

## CURRICULUM VITAE: LAURENCE C. SMITH

My scientific research examines the impacts of climatic and environmental change upon northern environments. To date, four overarching research themes have emerged in my work: [1] hydrologic systems, including rivers, lakes, and outburst floods; [2] cryospheric systems, including glaciers, ice sheets, and permafrost; [3] carbon cycling in northern peat soils; and [4] emerging technologies in satellite remote sensing, especially radar systems. Most recently, I have become interested in the intersection of geophysical and social science, including a new book *THE WORLD IN 2050: Four Forces Shaping Civilization's Northern Future* (Dutton Books: New York, 2010) (titled *THE NEW NORTH* in the U.K. with 14 international translations pending in 2011).

### EDUCATION

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- Ph.D. Cornell University** (1996) *Department of Earth and Atmospheric Sciences, Ithaca, New York*
- M.S. Indiana University** (1991) *Department of Geological Sciences, Bloomington, Indiana*
- B.S. University of Illinois** (1989) *Department of Geology, Urbana-Champaign, Illinois*

### PROFESSIONAL HISTORY

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- Vice Chair, Dept. of Geography**  
*2010 – present*  
University of California, Los Angeles
- Appointed Vice-Chair, Department of Geography, July 2010
  - Appointed Affiliate Faculty Member, Institute of the Environment, July 2010
- Professor**  
*2006 – present*  
University of California, Los Angeles
- Department of Geography, with additional 0 FTE joint appointment in the Department of Earth & Space Sciences
- Associate Professor**  
*2002 – 2006*  
University of California, Los Angeles
- Department of Geography, with additional 0 FTE joint appointment in the Department of Earth & Space Sciences
- Joint appointment**  
*2000 – present*  
University of California, Los Angeles
- 0 FTE appointment in the Department of Earth & Space Sciences, UCLA
- Assistant Professor**  
*1996 – 2002*  
Department of Geography  
University of California, Los Angeles
- Appointed July 1996 to conduct research, teach, and advise graduate students in the general areas of hydrology, remote sensing, and geographic information technologies
- Hydrologist**  
*1991 – 1992*  
U.S. Geological Survey
- Water Resources Division, Indianapolis, Indiana.

### HONORS

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<i>Woo Lecturer</i>	<b>CMOS-CGU Joint Congress</b> (2010) Named plenary lecture to the 3 <sup>rd</sup> Joint Congress of the Canadian Meteorological and Oceanographic Society and the Canadian Geophysical Union. For more see <a href="http://www.cmos.ca/congress2010/">http://www.cmos.ca/congress2010/</a>
<i>Bellagio Residency</i>	<b>The Rockefeller Foundation</b> (2007) One-month residency for scholars who “demonstrate a history of significant achievement in their respective fields.” See <a href="http://www.rockfound.org/bellagio/bel_scholar.shtml">http://www.rockfound.org/bellagio/bel_scholar.shtml</a>
<i>Guggenheim Fellow</i>	<b>John S. Guggenheim Foundation, New York</b> (2006-07) Annual award for “distinguished achievement in the past and exceptional promise for future accomplishment” For more information see <a href="http://www.gf.org/April062006.html">http://www.gf.org/April062006.html</a>
<i>Discover Magazine Top 100</i>	<b>Discover Magazine</b> (January 2006) Annual award for “the Top 100 Science Stories of the Year” (2005). For more information see <a href="http://discovermagazine.com/2006/jan/environment/">http://discovermagazine.com/2006/jan/environment/</a>
<i>Frontier Lecturer</i>	<b>American Geophysical Union</b> (2005) Keynote “ <i>Arctic Change and the New Global Hydrology</i> ,” AGU Fall Meeting, San Francisco
<i>NASA New Investigator</i>	<b>National Aeronautics and Space Administration</b> (2000) Career development award for tenure-track faculty
<i>UCLA Career Development Award</i>	<b>University of California, Los Angeles</b> (2000) Career development award for promising junior faculty
<i>Outstanding Student Paper</i>	<b>American Geophysical Union</b> (1995) For description, see <i>Eos, Trans. AGU</i> 76(36), 1995.
<i>Graduate Student Researchers Program Fellow</i>	<b>National Aeronautics and Space Administration</b> (1994) Three years of Ph.D. tuition/stipend support
<i>Robert K. Fahnestock Memorial Award</i>	<b>Geological Society of America</b> (1994) Annual award to the ‘most outstanding student research proposal in Geomorphology.’ See <i>GSA TODAY</i> 4(9), 1994.
<i>Most Outstanding Graduate Student</i>	(1993) <b>Cornell University</b> Annual award in the Dept. of Earth and Atmospheric Sciences.

**PEER-REVIEWED JOURNAL PUBLICATIONS**

**(Total 58)**

- SMITH, L.C.**, Agents of Change in the New North, *Eurasian Geography and Economics* 52(1), 30–55, DOI: 10.2747/1539-7216.52.1.30., 2011.
- BURGESS, E.W., FORSTER, R.R., BOX, J.E., MOSELEY-THOMPSON, E., BROMWICH, D.H., BALES, R.C. AND **L.C. SMITH**, A Spatially calibrated model of annual accumulation rate on the Greenland Ice Sheet (1958-2007), *Journal of Geophysical Research* 115, F02004, doi:10.1029/2009JF001293, 2010.
- CHU, V.W., **SMITH, L.C.** RENNERMALM, A.K., FORSTER, R.R., BOX, J.E., AND N. REEH, Sediment plume response to surface melting and supraglacial lake drainages on the Greenland ice sheet, *J. Glaciology* 55(194), 1072-1082, 2009.
- SMITH, L.C.**, AND T.M. PAVELSKY, Remote sensing of volumetric storage changes in lakes, *Earth Surface Processes and Landforms* 34 (Special Issue on Remote Sensing of Rivers), 1353-1358, 2009.

