

# Justin Braaten

Curriculum vitae  
10/23/2018

College of Earth, Ocean, and Atmospheric Sciences  
Oregon State university  
braatenj@ceas.oregonstate.edu

## 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*

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., Bruna, 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, Zhiqiang 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***

##### *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***

[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