

## Andrew D. Wickert

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CONTACT INFORMATION	University of Potsdam Institute of Earth and Environmental Science Building 27 Karl-Liebknecht-Str. 24-25 14476 Potsdam-Golm, Germany	<i>E-mail:</i> andrew.wickert@uni-potsdam.de <i>WWW:</i> [English] [Deutsch]  <i>E-mail:</i> awickert@umn.edu <i>WWW:</i> <a href="http://esci.umn.edu/people/Andy-Wickert">esci.umn.edu/people/Andy-Wickert</a>
RESEARCH INTERESTS	Integrated evolution of glaciers and ice sheets, rivers and lakes, sea level, and climate. Landscape and river system change in response to natural and human-mediated processes. Open-source computing and environmental instrumentation. Water resources.	
EDUCATION	<b>University of Colorado Boulder</b> , Boulder, Colorado USA  Ph.D., Geology <ul style="list-style-type: none"><li>• Dissertation title: <i>Impacts of Pleistocene glaciation and its geophysical effects on North American river systems</i></li><li>• Advisor: Professor Robert S. Anderson</li><li>• Area of Study: Surface processes</li></ul> <b>Massachusetts Institute of Technology</b> , Cambridge, Massachusetts USA  S.B., Earth, Atmospheric, and Planetary Science, June 2008 <ul style="list-style-type: none"><li>• Geoscience Focus</li><li>• Humanities concentration in archaeology</li><li>• Thesis: <i>Measuring Channel Mobility through the Analysis of Area-based Change in Analog Experiments, with Insights into Alluvial Environments</i></li></ul>	
PROFESSIONAL POSITIONS	<b>University of Minnesota</b> , Minneapolis, Minnesota, USA  Assistant Professor, <b>Department of Earth Sciences</b> (Starting August 2015) <ul style="list-style-type: none"><li>• Surface processes</li><li>• Water in the environment</li><li>• Quaternary geology</li><li>• Sea level</li></ul> <b>Universität Potsdam</b> , Potsdam, Brandenburg, Germany  Postdoctoral Research Scientist, <b>Institut für Erd- und Umweltwissenschaften</b> , September 2014–August 2015 <ul style="list-style-type: none"><li>• Interactions between climate, erosion, deposition, and fluvial processes</li><li>• Field studies near Salta, Argentina</li></ul> <b>University of Colorado Boulder</b> , Boulder, Colorado USA  Graduate Research Scientist, <b>Institute of Arctic and Alpine Research</b> and <b>Department of Geological Sciences</b> , May 2009–August 2014 <ul style="list-style-type: none"><li>• Deglaciation of North America</li><li>• Open-source GIS-integrated numerical modeling of geophysical processes including lithospheric flexure, sea level, surface water, and fluvial geomorphic change</li><li>• Use of geologic constraints such as isotopic data and bedrock mapping to evaluate global ice sheet models</li><li>• Development of open-source data logging and sensing technologies; applications to soil monitoring, post-wildfire runoff and erosion, and flash flood monitoring</li></ul>	

AWARDS AND  
FELLOWSHIPS

- British Society for Geomorphology Graduate Student Research Grant, 2014.
- American Geophysical Union Outstanding Student Paper Award, Earth and Planetary Surface Processes, for *Ice Age Geomorphology of North America*, Fall Meeting, 2012.
- University of Colorado United Government of Graduate Students Travel Grant, 2012.
- American Geophysical Union Outstanding Student Paper Award, Earth and Planetary Surface Processes, for *Dynamic Drainage Networks and Discharge Histories in North America over the Last Glacial Cycle: Implications for Geomorphic Change and Early Human Settlement Patterns*, Fall Meeting, 2011.
- Geological Society of America Graduate Student Research Grant, 2010.
- National Defense Science and Engineering Graduate Fellowship (NDSEG) through the Office of Naval Research, 2009–2010, and the Air Force Office of Scientific Research, 2010–2011
- ExxonMobil Corporation Geoscience Grant, 2009
- National Science Foundation Graduate Research Fellowship, 2009 (deferred to accept NDSEG)
- National Science Foundation Graduate Research Fellowship Honorable Mention, 2008
- Massachusetts Institute of Technology Department of Earth, Atmospheric, and Planetary Sciences William Otis Crosby Award for Continued Excellence, 2008
- Geological Society of America Research Grant for Outstanding Student Poster, Sedimentary Geology Division, 2007.
- Massachusetts Institute of Technology Department of Earth, Atmospheric, and Planetary Sciences Goetze Prize for Undergraduate Research, 2007