- PAVELSKY, T.M., AND L.C. SMITH, Remote sensing of suspended sediment concentration, flow velocity, and lake recharge in the Peace-Athabasca Delta, Canada, *Water Resources Research*, 45, W11417, doi:10.1029/2008WR007424, 2009.
- LEWIS, S.M., AND L.C. SMITH, Hydrologic drainage of the Greenland Ice Sheet. *Hydrological Processes* 23, 2004-2011, doi:10.1002/hyp.7343, 2009.
- RENNERMALM, A.K., SMITH, L.C. STROEVE, J.C., AND V.W. CHU, Does sea ice influence Greenland ice sheet surface-melt? *Environmental Research Letters* 4, 024011, doi:10.1088/1748-9326/4/2/024011, 2009.
- BEILMAN, D.W., MACDONALD, G.M., SMITH, L. C., AND P.J. REIMER, Carbon accumulation in peatlands of West Siberia over the last 2000 years, *Global Biogeochemical Cycles* 23, GB1012, doi:10.1029/2007GB003112, 2009.
- SMITH, L.C., AND T.M. PAVELSKY, Estimation of river discharge, propagation speed, and hydraulic geometry from space: Lena River, Siberia. *Water Resources Research* 44, W03427 doi:10.1029/2007WR006133, 2008.
- SHAH C.A., SHENG, Y., AND L.C. SMITH, Automated Image Registration Based on Pseudoinvariant Metrics of Dynamic Land-Surface Features, *IEEE Trans. Geoscience and Remote Sensing* 46(11), 3908-3916, 2008.
- SHENG, Y., SHAH C.A., AND L.C. SMITH, Automated image registration for hydrologic change detection in the lake-rich Arctic, *IEEE Geoscience and Remote Sensing Letters* 5(3), 414-418, 2008.
- MILLIMAN, J.D., FARNSWORTH, K.L., JONES, P.D., XU, K.H., AND L.C. SMITH, Climatic and anthropogenic factors affecting river discharge to the global ocean, 1951-2000, *Global and Planetary Change* 62, doi:10.1016/j.gloplacha.2008.03.001, 187-194, 2008.
- PAVELSKY, T.M., AND L.C. SMITH, Remote sensing of hydrologic recharge in the Peace-Athabasca Delta, Canada. *Geophysical Research Letters* 35, L08403, doi:10.1029/2008GL033268, 2008.
- PAVELSKY, T.M., AND L.C. SMITH, RivWidth: A Software tool for the calculation of river widths from remotely sensed imagery. *IEEE Geoscience and Remote Sensing Letters* 5(1), 70-73, doi:10.1109/LGRS.2007.908305, 2008.
- SMITH, L.C., PAVELSKY, T.M., MACDONALD, G.M., SHIKLOMANOV, A.I. AND R.B. LAMMERS, Rising minimum flows in northern Eurasian rivers: A growing influence of groundwater in the high-latitude water cycle. *Journal of Geophysical Research* 112, G04S47, doi:10.1029/2006JG000327, 2007.
- SHIKLOMANOV, A.I., LAMMERS, R.B., RAWLINS, M.A., SMITH, L.C., AND T.M. PAVELSKY, Temporal and spatial variations in maximum river discharge from a new Russian data set, *Journal of Geophysical Research* 112, G04S53, doi:10.1029/2006JG000352, 2007.
- MACDONALD, G.M., KREMENETSKI, K.V., SMITH, L.C., AND H.G. HIDALGO, Recent Eurasian river discharge to the Arctic Ocean in the context of longer-term dendrohydrological records, *Journal of Geophysical Research* 112, G04S50, doi:10.1029/2006JG000333, 2007.
- FREY, K.E., MCCLELLAND, J.W., HOLMES, R.M., AND L.C. SMITH, Impacts of climate warming and permafrost thaw on the riverine transport of nitrogen and phosphorus to the Kara Sea, *Journal of Geophysical Research* 112, G04S58, doi:10.1029/2006JG000369, 2007.
- WALTER, K. M., SMITH, L.C., AND F. S. CHAPIN III, Methane bubbling from northern lakes: Present and future contributions to the global methane budget, *Philosophical Transactions of the Royal Society A*, 365, 1657-1676, doi:10.1098/rsta.2007.2036, 2007.
- SMITH, L.C., SHENG, Y., AND G.M. MACDONALD, A first pan-Arctic assessment of the influence of glaciation, permafrost, topography and peatlands on northern lake distribution. *Permafrost and Periglacial Processes* 18, 201-208, doi:10.1002/ppp.581, 2007.
- FREY, K.E., AND L.C. SMITH, How well do we know northern land cover? Comparison of four global vegetation and wetland products with a new ground-truth database for West Siberia. *Global Biogeochemical Cycles* 21, GB1016, doi:10.1029/2006GB002706, 2007.
- FREY, K.E., SIEGEL, D.I., AND L.C. SMITH, Geochemistry of West Siberian streams and their potential response to permafrost degradation, *Water Resources Research* 43, W03406, doi:1029/2006WR0049022006, 2007.
- SMITH, L.C., SHENG, Y., MAGILLIGAN, F.J., SMITH, N.D., GOMEZ, B., MERTES, L.A.K., KRABILL, W.B. AND J.B. GARVIN, Geomorphic impact and rapid subsequent recovery from the 1996 Skeiðarársandur jökulhlaup, Iceland, assessed with multi-year airborne lidar, *Geomorphology* 75, 65-75, 2006.
- MACDONALD, G. M., BEILMAN, D.W., KREMENETSKI, K. V., SHENG, Y., SMITH, L. C., AND A.A. VELICHKO, Rapid early development of circumarctic peatlands and atmospheric CH<sub>4</sub> and CO<sub>2</sub> variations, *Science* 314, 285-288, 2006.

- PAVELSKY, T.M., AND L.C. SMITH, Intercomparison of four global precipitation datasets and their correlation with increased Eurasian river discharge to the Arctic Ocean, *Journal of Geophysical Research*, 111(D21112), doi:10.1029/2006JD007230, 2006.
- SAMPSON, K.M., AND L.C. SMITH, Relative ages of Pleistocene moraines discerned from pebble counts: Eastern Sierra Nevada, California. *Physical Geography* 27(3), 223-235, 2006.
- SMITH, L.C., SHENG, Y., MACDONALD, G.M. AND L.D. HINZMAN, Disappearing Arctic lakes, *Science*, 308, 1429, 2005.
- ALSDORF, D.E., T. DUNNE, L.A.K. MERTES, J.M. MELACK, SMITH, L.C. AND L.L. HESS, Diffusion modeling of recessional flow on central Amazonian floodplains, *Geophysical Research Letters*, 32(21), Art. No. L21405, 2005.
- BIERKLIE, D.M., MOLLER, D., SMITH, L.C. AND S.L. DINGMAN, Estimating discharge in rivers using remotely sensed hydraulic information, *Journal of Hydrology* 309(1-4), 191-209, 2005.
- FREY, K.E., AND L.C. SMITH, Amplified carbon release from vast West Siberian peatlands by 2100, *Geophysical Research Letters*, 32, L09401, doi:10.1029/2004GL022025, 2005.
- SMITH, L. C., MACDONALD, G. M., VELICHKO, A. A., BEILMAN, D.W., BORISOVA, O. K., FREY, K. E., KREMENETSKI, K. V., AND Y. SHENG, Siberian peatlands a net carbon sink and global methane source since the early Holocene, *Science* 303, 353-356, 2004.
- PAVELSKY, T.M. AND L.C. SMITH, Spatial and temporal patterns in Arctic river ice breakup observed with MODIS and AVHRR time series, *Remote Sensing of Environment* 99(3), 328-338, 2004.
- SHENG, Y., SMITH, L. C., MACDONALD, KREMENETSKI, K. V., FREY, K. E. G. M., VELICHKO, A. A., LEE, M., BEILMAN, D.W., AND P. DUBININ, A High-resolution GIS-based inventory of the West Siberian peat carbon pool, *Global Biogeochemical Cycles* 18, GB3004, doi:1029/2003GB002190, 2004.
- SMITH, L.C., SHENG, Y., FORSTER, R.R., STEFFEN, K., FREY, K.E., AND D.E. ALSDORF, Melting of small Arctic ice caps observed from ERS scatterometer time series, *Geophysical Research Letters* 30(20), Article no. 2034, doi:10.1029/2003GL017641, 2003.
- FREY, K.E., AND SMITH, L.C., Recent temperature and precipitation increases in West Siberia and their association with the Arctic Oscillation, *Polar Research* 22(2), 287-300, 2003.
- FREY, K.E., SMITH, L.C., AND D.E. ALSDORF, Controls on Eurasian coastal sea ice formation, melt onset and decay from ERS scatterometry: Regional contrasts and effects of river influx, *International Journal of Remote Sensing* 24(24), 5283-5315, 2003.
- KREMENETSKI, K. V., VELICHKO, A. A., BORISOVA, O. K., MACDONALD, G. M., SMITH, L. C., FREY, K. E., AND ORLOVA, L. A., Peatlands of the Western Siberian Lowlands: current knowledge on zonation, carbon content and late Quaternary history, *Quaternary Science Reviews*, 22, 703-723, 2003
- SMITH, L.C., Emerging applications of interferometric synthetic aperture radar (InSAR) in geomorphology and hydrology. *Annals of the Association of American Geographers*, 92(3), 385-398, 2002.
- GOMEZ, B., RUSSELL, A.J., SMITH, L.C., AND KNUDSEN, O., Erosion and deposition in the proglacial zone, the 1996 jökulhlaup on Skeiðarársandur, southeast Iceland, *Extremes of the Extremes: Extraordinary Floods*, IAHS Publ. no. 271, 217-221, 2002.
- SHENG, Y., SMITH, L.C., FREY, K.E., AND D.E. ALSDORF, A high temporal resolution dataset of ERS scatterometer radar backscatter for research in Arctic and sub-Arctic regions, *Polar Record*, 38(205), 115-120, 2002.
- MAGILLIGAN, F.J., GOMEZ, B., MERTES, L.A.K., SMITH, L.C., SMITH, N.D., FINNEGAN, D., AND J.B. GARVIN, Geomorphic effectiveness, sandur development and the pattern of landscape response during jökulhlaups: Skeiðarársandur, southeastern Iceland, *Geomorphology*, 44(1-2), 95-113, 2002.
- HALL-ATKINSON, C., AND L.C. SMITH, Delineation of delta ecozones using interferometric SAR phase coherence: Mackenzie River Delta, N.W.T., Canada, *Remote Sensing of Environment*, 78, 229-238, 2001.
- ALSDORF, D.E., SMITH, L.C., AND J.M. MELACK, Amazon water level changes measured with interferometric SIR-C radar, *IEEE Transactions on Geoscience and Remote Sensing*, 39(2), 423-431, 2001.
- HALL, D.K., WILLIAMS, R.S., BARTON, J.S., SIGURDSSON, O., SMITH, L.C., AND J.B. GARVIN, Evaluation of remote-sensing techniques to measure decadal-scale changes of Höfðsjökull Ice Cap, Iceland, *Journal of Glaciology*, 46(154), 375-388, 2001.
- SMITH, L.C., MACDONALD, G.M., FREY, K.E., VELICHKO, A., KREMENETSKI, K., BORISOVA, O., DUBININ, P., AND R.R. FORSTER, U.S.-Russian venture probes Siberian peatlands' sensitivity to climate, *Feature article, Eos*, 81(43), 497, 503-504, 2000.

