Chase, C.E. Krause, S.O. Rasmussen, G. Cortese. The spatial extent and dynamics of the Antarctic Cold Reversal. *Nature Geoscience* **9**: 51–55, doi:10.1038/ngeo2580 (2016). [114]
- Schauer AJ, Schoenemann SW, Steig EJ. Routine high-precision analysis of triple water-isotope ratios using cavity ring-down spectroscopy. *Rapid Communications in Mass Spectrometry* **30**: 2059–2069, doi:10.1002/rcm.7682 (2016). [113]
- °Schoenemann SW, Steig EJ. Seasonal and spatial variation of  $^{17}\text{O}$ -excess and  $d$ -excess in Antarctic precipitation: insights from an intermediate complexity isotope model. *Journal of Geophysical Research* **121**: 11215–11247, doi:10.1002/2016JD025117 (2016). [112]

#### published 2015

- °Buizert C, Cuffey KM, Severinghaus JP, Baggenstos D, Fudge TJ, Steig EJ, Markle BR, Winstrup M, Rhodes RH, Brook EJ, Sowers TA, Clow GD, Cheng H, Edwards RL, Sigl M, McConnell JR, Taylor, KC: The WAIS Divide deep ice core WD2014 chronology – Part 1: Methane synchronization (68–31 ka BP) and the gas age-ice age difference, *Climate of the Past* **11**: 153–173, doi:10.5194/cp-11-153-2015 (2015). [111]
- °Dee S, Emile-Geay J, Evans, MN, Allam A, Steig EJ, Thompson DM. PRYSM: an open-source framework for PROXY System Modeling, with applications to oxygen-isotope systems. *Journal of Advances in Modeling Earth Systems* **7**, doi:10.1002/2015MS000447 (2015). [110]
- Steig EJ, Huybers K, Singh HA, Steiger NJ, Frierson DMW, Popp T, White JCW. Influence of West Antarctic Ice Sheet collapse on Antarctic surface climate. *Geophysical Research Letters* **42**: 4862–4868, doi:10.1002/2015GL063861 (2015). [109]
- °WAIS Divide Project Members (Buizert C, ....., Steig EJ, ... and 75 others). Precise inter-polar phasing of abrupt climate change during the last ice age. *Nature* **520**, 661–665, doi:10.1038/nature14401 (2015). [108]

#### published 2014

- °Bumbacao KA, Hakim GJ, Mauger GS, Hryniw N, Steig EJ. Evaluating the Antarctic Observational Network with the Antarctic Mesoscale Prediction System (AMPS). *Monthly Weather Review* **142**: 3847–3859, doi:10.1175/MWR-D-13-00401.1 (2014). [107]
- °Geng L, Cole-Dai J, Alexander A, Savarino J, Schauer AJ, Steig EJ, Lin P, Fu Q, Zatko MC. On the origin of the occasional springtime nitrate concentration maximum in Greenland snow. *Atmospheric Chemistry and Physics* **14**: 13361–13376, doi:10.5194/acp-14-13361-2014 (2014). [106]
- °Casey KA, Fudge TJ, Neumann TA, Steig EJ, Cavitte MGP, Blankenship DD. The 1500 m South Pole ice core: recovering a 40 ka environmental record. *Annals of Glaciology* **55**(68): 137–146 doi:10.3189/2014AoG68A016 (2014). [105]
- °Ding Q, Wallace JM, Battisti DS, Steig EJ, Gallant AJE, Kim HJ, Geng L. Tropical forcing of the recent rapid Arctic warming in northeastern Canada and Greenland. *Nature* **509**: 209–212 (2014). [104]
- Dutrieux P, de Rydt J, Jenkins A, Holland PR, Ha HK, Lee SH, Steig EJ, Ding Q, Abrahamsen EP, Schröder M. Strong sensitivity of Pine Island ice shelf melting to climatic variability. *Science* **343**: 174–178 (2014). [103]
- °Geng L, Alexander A, Cole-Dai J, Steig EJ. Post-1850 decrease in  $\delta^{15}\text{N}$  of Greenland ice core nitrate driven by human induced atmospheric acidity increase. *Proceedings of the National Academy of Sciences*, **111**: 5808–5812 (2014). [102]
- °Marcott SA, Bauska TK, Buizert C, Steig EJ, Rosen JL, Cuffey KM, Fudget TJ, Severinghaus JP, Ahn J, Kalk ML, McConnell JR, Sowers T, Taylor KC, White JWC, Brook EJ. Centennial-scale changes in the global carbon cycle during the last deglaciation. *Nature* **514**: 616–619, doi:10.1038/nature13799 (2014). [101]
- °Medley B, Joughin I, Smith BE, Das SM, Steig EJ, Conway H, Gogineni S, Lewis C, Criscitiello AS, McConnell JR, van den Broeke MR, Lenaerts JTM, Bromwich DH, Nicholas JP, Leuschen C. Constraining the recent mass balance of Pine Island and Thwaites glaciers, West Antarctica with airborne observations of snow accumulation. *The Cryosphere* **8**:

- 1375-1392, doi:10.5194/tc-8-1375-2014 (2014). [100]
- Neukom R, Gergis J, Karoly D, Wanner H, Curran M, Elbert J, González-Rouco F, Linsley B, Moy AD, Mundo I, Raible CC, Steig EJ, van Ommen T, Vance T, Villalba R, Zinke J, Frank D. Inter-hemispheric temperature variability over the last millennium. *Nature Climate Change* **4**: 362-367 (2014). [99]
- °Schoenemann SW, Steig EJ, Ding Q, Markle BR, Schauer AJ. Triple water-isotope record from WAIS Divide, Antarctica: controls on glacial-interglacial changes in  $^{17}\text{O}_{\text{excess}}$  of precipitation. *Journal of Geophysical Research* **119**: 8741-8763, doi:10.1002/2014JD021770 (2014). [98]
- °Sofen ED, Alexander B, Steig EJ, Thiemens MH, Kuasek SA, Amos HM, Schauer AJ, Hasting MG, Bautista J, Jackson TL, Vogel LE, McConnell JR, Pasteris DR, Saltzman ES. WAIS Divide ice core suggests sustained changes in the atmospheric formation pathways of sulfate and nitrate since the 19th century in the extratropical Southern Hemisphere. *Atmospheric Chemistry and Physics*, doi:10.5194/acpd-13-23089-2013 (2014). [97]
- Steig EJ, Gkinis V, Schauer AJ, Schoenemann SW, Samek K, Hoffnagle J, Dennis KJ, Tan SM. Calibrated high-precision  $^{17}\text{O}$ -excess measurements using cavity ring-down spectroscopy with laser-current-tuned cavity resonance. *Atmospheric Measurement Techniques* **7**: 2421-2435 (2014). [96]
- °Steiger N, Hakim G, Steig EJ, Battisti DS, Roe G. Assimilation of time-averaged pseudoproxies for climate reconstruction. *Journal of Climate*, **27**, 426-441 (2014). [95]
- Zdanowicz C, Fisher D, Bourgeois J, Demuth M, Zheng J, Mayewski P, Kreutz K, Osterberg E, Yalcin K, Wake C, Steig EJ, Froese D, Goto-Azuma K. Ice cores from the St. Elias Mountains, Yukon Territory, Canada: Their significance for climate, atmospheric composition and volcanism in the North Pacific region. *Arctic* **67**: 35-57, doi:10.14430/arctic4352 (2014). [94]
- published before 2014, reverse chronological*
- °Burgener L, Rupper S, Koenig L, Forster R, Christensen W, Williams J, Koutnik M, Miège C, Steig EJ, Keeler D, Riley R. An observed negative trend in West Antarctic accumulation rates from 1975 to 2010: evidence from new observed and simulated records. *Journal of Geophysical Research* **118**: 1-12, doi:10.1002/jgrd.50362 (2013). [93]
- °Crisciello AS, Das SB, Karaukas KB, Evans MJ, Frey KE, Joughin I, Steig EJ, McConnell JR, Medley B. Tropical Pacific influence on source and transport of marine aerosols to West Antarctica. *Journal of Climate*, **27**, 1343-1363, doi:doi:10.1175/JCLI-D-13-00148.s1 (2013). [92]
- °Cristicello AS, Das SB, Evans MJ, Frey KJ, Conway H, Joughin I, Medley B, Steig EJ. Ice sheet record of recent polynya variability in the Amundsen Sea and Pine Island Bay, West Antarctica. *Journal of Geophysical Research* **118**: 118-130 doi:10.1029/2012JC008077 (2013). [91]
- °Ding Q & Steig EJ. Temperature change on the Antarctic Peninsula linked to the tropical Pacific. *Journal of Climate*, doi:10.1175/JCLI-D-12-00729.1 (2013). [90]
- Mayewski PA, Maasch KA, Dixon D, Sneed SN, Oglesby R, Korotkikh E, Potocki M, Grigholm B, Kreutz K, Kurbatov AV, Spaulding N, Stager JC, Taylor KC, Steig EJ, White JCW, Bertler NAN, Goodwin I, Simões, Jaña A, Kraus S, Fastook J. West Antarctica's sensitivity to natural and human forced climate change over the Holocene. *Journal of Quaternary Science* **28**, 40-48 (2013). [89]
- °Medley B, Joughin I, Das SB, Steig EJ, Conway H, Gogineni S, Criscicello AS, McConnell JR, Smith BE, van den Broeke MR, Lenaerts TM, Bromwich DH, Nicolas J. New observations of snow accumulation validate the spatio-temporal variability of global and regional atmospheric models over Thwaites Glacier, Antarctica. *Geophysical Research Letters* **40**: 3649-3654 (2013). [88]
- PAGES 2K Consortium. Continental-scale temperature variability during the past two millennia. *Nature Geoscience* **6**, 339-346 (2013). [87]
- °Schoenemann SW, Schauer AJ, Steig EJ. Measurement of SLAP2 and GISP  $\delta^{17}\text{O}$  and proposed VSMOW-SLAP normalization for  $^{17}\text{O}$ -excess. *Rapid Communications in Mass Spectrometry* **27**, 582-590, doi:10.1002/rcm.6486 (2013). [86]
- Steig EJ, Ding Q, White JWC, Küttel M, Rupper S, Neumann TA, Neff P, Gallant A, Mayewski PA, Taylor K, Hoffmann G, Dixon DA, Schoenemann S, Markle B, Schneider DP, Fudge TJ, Schauer AJ, Teel RP, Vaughn BH, Burgener L, Williams J, Korotkikh E. Recent climate and ice-sheet change in West Antarctica compared to the past 2000 years. *Nature Geoscience* **6**: 372-375 (2013). [85]
- WAIS Divide Project Members (Fudge TJ, Steig EJ, et al.). Onset of deglacial warming in West Antarctica driven by local orbital forcing. *Nature* **500**: 440-444 (2013). [84]
- °Ding Q, Steig EJ, Battisti DS, Wallace JM. Influence of the tropics on the Southern Annular Mode. *Journal of Climate* **25**, 6330-6348 (2012). [83]
- °Küttel M, Steig EJ, Ding Q, Monaghan AJ, Battisti DS. Seasonal climate information preserved in West Antarctic ice