PAPERS

- Wickert, A. D. (2014), The ALog: Inexpensive, Open-Source, Automated Data Collection in the Field, *Bulletin of the Ecological Society of America*, 95(2), 68–78, doi:10.1890/0012-9623-95.2.68.
- Monteleone, K., E. J. Dixon, and A. D. Wickert (2013), Lost Worlds: A predictive model to locate submerged archaeological sites in SE Alaska, USA, in *Archaeology in the Digital Era. Papers from the 40th Annual Conference of Computer Applications and Quantitative Methods in Archaeology (CAA), Southampton, 26-29 March 2012*, edited by G. Earl, T. Sly, A. Chrysanthi, P. Murrieta-Flores, C. Papadopoulos, I. Romanowska, and D. Wheatley, pp. 678–693, Amsterdam University Press, ISBN:9789089646637.
- Wickert, A. D., J. X. Mitrovica, C. Williams, and R. S. Anderson (2013), Gradual demise of a thin southern Laurentide ice sheet recorded by Mississippi drainage, *Nature*, 502(7473), 668–671, doi:10.1038/nature12609.
- Wickert, A. D., J. M. Martin, M. Tal, W. Kim, B. A. Sheets, and C. Paola (2013), River channel lateral mobility: metrics, time scales, and controls, *Journal of Geophysical Research: Earth Surface*, 118(2), 396–412, doi:10.1029/2012JF002386.

SUBMITTED  
PAPERS

- Pelletier, J. D., A. B. Murray, J. L. Pierce, P. R. Bierman, D. D. Breshears, B. T. Crosby, M. Ellis, E. Foufoula-Georgiou, A. M. Heimsath, C. Houser, N. Lancaster, M. Marani, D. J. Merritts, L. J. Moore, J. L. Pederson, M. J. Poulos, T. M. Rittenour, J. C. Rowland, P. Ruggiero, D. J. Ward, K. X. Whipple, A. D. Wickert, and E. M. Yager (submitted), Forecasting the response of Earth's surface to future climatic and land-use changes: An assessment.

PAPERS IN  
REVISION

- Wickert, A. D., Anderson, R. S., and Mitrovica, J. X. (in revision), Incision of the Mississippi River through the Laurentide Ice Sheet forebulge.
- Thompson, J. A., B. Bookhagen, A. D. Wickert, D. W. Burbank, and D. Scherler (in revision), Glacial-surface velocities and frontal terminus positions on Mt. Shasta, Northern California, 1983–2010.
- Picard, K., A. D. Wickert, and P. R. Hill (reviews received, in revision), Implications of glacio-isostatic adjustment on the relative sea level of an Arctic shelf: the Canadian Beaufort Shelf.

PAPERS IN  
PREPARATION

Wickert, A. D. and Colgan, W. T. (in prep.) IceFlow-GRASS: a two-dimensional open-source GIS-integrated model of glacier and ice cap dynamics.

Wickert, A. D. (in prep.) Automated reconstruction of drainage basins and water discharge to the sea through glacial cycles.

Wickert, A. D., K. R. Monteleone, and R. S. Anderson (in prep.), Reconstructing the Paleogeography of Beringia: Landscape of the First Americans.

PUBLISHED  
COMPUTER  
PROGRAMS

Wickert, A. D. (2012), Flexure: *1D and 2D modeling of elastic plate bending with variable thickness*, version 0.6, <http://csdms.colorado.edu/wiki/Model:Flexure>, doi:10.1594/IEDA/100123.

Wickert, A. D. (2012), AlluvStrat: *Builds fluvial stratigraphy from channel and overbank processes*, version 0.1, <http://csdms.colorado.edu/wiki/Model:AlluvStrat>, doi:10.1594/IEDA/100088.

Wickert, A. D. (2012), NEXRAD-Extract: *Converts raw WSR-88D (NEXRAD) radar products into time series for hydrologic research*, version 0.1, <http://csdms.colorado.edu/wiki/Model:NEXRAD-extract>, doi:10.1594/IEDA/100150.