- SMITH, L.C., ALSDORF, D.E., MAGILLIGAN, F.J., GOMEZ, B., MERTES, L.A.K., SMITH, N.D., AND J.B. GARVIN, Estimation of erosion, deposition, and net volumetric change caused by the 1996 Skeiðarársandur jökulhlaup, Iceland, from SAR interferometry, *Water Resources Research*, 36(6), 1583-1594, 2000.
- ALSDORF, D.E., MELACK, J.M., DUNNE, T., MERTES, L.A.K., HESS, L.L., AND L.C. SMITH, Interferometric radar measurements of water level change on the Amazon flood plain, *Nature*, 404, 174-177, 2000.
- SMITH, L.C., Time-trends in Russian Arctic river ice formation and breakup: 1917-1994, *Physical Geography*, 21(1), 46-56, 2000.
- GOMEZ, B., SMITH L.C., MAGILLIGAN, F. J., AND L.A.K. MERTES, Glacier outburst floods and outwash plain development: Skeiðarársandur, Iceland, *Terra Nova*, 12, 126-131, 2000.
- ALSDORF, D.E. AND L.C. SMITH, Interferometric SAR observations of ice topography and velocity changes related to the 1996 Gjalp subglacial eruption, Iceland, *International Journal of Remote Sensing*, 20(15-16), 3031-3050, 1999.
- SMITH, L.C., AND D.E. ALSDORF, A control on sediment and organic carbon delivery to the Arctic Ocean revealed with space-borne synthetic aperture radar: Ob' River, Siberia, *Geology*, 26(5), 395-398, 1998.
- SMITH, L.C., TURCOTTE, D.L., AND B.L. ISACKS, Streamflow characterization and feature detection using a discrete wavelet transform, *Hydrological Processes*, 12, 233-249, 1998.
- SMITH, L.C., Satellite remote sensing of river inundation area, stage, and discharge: A review, *Hydrological Processes*, 11, 1427-1439, 1997.
- SMITH, L.C., FORSTER, R.R., ISACKS, B.L., AND D.K. HALL, Seasonal climatic forcings on alpine glaciers revealed with orbital synthetic aperture radar, *Journal of Glaciology*, 43, 480-488, 1997.
- FORSTER, R.R., SMITH, L.C., AND B.L. ISACKS, Effects of weather events on X-SAR returns from icefields: A case study of the Hielo Patagonico Sur, *Annals of Glaciology*, 24, 367-374, 1997.
- SMITH, L.C., ISACKS, B.L., BLOOM, A.L., AND A.B. MURRAY, Estimation of discharge from three braided rivers using synthetic aperture radar (SAR) satellite imagery: Potential application to ungaged basins, *Water Resources Research*, 32(7), 2021-2034, 1996.
- SMITH, L.C., ISACKS, B.L., FORSTER, R.R., BLOOM, A.L., AND I. PREUSS, Estimation of discharge from braided glacial rivers using ERS-1 SAR: First results, *Water Resources Research*, 31(5), 1325-1329, 1995.
- SMITH, L.C., AND G.A. OLYPHANT, Within-storm variations in runoff and sediment export from a rapidly eroding coal-refuse deposit, *Earth Surface Processes and Landforms*, 19, 369-375, 1994.

#### JOURNAL PUBLICATIONS

*in review*

- SMITH, L.C., BEILMAN, D.W., KREMENETSKI, K.V., SHENG, Y., MACDONALD, G.M., LAMMERS, R.B., AND A.I. SHIKLOMANOV, Landscape water storage in West Siberian Lowland peatlands: Influence of permafrost revealed in a new database of soil properties, *In review, Permafrost and Periglacial Properties*, 2011.
- STEPHENSON, S.R., SMITH, L.C., AND J.A. AGNEW, Accessing the Arctic: Impacts of climate change on maritime and land transportation systems by the mid-21<sup>st</sup> century, *In review, Nature Climate Change*, 2011.

#### BOOK PUBLICATIONS

- SMITH, L.C., 2010. THE WORLD IN 2050: Four Forces Shaping Civilization's Northern Future. (New York: DUTTON / Penguin Group USA Inc.), ISBN 978-525-95181-0, 336 pp. U.K. edition THE NEW NORTH: The World in 2050 (London: Profile Books), March, 2011. Overseas translations in German (Verlagsgruppe Random House), Italian (Giulio Einaudi Editore), Spanish (Random House Mondadori), Dutch (Het Spectrum, The Netherlands), Portuguese (Elsevier Editora Ltda., Brazil), Hebrew (Matar, Israel), Simplified Chinese (China Renmin University Press, China), Japanese (NHK Publishing), Traditional Chinese (China Times, Taiwan), Korean (East Asia Publishing), Finnish (Ursa Astronomical Association, Finland), Russian (AST Publishers), and Arabic (Arab Scientific Publishers, Lebanon).
- SMITH, L.C., 2011. "Informed, tightfisted, and synthetic," In Is the Internet Changing the Way You Think?: The Net's Impact on Our Minds and Future, by John Brockman (Ed.), Harper Perennial, 448 pp.
- SMITH, L.C., 2010. "Unfreezing Arctic Assets," [book excerpt] In The Wall Street Journal, Sat/Sun Weekend Edition, Sept. 18-19, 2010 (vol. CCLVI, no. 67) pp. A1, W1-W2.
- SMITH, L.C., 2010. "West Antarctica and Seven Other Sleeping Giants," In This Will Change Everything: Ideas that will Shape the Future, by John Brockman (Ed.), Harper Perennial, 416 pp.
- SMITH, L.C., 2009. "Faster Than We Thought," In What Have you Changed Your Mind About?: Today's

Leading Minds Rethink Everything, by John Brockman (Ed.), Harper Perennial, 416 pp.  
SMITH, L.C., 2009. "Will We Decamp for the Northern Rim?" In What's Next: Dispatches on the Future of Science, by Max Brockman (Ed.), Vintage, 256 pp.