- core water isotopes: relationships to temperature, large-scale circulation, and sea ice. *Climate Dynamics* **39**(7-8): 1841-1857 (2012). [82]
- °Neff P, Steig EJ, Clark DH, McConnell JR, Pettit EC, Menounos B. Ice-core net snow accumulation and seasonal snow chemistry at a temperate-glacier site: Mount Waddington, southwest British Columbia, Canada. *Journal of Glaciology* **58**(212): 1165-1175 (2012). [81]
- °Perren BB, Wolfe AP, Cooke CA, Funder SV, Kjaer KJ, Mazzuchi D, Steig EJ. 20th Century warming revives the world's northernmost lake. *Geology* **40**(11): 1003-1006 (2012). [80]
- Steig EJ, Ding Q, Battisti DS, Jenkins A. Tropical forcing of circumpolar deep water inflow and outlet glacier thinning in the Amundsen Sea Embayment, West Antarctica. *Annals of Glaciology* **53**(60), 19-28, doi:10.3189/2014AoG68A016 (2012). [79]
- °Tobin TS, Ward PD, Kirschvink JL, Steig EJ, Olivero EB, Hilburn IA, Mitchell RS, Raub TD. Association of Deccan flood volcanism, climate, and extinction at high southern latitudes. *Palaeogeography, Palaeoclimatology, Palaeoecology* **350-352**: 180-188 (2012). [78]
- °Winstrup M, Svensson A, Rasmussen SO, Steig EJ, Winther O, Axelrod A. An automatic method of annual layer detection in ice cores based on visual stratigraphy data. *Climate of the Past* **8**, 1881-1895 (2012). [77]
- Costa AW, Michalski G, Schauer AJ, Alexander B, Steig EJ, Shepson PB. Analysis of atmospheric inputs of nitrate to a temperate forest ecosystem from  $\Delta^{17}\text{O}$  isotope ratio measurements. *Geophysical Research Letters*, **38**, L15805, doi:10.1029/2011GL047539 (2011). [76]
- °Ding Q, Steig EJ, Battisti DS, Küttel M. Winter warming in West Antarctica caused by central tropical Pacific warming. *Nature Geoscience* **4**: 398-403 (2011). [75]
- °Fegyveresi JM, Alley RB, Spencer MK, Fitzpatrick JJ, Steig EJ, White JWC, McConnell JR, Taylor KC. Late-Holocene climate evolution at the WAIS Divide site, West Antarctica: bubble number-density estimates. *Journal of Glaciology*, **57**(204): 629-638 (2011). [74]
- °Hezel PJ, Alexander B, Bitz M, Steig EJ, Holmes CD, Yang X, Sciarre J. Modeled methanesulfonic acid (MSA) deposition in Antarctica and its relationship to sea ice. *Journal of Geophysical Research* D23214, doi:10.1029/2011JD016383 (2011). [73]
- Hagedorn B, Sletten RS, Hallet B, McTigue DF, Steig EJ. Ground ice recharge via brine transport in frozen soils in Victoria Valley, Antarctica: insights from modeling  $\delta^{18}\text{O}$  and  $\delta\text{D}$  profiles. *Geochimica et Cosmochimica Acta* **74**, 435-448 (2010). [72]
- Kunasek SA, Alexander B, Steig EJ, Sofen EF, Jackson TL, Thiemens MH, McConnell JR, Gleason DJ, Amos HM. Sulfate sources and oxidation chemistry over the past 230 years from sulfur and oxygen isotopes of sulfate in a West Antarctic ice core. *Journal of Geophysical Research* **115**, D18313, doi:10.1029/2010JD013846 (2010). [71]
- °Hastings MG, Jarvis JC, Steig EJ. Anthropogenic impacts on nitrogen isotopes of ice-core nitrate. *Science* **234**: 1288 (2009). [70]
- °Jarvis JC, Hastings MG, Steig EJ, Kunasek SA. Isotopic ratios in gas-phase  $\text{HNO}_3$  and snow nitrate at Summit, Greenland. *Journal of Geophysical Research* **114**: D17301, doi:10.1029/2009JD012134 (2009). [69]
- Steig EJ, Schneider DP, Mann ME, Rutherford SD, Comiso JC, Shindell DT. Warming of the Antarctic ice sheet surface since the 1957 International Geophysical Year. *Nature* **457**: 459-462 (2009). [68]
- °Williford KH, Foriel J, Ward PD, Steig EJ. Major perturbation in sulfur cycling at the Triassic/Jurassic boundary. *Geology* **37**: 835-838 (2009). [67]
- Fisher D, Osterberg E, Dyke A, Dahl-Jensen D, Demuth M, Zdanowicz C, Bourgeois J, Koerner RM, Mayewski P, Wake C, Kreutz K, Steig E, Zheng J, Yalcin K, Goto-Azuma K, Luckman B, Rupper S. The Mt. Logan Holocene-late Wisconsinan isotope record: tropical Pacific-Yukon connections. *The Holocene* **18**(5): 667-677 (2008). [66]
- °Jarvis JC, Steig EJ, Hastings MG, Kunasek SA. The influence of local photochemistry on isotopes of nitrate in Greenland snow. *Geophysical Research Letters*, **35** L21804, doi:10.1029/2008GL035551 (2008). [65]
- °Kunasek SA, Alexander B, Steig EJ, Hastings MG, Gleason DJ, Jarvis JC. Measurements and modeling of  $\Delta^{17}\text{O}$  of nitrate in a snowpit from Summit, Greenland. *Journal of Geophysical Research* **113**, D24302, doi:10.1029/2008JD010103 (2008). [64]
- Masson-Delmotte V, Hou S, Ekaykin A, Jouzel J, Aristarain A, Bernardo RT, Bromwich D, Cattani O, Delmotte A, Falourd S, Frezzotti M, Gallée H, Genoni L, Isaksson E, Landais A, Helsen MM, Hoffmann G, Lopez J, Morgan V, Motoyama H, Noone D, Oerter H, Petit JR, Royer A, Uemura R, Schmidt GA, Schlosser E, Simões JC, Steig EJ, Stenni B, Stievenard M, van den Broeke MR, van de Wal RSW, van de Berg WJ, Vimeux F, White JWC. A review of Antarctic surface snow isotopic composition: observations, atmospheric circulation and isotopic modeling. *Journal of Climate* **21**: 3359-3387 (2008). [63]
- °Schneider DP and Steig EJ. Ice cores record significant 1940s Antarctic warmth related to tropical climate variability.

