

# Kevin Sparks

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winter, 2017

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## Education

- 2013 – 2015      **M.S. in Geography** | *The Pennsylvania State University*  
Thesis: Citizen Science Land Cover Classification Based on Ground and Aerial Imagery
- 2009 – 2013      **B.Sc. in Geography** | *The Pennsylvania State University*  
Emphasis in geographic information science (GIS), with a minor in Climatology

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## Work Experience

- 2015 – Present      **Research Associate** | *Oak Ridge National Laboratory*  
Development of scalable big data infrastructure and analysis of social media data  
Computational Sciences and Engineering Division in the Geographic Information Science and Technology group
- 2011 – 2015      **Research Assistant** | *The Pennsylvania State University*  
- Dr. Alexander Klippel: Research projects relating to spatial information theory and environmental cognition  
- Dr. Cynthia Brewer: Research project for cartographically redesigning The National Map (USGS) entailing land cover representation and processing of remotely sensed data
- 2013 – 2015      **Teaching Assistant** | *The Pennsylvania State University*  
Geog 464: Advanced Spatial Analysis  
Geog 364: Spatial Analysis  
Geog 363: Geographic Information Systems  
Geog 362: Image Analysis  
\*Programming Spatial Statistics to Evaluate Data (*Instructor*)  
    \*Summer class for statewide high school students
- Summer 2011      **Research Intern** | *NASA Langley Research Center*  
Used hyperspectral remote sensing data to create agricultural monitoring methods for tillage practices

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## **Publications**

- 2016      **Sparks, K.A.**, R.G. Li, G.S. Thakur, R.N. Stewart, M.L. Urban (2016) "Facility Detection and Popularity Assessment from Text Classification of Social Media and Crowdsourced Data", In *GIR '16 Proceedings of the 10<sup>th</sup> Workshop on Geographic Information Retrieval*.
- 2016      Raposo, P., C.A. Brewer, **K.A. Sparks** (2016) "An Impressionistic Cartographic Solution for Base Map LandCover with Coarse Pixel Data", In *Cartographic Perspectives*, 83, 5-21.
- 2016      Thakur, G.S., **K.A. Sparks**, R.G. Li, R.N. Stewart, M.L. Urban, B. Bhaduri (2016) "Demo: PlanetSense: Gathering Geo-spatial Intelligence from Crowd-sourced and Social-media Data", In *Proceedings of the 24<sup>th</sup> International Conference on Advances in Geographic Information Systems*. ACM, 2016.
- 2016      Thakur, G.S., **K.A. Sparks**, R.G. Li, R.N. Stewart, M.L. Urban, B. Bhaduri (2016) "Curating Transient Population in Urban Dynamics Systems", In *Extended Abstract Proceedings of the GIScience 2016*. Montreal, Canada.
- 2016      Thakur, G.S., **K.A. Sparks**, R.G. Li, R.N. Stewart, M.L. Urban, B. Bhaduri (2016) "Landuse Classification and Occupancy Estimation form Fine Grained Social Media Analysis", In *GeoSocial: Social Media & GIScience*.
- 2015      **Sparks, K.A.**, A. Klippel, J.O. Wallgrün, D. Mark (2015) "Citizen Science Land Cover Classification Based on Ground and Aerial Imagery", In S. I. Fabrikant, M. Raubal, M. Bertolotto, C. Davies, S. M. Freundsuh, & S. Bell (Eds.), *Proceedings, Conference on Spatial Information Theory (COSIT 2015), Santa Fe, NM, USA, Oct. 12-16, 2015*. Berlin: Springer.
- 2015      Klippel, A., **K.A. Sparks**, J.O. Wallgrün (2015) "Pitfalls and potentials of crowd science: A meta analysis of contextual influences", *ISPRS Annals of the Photogrammetry, Remote Sensing and Spatial Information Sciences*.
- 2015      **Sparks, K.A.**, A. Klippel, J.O. Wallgrün, D. Mark (2015) "Crowdsourcing landscape perceptions to validate land cover classifications", In O. Ahlqvist, K. Janowicz, D. Varanka, S. Fritz (Eds.), *Land Use and Land Cover Semantics - Principles, Best Practices and Prospects*, CRC Press / Taylor & Francis.

- 2015 Klippel, A., J. Yang, J.O. Wallgrün, **K.A. Sparks** (2015) "Intuitive direction concepts", *The Baltic International Yearbook of Cognition, Logic and Communication*.
- 2014 **Sparks, K.A.**, A. Klippel, J.O. Wallgrün, D. Mark, (2014). Crowdsourcing landscape perceptions to validate land cover classifications. In K. Stewart, E. Pebesma, G. Navratil, P. Fogliaroni, & M. Duckham (Eds.), *Extended Abstract Proceedings of the GIScience 2014* (pp. 147–152). Vienna: Hochschülerschaft, TU Vienna.
- 2013 Brewer, C.A., L.V. Stanislawski, B.P. Battenfield, P. Raposo, **K.A. Sparks**, J. McGilloway, and M. Howard (2013) "Automated thinning of road networks and road labels for multiscale design of *The National Map* of the United States", *Cartography and Geographic Information Science*, Vol. 40, No. 4, pp. 259-270.
- 2012 Brewer, C.A., L.V. Stanislawski, B.P. Battenfield, P. Raposo, **K.A. Sparks**, and M. Howard (2012) "Multiscale Design for The National Map of the United States: Road Thinning for Topographic Mapping", *Proceedings, AutoCarto 2012*, Columbus OH, September.
- 2011 Makar, N., K. Rooks, S. Archer, **K.A. Sparks**, C. Trigg, J. Lourie, K. Wilkens (2011) "Monitoring Agricultural Tillage Practices with NASA Hyperspectral Satellite Imagery", *IEEE's Earthzine.org*.