#### PUBLICALLY RELEASED SCIENTIFIC DATASETS

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- BURGESS, E.W., R.R. FORSTER, J.E. BOX, E. MOSLEY-THOMPSON, D.H. BROMWICH, R.C. BALES, AND L.C. SMITH, 2010. Greenland Ice Sheet Snow Accumulation Grids. Hosted by Byrd Polar Research Center, Columbus Ohio USA [Available online [http://bprc.osu.edu/wiki/Greenland\\_Accumulation\\_Grids#Project](http://bprc.osu.edu/wiki/Greenland_Accumulation_Grids#Project)]
- PAVELSKY, T.M. AND L.C. SMITH, 2009. Surface Water Elevation and Quality, Peace-Athabasca Delta, Canada, 2006-2007. Hosted by Oak Ridge National Laboratory Distributed Active Archive Center, Oak Ridge, Tennessee, USA doi:10.3334/ORNLDAAAC/935 [Available online <http://dx.doi.org/10.3334/ORNLDAAAC/935>]
- LEWIS, S.M., AND L.C. SMITH, 2009. Hydrologic Sub-basins of Greenland. Hosted by the National Snow and Ice Data Center, Boulder, Colorado, USA [Available online <http://nsidc.org/data/nsidc-0371.html>]
- LEWIS, S.M., AND L.C. SMITH, 2009. Hydrologic Outlets of the Greenland Ice Sheet. Hosted by the National Snow and Ice Data Center, Boulder, Colorado, USA [Available online <http://nsidc.org/data/nsidc-0372.html>]

#### OTHER PUBLICATIONS

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- SMITH, L.C., 2006. Remote Sensing of Surface Water, *Educational courseware*, (interactive learning module & exams) Institute for Advanced Education in Geospatial Sciences, University of Mississippi, Oxford (<http://geoworkforce.olemiss.edu>).
- SMITH, L.C., AND D.E. ALSDORF, Flood mapping from phase decorrelation of tandem ERS data: Ob' River, Siberia, *European Space Agency Special Publication SP-394*, 537-539, 1997.
- BIRKETT, BLYTH, FELLAH, VAN HALSEMA, KERR, MAUSER, NAGLER, RAGAB, ROMBACH, ROTT, AND SMITH, (Specialist Panel), Satellite Data in Hydrology: Experience with ERS, *European Space Agency Special Publication SP-1207*, 65 pp.
- SMITH, L.C., Contributions of radar remote sensing and wavelet analysis to the study of mountain hydrological systems, *Ph.D. dissertation*, 186 pp. Cornell University, 1996.
- SMITH, L.C., Time-trends of sediment yield during storms: Friar Tuck abandoned mining site, Southwestern Indiana, *M.S. thesis*, 77 pp., Indiana University, 1991.

#### PRESENTATIONS AT SCIENTIFIC CONFERENCES

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- SMITH, L.C., MERSEL, M.K., DURAND, M., ANDREADIS, K. (*INVITED*), Towards remote sensing of river discharge from space, *AGU 2010 Fall Meeting*, San Francisco, 13-17 December, 2010.
- SMITH, L.C., MERSEL, M.K., DURAND, M., ANDREADIS, K., Can Hydraulic Geometry aid SWOT discharge retrievals? *Altimetry for Oceans and Hydrology, OST-ST Meeting*, Lisbon, Portugal, 18-22 October 2010.
- SMITH, L.C. (*INVITED KEYNOTE*), Hydrologic impacts of a shrinking cryosphere, *CMOS/CGU Congress*, Ottawa, May 31—June 4, 2010.
- SMITH, L.C. The Circumpolar North in 2050: A Thought Experiment, *Annual Meeting, Association of American Geographers*, Washington D.C. 14-18 April, 2010.
- SMITH, L.C. (*INVITED*) Remote Sensing of Hydrologic Systems, *NASA and the Great Lakes Workshop*, Cleveland, OH, 12-13 April, 2010.
- SMITH, L.C., Towards Hydrologic Understanding of the Greenland Ice Sheet, *Hydrology in the 21<sup>st</sup> Century: Links to the Past, and a Vision for the Future* (Steve Burges Retirement Symposium), University of Washington, Seattle, 24-26 March, 2010.
- SMITH, L.C. (*INVITED*) Potential hydrologic science contributions for an airborne SWOT simulator, *SWOT Science Working Group Meeting*, Arlington, Virginia, 1-2 March, 2010.
- SMITH, L.C. (*INVITED*) 20th century trends in the Russian hydrologic cycle, *AGU 2007 Fall Meeting*, San Francisco, 10-14 December, 2007.
- SMITH, L.C., PAVELSKY, T.M., MACDONALD, G.M., SHIKLOMANOV, A.I. AND R.B. LAMMERS, Rising minimum flows in northern Eurasian rivers suggest a growing influence of groundwater in the high-latitude water cycle, *AGU 2007 Fall Meeting*, San Francisco, , 10-14 December, 2007.