- Proceedings of the National Academy of Sciences* **105**(34): 12154-12158 (2008). [62]
- Von Schneidermesser E, Schauer JJ, Shafer MM, Hagler GSW, Bergin MH, Steig EJ. A method for the analysis of ultra-trace levels of semi-volatile and non-volatile organic compounds in snow and application to a Greenland snow pit. *Polar Science* **2**: 251-266 (2008). [61]
- °Koenig LS, Steig EJ, Winebrenner DP, Shuman CA. A link between microwave extinction length, firn thermal diffusivity and accumulation rate in West Antarctica. *Journal of Geophysical Research* **112**, F03018, doi:10.1029/2006JF000716 (2007). [60]
- Dibb JE, Albert M, Anastasio C, Atlas E, Beyersdorf AJ, Blake NJ, Blake DR, Bocquet F, Burkhardt JF, Chen G, Cohen L, Conway TJ, Courville Z, Frey MM, Friel DK, Galbavy ES, Hall S, Hastings MG, Helmig D, Huey LG, Hutterli MA, Jarvis JC, Lefer BL, Meinardi S, Neff W, Oltmans SJ, Rowland FS, Sjostedt SJ, Steig EJ, Swanson AL, Tanner D. An overview of air-snow exchange at Summit, Greenland: Recent experiments and findings. *Atmospheric Environment* **41**: 4995-5006 (2007). [59]
- °Hagler GSW, Bergin MH, Smith E, Dibb EJ, Anderson C, Steig EJ. Particulate and water-soluble carbon measured in recent snow at Summit, Greenland. *Geophysical Research Letters* **34**, L16505, doi:10.1029/2007GL030110 (2007). [58]
- Steig EJ. Another look at *An Inconvenient Truth*. *Geojournal* **70**(1), 5-9 (2007). [57]
- Fisher DA, Wake C, Kruetz K, Yalcin K, Steig EJ, Mayewski PA, Anderson L, Zheng J, Rupper S, Zdanowicz C, Demuth M, Waszkiewicz M, Dahl-Jensen D, Goto-Azuma K, Bourgeois JB, Koerner RM, Sekerka J, Osterberg E, Abbot MB, Finney BP, Burns SJ. Stable isotope records from Mount Logan and Eclipse Ice Cores and nearby Jellybean Lake; water cycle of the North Pacific over 2000 years and over 5 vertical kilometers; sudden shifts and tropical connections. *Géographie Physique et Quaternaire* **58**: 337-352 (2006). [56]
- °Schneider DP, Steig EJ, van Ommen T, Dixon DA, Mayweski PA, Jones JM, Bitz CM. Antarctic temperatures of the past two centuries from ice cores. *Geophysical Research Letters* **33**, L16707, doi:10.1029/2006GL027057 (2006). [55]
- Brook E, White JWC, Schilla ASM, Bender ML, Barnett B, Severinghaus JP, Taylor KC, Alley RB, Steig EJ. Timing of millennial-scale climate change at Siple Dome, West Antarctica, during the last glacial period. *Quaternary Science Reviews* **24**: 1333-1343 (2005). [54]
- °Hastings MG, Sigman DM, Steig EJ. Glacial/interglacial changes in NO<sub>x</sub> inferred from the isotopes of nitrate in the GISP2 ice core. *Global Biogeochemical Cycles*. GB4024, 10.1029/2005GB002502 (2005). [53]
