

JONATHAN W. CHIPMAN

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EDUCATION PhD (Environmental Monitoring) University of Wisconsin-Madison, 2001
MS (Environmental Monitoring) University of Wisconsin-Madison, 1996
AB (Music) Dartmouth College, 1990

EXPERTISE Remote sensing, geographic information science, spatial analysis, cartography, geovisualization

ACADEMIC APPOINTMENTS

2007-present Director, Citrin Family GIS/Applied Spatial Analysis Laboratory, Dartmouth College
Adjunct appointments in Geography and Earth Sciences departments
Steering committee, Quantitative Social Sciences program
2004-2007 Assistant Scientist, Environmental Remote Sensing Center, Univ. of Wisconsin-Madison
2001-2004 Research Associate, Center for Limnology, University of Wisconsin-Madison

TEACHING: CURRENT COURSES

EARS 77/EARS 177/GEOG 77: Environmental Applications of GIS
GEOG 54: Geovisualization
ENGG 139.02: Polar Science and Engineering – Physics & Chemistry of Ice, Polar Glaciology, Remote Sensing

RECENT RESEARCH AWARDS AND GRANTS (PAST 5 YEARS)

Principal investigator (PI). *A Virtual-Reality Node for Interdisciplinary 3D Visualization in the Spatial Sciences*.
Dartmouth College Neukom Institute CompX award, 2019-2020; \$21,586 + \$12,106 supplementary award.
Co-PI, with lead PI Christopher Sneddon. *Hydropower Development and Knowledge Controversies in Transboundary Rivers*. Arthur L. Irving Institute for Energy and Society award, 2019 (accepted), \$19,101.
Co-Investigator (co-I), with PI Margaret Karagas. *A Prospective Study of Critical Environmental Exposures in Formative Early Life that Impact Lifelong Health in Rural US Children*. NIH Epidemiology program, award UG3OD023275.
2018-2019 (current) to 2023 (pending); \$5,254,924 (current) + \$21,022,498 (pending).
Other personnel, with PI Meredith Kelly. *Assessing the response of tropical temperature to global forcings since the Last Glacial Maximum*. National Science Foundation (NSF) P2C2 program, award 2017-2020; \$376,997.
Co-I, with PI Jonathan Winter. *Expansion of Lyme Disease in the Northeast: Climate, Land Use, and Ticks*. Dartmouth College Neukom Institute CompX award, 2016-2017; \$24,721.
Co-I, with PI Xun Shi. *Maintaining Environmental Flows and Sustainable Water Use Strategies in a Rapidly Developing Watershed: Tarim Basin, China*. Porter Family Foundation, 2013-2017; \$50,000.

PUBLICATIONS: BOOKS

Lillesand TM, Kiefer RW, Chipman JW. 2015. *Remote Sensing and Image Interpretation*, 7th edition. John Wiley & Sons, NY. 720 p. plus online appendices. Co-author on 5th & 6th editions, lead author on 7th.
Chipman JW, Olmanson L, Gitelson A. 2009. *Remote Sensing Methods for Lake Management*. North American Lake Management Society, Madison, WI. 126 p.

PUBLICATIONS: RECENT PEER-REVIEWED JOURNAL ARTICLES (PAST 3 YEARS)

Buckman K, Mason R, Seelen E, Taylor V, Balcom P, Chipman JW, Chen C. 2021. Patterns in forage fish mercury concentrations across Northeast US estuaries. *Environmental Research*, 194: 110629.
<https://doi.org/10.1016/j.envres.2020.110629>.
Morgan B, Chipman JW, Bolger D, Dietrich J. 2021. Spatiotemporal analysis of vegetation cover change in a large ephemeral river: multi-sensor fusion of unmanned aerial vehicle (UAV) and Landsat imagery. *Remote Sensing* 13(1): 51. <https://dx.doi.org/10.3390/rs13010051>.
Rubin H, Lutz D, Steele B, Cottingham K, Weathers K, Ducey M, Palace M, Johnson K, Chipman JW. 2021. Remote sensing of lake water clarity: performance and transferability of both historical algorithms and machine learning. *Remote Sensing* 13(8): 1434. <https://doi.org/10.3390/rs13081434>.
Dominy N, Ikram S, Moritz G, Wheatley P, Christensen J, Chipman JW, Koch P. 2020. Mummified baboons reveal the far reach of early Egyptian mariners. *eLife* 60860. <https://doi.org/10.7554/eLife.60860>.