- SMITH, L. C., SHENG, Y. AND G.M. MACDONALD, Could thawing Arctic permafrost reduce the abundance of northern lakes? *Annual Meeting, Association of American Geographers*, Denver, 17-21 April 2007.
- SMITH, L. C., SHENG, Y., MACDONALD, G.M., Will permafrost thaw trigger a loss of Arctic lakes? 2006 AAAS Arctic Science Conference, Fairbanks, 2-4 October 2006.
- (AGU FRONTIER LECTURE) SMITH, L. C., Arctic change and the new global hydrology, *AGU 2005 Fall Meeting*, San Francisco, 5-9 December, 2005.
- SMITH, L. C., SHENG, Y., MACDONALD, G. M., VELICHKO, AND L.D. HINZMAN, Siberian lakes are growing in the north, shrinking in the south, *AGU 2005 Fall Meeting*, San Francisco, 5-9 December, 2005.
- SMITH, L. C., MACDONALD, G. M., VELICHKO, A. A., BEILMAN, D.W., BORISOVA, O. K., FREY, K. E. , KREMENETSKI, K. V., AND Y. SHENG, West Siberian peatlands: A major carbon sink and global methane source since the early Holocene, *Annual Meeting, Association of American Geographers*, Denver, 5-9 March 2005.
- SMITH, L. C., MACDONALD, G. M., VELICHKO, A. A., BEILMAN, D.W., BORISOVA, O. K., FREY, K. E. , KREMENETSKI, K. V. AND Y. SHENG, Siberian peatlands a global methane source since the early Holocene, *AGU 2004 Fall Meeting*, San Francisco, 13-17 December, 2004.
- SMITH, L.C., SHENG, Y., FORSTER, R.R., STEFFEN, K., FREY, K.E., AND D.E. ALSDORF, Melting of small Arctic ice caps observed from ERS scatterometer time series, *AGU 2003 Fall Meeting*, San Francisco, 8-12 December, 2003.
- SMITH, L.C., SHENG, Y., MAGILLIGAN, F.J., SMITH, N.D., GOMEZ, B., MERTES, L.A.K., KRABILL, W.B. AND J.B. GARVIN, Geomorphic impact and recovery from the 1996 Skeiðarársandur jökulhlaup, Iceland, assessed with repeat-pass airborne lidar, *2003 Binghamton Geomorphology Symposium*, 3-5 October, 2003.
- SMITH, L.C., MACDONALD, G.A., FREY, K.E., SHENG, Y., PEUGH, S., VELICHKO, A., KREMENETSKI, K. AND O. BORISOVA, Age, carbon content and surface characteristics of West Siberian peatlands, *Annual Meeting, Association of American Geographers*, Los Angeles, 19-23 March 2002.
- SMITH, L.C., MACDONALD, G.A., FREY, K.E., SHENG, Y., PEUGH, S., VELICHKO, A., KREMENETSKI, K., BORISOVA, O. AND R.R. FORSTER, Age, carbon content and climatic stability of West Siberian peatlands, *AGU 2001 Fall Meeting*, B22C-0158, San Francisco, 10-14 December, 2001.
- SMITH, L.C., MACDONALD, G.A., FREY, K.E., SHENG, Y., PEUGH, S., VELICHKO, A., KREMENETSKI, K. AND O. BORISOVA, Carbon content and surface characteristics of the West Siberian Lowland, *WSPCC 2001, International Field Symposium and Excursion: West Siberian Peatlands and Carbon Cycle*, Noyabrsk, Russia, 18-22 August 2001.
- SMITH, L.C., ALSDORF, D.E., MAGILLIGAN, F.J., GOMEZ, B., MERTES, L.A.K., SMITH, N.D., AND J.B. GARVIN, Net topographic impact of the 1996 jökulhlaup, Iceland, from synthetic aperture radar interferometry, *97th Annual Meeting, Association of American Geographers*, New York, February 27-March 3, 2001.
- SMITH, L.C., FREY, K.E., MACDONALD, G.A., VELICHKO, A., KREMENETSKI, K., BORISOVA, O., DUBININ, P. AND R.R. FORSTER, Sensitivity of West Siberian peatlands to past and present climate, *AGU 2000 Fall Meeting*, Session B72-B, San Francisco, 15-19 December, 2000.
- SMITH, L.C., ALSDORF, D.E., MAGILLIGAN, F.J., GOMEZ, B., MERTES, L.A.K., SMITH, N.D., AND J.B. GARVIN, Estimation of erosion, deposition, and net volumetric change caused by the 1996 Skeiðarársandur jökulhlaup, Iceland, from SAR interferometry, *AGU 1999 Fall Meeting*, Session H52G-12, San Francisco, 13-17 December, 1999.
- SMITH, L.C. AND A. SIDORCHUK, Annual cycling of water, sediment, and carbon on the Ob' River, Siberia, *MANAUS '99, Hydrological and Geochemical Processes in Large-Scale River Basins*, Manaus, Brazil 16-19 November, 1999.
- SMITH, L.C., D.E. ALSDORF, B. GOMEZ, F.J. MAGILLIGAN, L.A.K. MERTES, AND N.D. SMITH, Glaciological and fluvial impacts of a catastrophic glacial outburst flood: Vatnajökull, Iceland, *Fifth Circumpolar Remote Sensing Symposium*, 22-25 June 1998, University of Dundee, Scotland.
- SMITH, L.C., D.E. ALSDORF, B. GOMEZ, F.J. MAGILLIGAN, L.A.K. MERTES, AND N.D. SMITH, Erosional and depositional characteristics of the 1996 Skeiðarársandur jökulhlaup observed from field measurements and SAR interferometry, *INVITED, AGU 1997 Spring Meeting*, Session U52A 'Catastrophic outburst floods and environmental change', Boston, 26-29 May 1998.
- SMITH, L.C., AND D.E. ALSDORF, A possible control on sediment and nutrient delivery to the Arctic Ocean revealed with satellite SAR, Ob' River, Siberia, *AGU 1997 Fall Meeting*, Session H21E, San Francisco, 8-12 December 1997.
- SMITH, L.C., AND D.E. ALSDORF, River flooding clearly revealed from phase decorrelation of interferometric SAR, *AGU 1997 Spring Meeting, Session U52A, 'Contributions of satellites to global climate monitoring'*, Baltimore, 27-30 May 1997.

- SMITH, L.C. Discharge estimation in braided rivers from satellite synthetic aperture radar, *93rd Annual Meeting, Association American Geographers*, Ft. Worth, 1-5 April 1997.
- SMITH, L.C., AND D.E. ALSDORF. Flood mapping from phase decorrelation of tandem ERS data: Ob' River, Siberia, ESA SP-394, *Proc. 3rd ERS Symposium, Florence, Italy*, 17-20 March 1997.
- SMITH, L.C., AND D.E. ALSDORF. Flood monitoring with synthetic aperture radar, *INVITED, AGU 1996 Fall Meeting*, Session U04, 'Recent developments in natural hazards research and technology.'
- SMITH, L.C., FORSTER, R.R., ISACKS, B.L., AND D.K. HALL, Dynamic melt patterns on alpine glaciers revealed using temporal ERS-1 SAR, *AGU 1996 Fall Meeting*, Session U10 'Recent applications of spaceborne radar in geophysics.'
- SMITH, L.C., ISACKS, B.L., FORSTER, R.R., AND T. BLODGETT. Remote sensing of changing glacier surface and near-surface properties using SIR-C/X-SAR and ERS synthetic aperture radar, *Proc. Changing Glaciers: Revisiting themes and field sites of classical glaciology*, Norwegian Glacier Museum, Fjaerland, Sognefjord, Norway, 24-27 June 1996.
- SMITH, L.C., ISACKS, B.L., BLOOM, A.L., MURRAY, A.B., AND C. PAOLA. Satellite monitoring of flow in braided rivers, *Eos Trans. AGU, Fall Meeting* 1995.
- SMITH, L.C., Estimation of discharge from three braided rivers using ERS-1 SAR, *First ERS Thematic Working Group meeting on flood monitoring*, Frascati, Italy, 26-27 June 1995.
- SMITH, L.C., TURCOTTE, D.L, AND B.L. ISACKS. Characterization of streamflows from five U.S. climatic regions using a wavelet transform, *Eos, Trans. AGU, 76(17)*, p. 143, 1995.
- SMITH, L.C., BLOOM, A.L., AND B.L. ISACKS, Satellite remote sensing of discharge in braided rivers, *Conference on coherent flow structures in open channels: Origins, scales, and interactions with sediment transport and be morphology*, University of Leeds, England, 10-12 April, 1995.
- SMITH, L.C., BLODGETT, T.A., ISACKS, B.L., BLOOM, A.L, AND A.S. KRAT. Can we measure river discharge from space?, *Eos, Trans. AGU, 75(44)*, p. 239, 1994.
- SMITH, L.C., FORSTER, R.R., AND B.L. ISACKS, Observations of glacial runoff using ERS-1 SAR, *3<sup>rd</sup> circumpolar symposium on remote sensing of Arctic environments*, Fairbanks, 16-20 May 1994.

