Justin Braaten

Curriculum vitae
12/09/2018

College of Earth, Ocean, and Atmospheric Sciences
Oregon State university
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EDUCATION AND EMPLOYMENT

Education

MS: Geography with an emphasis in remote sensing and biogeography (2009)
University of North Dakota, Department of Geography
Thesis title: Landscape change in the multi-use, multi-ownership forests of the Olympic Peninsula, Washington 1988-2006

BS: Geography with a Geology Minor (2007)
University of North Dakota, Department of Geography
Thesis title: A statistical evaluation of the relationship between western prairie fringed orchid (*Plantanthera praeclara*) blooms and regional climate variables

Field Camp: Juneau Icefield Research Program (2003)
University of Idaho, Glaciological and Arctic Science Institute

Employment

Faculty Research Assistant (2009-present)
College of Earth, Ocean, and Atmospheric Sciences &
Department of Forest Ecosystems and Society,
Oregon State University

Field Research Assistant (Summers 2008 & 2009)
College of Forest Resources, University of Washington

Graduate Teaching Assistant (2007-2009)
Department of Geography, University of North Dakota

SCHOLARSHIP AND CREATIVE ACTIVITY

Publications

Peer Reviewed Articles

Bright, B. C., Hudak, A. T., Kennedy, R. E., Braaten, J. D., Khalyani A. H. (accepted Nov. 2018). Examining post-fire vegetation recovery with Landsat time series analysis in three western North American forest types. *Fire Ecology*.

Kennedy, R. E., Yang, Z., Gorelick, N., Braaten, J., Cavalcante, L., Cohen, W. B., & Healey, S. (2018). Implementation of the LandTrendr Algorithm on Google Earth Engine. *Remote Sensing*, *10*(5).

Savage, S. L., Lawrence, R. L., Squires, J. R., Holbrook, J. D., Olson, L. E., Braaten, J. D., Cohen, W. B. (2018). Shifts in forest structure in northwest Montana from 1972 to 2015 using the Landsat archive from Multispectral Scanner to Operational Land Imager. *Forests*, 9, 157.

Vogeler, J. C., Braaten, J. D., Slesak, R. A., Falkowski, M. J. (2018). Extracting the full value of the Landsat archive: Inter-sensor harmonization for the mapping of Minnesota forest canopy cover (1973–2015). *Remote Sensing of Environment*, *209*, 363-374.

Kennedy, R. E., Ohmann, J., Gregory, M., Roberts, H., Yang, Z., Bell, D. M., ... & Neeti, N. (2018). An empirical, integrated forest biomass monitoring system. *Environmental Research Letters*, *13*(2), 025004.

Hais, M., Wild, J., Berec, L., Brůna, J., Kennedy, R., Braaten, J., & Brož, Z. (2016). Landsat Imagery Spectral Trajectories—Important Variables for Spatially Predicting the Risks of Bark Beetle Disturbance. *Remote Sensing*, *8*(8), 687.

Braaten, J. D., Cohen, W. B., & Yang, Z. (2015). Automated cloud and cloud shadow identification in Landsat MSS imagery for temperate ecosystems. *Remote Sensing of Environment*, *169*, 128-138.

Kennedy, R. E., Yang, Z., Braaten, J., Copass, C., Antonova, N., Jordan, C., & Nelson, P. (2015). Attribution of disturbance change agent from Landsat time-series in support of habitat monitoring in the Puget Sound region, USA. *Remote Sensing of Environment*, *166*, 271-285.

Sulla-Menashe, D., Kennedy, R. E., Yang, Z., Braaten, J., Krankina, O. N., & Friedl, M. A. (2014). Detecting forest disturbance in the Pacific Northwest from MODIS time series using temporal segmentation. *Remote Sensing of Environment*, *151*, 114–123.

Zald, H. S., Ohmann, J. L., Roberts, H. M., Gregory, M. J., Henderson, E. B., McGaughey, R. J., & Braaten, J. (2014). Influence of lidar, Landsat imagery, disturbance history, plot location accuracy, and plot size on accuracy of imputation maps of forest composition and structure. *Remote Sensing of Environment*, *143*, 26-38.