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## ***Presentations***

- 2016 Thakur, G.S., **K.A. Sparks**, R.N. Stewart, M.L. Urban, B. Bhaduri (2016) "The Efficacy of Applying Open and Crowd Source Data in Urban Dynamics Research", In *Conference on Data Analysis 2016*. CoDA, 2016.
- 2015 Klippel, A., **K.A. Sparks**, J.O. Wallgrün (2015) "Pitfalls and Potentials of Crowd Science: A Meta-Analysis of Contextual Influences" ISSDQ 2015, La Grande Motte, France, September.
- 2015 **Sparks, K.A.**, A. Klippel, J.O. Wallgrün, D. Mark (2015) "Assessing Environmental Information Channels for Citizen Science Land Cover Classification" AAG Annual Meeting, Chicago, Illinois, April.
- 2015 Klippel, A., J.O. Wallgrün, D. Mark, R. Purves, **K.A. Sparks** (2015) "Cognition of the Top of the World: Investigating Humans' Conceptions and Linguistic Expressions of Mountain Peaks" AAG Annual Meeting, Chicago, Illinois, April.

- 2015 **Sparks, K.A.**, A. Klippel, J.O. Wallgrün, D. Mark (2015) "Ground and Aerial Based Land Cover Classification for Citizen Science" 2<sup>nd</sup> Pennsylvania Spatial Cognition Symposium, State College, PA, May.
- 2014 Klippel, A., A. Robinson, **K.A. Sparks** (2014) "Sketch-based Geospatial Learning Objects," COIL Research Symposium, The Pennsylvania State University, October.
- 2014 **Sparks, K.A.**, A. Klippel, J.O. Wallgrün, D. Mark (2014) "Crowdsourcing landscape perceptions to validate land cover classifications" Pennsylvania Spatial Cognition Symposium, State College, PA, May.
- 2014 Klippel, A., A. Robinson, **K.A. Sparks** (2014) "Enhancing Online Geospatial Education with Sketch-based Geospatial Learning Objects," Symposium for Teaching and Learning with Technology, The Pennsylvania State University, March.
- 2013 **Sparks, K.A.**, J. Yang, A. Klippel (2013) "Day and night: Analyzing cultural differences through perceived similarities of lighting patterns" Conference on Spatial Information Theory (COSIT), Scarborough UK, September.
- 2012 Raposo, P., **K.A. Sparks**, and C.A. Brewer (2012) "Techniques for Cartographic Presentation of Upsampled Raster Land Cover Data" North American Cartographic Information Society (NACIS) annual meeting, Portland OR, October.
- 2012 Brewer, C.A., L.V. Stanislawski, B.P. Battenfield, P. Raposo, **K.A. Sparks**, and M. Howard (2012) "Multiscale design for The National Map of the United States: Road Thinning for Topographic Mapping," AutoCarto 2010, Columbus OH, September.
- 2012 *Three invited presentations*—Center of Excellence for Geospatial Information Science (CEGIS) meeting, U.S. Geological Survey (USGS), Rolla MO, June 2012:  
     Brewer, C.A., **K.A. Sparks** and P. Raposo (2012), "Multiscale Design for *The National Map*."  
     **Sparks, K.A.**, P. Raposo, and C.A. Brewer (2012) "Multiscale Land Cover Design for *The National Map*." (presenter).  
     Raposo, P., **K.A. Sparks**, and C.A. Brewer (2012) "Multiscale Land Cover Processing for *The National Map*."
- 2012 Raposo, P., and **K.A. Sparks** (2012) "A Feathered-Edge Technique for Cartographic Presentation of Upsampled Raster Land Cover Data," no)Boundaries Interdisciplinary Conference, The Pennsylvania State University, March.

2011 Makar, N., K. Rooks, S. Archer, **K.A. Sparks**, C. Trigg, J. Lourie, K. Wilkens (2011)  
"Midwest Climate and Agriculture - Monitoring Tillage Practices with NASA Remote  
Sensors" American Geophysical Union, Fall Meeting 2011, San Francisco,  
December.

2011 Makar, N., K. Rooks, S. Archer, **K.A. Sparks**, C. Trigg, J. Lourie, K. Wilkens (2011)  
"Monitoring Agricultural Tillage Practices with NASA Hyperspectral Satellite  
Imagery," NASA Applied Sciences DEVELOP National Program Headquarters  
Annual Close Out Meeting, Washington D.C., August.

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### ***Honors***

2012 **Jeff Gockley Memorial Award** - given to the top rising senior in the Pennsylvania  
State Geography program in the Geographic Information Science Option