

CURRICULUM VITAE : KONRAD STEFFEN

Swiss Federal Research Institute WSL
 Zürcherstr. 111, CH-8903 Birmendorf, Switzerland
 Tel: +41 44 739 24 55; Konrad.steffen@wsl.ch, koni@ethz.ch
 US and Swiss Citizen, married and two kids

EDUCATION

Dr.sc.nat.ETH,1984 Surface temperature distribution of an Arctic polynya: North Water in winter; advisor
 Prof. Dr. Atsumu Ohmura, ETH-Zürich.
 Dipl.nat.ETH, 1977 Snow distribution on tundra and glaciers on Axel Heiberg Island, NWT, Canada; advisor
 Prof. Dr. Fritz Müller, ETH-Zürich.

PROFESSIONAL EXPERIENCES

2017-present Science Director, Swiss Polar Institute
 2012-present Director, Swiss Federal Research Institute WSL
 2012-present Professor, Inst. Atmosphere & Climate, ETH-Zürich
 2012-present Professor, Architecture, Civil and Environmental Engineering, EPF-Lausanne
 2005- 2012 Director, Cooperative Institute for Research in Environmental Sciences (CIRES),
 University of Colorado (CU)
 2004-2005 Interim Director, CIRES, University of Colorado (CU)
 2003-2004 Deputy Director, CIRES, University of Colorado (CU)
 2002-2003 Interim Director, CIRES, University of Colorado (CU)
 1998-2005 Associate Director Cryosphere and Polar Processes, CIRES
 1997-2012 Professor at Dept. of Geography, University of Colorado at Boulder
 1993-2012 Faculty, Program in Atmospheric and Oceanic Sciences
 1991-1997 Associate Professor at Dept. of Geography, University of Colorado
 1991-2012 Fellow CIRES, University of Colorado at Boulder
 Sept.-Oct. 1987 Visiting Professor at Dept. of Geography, McGill University, Montreal
 1986-1988 Visiting Fellow at Cooperative Institute for Research in Environmental Sciences
 (CIRES), on leave from ETH for two years
 1985-1990 Oberassistent (Lecturer) at Climate Research Group, ETH, Zürich, Switzerland
 1983-1985 Assistant at Climate Research Group, ETH, Zürich, Switzerland

RECENT GRADUATE STUDENTS

Dr. Waleed Abdalati, University of Colorado, Prof. in Geography, Director of CIRES
 Dr. Atsu Muto, Penn State University, Post-Doc
 Dr. Thomas Phillips, University of Colorado, Post-Doc
 Dr. Jason Box, Ohio State University, Assoc. Prof. in Geography
 Dr. Nicolas Cullen, Department of Geography, University of Otago, Dunedin, New Zealand
 Dr. John Heinrichs, Fort Hays State University, Assoc. Prof. in Dept. Geosciences
 Dr. Marcel Haefliger, Swiss Meteorological Institute, CH-8044 Zurich; Switzerland
 Dr. Axel Schweiger, Polar Science Center/Applied Physics Lab, University of Washington
 Dr. Julianne Stroeve, NSIDC, University of Colorado
 Dr. Sandy Starkweather, NOAA/CIRES Boulder, Colorado
 Dr. Andrew Slater, NSIDC/CIRES, University of Colorado, Boulder, USA
 Dr. David Levinson, Climate Monitoring Branch, NOAA/NESDIS, Asheville, NC
 Dr. Russell Huff, GIS Company, Boulder, CO
 Dr. Dan McGrath, University of Colorado, CIRES, post-doc
 Dr. John Adler, NOAA Washington D.C.
 Dr. Liam Colgan, University of Copenhagen, post Doc
 Mr. John Maurer, Hawaii Ocean Observing System

Ms. Molly Mcallister, NISDC, University of Colorado at Boulder
 Mr. Kevin Sampson, NCAR, Boulder, CO
 Ms. Kate Daniels, Law Office, Boulder, CO