- Jacobel R, Welch B, Steig EJ, Schneider DP. Hercules Dome, Antarctica – an optimal site for deep ice core drilling. *Journal of Geophysical Research – Earth Surface* **110**: F01015, doi:10.1029/2004JF000188 (2005). [52]
- Neumann TA, Waddington ED, Steig EJ, Grootes PM. Non-climate influences on stable isotopes at Taylor Mouth, Antarctica. *Journal of Glaciology* **51**: 248-258 (2005). [51]
- °Schneider DP, Steig EJ, van Ommen T. Interpretation of high resolution ice core stable isotope records from Antarctica: towards interannual climate reconstruction. *Annals of Glaciology* **41**: 63-70 (2005). [50]
- Steig EJ, Mayewski PA, Dixon DA, Frey MM, Kaspari SD, Schneider DP, Arcone SA, Hamilton GS, Spikes VB, Albert M, Meese D, Gow AJ, Shuman CA, White JWC, Sneed S, Flaherty J, Wumkes M. High-resolution ice cores from US ITASE (West Antarctica); development and validation of chronologies and estimate of precision and accuracy. *Annals of Glaciology* **41**: 77-84, doi:10.3189/172756405781813311 (2005). [49]
- Waddington ED, Conway H, Steig EJ, Alley RB, Brook EJ, Taylor KC, White JWC. Decoding the dipstick: thickness of Siple Dome, West Antarctica, at the Last Glacial Maximum. *Geology* **33**: 281-285 (2005). [48]
- °Hastings MG, Steig EJ, Sigman DM. Seasonal variations in N and O isotopes of nitrate at Summit, Greenland: Implications for the study of nitrate in snow and ice cores. *Journal of Geophysical Research – Atmospheres* **109**: D20306, doi:10.1029/2004JD004991 (2004). [47]
- Kaufman DS, Ager TA, Anderson NJ, Anderson PM, Andrews TJ, Bartlein PJ, Brumabker LB, Coats LL, Cwynar LC, Duvall ML, Dyke AS, Edwards ME, Eisner WR, Gajewski K, Geirsdóttir A, Hu FS, Jennings AE, Kaplan MR, Kerwin MW, Lozhkin AV, MacDonald GM, Miller GH, Mock CJ, Oswald WW, Otto-Bliesnew BL, Porinchu DF, Rühland K, Smol JP, Steig EJ, Wolfe BB. Holocene thermal maximum in the western Arctic (0 to 180° W). *Quaternary Science Reviews* **23**: 529-560 (2004). [46]
- Mayewski PA, Maasch KA, White JWC, Steig EJ, Meyerson E, Goodwin I, Morgan VI, van Ommen T, Curran MAJ, Souney J & Kruetz K. A 700 year record of Southern Hemisphere extratropical climate variability. *Annals of Glaciology*, **39**: 127-132 (2004). [45]
- Mayewski PA, Rohling EE, Stager JC, Karlén W, Maasch KA, Meeker LD, Meyerson EA, Gasse F, van Kreveld S, Holmgren K, Lee-Thorp J, Rosqvist G, Rack F, Staubwasser M, Schneider RR, Steig EJ. Holocene climate variability. *Quaternary Research* **62**: 243-255 (2004). [44]
- °Monnin E, Steig EJ, Siegenthaler U, Kawamura K, Schwander J, Stauffer B, Morse DL, Stocker TF, Barnola JM, Bellier