THESES

Wickert, A. D. (2014), Impacts of Pleistocene glaciation and its geophysical effects on North American river systems, Ph.D. Dissertation, University of Colorado, Boulder, CO, USA.

Wickert, A. D. (2007), Measuring channel mobility through the analysis of area-based change in analog experiments, with insights into alluvial environments, S.B. Thesis, Massachusetts Institute of Technology, Cambridge, MA, USA.

REFERENCE  
MANUALS

Wickert, A. D. (2012), GRASS GIS for Geomorphologists: An Introductory Guide, 67 pp.

Wickert, A. D. (2011), Arduino-based Data Loggers, 6 pp.

CONFERENCE  
PROCEEDINGS

Wickert, A. D., R. S. Anderson, and J. X. Mitrovica (2014), Incision of the Mississippi River through the Laurentide Ice Sheet Forebulge, in *AGU Fall Meeting Abstracts*, EP14B-06, San Francisco, CA.

Ivanovic, R. F., L. J. Gregoire, A. D. Wickert; Valdes, P. J., and Gomez, N. A. (2014), How did the North American ice Saddle Collapse impact the climate 14,500 years ago?, in *AGU Fall Meeting Abstracts*, PP51D-1153, San Francisco, CA.

Anderson, L. S., Wickert, A. D., Colgan, W. T., and Anderson, R. S. (2014), Numerical Modeling of the Last Glacial Maximum Yellowstone Ice Cap Captures Asymmetry in Moraine Ages, in *AGU Fall Meeting Abstracts*, C53C-0323, San Francisco, CA.

Wickert, A. D., Colgan, W. T., Anderson, L. S., Hogley, D. E. J., Anderson, R. S., and Tucker, G. E. (2014), Integrating glaciers and isostatic deformation into Landlab, a computational framework for Earth-surface systems, in *CSDMS 2014 Meeting*, Boulder, CO.

Anderson, L. S., Plummer, M., Wickert, A. D., Colgan, W. T., and Anderson, R. S. (2014), Numerical modeling of the Last Glacial Maximum Yellowstone Ice Cap, in *Abstracts with Programs*, Joint Rocky Mountain and Cordilleran Section Meeting, Geological Society of America, Bozeman, MT.

Wickert, A. D. (2013), Inexpensive open-source data logging in the field, in *AGU Fall Meeting Abstracts*, H43H-1574, San Francisco, CA.

Wickert, A. D., J. X. Mitrovica, and R. S. Anderson (2013), North American deglaciation and drainage evolution, in *Abstracts with Programs*, Annual Meeting, Geological Society of America, Denver, CO.

Wickert, A. D., K. R. Monteleone, and R. S. Anderson (2013), Reconstructing the Paleogeography of Beringia, in *Paleoamerican Odyssey: A Conference Focused on First Americans Archaeology*, Santa Fe, NM.