SUMMARY OF GRADUATE STUDENTS AND POSTDOCTORALS SCHOOLARS SPONSERED

1992-2015 7 Master Students; 21 Ph.D. Students; 8 Post. Docs

TEACHING [HTTP://CIRES.COLORADO.EDU/SCIENCE/GROUPS/STEFFEN/CLASSES/](http://CIRES.COLORADO.EDU/SCIENCE/GROUPS/STEFFEN/CLASSES/)

University of Colorado at Boulder (CU)

Physical Climatology: Principles (GEOG 4211), Applied (GEOG 4221)

Physical Climatology: Field Methods (GEOG 5231/4231)

Remote Sensing of the Environment (GEOG/GEOL 4093/5093)

Remote Sensing Field Methods (GEOG 6181)

Reading in Climatology (GEOG 6211)

RESEARCH [HTTP://CIRES.COLORADO.EDU/SCIENCE/GROUPS/STEFFEN/PROJECTS/](http://CIRES.COLORADO.EDU/SCIENCE/GROUPS/STEFFEN/PROJECTS/)

- 1976-1984: North Water Project, Canadian high Arctic, jointly sponsored by the US National Science Foundation, Petro Canada Ltd., Calgary, Canada, and the Swiss National Science Foundation.
- 1979-1981 Energy flux measurements in the Swiss Alps (RHONEX, ALPEX).
- 1984-1985 Reevaluation of energy balance in North Water area.
- 1985-1987 Energy flux measurements on Glacier No.1, Tianshan, China.
- 1987-1990 Validation of sea ice parameters derived from passive microwave data of the Defense Meteorological Satellite Program (DMSP) Special Sensor Microwave/Imager (SSM/I), NASA, Principal Investigator, June 1987 - March 90 US\$ 223,000.
- 1987-1993 Reevaluation of global energy balance, Co-PI, Swiss National Science Foundation 1986, April 1987 - April 1993, Co-PI, \$US 452,000.
- 1990-1992 Greenland Ice Cap, Climate and Climate Processes, Swiss Federal Institute of Technology, Swiss National Science Foundation, Co-PI, March 1990 - March 1992, \$US 550,000.
- 1990-1993 Sea Ice - Atmosphere Interaction: Application of Multispectral Satellite Data in Polar Surface Energy Flux Estimates. Principal Investigator, NASA, April 1990 - April 1993, US\$ 440,000.
- 1991-1995 Parametrization and Scaling of Arctic Ice Conditions in the Context of Ice-Atmosphere Processes, NASA, April 1991 - December 1995, Co-PI, \$US 290,000.
- 1993-1994 Energie und Massenbilanz auf dem grönländischen Eisschild, Swiss National Science Foundation, Co-PI, US\$ 24,000.
- 1993-1996 Ice Surface Retrieval from AVHRR, ATSR, and Passive Microwave Satellite Data: Algorithm Development and Application, NASA, April 1993 - March 1996, Co-PI, US\$ 237,000.
- 1993-1996 Assessment of Climate Variability of the Greenland Ice Sheet: Integration of in situ and Satellite Data, NASA, April 1993 - March 1996, PI, US\$ 560,000.
- 1994-1996 Spatial and Temporal Variability of the Arctic Surface Radiation Budget, NSF/OPP, Jan 1994 - Jan 1996, Co-PI, US\$ 239,000.
- 1994-1996 Energie- und Massenbilanz auf dem grönländischen Eisschild: Fernerkundungsmethoden, Swiss National Science Foundation, Co-PI, US\$ 232,000.
- 1995-1997 Assessment of Variations in the Snow Accumulation Rate in northern Greenland, National Science Foundation, April 1995-March 1997, US\$ 320,000.