- B, Raynaud D, Fischer H. Evidence for substantial accumulation rate variability in Antarctica during the Holocene through synchronization of CO<sub>2</sub> in the Taylor Dome, Dome C and DML ice cores. *Earth and Planetary Science Letters* **224**, 45-54 (2004). [43]
- Roe G & Steig EJ. Characterization of millennial-scale climate variability. *Journal of Climate* **17**: 1929-1944 (2004).
- °Rupper SB, Steig EJ & Roe GH. On the relationship between snow accumulation at Mt. Logan, Yukon, and climate variability in the North Pacific. *Journal of Climate*, **17**: 4724-4739 (2004). [42]
- °Schneider DP, Steig EJ & Comiso J. Recent climate variability in Antarctic from satellite-derived temperature data. *Journal of Climate*, **17** (7): 1569-1583 (2004). [41]
- Taylor KC, White JWC, Severinghaus JP, Brook EJ, Mayewski PA, Alley RB, Steig EJ, Spencer MK, Meyerson E, Meese DA, Lamorey GW, Grachev A, Gow AJ, Barnetti BA. Abrupt glacial climate change around 22 ka on the Siple Coast of Antarctica. *Quaternary Science Reviews* **23**: 7-15 (2004). [40]
- Winebrenner DP, Steig EJ & Schneider DP. Relationship between surface air temperatures and microwave brightness temperatures in Antarctica. *Annals of Glaciology* **39**: 346-350 (2004). [39]
- Miller GH, Wolfe AP, Steig EJ, Sauer PE, Kaplan MR, and Briner JP. The Goldilocks dilemma: big ice, little ice, or "just-right" ice in the Eastern Canadian Arctic. *Quaternary Science Reviews* **21**: 33-38 (2002). [38]
- Moritz RE, Bitz CE, Steig EJ. Dynamics of recent climate change in the Arctic. *Science* **297**: 1497-1502 (2002). [37]
- °Noren AJ, Bierman PR, Steig EJ, Lini A, and Southon JA. Millennial-scale storminess variability in the northeastern United States during the Holocene. *Nature* **419**: 821-824 (2002). [36]
- °Schneider DP & Steig EJ. Spatial variability of Antarctic ice sheet microwave brightness temperatures. *Geophysical Research Letters* **29** (20): 1964, 1964, doi:10.1029/2002GL015490 (2002). [35]
- Steig EJ and Alley RB. Phase relationships between Antarctic and Greenland climate records. *Annals of Glaciology* **35**: 451-456 (2002). [34]
- Steig EJ. Paleoclimatology – Ice Cores. In Holton J, Curry J, Pyle J (eds.) *Encyclopedia of Atmospheric Sciences*, pages 1673-1680 (London: Academic Press, 2002). [33]
- Waddington ED, Steig EJ, Neumann TA. Using characteristic times to assess whether stable isotopes in polar snow can be reversibly deposited. *Annals of Glaciology* **35**, 118-124 (2002). [32]
- Grootes PM, Steig EJ, Stuiver M, Waddington ED, Morse DL & Nadeau M-J. The Taylor Dome Antarctic <sup>18</sup>O record and globally synchronous changes in climate. *Quaternary Research* **56** (3): 289-298 (2001). [31]
- Kaplan MR, Miller GH & Steig EJ. Low-gradient outlet glaciers (ice streams?) drained the Laurentide ice sheet. *Geology* **29**: 343-346 (2001). [30]
- Lal D, Jull AJT, Donahue DJ, Burr GS, Deck B, Jouzel J, and Steig EJ. Record of cosmogenic in situ produced <sup>14</sup>C in Vostok and Taylor Dome ice samples: Implications for strong role of wind ventilation processes. *Journal of Geophysical Research* **106**: 31933-31942 (2001). [29]
- Steig EJ, Fastook JL, Zweck C, Goodwin ID, Licht KJ, White JWC & Ackert RP Jr., West Antarctic Ice Sheet elevation changes. *Antarctic Research Series* **77**: 75-90, doi:10.1029/AR077p0075 (2001). [28]
- Vimeux F, Masson V, Jouzel J, Petit JR, Steig EJ, Stievenard M, Vaikmae R & White JWC. Holocene hydrological cycle changes in southern hemisphere documented in East Antarctic deuterium excess records. *Climate Dynamics* **17**: 503-513 (2001). [27]
- Wolfe AP, Steig EJ & Kaplan MR. An alternative model for the geomorphic history of pre-Wisconsinan surfaces on eastern Baffin Island: a comment on Bierman *et al.* *Geomorphology* **39**: 251-254 (2001). [26]
- Brook EJ, Harder S, Severinghaus J, Steig EJ & Sucher CM. On the origin and timing of rapid changes in atmospheric methane during the last glacial period. *Global Biogeochemical Cycles* **14**: 559-572 (2000). [25]
- Cuffey CM, Conway H, Gades Am, Hallet B, Lorrain R, Severinghaus JP, Steig EJ, Vaughn B & White JWC. Entrainment at cold glacier beds. *Geology* **28**: 351-354 (2000). [24]
- Masson V, Vimeux F, Jouzel J, Delmotte M, Ciais P, Hammer C, Johnsen S, Lopenkov VY, Mosley-Thompson E, Petit JR, Steig EJ, Stievenard M & Vaikmae R. Holocene climate variability in Antarctica based on 11 ice-core isotopic records. *Quaternary Research* **54**: 348-358 (2000). [23]
- Steig EJ, Morse DL, Waddington ED, Stuiver M, Grootes PM, Mayewski PM, Whitlow SL & Twickler MS. Wisconsinan and Holocene climate history from an ice core at Taylor Dome, western Ross Embayment, Antarctica. *Geografiska Annaler* **82A** (2-3): 213-235 (2000). [22]
- Ackert RP Jr, Barclay DJ, Borns HW, Calkin PE, Kurz MD, Steig EJ & Fastook JM. Measurement of past ice sheet elevations in interior West Antarctica. *Science* **286**: 276-280 (1999). [21]
- °Konrad SK, Humphrey NF, Steig EJ, Clark DH, Potter N & Pfeffer WT. Rock glacier dynamics and paleoclimatic implications. *Geology* **27**: 1131-1135 (1999). [20]