**FUNDED PROPOSALS WITH SMITH AS THE PRINCIPAL INVESTIGATOR (TOTAL: \$3,727,223)**

- (PI) NASA CRYOSPHERIC SCIENCES PROGRAM (2011 – 2014) **\$658,014**  
 “Towards hydrologic understanding of the Greenland Ice Sheet” [grant NNG05GN89G]  
 (PI L. Smith, Co-I’s A. Rennermalm, Y. Sheng) This three-year study will examine supraglacial meltwater hydrologic processes on the Greenland ice sheet, including ephemeral drainage networks, lake drainages, and hydrologic outflows to terrestrial rivers, using geophysical remote sensing and in situ field measurements (1 mo./yr)
- (PI) NASA TERRESTRIAL HYDROLOGY PROGRAM (2010) **\$37,034**  
 “Salton Sea Instrument cluster for in situ validation of MODIS water-quality products” (grant NNX09AB01G, PI L. Smith). This one-year study will install in-situ water-quality monitoring equipment in California’s largest inland lake, the Salton Sea, for the purpose of obtaining a benchmark calibration dataset for assessment of remotely-sensed water quality parameters.
- (PI) NASA CRYOSPHERIC SCIENCES PROGRAM (2005 – 2008) **\$300,987**  
 “Understanding ice-sheet elevation change: How much goes to the ocean?” [grant NNG05GN89G]  
 (PI L. Smith, Co-I’s R. Forster, N. Reeh) This three-year study studied hydrologic processes on the Greenland ice sheet, including the influence of offshore sea-ice on surface melting, mapping of hydrologic “potentiometric drainage basins” within the ice sheet, and tracking of meltwater river outflows via remote sensing of turbid sediment plumes in estuaries. (1 mo./yr)
- (PI) NASA TERRESTRIAL HYDROLOGY PROGRAM (2005 – 2008) **\$387,297**  
 “Area-stage relationships in rivers and wetlands: Tracking the high-latitude water cycle and provision of core knowledge requirements for a Surface Water satellite mission” [grant NNG06GE05G] (PI L. Smith)  
 This three-year study, now ending, examined storages and fluxes of surface water around the northern hemisphere and in low-relief environments, using *in situ* and remotely sensed data. Study sites included the Peace-Athabasca Delta, Canada, and the Lena Rivers, Russia. (1 mo./yr)

(PI) NATIONAL SCIENCE FOUNDATION, OFFICE OF POLAR PROGRAMS (3/01/03-3/01/06) **\$592,114**  
“River discharge from the Russian Federation: An understanding of contemporary trends and their placement in a Holocene context” (L. Smith, G. MacDonald (UCLA), Lammers (UNH)). This three year “data rescue” project has created a new digital database of daily Russian river discharge, based on compilation and digitizing of extensive historical records currently archived in Russia. These data were then used to assess the source and timing of a recently discovered increase in Eurasian terrestrial runoff, with dendrochronology used to place these 20<sup>th</sup> century discharge increase in a longer Holocene context.

(PI) NASA NEW INVESTIGATOR PROGRAM (7/01/01-7/01/04) **\$211,520**  
“Detection and modeling of mechanical ice break-up in large polar rivers with SAR interferometry” (L. Smith) This three-year developed new radar remote sensing methods (SAR interferometry, radar scatterometer, and MODIS) to study river-ice conditions on the major polar rivers of Russia and Canada.

(PI) NATIONAL SCIENCE FOUNDATION, OFFICE OF POLAR PROGRAMS (6/01/99-6/01/02) **\$752,261**  
“Sensitivity of the West Siberian Lowland to Past and Present Climate” (L. Smith, G. MacDonald, A. Velichko) This three-year field study involved data collection from hundreds of sites across extensive peatlands, streams and rivers of Russia’s West Siberian Lowland. Radiocarbon dating of peat cores and remotely sensed imagery were used to relate Holocene evolution of these peatlands to atmospheric levels of methane as measured in ice cores. Stream geochemistry samples were used to show how climate warming and associated permafrost thaw will trigger increases in biogeochemical fluxes of carbon, nutrients and dissolved minerals from the land surface to the Arctic Ocean. New data products include polar scatterometer data and a detailed GIS inventory of the physical properties of ~10,000 peatlands (freely available from the National Snow and Ice Data Center).

(PI) NASA LAND SURFACE HYDROLOGY PROGRAM (9/01/98-9/01/01) **\$343,914**  
“Real-time forecasting and rapid post-event assessment of erosional and depositional flood damage” (L. Smith, L. Mertes, B. Gomez, F. Magilligan) This three-year study used field campaigns, airborne laser altimetry and SAR interferometry to quantify 3-D volumes of sediment erosion and deposition resulting from a catastrophic 1996 glacial outburst floods in Iceland.

(PI) NATIONAL SCIENCE FOUNDATION, OFFICE OF POLAR PROGRAMS (8/01/97-7/31/99) **\$176,162**  
“Temporal Remote Sensing of Seasonal Inundation and Ice Breakup on Arctic Russian Rivers: Controls on Water, Sediment, and Nutrient Delivery to the Arctic Ocean” (L. Smith) This two-year study used remotely sensed imagery to determine ranges of natural hydrologic variability in rivers and near-shore environments of Arctic Russia.

(PI) NASA OFFICE OF EARTH SCIENCE (\$193,000) and UCLA IoE/OID (\$51,000) **\$244,000**  
“A Campus-Wide Initiative for Interdisciplinary Study of the Environment with Remote Sensing” (10/1/97) (L. Smith) This one-time equipment grant was awarded to create the Environmental Remote Sensing Research Laboratory at UCLA. The facility now aids faculty and graduate research emphasize image-processing and GIS analysis of satellite imagery for environmental study of the Earth.

(PI) CALIFORNIA SPACE INSTITUTE (7/1/97-6/30/99). **\$23,919**  
“Study of Mackenzie River Delta Inundation Patterns with Interferometric Synthetic Aperture Radar” (L. Smith) This pilot study explored the use of SAR interferometry, particularly phase decorrelation, to study trends in the seasonal inundation on the Mackenzie River Delta.

**FUNDED PROPOSALS WITH SMITH AS CO-INVESTIGATOR (TOTAL: \$2,476,418)**

(Co-I) NASA PHYSICAL OCEANOGRAPHY PROGRAM (2010-2013) **\$402,951**  
Assessing and retiring risk in SWOT discharge products: Two methods for characterizing river depth (PI M. Durand, Co-I’s Smith, Andreadis; UCLA portion \$132,599) This proposed three-year study would assess the danger of river depth uncertainty for confounding discharge retrievals from the proposed SWOT satellite mission concept (1 mo./yr)

(Co-I) NASA TERRESTRIAL HYDROLOGY PROGRAM (2007 – 2010) **\$458,599**  
“Growing or Going? A Pan-Arctic Assessment of Recent Terrestrial Water Storage Change in High-Latitude Lakes and Wetlands,” [grant NNX08AE51G] (PI Y. Sheng, Co-I L. Smith) This three-year study will develop a northern hemisphere database on lake storage change using archived satellite data (1 mo./yr)

(Co-I) NSF ARCTIC SYSTEM SCIENCES PROGRAM (2007 – 2010) **\$242,684**  
*Collaborative Research: Changes in Lake Dynamics on the Arctic Coastal Plain of North America Over the Past Half-Century* [ARC-0713903] (PI Y. Sheng, Co-I L. Smith) This three-year study will use field work and remote sensing to examine thaw-lake evolution around Barrow, Alaska. (0.75 mo/yr)

(Co-I) NASA LAND SURFACE HYDROLOGY PROGRAM (01/03 – 12/04) **\$91,707**  
“NASA Working Group on Hydrologic Processes of Rivers and Wetlands” (P.I. D. Alsdorf, UCLA) Administrative funding for the working group formerly known as HYDRA-SAT, which is exploring technologies and science drivers for a possible space-based mission dedicated to the study of surface water.