- Monteleone, K. and A. Wickert (2013) Investigating the Potential for Archaeological Sites on the Submerged Southern Beringian Archipelago, in *Paleoamerican Odyssey: A Conference Focused on First Americans Archaeology*, Santa Fe, NM.
- Picard, K., A. D. Wickert, and P. R. Hill (2012), Insights into the timing of submarine landslide events on the Beaufort Slope from sea level and stratigraphic modeling, in *ArcticNet Annual Scientific Meeting*, ArcticNet, Victoria, BC, Canada.
- Wickert, A. D., R. S. Anderson, J. X. Mitrovica, and K. Picard (2012), Ice Age Geomorphology of North America, in *AGU Fall Meeting Abstracts*, EP51E–01, San Francisco, CA.
- Perron, J. T., P. Myrow, J. C. Kao, K. L. Huppert, A. Koss, and A. D. Wickert (2012), Unique and Generic Signatures of Transient Wave Ripple Evolution, in *AGU Fall Meeting Abstracts*, EP54B–08, San Francisco, CA.
- Ferrier, K., J. X. Mitrovica, T. Perron, G. A. Milne, and A. D. Wickert (2012), Effects of sediment transport and deposition on crustal loading, Earth's gravitational field, and sea level, in *AGU Fall Meeting Abstracts*, G41A–0876, San Francisco, CA.
- Monteleone, K. R., E. J. Dixon, and A. D. Wickert (2012), Lost Worlds: A predictive model to locate submerged archaeological sites in SE Alaska, USA, in *Computer applications and quantitative methods in Archaeology*, Southampton, UK.
- Anderson, S. P., R. S. Anderson, P. J. Kelly, G. E. Tucker, and A. D. Wickert (2012), Frost weathering: Climate control of regolith production and critical zone evolution, in *Geophysical Research Abstracts*, vol. 14, pp. EGU2012–6803.
- Wickert, A. D., R. S. Anderson, and J. X. Mitrovica (2012), Drainage evolution in North America since the Last Glacial Maximum, in *Hydrologic Sciences Student Research Symposium*, University of Colorado at Boulder.
- Wickert, A. D., K. Monteleone, J. X. Mitrovica, R. S. Anderson, and C. M. Lee (2012), Beringian Paleogeography and Archaeological Site Prediction, in *Annual Conference of the Alaska Anthropological Association*, vol. 39.
- Picard, K., A. D. Wickert, and P. R. Hill (2012) A new relative sea-level model for the Canadian Mackenzie-Beaufort region, in *Co-ordinated Scientific Drilling in the Beaufort Sea*, IODP Workshop, Kananaskis, AB, Canada.
- Wickert, A. D., R. S. Anderson, J. X. Mitrovica, A. J. Kettner, and C. M. Lee (2011), Dynamic Drainage Networks and Discharge Histories in North America over the Last Glacial Cycle: Implications for Geomorphic Change and Early Human Settlement Patterns, in *AGU Fall Meeting Abstracts*, American Geophysical Union, San Francisco, CA.
- Wickert, A. D., J. A. Moody, and D. A. Martin (2011), Capturing the Initiation and Spatial Variability of Runoff on Soils Affected by Wildfire, in *AGU Fall Meeting Abstracts*, H31B-1152, American Geophysical Union, San Francisco, CA.
- Huppert, K. L., A. R. Koss, J. T. Perron, P. M. Myrow, J. B. Southard, and A. D. Wickert (2011), Morphodynamics of Disequilibrium Wave Ripples, in *AGU Fall Meeting Abstracts*, EP33A-0896, American Geophysical Union, San Francisco, CA.
- Wickert, A. D., R. S. Anderson, and J. X. Mitrovica (2011), Quaternary incision of the Upper Mississippi River across a glacial forebulge, in *Abstracts with Programs*, Annual Meeting, Geological Society of America, Minneapolis, MN.
- Wickert, A. D. (2010), The Automatically Triggered Video or Imaging Station (ATVIS): An Inexpensive Way to Catch Geomorphic Events on Camera, in *AGU Fall Meeting Abstracts*, American Geophysical Union, San Francisco, CA.

- Arritt, R. W., W. Connolley, I. Ramjohn, S. Schulz, and A. D. Wickert (2010), Covering Climate Change in Wikipedia, in *AGU Fall Meeting Abstracts*, American Geophysical Union, San Francisco, CA.
- Wickert, A. D., J. M. Martin, B. A. Sheets, M. Kelberer, W. Kim, M. Tal, and C. Paola (2009), A method to translate between short-term fluvial processes on deltas and bulk volumes of channel and overbank deposits in the stratigraphic record, in *AGU Fall Meeting Abstracts*, EP41A–0590, American Geophysical Union, San Francisco, CA.
- Wickert, A. D., and R. S. Anderson (2009), Topographic Change due to Sea Level Induced Asthenospheric Flow: A New Consideration in the Timing and Extent of the Bering Land Bridge, in *AGU Fall Meeting Abstracts*, DI32A–04, American Geophysical Union, San Francisco, CA.
- Wickert, A. D., J. Martin, W. Kim, M. Tal, D. Hoyal, J. Shaw, M. Wolinsky, and C. Paola (2007), Lateral mobility of river channels: Measurement and external controls, in *Abstracts with Programs, Annual Meeting*, vol. 39-6, p. 309, Geological Society of America, Denver, CO.
- Wickert, A. D., C. Paola, W. Kim, M. Tal, and J. Martin (2007), Scaling analysis of experimental channel migration rates in response to varying sediment flux, baselevel, and vegetation density, in *Abstracts with Programs, Northeastern Section Meeting*, vol. 39-1, p. 44, Geological Society of America, Durham, NH.