- 1995-1996 Assessment of Climate Variability of the Greenland Ice Sheet: Integration of in situ and Satellite Data, NASA, April 1995 - March 1995, Additional Funding for Greenland Climate network, PI, US\$ 74,000.
- 1995-1997 Absolute Gravity/GPS Measurements in Greenland, NASA, May 1995 - April 1997, Co-PI, US\$ 105,000.
- 1996-1997 Instrumentation for Snow Hydrological Research, DoD, June 1996-May 1997, CoPI: \$ 270,000.
- 1996-1999 Sea Ice and Ocean Processes in Baffin Bay: A Study using Radarsat Data and Numerical Modeling, NASA, Jan 1996 - Dec 1998, PI, US\$ 313,000.
- 1996-2000 Greenland Ice Sheet Climatology and Surface Energy Balance Modeling: Greenland Climate network, NASA, April 1996-March 2000, PI, US\$ 825,000.
- 1997-1999 Hyperspectral Imaging and Related Field Methods: Building the Science, NASA-MTPE, Co-PI, US\$ 420,000.
- 1997-2000 Documenting, Understanding, and Predicting the Aggregate Scale Surface Radiation Flux for SHEBA, April 1997 March 2000, CoPI, NASA, US\$ 311,000.
- 1997-2000 Documenting, Understanding, and Predicting the Aggregate Scale Surface Radiation Flux for SHEBA, October 1997 - September 2000, CoPI, NSF-OPP, US\$ 302,000.
- 1998-2006 Aerosol - Cloud - Climate Interactions, NASA-GSFC, PI: US\$ 780,000.
- 1999-2002 Investigation of Photochemical Transformation within Snow and their Effects on Snow and Atmospheric Composition, Sept. 1999- August 2002, NSF/OPP, PI: US\$ 138,721.
- 1999-2000 NASA Cryospheric Sciences, RADARSAT Wide ScanSAR images over Bering Sea and Baffin Bay, Co-PI: \$49,800.
- 2000-2004 Climatology of Arctic Canada, March 2000 – Feb 2004, NASA-GSFC, PI: US\$ 240,472.
- 2001-2005 Greenland Ice Sheet Climatology and Surface Energy Balance Modeling: Greenland Climate network, NASA, April 2001-March 2005, PI, US\$ 879,000.
- 2002-2005 Assessment of Basal Melt of Petermann Gletscher in Northwestern Greenland, NSF/NASA, March 2002 – February 2005, PI: US\$ 246,981.
- 2002-2005 NASA Cryospheric Sciences, Greenland ice sheet melt climatology based on passive and active satellite data: SSM/I and QuikSCAT data, PI: \$390,000.
- 2002-2005 NASA Cryospheric Sciences, Reanalysis of the energy Budget of the ice sheet, Co-PI: \$275,000.
- 2004-2005 NOAA Cooperative Agreement Funding: US\$ 19,300,000,
- 2005-2007 Greenland - Accumulation and Melt Layer, PI, NASA Cryospheric Processes, US\$ 510,000.
- 2005-2006 NOAA Cooperative Agreement Funding: US\$20,440,000.
- 2006-2008 Melt flow acceleration of the Greenland ice sheet, NASA GSFC, US\$122,221.
- 2006-2007 Monitoring Moulin Depth and Pathways in the Pakisoq Region, West-Greenland Ice Sheet, PI, NASA Cryospheric Processes, US\$ 12,000.
- 2006-2007 NOAA Cooperative Agreement Funding: US\$ 20,950,000.
- 2007-2008 NOAA Cooperative Agreement Funding: US\$ 22,840,000.
- 2008-2011 Stability of Larsen C Ice shelf in a warming climate, NSF OPP, US\$360,000.
- 2008-2011 Melt flow acceleration of the Greenland ice sheet, (same title then 2007, 2nd year funding) NASA GSFC, US\$ 417,000.
- 2008-2009 NOAA Cooperative Agreement Funding: US\$ 24,180,000.

2009-2011	Surface Processes of the Greenland ice sheet under a warming climate, NASA Cryospheric Sciences, US\$ 930,000.
2009-2010	NOAA Cooperative Agreement Funding: US\$ 28,040,000.
2011-2014	Surface Processes, Glacio-Hydrology, and Englacial Modeling of the Greenland Ice, NASA Cryospheric Sciences, US\$ 386,937.
2011-2015	Western Water Assessment, NOAA-OAR, US\$ 6,574,000.