- Morse DL, Waddington ED, Marshall HP, Neumann TA, Steig EJ, Dibb JE, Winebrenner DP & Arthern RJ. Accumulation rate measurements at Taylor Dome, East Antarctica: techniques and strategies for mass balance measurements in polar environments. *Geografiska Annaler* **81A**: 683-694 (1999). [19]
- White JWC, Steig EJ, Cole J, Cook ER & Johnsen SJ. Recent, annually resolved climate as recorded in stable isotope ratios in ice cores from Greenland and Antarctica. [In Karl TR (ed.). *The ENSO Experiment research activities; exploring the linkages between the El Nino-Southern Oscillation (ENSO) and human health*. (American Meteorological Society)] Symposium on Global Change Studies **10**: 300-302 (1999). [18]
- Clark DH, Steig EJ, Potter N Jr. & Gillespie AR. Genetic variability of rock glaciers. *Geografiska Annaler* **80A**: 175-182 (1998). [17]
- Cuffey KM & Steig EJ. Isotope diffusion in polar firn: implications for interpretation of seasonal climate parameters in ice core records, with emphasis on central Greenland. *Journal of Glaciology* **44**: 273-284 (1998). [16]
- Morse DL, Waddington ED & Steig EJ. Ice age storm trajectories inferred from radar stratigraphy at Taylor Dome, Antarctica. *Geophysical Research Letters* **25**, 3383-3386 (1998). [15]
- Potter, N Jr., Steig EJ, Clark DH, Speece MJ, Clark GM & Updike AB. Galena Creek Rock Glacier revisited – new observations on an old controversy. *Geografiska Annaler* **80A**: 251-266 (1998). [14]
- Steig EJ, Brook EJ, White JWC, Sucher CM, Bender ML, Lehman SJ, Morse DL, Waddington ED & Clow GD. Synchronous climate changes in Antarctica and the North Atlantic. *Science* **282**: 92-95 (1998). [13]
- Steig EJ, Wolfe AP & Miller GM. Wisconsinan refugia and the glacial history of eastern Baffin Island, Arctic Canada: coupled evidence from cosmogenic isotopes and lake sediments. *Geology* **26** :835-838 (1998). [12]
- Steig EJ, Fitzpatrick JJ, Potter N Jr. & Clark DH. The geochemical record in rock glaciers. *Geografiska Annaler* **80A**: 277-286 (1998). [11]
- Steig EJ, Hart CP, White JWC, Cunningham WL, Davis MD & Saltzman ES. Changes in climate, ocean and ice sheet conditions in the Ross Embayment, Antarctica, at 6 ka. *Annals of Glaciology* **27**: 305-310 (1998). [10]
- Steig EJ, Morse DL, Waddington ED & Polissar PJ. Using the sunspot cycle to date ice cores. *Geophysical Research Letters* **25**: 163-166 (1998). [9]
- Steig EJ. How well can we parameterize past snow accumulation rates in polar ice sheets? *Annals of Glaciology* **25**: 418-422 (1997). [8]
- °White DE, White JWC, Steig EJ & Barlow LK. Reconstructing annual and seasonal climatic responses from volcanic events since A.D. 1270 as recorded in the deuterium signal from the GISP2 ice core. *Journal of Geophysical Research* **102**: 19,683-19,694 (1997). [7]
- Bierman P & Steig EJ. Estimating rates of denudation and sediment transport using cosmogenic isotope abundances in sediment. *Earth Surface Processes and Landforms* **21**: 125-139 (1996). [62]
- Mayewski PA, Twickler MS, Whitlow S, Meeker LD, Yang Q, Thomas J, Kreutz K, Grootes PM, Morse DL, Steig EJ, Waddington ED, Saltzman ES, Whung P-Y & Taylor K. Climate change during the last deglaciation in Antarctica, *Science* **272**: 1636-1638 (1996). [6]
- Steig EJ, Polissar PJ, Stuiver M, Grootes PM & Finkel RC. Large amplitude solar modulation cycles of <sup>10</sup>Be Antarctica: implications for atmospheric mixing processes and interpretation of the ice-core record. *Geophysical Research Letters* **23**: 523-526 (1996). [5]
- Steig EJ, Grootes PM & Stuiver M. Seasonal precipitation timing and ice core records. *Science* **266**: 1885-1886 (1994).
- Hansen DH & Steig EJ. Comparison of water-use efficiency and internal leaf carbon dioxide concentration in juvenile leaves and phyllodes of *Acacia Koa* (Leguminosae) from Hawaii, estimated by two methods. *American Journal of Botany* **80**: 1121-1125 (1993). [4]
- Waddington ED, Morse DL, Grootes PM & Steig EJ. The connection between ice dynamics and paleoclimate from ice cores: a study of Taylor Dome, Antarctica. In Peltier WR, ed., *Ice in the Climate System*, NATO ASI Series **112**: 499-516. Berlin: Springer-Verlag (1993). [3]
- Reid, JB, Murray DP, Hermes DO & Steig EJ. Fractional crystallization in granites of the Sierra Nevada: How important is it?, *Geology* **21**: 587-590, (1993). [2]
- Reid JB, Steig EJ & Bryan WB. Major element evolution of basaltic magmas: a comparison of the information in CMAS and ALFE projections. *Contributions to Mineralogy and Petrology* **101**: 318-325, (1989). [1]