Kennedy, R. E., Yang, Z., Cohen, W. B., Pfaff, E., Braaten, J., & Nelson, P. (2012). Spatial and temporal patterns of forest disturbance and regrowth within the area of the Northwest Forest Plan. *Remote Sensing of Environment*, *122*, 117-133.

Scientific Visualizations

"The Secret Life of Forests": http://svs.gsfc.nasa.gov/goto?11144. Writer: Ellen Gray. Animators: Greg Shirah, Alex Kekesi, Horace Mitchell. Producer and video editor: Matthew R. Radcliff. Narrator: Robert Kennedy. Scientists: Robert Kennedy, Zhigiang Yang, Justin Braaten. Published 12/11/2012.

Book chapters

Kennedy, Robert E., Yang, Zhiqiang, Braaten, Justin, Nelson, Peder, & Cohen, Warren B. (2011). Monitoring landscape dynamics of national parks in the western United States. Chapter 3 In Remote sensing of protected lands. Editor: Y.Q. Wang. CRC Press.

Presentations

Invited Oral Presentations

Braaten, J. D. "LT-GEE: Easy Access to the LandTrendr Spectral-Temporal Segmentation Algorithm". Oral presentation given to the OSU Spatial Data Modeling Group, Corvallis, OR, November 15, 2018

Volunteered Oral Presentations

Braaten, J. D., Cohen, W. B., Yang, Z. "Priorities for Landsat MSS Data Improvements". Oral presentation at the *Landsat Science Team Meeting*, Greenbelt, MD, February 4, 2015

Braaten, J. D., Yang, Z., Cohen, W. B. "Integrating MSS Imagery into a Landsat Time Series". Oral presentation at the *Landsat Science Team Meeting*, Corvallis, OR, July 23, 2014

Braaten, J. D., Yang, Z., Cohen, W. B. "Automated Cloud and Shadow Masking of Landsat MSS Imagery: Now You See Them, Now You Don't". Oral presentation at the *Western Forestry Graduate Research Symposium,* Corvallis, OR, April 22, 2014

Volunteered Poster Presentations

Braaten, J. D., Cohen, W. B. "Spatial-temporal Pattern of Mountain Pine Beetle Outbreaks in Western United States". Poster presentation at the *Western Forestry Graduate Research Symposium,* Corvallis, OR, April 22, 2013

Braaten, J. D., "Mapping Direction and Magnitude of Change in Western Oregon Forest Age Class Composition and Configuration from 1988 to 2008". Poster presented at the *US Regional Association of the International Association for Landscape Ecology meeting*, Portland, OR, April 3, 2011

Software development

LT-GEE. An API to the Google Earth Engine (GEE) implementation of the LandTrendr spectral-temporal algorithm. Written in JavaScript and distributed as GEE require module. Assistant developer, principle maintainer. Website, GitHub

MSScvm. An automated system to create cloud and cloud shadow masks for Landsat MSS imagery. Written in R and distributed as an R package. Principle developer and maintainer. Website, GitHub

LandsatLinkr. An automated system for processing large volumes of Landsat imagery and building long, spectrally consistent chronologies across MSS, TM/ETM+, and OLI sensors. Written in R and distributed as an R package. Principle developer and maintainer. Website, GitHub

LandTrendr. A package of algorithms written in IDL to extract information from time series imagery acquired by the Landsat TM and ETM+ sensors. Assistant developer. Website, GitHub

Website development

LTvis. A geospatial data exploration and download site. Principle developer and maintainer
eMapR. Academic Research Lab website. Principle developer and maintainer
MSScvm. Software description and guide website. Principle developer and maintainer
LandsatLinkr. Software description and guide website. Principle developer and maintainer
jdbcode. Personal website. Principle developer and maintainer
haleyohms. Personal website. Principle developer

TECHNICAL PROFICIENCY

Operating systems: Windows, Ubuntu & Red Hat Enterprise Linux
Scripting languages: Python, R, IDL, MATLAB, Bash
Web development: JavaScript, PHP, HTML, CSS, Bootstrap, jQuery, D3.js, plotly.js, Leaflet, Angular
GIS/Remote sensing software: GDAL, GEE, OGR, R-Raster, QGIS, ArcGIS, ENVI, ERDAS Imagine, eCognition
Image/vector editing software: scikit-image, OpenCV-Python, ImageMagick, ImageJ, GIMP, Inkscape
Video editing software: FFmpeg