PROFESSIONAL EXPERIENCE

- experimental climate measurements of heat fluxes and radiation balance; (RHONEX, ALPEX, 1979, 1980, 1981), (Axel Heiberg Expedition, North Water Expedition, 1975 - 1984), Tienshan, China (1986), Arctic Sea Ice Validation (1987 – 1988), Greenland ice sheet (1990-present)
- instrument development for spectral bidirectional reflectance measurements.
- aircraft and satellite remote sensing data collection and analysis in visible, thermal IR, and microwave (passive and active) regions for cryosphere-atmosphere interaction in climate research.
- sensor evaluation for Earth Observing System (EOS) passive microwave instrument, and validation of sea ice products derived from DMSP SSM/I satellite.
- surface energy balance measurements, eddy-correlation and bulk transfer methods over the Greenland ice sheet.
- remote climate recording, instrument development, and maintaining the Greenland Climate Network

NATIONAL AND INTERNATIONAL COMMITTEE AND EDITORIAL MEMBERSHIP

1986-1987	Associate Scientific Editor, Annals of Glaciology
1986-1991	Member, executive board of "Schweizerische Geographische Gesellschaft".
1987-1991	Member, SSM/I Validation Team, NASA Goddard Space Flight Center, Greenbelt.
1988-1991	Member, SSM/I Sea Ice Archive Working Team (SSIAWT), NASA GSFC.
1989-1993	Member, executive board of the Program for International Polar Ocean Research (PIPOR).
1991-1992	Chief Editor, Annals of Glaciology – Remote Sensing of Snow and Ice
1991-1999	Chairman, Polar Data Archive Distribution Advisory Group, NASA/EOSDIS.
1992-1995	Council Member, Executive Board, International Glaciological Society.
1994-1998	Member of EOS Science Operation Focus Team, NASA/EOSDIS.
1995-2003	Member, Radarsat Geophysical Processor System Team (NASA/RGPS)
1995-2102	Member, Program for Arctic Regional Climate Assessment (NASA/PARCA)
1996-1999	Council Member, Executive Board, International Glaciological Society.
1996-2001	Associate Editor, Journal of Applied Meteorology
1999-2000	Chief Editor, Annals of Glaciology - Cryosphere Models and Validation
1999-2004	Chairman, World Climate Research Program ,CliC Observation Products Panel
2003-2005	Vice President, International Commission of Snow and Ice, IAHS
2003-2012	Theme leader for sea level change, WCRP/CliC
2003-2011	SEARCH Science Steering committee member
2004-2007	Vice President IUGG Commission on the Cryospheric Sciences (CCS)

2007-2012	Association for Cryospheric Sciences, liaison for WMO/WCRP/CliC
2008-2012	Chair WCRP/Climate and Cryosphere program
2006-2008	CRISIS advising board chair, NSF STC, University of Kansas
2006 – 2013	NASA Advisory Council Earth Science Subcommittee Member
2006-2010	Zeitschrift fuer Gletscherkunde and Glazialgeologie, Editorial Board
2007-2010	CCSP 3.4: Abrupt Climate Change, Cryosphere chapter lead
2007-2010	Chair, NOAA Cooperative Institutes Executive Committee
2007-2011	National Academy, Polar Research Board member
2007-2012	GCOS Observation Panel for Climate (TOPC) member
2009-2011	NRC Committee on Stabilization Targets for Atmospheric Greenhouse Gas Concentrations
2009 – 2012	Honorary Consul of Switzerland in Denver, certified by US Dept. of State
2010-2013	IPCC AR5 Lead Author for Cryosphere Chapter
2010-2017	Scientific Advisory Board, Alfred Wegner Institute for Polar and Marine Research
2012-2016	GCOS Observation Panel for Climate (TOPC) chair
2012-2016	World Climate Research Program, Data Panel member
2013-present	Member, Swiss Committee on Polar and High Altitude Research
2014-present	Scientific Committee on Antarctic Research (SCAR) Delegate for Switzerland
2014-present	Member ESA Climate Change Advisory Board
2014-present	Scientific Advisory Board Agroscope
2015-present	Member of Advising Board Swedish Polar Research Secretariat
2016-2017	Board of Directors, Swiss Polar Institute
2017-present	Science Director of Swiss Polar Institute
2017-present	IPCC special report on oceanography and cryosphere, lead author