## OTHER PUBLICATIONS

### Edited Volumes

- Steig EJ. *Foreword*. In Cecil LD, Green JR, Thompson LG, eds. *Earth Paleoenvironments: Records Preserved in Mid and Low Latitude Glaciers*, pages xxix-xxix (volume 9 in Smol JP & Last WM, eds. *Developments in*

*Paleoenvironmental Research*) New York: Kluwer Academic Publishers (2004).

Wolff EW, Alley RB, Goto-Azuma K, Krinner G, Jacka TH, Johnsen SJ, Masson V, Morse DL, Stauffer B, Steffensen JP, Steig EJ & van-Ommen TD, eds. *International Symposium on Ice Cores and Climate held in Kangerlussuaq, Greenland, 19-23 August 2001. Annals of Glaciology* volume **35** (2002).

Steig EJ, Clark DM, Potter N. Jr. & Gillespie AR, editors. The geomorphic and climatic significance of rock glaciers. *Geografiska Annaler* **80A** (1998).

Steig EJ, White JWC, White DE, Cross M, Gross W & Keltner J, editors. *The Greenland Summit Ice Cores CD-ROM*. (Boulder, Colorado: Institute of Arctic and Alpine Research, National Snow and Ice Data Center & National Geophysical Data Center, 1998).

Contributed editorials and perspectives

Steig EJ. Climate may not be linked with circulation slowdown. *Nature* **439**: 660 (2006).

Steig EJ. Comment on Lake Agassiz Meltwater. *EOS, Transactions American Geophysical Union* **87**(13): 132 (2006).

Steig EJ. Preface: Holocene climate and cultural evolution in late prehistoric–early historic West Asia. *Quaternary Research* **66**(3): (2006).

Steig EJ, Booth DB, Bourgeois, JB. Editorial [on publishing practices]. *Quaternary Research* **65**(2): 189 (2006).

Gillespie AR, Clark DH, Steig EJ & Potter N Jr. Chapman conference delves into the significance of rock glaciers. *EOS* **78**: 208-209 (1997).

Clark DH, Steig EJ, Potter N, Fitzpatrick J, Updike A & Clark GM. Old ice in rock glaciers may provide long-term climate records. *EOS* **77**: 217-222 (1996).