(Co-I) NASA SOLID EARTH/NATURAL HAZARDS PROGRAM (9/09/00-9/01/03) **\$370,254**  
“Globally Consistent Topographic Characterization of Large River Floodplains Based on the SRTM DEM” (P.I. Leal Mertes, University of California, Santa Barbara) This project will build accurate fine-scale watershed models of 50 reference sites from 24 of the world’s major rivers, to investigate flood hazards and their inundation potential. Globally consistent reach-scale indices designed for use with the forthcoming SRTM global topography product, in order to facilitate direct comparison between major river basins.

(Co-I) INTEL CORPORATION (9/01/98-9/01/01) **\$703,485**  
“Proposal to Establish and Intel-based Regional Environmental Assessment Laboratory and Regional Environmental Geographic Information System (REAL/GIS)” (P.I. Richard Turco, Atmospheric Sciences, UCLA) This is being used to provide advanced Intel workstations and networking hardware for computational research facilities housed in Math Sciences and Geography, and a teaching facility in Geography.

(Co-I) NASA POLAR PROGRAMS (1/1/98-12/31/00). **\$206,738**  
“The Spatial and Temporal Characteristics of High Latitude Seasonal Snow Melt as Detected by Passive and Active Microwave Sensors” (P.I. Richard Forster, Department of Geography, University of Utah) This three-year study explored the use of SAR scatterometry and passive microwave radiometry to establish seasonal and temporal patterns in the timing of thaw onset in the Arctic.

**TEACHING** *undergraduate*

**Earth’s Physical Environment** (Geog 1): This General Education course provides a fundamental understanding of the Earth’s atmosphere, energy balance, oceanic circulation, hydrology, weather, internal structure, geomorphology, natural hazards and ecology in an introductory synthesis emphasizing a systems approach to geoscience. Hands-on experience is also provided through weekly laboratory exercises.

**People and Earth’s Ecosystems** (Geog 5): This popular General Education course provides an introduction to the Earth’s physical and biological systems and their interface with human society. A systems approach is used to present climate change, tropical deforestation, biodiversity loss, environmental pollution, genetic engineering of foods, and other issues facing human society through a balanced format presenting both sides of controversial environmental issues. Additional exercises and group debates are provided in weekly laboratories.

**Biophysical and Social Transformations in Northern Regions** (Geog 119): This senior-level class examines ongoing transformation of the world’s northern high latitudes due to key 21<sup>st</sup> century trends of climate change, natural resource development, economic globalization, and population demographics. Eight northern countries (including U.S.) face array of challenges and opportunities ranging from species extinctions to increased viability of shipping lanes. The course blends principles of human and biophysical geography to gain new understanding of northern quarter of planet and its broader importance to the world.

**Glacier Environments of California's High Sierra (Geog 162):** This summer field course takes place in the highly glaciated eastern Sierras, where students carry out individual research projects and learn basic mechanics of glacial flow, sediment transport, and geomorphology. Student research projects to date include mass balance studies of the Conness Glacier, snowline fluctuations, interpretation of Quaternary glacial advances from moraine mapping, aquatic geochemistry, invertebrate diversity, temperature lapse rates, and human impacts on a pristine wilderness area.

**Introduction to Geographic Information Systems (Geog 168):** This upper-level course introduces students to the fast-growing discipline of Geographic Information Systems, an information technology that is irrevocably changing the way we store, query, and analyze spatial data. Lectures are technical in nature and designed to provide students with an understanding of how data are created, stored and manipulated. Laboratory exercises and an independent project provide hands-on exposure to GIS software.

**Introduction to satellite remote sensing and Imaging GIS (Geog 169):** This upper-level course introduces concepts of remote sensing and raster GIS manipulation of satellite-derived images of the Earth's surface. Past, current and planned sensors operating in the visible, infrared, and microwave range of the electromagnetic spectrum are introduced. Global Positioning System (GPS), topographic imaging, and radar technologies are also discussed. Physical concepts and applications to land surface change, environmental monitoring, oceanography, and meteorology are stressed. Digital image processing methods are also provided in lecture and through weekly computer-based laboratory exercises.

#### TEACHING

*graduate*

Graduate courses and seminars include **Advanced Projects in Geographic Information Systems, Physical Environment of the Arctic, Satellite Synthetic Aperture Radar Remote Sensing and Interferometry; Geomorphology of Mars and other Planets, Advanced Regions, and Emerging Controversies in Earth System Science.**

#### GRADUATE STUDENTS SUPERVISED AT UCLA

Cynthia Hall-Atkinson (M.A., now at JPL), Karen Frey (M.A., Ph.D, now Assistant Professor, Clark University Department of Geography), Tamlin Pavelesky (M.A., Ph.D A.B.D.), Gina Hendricks (M.A.), Elyse Zavar (M.A., 2010), Evan Lyons (M.A., 2010, now in PhD program); Jida Wang (PhD, in progress), Vena Chu (M.A. 2009, now in PhD program), Scott Stephenson (M.A. 2010, now in PhD program), Matthew Mersel (in M.A. program), Patrick Kahn (in PhD program)

#### POST-DOCTORAL SCIENTISTS SUPERVISED AT UCLA

Dr. Yongwei Sheng (Ph.D., UC Berkeley, now Assistant Professor, UCLA Department of Geography)  
Dr. Asa Rennermalm (Ph.D., Princeton)

#### UNDERGRADUATE RESEARCH SUPERVISED AT UCLA

*(Last five years)*

Estey Theriault, Kevin Sampson, Sarah Lewis, Richard Carlos, John Freedman, Nora Hakkakzadeh, Kaitlin Kelley-Reif, Reni Pernova.

#### MY OWN GRADUATE ADVISORS

**Ph.D.** (Cornell University): Bryan L. Isacks, Arthur L. Bloom., Wilfried H. Brutsaert, Donald L. Turcotte  
**M.S.** (Indiana University): Gregory A. Olyphant, Gordon S. Fraser, Lawrence J. Onesti

#### PROFESSIONAL ACTIVITIES

Member, *The American Geophysical Union (AGU), The Association of American Geographers (AAG)* and the *International Glaciological Society*. Manuscript reviewer for *Arctic and Alpine Research, Catena, J. Climate, Environmental Geology, Eos, J. Geophysical Research, Geophysical Research Letters, J. Glaciology, Global and Biogeochemical Cycles, Hydrological Processes, J. Hydrometeorology, IEEE Trans. Geoscience and Remote Sensing, Intl. J. Remote Sensing, Intl. Assoc. Hydrological Sciences (IAHS), Nature, Photogrammetric Engineering and Remote Sensing, Physical Geography, Quaternary*

*International, Remote Sensing of Environment, and Water Resources Research*, as well as the *Fourth IPCC Report on Climate Change* and proposals to NERC, NASA and the National Science Foundation.

Associate Editor, *Annals of the Association of American Geographers*, 2010 - present

External Reviewer, Dartmouth College Department of Geography, 14-16 March 2010.

Board of Directors, AAG Cryosphere Specialty Group, 2008 – 2010.