INTERNATIONAL ORGANIZATIONS MEMBERSHIP

International Glaciological Society, Cambridge, England

American Geophysical Union

American Meteorological Society

PEER-REVIEWED PUBLICATIONS

Thomson Reuters Research ID: C-6027-2013; **h-index: 39**; **Sum of citation: 5163** (Sept. 2017)

Google Scholar: h-index: 54; i10-index: 128; Sum of citation 10637 (Sept 2017)

1. Steffen, K., Sea ice classification from TIR, *International Archives of ISPRS*, Vol. 34-VII/1, 767-776, 1982.
2. Steffen, K., Warm Water cells in the North Water, northern Baffin Bay during winter. *J. Geophys. Res.*, 90(C5), 9129-9136, 1985.
3. Steffen, K., and A. Ohmura, Heat exchange and surface conditions in the North Water, Northern Baffin Bay, *Annals of Glaciol.*, 6, 178-181, 1985.

4. Steffen, K., Ice conditions of an arctic polynya: North Water in winter, *J. Glaciol.*, 32(112), 383-390, 1986.
5. Steffen, K., Bidirectional reflectance of snow at 500 - 600 nm, *IAHS publication*, 166, 415-425, 1987.
6. Steffen, K., Fractures in arctic winter pack ice, North Water, northern Baffin Bay, *Annals of Glaciology*, 9, 211-214, 1987.
7. Steffen K., and J.E. Lewis, Surface temperatures and sea ice typing for northern Baffin Bay, *International Journal of Remote Sensing*, 9(3), 409-422, 1988.
8. Steffen K., and J.M. Maslanik, Comparison of Nimbus 7 Scanning Multichannel Microwave Radiometer radiance and derived sea ice concentration with Landsat imagery for the North Water area of Baffin Bay, *J. Geophys. Res.*, 93(C9), 10,769-10,781, 1988.
9. Steffen, K., and A.J. Schweiger, A multisensor approach to sea ice classification for the validation of DMSP-SSM/I passive microwave derived sea ice products, *Photogrammetric Engineering and Remote Sensing*, 55, 75-82, 1990.
10. Steffen, K., Energy flux density estimation over sea ice based on satellite passive microwave measurements, *Annals Glaciol.*, 15, 178-183, 1991.
11. Steffen, K., and A. Schweiger. NASA team algorithm for sea ice concentration retrieval from Defense Meteorological Satellite Program special sensor microwave imager: comparison with Landsat satellite data, *J. Geophys. Res.*, 96(C12), 21,971-21,987, 1991.
12. Emery, W.J., M. Radebaugh, C.W. Fowler, D. Cavalieri, and K. Steffen. An intercomparison of sea ice parameters computed from AVHRR and Landsat satellite imagery and from airborne passive microwave radiometry, *J. Geophys. Res.*, 96(C12), 22,075-22,086, 1991.
13. Steffen, K., and A. Schweiger, Ocean surface energy flux estimates from satellite data in Arctic regions, *Marine Technol. Society*, Volume II, 434-440, 1992.
14. Steffen, K., W. Abdalati, and J. Stroeve. Climate sensitivity studies of the Greenland ice sheet using satellite AVHRR, SMMR, SSM/I and in situ data, *Meteorology and Atmosph. Physics*, 239-258, 1993.
15. Steffen, K., R. Bindshadler, J. Comiso, D. Eppler, F. Fetterer, J. Hawkins, J. Key, D. Rothrock, R. Thomas, and R. Weaver, Snow and ice applications of AVHRR in polar regions, *Annals of Glaciol.*, 17, 1-16, 1993.
16. Haeffliger, M., K. Steffen, C. Fowler, AVHRR surface temperature and narrow-band albedo comparison with ground measurements for the Greenland ice sheet, *Annals of Glaciol.*, 17, 49-54, 1993.
17. Barry, R.G., J. Maslanik, K. Steffen, R.L. Weaver, V. Troisi, D.J. Cavalieri, and S. Martin, Advances in sea-ice research based on remotely sensed passive microwave data, *Oceanography*, 6(1), 4-12, 1993.
18. Nolin, A.W., K. Steffen, and J. Dozier, Measurement and modeling of the bidirectional reflectance of snow, IGAARS '94 - 1994 *International Geoscience and Remote Sensing Symposium Volumes 1-4*, 1919-1921, 1994.
19. Steffen, K., and J. Heinrichs, Feasibility of sea ice typing with Synthetic Aperture Radar: merging of Landsat Thematic mapper and ERS-1 SAR satellite imagery, *J. Geophys. Res.*, 99(C11), 22,413-22,424, 1994.
20. Steffen, K., and T. DeMaria, Surface energy balance of Arctic sea ice in winter, Fourth Conference on Polar Meteorology and Oceanography, 75-78, 1995.
21. Steffen, K., Surface energy exchange during the onset of melt at the equilibrium line altitude of the Greenland ice sheet, *Annals of Glaciol.*, 21, 13-18, 1995.