- Doughty A, Kelly M, Russell J, Jackson M, Anderson B, Chipman JW, Nakileza B, Dee S. 2020. Modeling glacier extents and equilibrium line altitudes in the Rwenzori Mountains, Uganda, over the last 31,000 yr. *Geological Society of America Special Papers*, 548. [https://doi.org/10.1130/2020.2548\(09\)](https://doi.org/10.1130/2020.2548(09)).
- Fleisch, A, Seshasayee S, Garshick E, Chipman JW, Koutrakis P, Baker E, Karagas M. 2020. Assessment of maternal glycemia and newborn size among pregnant women who use wood stoves in northern New England. *JAMA Network Open*, 3(5):e206046. <https://doi.org/10.1001/jamanetworkopen.2020.6046>.
- Jackson M, Kelly M, Russell J, Doughty A, Howley J, Chipman JW, Cavagnaro D, Zimmerman S, Nakileza B, Baber M. 2020. Glacial fluctuations in tropical Africa during the last glacial termination and implications for tropical climate following the Last Glacial Maximum. *Quat Sci Rev*, 243:106455. <https://doi.org/10.1016/j.quascirev.2020.106455>.
- Liu J, Lawson D, Hawley R, Chipman JW, Tracy B, Shi X, Chen Y. 2020. Estimating the longevity of glaciers in the Xinjiang region of the Tian Shan through observations of glacier area change since the Little Ice Age using high-resolution imagery. *Journal of Glaciology*, 66(257):471-484. <https://doi.org/10.1017/jog.2020.24>.
- Morgan B, Bolger D, Chipman JW, Dietrich J. 2020. Lateral and longitudinal distribution of riparian vegetation along an ephemeral river in Namibia using remote sensing techniques. *Journal of Arid Environments*, 181: 104220. <https://doi.org/10.1016/j.jaridenv.2020.104220>
- Webb M, Winter J, Spera S, Chipman JW, Osterberg E. 2020. Water, agriculture, and climate dynamics in central Chile's Aconcagua River Basin. *Physical Geography*, 1790719. <https://doi.org/10.1080/02723646.2020.1790719>.
- Winter J, Partridge T, Wallace D, Chipman JW, Ayres M, Osterberg E, Dekker E. 2020. Modeling the sensitivity of blacklegged ticks (Acari: Ixodidae) to temperature and land cover in the northeastern United States. *Journal of Medical Entomology*, 2020-09-09, tjaa. <https://doi.org/10.1093/jme/tjaa179>.
- Chipman JW. 2019. A multisensor approach to satellite monitoring of trends in lake area, water level and volume. *Remote Sensing*, 11(2):158. <https://doi.org/10.3390/rs11020158>.
- Finger Higgins R, Chipman JW, Lutz D, Culler L, Virginia R, Ogden L. 2019. Changing lake dynamics indicate a drier Arctic in western Greenland. *J Geophys Res-Biogeosciences*, 124. <https://doi.org/10.1029/2018JG004879>.
- Fleisch A, Rokoff L, Garshick E, Grady S, Chipman JW, Baker E, Koutrakis P, Karagas M. 2019. Residential wood stove use and indoor exposure to PM2.5 and its components in northern New England. *Journal of Exposure Science and Environmental Epidemiology*, 2019-06-28. <https://doi.org/10.1038/s41370-019-0151-4>.
- Jackson M, Kelly M, Russell J, Doughty A, Howley J, Chipman JW, Cavagnaro D, Nakileza B, Zimmerman S. 2019. High-latitude warming initiated the onset of the last deglaciation in the tropics. *Science Advances*, 5(12): eaaw2610. <https://doi.org/10.1126/sciadv.aaw2610>.
- Wallace D, Ratti V, Kodali A, Winter J, Ayres M, Chipman JW, Aoki C, Osterberg E, Silvanic C, Partridge T, Webb M. 2019. Effect of rising temperature on Lyme disease: Ixodes scapularis population dynamics and Borrelia burgdorferi transmission and prevalence. *Can J Infect Dis Med Microbiol*, 2019: 9817930. <https://doi.org/10.1155/2019/9817930>.
- Winter J, Bowen F, Partridge T, Chipman JW. 2019. Future extreme event risk in the rural northeastern United States. *Annals of the American Association of Geographers*. <https://doi.org/10.1080/24694452.2018.1540920>.
- Heindel R, Chipman JW, Dietrich J, Virginia R. 2018. Quantifying rates of soil deflation with Structure-from-Motion photogrammetry in West Greenland. *Arctic, Antarctic, and Alpine Research*, 50(1): S100012. <https://doi.org/10.1080/15230430.2017.1415852>.
- Kopec B, Feng X, Posmentier E, Chipman JW, Virginia R. 2018. Use of principal component analysis to extract environmental information from lake water isotopic compositions. *Limnology and Oceanography* 63(3): 1340-1354. <https://doi.org/10.1002/lno.10776>.
- Li B, Chen Y, Chipman JW, Shi X. 2018. Why does the runoff in Hotan River show a slight decreased trend in northwestern China? *Atmospheric Sciences Letters* 19(1). <https://doi.org/10.1002/asl.800>.
- Spera S, Winter J, Chipman JW. 2018. Evaluation of agricultural land cover representations on regional climate model simulations in the Brazilian Cerrado. *J Geophys Res-Atmos*, 123(10):5163. <https://doi.org/10.1029/2017JD027989>.

MENTORING OF POSTDOCTORAL SCHOLARS

Primary faculty mentor for Dani Poole (Neukom Fellows program, Dartmouth College)

Co-mentor for Ryan Collins, Stephanie Spera, and Jason Herrmann (Neukom Fellows program, Dartmouth College)

OTHER PROFESSIONAL ACTIVITIES

Author or co-author of 70 presentations at professional meetings in the US and Europe, and co-leader of workshops at annual meetings of the North American Lake Management Society.

Reviewer for *Annals of the American Association of Geographers*, *International Journal of Remote Sensing*, *Remote Sensing*, *Remote Sensing of Environment*, *Photogrammetric Engineering & Remote Sensing*, and other journals.

Proposal reviews for NASA (Terrestrial Hydrology Program, Pathfinder Program, and Ocean Biology & Biogeochemistry Program), and the NSF Directorate of Social, Behavioral and Economic Sciences.