JPL Visiting Committee (external review committee), 2007

Capitol Hill briefing, Thawing of Arctic Permafrost: Extent, Causation and Implications, Russell Senate Building, Washington D.C. (February 21, 2006)

NASA Earth Science Senior Review, Washington D.C. (April 26-29, 2005)

Special Session Organizer for annual meetings of the AGU (2002, 2004) and AAG (2005, 2007)

(2004 – 2006) Co-chair, Hydrology Section Remote Sensing Technical Committee, American Geophysical Union

(January 2004 - 2007) Invited member, Science Advisory Committee, World Climate Research Program, United States CLiC (Climate and the Cryosphere program)

(2003 - ) member, Hydrology Section Remote Sensing Technical Committee, American Geophysical Union

(2003 – 2006) Co-director, NASA Working Group on Hydrologic Processes of Rivers and Wetlands (formerly HYDRA-SAT Working Group)

(2002 – 2004) UCLA representative to the CUAHSI (Consortium of Universities for the Advancement of Hydrologic Science) Board of Directors.

(2000 – 2003) member, HYDRA-SAT / NASA Working Group on Hydrologic Processes of Rivers and Wetlands

(1998- 2004) Review Committee Ta Liang Memorial Award, granted annually by the *American Society for Photogrammetry and Remote Sensing*

(2001- 2003) Invited Member, Alaska SAR Facility User's Working Group, Fairbanks, Alaska

(2000- 2003) Invited Member, Steering Committee for the National Science Foundation *Russian-American Initiative on Shelf-Land Environments in the Arctic (RAISE)*, Arctic System Science program, Office of Polar Programs.

(2001) Organizing Committee, *WSPCC 2001, International Field Symposium and Excursion: West Siberian Peatlands and Carbon Cycle--Past and Present*, 18-22 August 2001, Noyabrsk, Russia.

(2001) Organizer, Special Session H18, Remote Observation of Rivers and Wetlands, Fall Meeting, American Geophysical Union, 10-14 December 2001, San Francisco.

(2001) Science Instrument Panel, NASA '07 Mars Reconnaissance Orbiter

#### COLLABORATORS

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Douglas Alsdorf (*Ohio State University*), Rick Forster (*University of Utah*), Yongwei Sheng (*UCLA*), Dorothy Hall (*NASA/Goddard Space Flight Center*), Niels Reeh (*OERSTED, Denmark*), Glen MacDonald (*UCLA*), Frank Magilligan (*Dartmouth*), Andrei Velichko (*Russian Academy of Sciences*), Aleksey

Sidorchuk (*Moscow State University*), Richard Lammers (*University of New Hampshire*), Alexander Shiklomanov (*University of New Hampshire*), Jason Box (*Ohio State University*), Asa Rennermalm (*Rutgers University*).

## OUTREACH ACTIVITIES

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*Invited public lectures:* *Caltech* (Division of Geological and Planetary Sciences), *Stanford University* (Department of Geological and Environmental Sciences), *UC Santa Cruz* (Department of Earth Sciences), *UCLA* (Department of Earth and Space Sciences), *UCLA* (Department of Civil and Environmental Engineering), *Caltech* (Division of Engineering and Applied Science), *University of Nebraska* (Department of Geosciences), *University of California, Santa Barbara* (Department of Geography), *University of California, Irvine* (Earth Systems Science), *The Ohio State University* (School of Earth Sciences and Dept. Geography), *Colorado University* (Department of Geography), *Lamont-Doherty Earth Observatory, UC Berkeley* (Department of Geography), *NASA Goddard Institute for Space Studies* (GISS), *University of South Carolina* (Dept. Geological Sciences), *Lamont-Doherty Earth Observatory* (LDEO), *CGU/CMOS* (Keynote, 2010); *Texas A&M University* (Dept. Geography, 10/8/2010), *University of Kansas* (C-CHANGE Colloquium Series, 10/11/2010), *UCLA* (Dept. Geography, 10/15/2010), Port 2050 (Vancouver, 10/27/10), *University of Arizona*, (Dept. Geography, 11/5/10), *UC Irvine open public lecture* (Irvine, 11/17/10), *California Capitol Summit* (Los Angeles, 11/19/10), *Skeptics Society Distinguished Lecture Series* (Pasadena, 11/21/10), *Global Security Seminar* (Los Angeles, 12/7/10), *Northern Alberta Development Council* (Grande Prairie, 1/21/10), *University of Washington* (Dept. Civil and Environmental Engineering (1/27/11); *UCLA Friends of Geography* (3/6/2011); *UCLA School of Law* (Faculty Monday Colloquium, 3/7/11)

### Media Interviews (since September 2010):

WNYC Radio (9/4/2010); The Toronto Star (9/1/10), CBC Radio (9/17/10), QR77 Radio Calgary (9/17/10), Dangerous Minds (9/19/10), National Post (9/20/10), CNN International (9/22/10), Russia TV (9/23/10), national radio tour (~30 stations, 9/28/10), Business Talk Radio (9/28/10), La Presse (9/29/10), Bill Kelly Show (9/29/10), Quirks & Quarks (9/29/10), the Tommy Schnurmacher Show (9/29/10), UCLA Magazine (9/30/10), BNN national TV (10/1/10), CBS News Osgood File (10/4/10), WJON Radio (10/6/10), Forthright Radio (10/6/10), Point of Inquiry (10/13/10), Connie Martinson Talks Books (10/13/10), CBC Nunavut (10/14/10), Coast to Coast national radio (10/16/10), the Patt Morrison Show (10/2/10), Jefferson Public Radio (10/15/10), L'Actualite (10/15/10), TVO The Agenda with Steve Paikin (10/16/10), CT Public Radio (10/19/10), Los Angeles Times (10/22/10), Radio One Network (10/23/10), Pat Williams Show (12/2/10), Climate Central (12/14/10), Canadian Business & MoneySense (2/2/11), Financial Sense News Hour (2/23/10)

## BOOK REVIEWS

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MOTHER JONES "Books: Fall Reading List" (September/October issue 2010)

<http://motherjones.com/media/2010/09/book-reviews>

CHICAGO SUN-TIMES "Fall Preview: Books" (book picks) (Sept. 12, 2010)

<http://www.suntimes.com/entertainment/books/2695388,fall-preview-books-091210.article>

THE GLOBE AND MAIL "10 books you have to read this fall" (Sept 17, 2010)

<http://www.theglobeandmail.com/books/10-books-you-have-to-read-this-fall/article1711599/>

NEW SCIENTIST "Triumph of the north or technological salvation?" (by Chris Mooney) (Sept. 22, 2010)

<http://www.newscientist.com/article/mg20727796.500-triumph-of-the-north-or-technological-salvation.html>

WALL STREET JOURNAL "Go North, Young Man" (Book Review) (Sept. 25, 2010)

<http://online.wsj.com/article/SB10001424052748703989304575504110335459830.html>

BOOK PAGE "The future is filled with challenge and opportunity" (Book Review, by Edward Morris) (Sept. 2010)

<http://www.bookpage.com/books-10013696-The+World+in+2050%3A+Four+Forces+Shaping+C>

WORLD POLITICS REVIEW "The New Rules: Global warming shifts focus to the Friendly North" (Sept. 27, 2010) (Book Review, by Thomas P.M. Barnett)

<http://www.worldpoliticsreview.com/articles/6516/the-new-rules-global-warming-shifts-focus-to-the-friendly-north>

NATURE "Books in Brief" (Sept. 29, 2010), Nature 467, p. 527, doi:10.1038/467527a

<http://www.nature.com/nature/journal/v467/n7315/full/467527a.html>

CBC BOOKS "Climate expert Laurence Smith paints an alarming picture of the future in his new book" (Oct 5, 2010) <http://www.cbc.ca/books/2010/10/climate-expert-laurence-smith-paints-an-alarming-picture-of-the-future-in-his-new-book.html>

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