22. Abdalati, W., K. Steffen, and K. Jezek, Comparison of brightness temperatures from SSM/I instruments on the DMSP F8 and F11 satellites for Antarctica and Greenland ice sheet, *Intern. J. Rem. Sens.*, 16(7), 1223-1229, 1995.
23. Abdalati, W., and K. Steffen, Passive microwave-derived snowmelt regions on the Greenland ice sheet, *Geophys. Res. Letters*, 22(7), 787-790, 1995.
24. Steffen, K., and T. DeMaria, Surface energy fluxes of Arctic winter sea ice in Barrow Strait, *J. Appl. Meteorol.*, 35, 2067-2079, 1996.
25. J. Heinrichs, J. Maslanik, K. Steffen, Validation of sea ice model using forward simulation of ERS-1 SAR data: A case study in the Beaufort Sea, IGAARS '96 – 1996 International Geoscience and Remote Sensing Symposium: Remote Sensing for a sustainable future, Vol. I-IV, 950-952, 1996.
26. Stroeve, J., M. Haeffliger, and K. Steffen, Surface temperature from ERS-1 ATSR infra-red thermal satellite data in polar regions, *J. Appl. Meteorol.*, 35, 1231-1239, 1996.
27. Abdalati, W., and K. Steffen, Snow melt on the Greenland ice sheet as derived from passive microwave satellite data, *J. Climate*, 10, 165-175, 1997.
28. Abdalati, W., and K. Steffen, The apparent effects of the Mt. Pinatubo eruption on the Greenland ice sheet melt extent, *Geophys. Res. Lett.*, 24(14), 1795-1797, 1997.
29. Stroeve, J., A. Nolin, and K. Steffen, Comparison of AVHRR-derived and in situ surface albedo over the Greenland ice sheet, *Rem. Sens. Env.*, 62, 262-277, 1997.
30. Steffen, K., Hemispheric and directional reflectance of snow: Observations on the Greenland ice Sheet, IRS '96: Current Problems in Atmospheric Radiation, Eds. W. Smith and K. Stamnes, Deepak Publishing, 41-44, 1997.
31. Serreze, M.C., J.R. Key, J. E. Box, J.A. Maslanik, and K. Steffen, A new monthly climatology of global radiation for the Arctic and comparison with NCEP-NCAR reanalysis and ISCCP-C2 fields, *J. Climate*, 11, 121-136, 1998.
32. Stroeve, J., and K. Steffen, Variability of AVHRR-derived clear-sky surface temperature over the Greenland ice sheet, *J. Appl. Meteorol.*, 37, 23-31, 1998.
33. Anklin, M., R.C. Bales. E. Mosley-Thompson, and K. Steffen, Annual accumulation at two sites in northwestern Greenland during recent centuries, *J. Geophys. Res.*, 103(D22), 28775-28,783, 1998.
34. Abdalati, W., K. Steffen, Accumulation and hoar effects on microwave emission on the Greenland ice sheet dry snow zones, *J. Glaciol.*, 44(148), 523-531, 1998.
35. Steffen, K., W. Abdalati, and I. Seherjal, Faceted crystal formation on NE-Greenland low accumulation region, *J. Glaciol.*, 45(149), 63-68, 1999.
36. Steffen, K., Radiation climatology of the Greenland ice sheet: Seasonal and interannual variations, IRS: Current Problems in Atmospheric Radiation 2001.
37. Weaver, R., K. Steffen, J. Heinrichs, J. Maslanik, and G. Flato, Data assimilation in sea ice monitoring, *Annals of Glaciol.*, 31, 327-332, 2000.
38. Shuman, C., K. Steffen, J. Box, and C. Stearn, A dozen years of temperature observations at the Summit: Central Greenland automatic weather stations 1987-1999, *J. Appl. Meteorol.*, 40(4),741-752, 2001.
39. Steffen, K., and J. Heinrichs, C-band SAR backscatter characteristics of Arctic sea ice and land during winter, *Atmosphere-Ocean*, 39(3), 289-299, 2001.
40. Thomas, R., and PARCA instigators, Program for Arctic Regional Climate Assessment (PARCA): Goals, key findings, and future directions, *J. Geophys. Res.*, 106(D24), 33,691-33706, 2001.