#### INVITED TALKS

- Wickert, A. D. (2014), Impacts of Pleistocene Glaciation and its Geophysical Effects on North American River Systems, California Institute of Technology, Pasadena, CA.
- Wickert, A. D. (2013), Co-evolution of sea level, ice sheets, drainage networks, and their depositional records in North America since the Last Glacial Maximum, Minnesota Geological Survey, Saint Paul, MN.
- Wickert, A. D. (2013), Co-evolution of sea level, ice sheets, drainage networks, and their depositional records in North America since the Last Glacial Maximum, University of Oregon, Eugene, OR.
- Wickert, A. D. (2012), Directions in Earth-surface Science, University of Minnesota, Minneapolis, MN.
- Wickert, A. D. (2012), Co-evolution of sea level, ice sheets, drainage networks, and their depositional records in North America since the Last Glacial Maximum, University of Minnesota, Minneapolis, MN.
- Wickert, A. D. (2012), Community Earth Surface Process Modeling, *BISEPPS Seminar*, Harvard University, Cambridge, MA.
- Wickert, A. D. (2012), Coupled North American ice sheet and drainage evolution since the Last Glacial Maximum, *Earth and Planetary Sciences Department Colloquium*, Harvard University, Cambridge, MA.
- Wickert, A. D. (2012), Inexpensive open-source field instrumentation, *Department Lecture*, Massachusetts Institute of Technology, Cambridge, MA.
- Wickert, A. D. (2012), Co-evolution of sea level, ice sheets, drainage networks, and their depositional records in North America since the Last Glacial Maximum, *Earth, Atmospheric, and Planetary Sciences Department Lecture Series*, Massachusetts Institute of Technology, Cambridge, MA.
- Wickert, A. D. (2012), Feedbacks between surface processes and flexural isostasy: a motivation for coupling models, *Geomorphology Seminar*, Massachusetts Institute of Technology, Cambridge, MA.

Wickert, A. D., G. E. Tucker, E. W. H. Hutton, B. Yan, and S. D. Peckham (2011), Feedbacks between surface processes and flexural isostasy: a motivation for coupling models, in *CSDMS 2011 Meeting: Impact of time and process scales*, Student Keynote, Boulder, CO.

Wickert, A. D. (2008), Time-scales of channel change and floodplain re-working in alluvial river systems, in *University of Pennsylvania Department of Earth and Environmental Science seminar series*, Philadelphia, Pennsylvania.

**TECHNICAL SKILLS** Computing: Python; embedded C/C++; some MATLAB; Bash; GRASS GIS. Model coupling with Bocca / Babel / CCA. Writing coupled solutions of ODE's and PDE's using a variety of numerical techniques. Coupling models with GIS. Familiar with a wide swath of surface-process modeling software and general-purpose open-source software.

Field geology: Topographic mapping: stream cross-sections, profiles, and terraces; total station and DGPS surveying. Structural and stratigraphic geologic mapping and hand sample identification. Familiarity with geomorphic, stratigraphic, and structural field methods in a variety of environments. Snow travel / avalanche safety experience and Wilderness First Responder.

Field Instrumentation: Designing, building, and installing monitoring equipment, including all electronics and hardware.

**COMMUNITY INVOLVEMENT**

- Writing mentor (2013–2014) and field trip co-leader (2012–2013) for the UNAVCO RE-SESS internship program for underrepresented minorities
- Co-organized the Hydrologic Sciences Symposium at the University of Colorado, 2013.
- Reviewed papers for *Nature*, *Journal of Geophysical Research*, *Water Resources Research*, and *Geomorphology*.
- Lead educational efforts to improve adoption of open-source programming in Earth surface sciences to support international collaborations, and budget management, and better-integrated software architecture (e.g., [http://csdms.colorado.edu/wiki/Introduction\\_to\\_Python](http://csdms.colorado.edu/wiki/Introduction_to_Python))
- Session co-convenor at the 2012, 2013, and 2014 AGU Fall Meetings for *Transformative measurements to understand the geosphere: Zip-ties, Arduinos, Novel Sensors and Twitter*
- Assisted the Wikipedia geology project, including co-writing three “Featured Articles” and fact-checking a large number of others.

**PROFESSIONAL ASSOCIATIONS OR SOCIETY MEMBERSHIP**

- American Geophysical Union (AGU)
- Community Surface Dynamics Modeling System (CSDMS)
- Geological Society of America (GSA)
- American Quaternary Association (AMQUA)
- British Society for Geomorphology (BSG)