41. Steffen, K., and J.E. Box, Surface climatology of the Greenland ice sheet: Greenland climate network 1995-1999, *J. Geophys. Res.*, 106(D24), 33,951-33,964, 2001.
42. Box, J.E. and K. Steffen, Sublimation on the Greenland ice sheet from automated weather station observations, *J. Geophys. Res.*, 106(D24), 33,965-33,982, 2001.
43. Abdalati, W. and K. Steffen, Greenland ice sheet melt extent: 1979-1999, *J. Geophys. Res.*, 106(D24), 33,983-33,989, 2001.
44. Mosley-Thompson, E., J.R. McConnell, R.C. Bales, Z. Li, P.-N. Lin, K. Steffen, L.G. Thompson, R. Edwards, D. Bathke, Local to regional-scale variability of annual net accumulation on the Greenland ice sheet from PARCA cores, *J. Geophys. Res.*, 106(D24), 33,839-33852, 2001.
45. Nghiem, S.V., K. Steffen, R. Kwok, and W.Y. Tsai, Detection of snowmelt regions on the Greenland ice sheet using backscatter change, *J. Glaciol.*, 47(159), 539-547, 2001.
46. Cassano, J.J., J.E. Box, D.H. Bromwich, L. Li, and K. Steffen, Evaluation of Polar MM5 simulations of Greenland's atmospheric circulation, *J. Geophys. Res.*, 106(D24), 33,867-33,890, 2001.
47. Bromwich, D., J. Cassano, T. Klein, G. Heinemann, K. Hines, K. Steffen and J. Box, Mesoscale modeling of katabatic winds over Greenland with Polar MM5, *Mon. Weather Review*, 129, 2290-2309, 2001.
48. Comiso, J.C., and K. Steffen, Studies of Antarctic sea ice concentrations from satellite data and their applications, *J. Geophys. Res.*, 106(C12), 31,361-31,386, 2001.
49. Cullen, N., and K. Steffen, Unstable near-surface boundary conditions in summer on top of the Greenland ice sheet, *Geophys. Res. Lett.*, 28(23), 4491-4494, 2001.
50. Jacobi, H.W., M.M. Fey, M.A. Hutterli, R.C. Bales, N.J. Cullen, K. Steffen and C. Koehler, Measurements of hydrogen peroxide and formaldehyde exchange between the atmosphere and surface snow at Summit, Greenland, *Atm. Environm.*, 36, 2619-2628, 2002.
51. Helmig, D, J. Boulter, D. David, J. Birk, N. Cullen, K. Steffen, B. Johnson, S. Oltmans, Ozone and meteorological boundary-layer conditions at Summit, Greenland, *Atm. Environm.*, 36, 2595-2608, 2002.
52. Honrath, R.E. Y.Y. Lu, M.C. Peterson, J.E. Dibb, M.A. Arseault, N.J. Cullen, and K. Steffen. Vertical fluxes of NO_x, HONO, and HNO₃ above the snowpack at Summit, Greenland. *Atm. Environm*, 36, 2629-2640, 2002.
53. Dassau, T.M., A. Sumer, S. Koeniger, P. Shepson, J. Yang, R. Honrath, N. Cullen, K. Steffen, Investigation of the role of the snowpack on atmospheric formaldehyde chemistry at Summit, Greenland, *J. Geophys. Res.*, 107(D19), ACH 9.1-14, 36, 2595-2608, 2002.
54. Zwally, H.J. W. Abdalati, T. Herring, K. Larsen, J. Saba, and K. Steffen. Surface melt-induced acceleration of Greenland ice-sheet flow, *Science*, 297, 218-222, 2002.
55. Thomas, R.H., W. Abdalati, E. Frederick, W.B. Krabill, S. Manizade, and K. Steffen, Investigation of surface melting and dynamic thinning on Jakobshavn Isbrea, Greenland, *J. Glaciol.*, 49(165), 231-239, 2003.
56. Smith, L.C., Y. Sheng, R.R. Foster, K. Steffen, K.E. Frey, and D.E. Alsdorf, Melting of small Arctic ice caps observed from ERS scatterometer time series, *Geophys. Res. Lett.*, 30(20), CRY 2-14, 2003.
57. Steffen, K., S.V. Nghiem, R. Huff, and G. Neumann, The melt anomaly of 2002 on the Greenland Ice Sheet from active and passive microwave satellite observations, *Geophys. Res. Lett.*, 31(20), L2040210.1029/2004GL020444, 2004.
58. Orr, A., E. Hanna, J. Hunt, J. Cappelen, K. Steffen and A. Stephens, Characteristics of stable flow over southern Greenland, *Pure and Applied Geophysics (PAGEOPH)*, 161(7), 2004.

59. Nghiem, S.V., K. Steffen, G. Neumann, and R. Huff, Mapping of ice layer extent and snow accumulation in the percolation zone of the Greenland ice sheet, *J. Geophys. Res.*, 110, F02017, doi:10.1029/2004JF000234, 2005.
60. Hanna, H., P. Huybrechts, I. Janssens, J. Cappelen, K. Steffen, and A. Stephens, Runoff and mass balance of the Greenland ice sheet: 1958–2003, *J. Geophys. Res.*, 110, D13108, doi:10.1029/2004JD005641, 2005.
61. Box, J.E., D.H. Bromwich, B.A. Veenhuis, L-S Bai, J.C. Stroeve, J.C. Rogers, K. Steffen, T. Haran, S-H Wang, Greenland Ice Sheet Surface Mass Balance Variability (1988-2004) from Calibrated Polar MM5 Output, *J. Climate*, 19 (12), 2783-2800, 2006.
62. Cullen, N. J., T. Mölg, G. Kaser, K. Hussein, K. Steffen, and D. R. Hardy, Kilimanjaro Glaciers: Recent areal extent from satellite data and new interpretation of observed 20th century retreat rates, *Geophys. Res. Lett.*, 33, L16502, doi:10.1029/2006GL027084, 2006.
63. Cullen, N.J., K. Steffen, and P. D. Blanken, Nonstationarity of Turbulent Heat Fluxes at Summit, Greenland, *Boundary-Layer Meteorology*, DOI 10.1007/s10546-006-9112-2, 2006.
64. Herzfeld, U.C., J.E. Box, K. Steffen, H. Mayer, N. Caine, and M. Losleben, A case study on the influence of snow and ice surface roughness on melt energy, *Zeitschrift für Gletscherkunde und Glazialgeologie*, 39, 1-42, 2006.
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