

# Radost Stanimirova, PhD

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## CONTACT INFORMATION

*E-mail:* rkstan@bu.edu  
*Website:* <http://rkstan.github.io/>  
*Address:* Boston, MA 02215 USA

## RESEARCH INTERESTS

Climate variability and human transformation of the landscape, especially through agriculture  
Data science & visualization, high performance computing, machine learning  
Remote sensing of land use and land cover change

## SKILLS

Programming: Python (scikit-learn, pandas, seaborn etc.), GDAL, Bash, R, git, Google Earth Engine, high performance computing  
Applications: ArcGIS, QGIS, ENVI, L<sup>A</sup>T<sub>E</sub>X, Microsoft Suite  
Statistics: Machine learning, multivariate analysis, time series analysis  
Software: [www.github.com/rkstan](http://www.github.com/rkstan)

## EDUCATION

**Boston University**, Boston, Massachusetts, USA

Ph.D., Earth and Environment, January 2021  
NASA Earth and Space Science Fellow, advised by Dr. Mark Friedl  
Dissertation Title: *Using Multi-Resolution Remote Sensing to Measure Ecosystem Sensitivity and Monitor Land Degradation in Response to Land Use and Climate Variability*

**Barnard College of Columbia University**, New York, New York, USA

B.A., Environmental Science, May 2012  
Minors: Anthropology  
Senior Thesis: *Organic Carbon Transport through Holocene and Pleistocene Sediment in Southeast Asia: Implications for Arsenic Mobilization*

## WORK EXPERIENCE

**Department of Earth and Environment**

**Boston University**, Boston, Massachusetts, USA

*Postdoctoral Associate*

**January 2021 - Present**

- Build scalable and efficient workflows for the curation of big training and assessment datasets, and for machine learning to classify land cover and change on Google Earth Engine
- Manage and mentor a team of research fellows (2) and graduate students (3) to successfully execute and deliver a complex project mapping the world's land cover
- Communicate and collaborate with an interdisciplinary team to create a global data product

*Graduate Research Assistant*

**January 2015 - December 2020**

- Performed statistical analysis of satellite remote sensing observations to compare different land surface phenology algorithms
- Implemented an econometric model to climate and geospatial data to assess the sensitivity of global pasturelands to climate variation
- Designed and executed 2 research projects on quantifying land cover change and degradation using large datasets (50 TB) in a high performance Linux computing environment

**International Research Institute for Climate and Society, Earth Institute**

**Columbia University**, New York, New York, USA

*Research Staff Assistant*

**June 2012 - July 2014**

- Conducted research to support a variety of climate risk management implementation projects relating to remote sensing, agriculture and index insurance

- Wrote 5 effective grant proposals and budgets for donor organizations including World Bank, World Food Programme and NASA
- Facilitated in-region capacity building workshops in English and Spanish

#### Department of Environmental Sciences

**Barnard College of Columbia University**, New York, New York, USA

*Research Assistant*

**June 2010 - May 2012**

- Investigated the role of geochemistry in arsenic contamination of groundwater in Bangladesh and authored a 40 page thesis paper
- Developed a procedure for column experiments on sediment cores in collaboration with research mentor and a team of graduate students
- Executed laboratory experiments, performed detailed laboratory tasks, collected and analyzed data and conducted literature research

#### School for Field Studies, Atenas, Costa Rica

*Research Assistant*

**January 2011 - May 2011**

- Performed a directed research project that utilized statistical and field research techniques
- Authored a 30 page research paper on the relationship between soil coverage and soil carbon sequestration on traditional and sustainable coffee plantations
- Collected field samples in order to determine if organic agroforestry systems are an appropriate strategy for reduction of emissions by deforestation and degradation

#### PUBLICATIONS

Important note: Underlined indicates co-first authorship.

**Stanimirova, R.**, J. Graesser, P. Olofsson, & M.A. Friedl. (In print). Widespread Changes in 21<sup>st</sup> Century Vegetation Cover in Argentina, Paraguay, and Uruguay. *Remote Sensing of Environment*

Graesser, J., R. Stanimirova, K. Tarrio, E.J. Copati, J.N. Volante, S.R. Verón, S. Banchemo, H. Elena, D.d. Abelleira, & M.A. Friedl. 2022. Temporally-Consistent Annual Land Cover from Landsat Time Series in the Southern Cone of South America. *Remote Sensing*, 14, 4005. <https://doi.org/10.3390/rs14164005>

Graesser J., R. Stanimirova & M.A. Friedl. 2022. Reconstruction of Satellite Time Series With a Dynamic Smoother. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing*, 15, 1803–1813. <https://doi.org/10.1109/JSTARS.2022.3146081>

Zhang Y., C.E. Woodcock, P. Arévalo, P. Olofsson, X.Tang, R. Stanimirova, E. Bullock, K.R. Tarrio, Z. Zhu, & M.A. Friedl. 2022. A Global Analysis of the Spatial and Temporal Variability of Usable Landsat Observations at the Pixel Scale. *Frontiers in Remote Sensing*, 3:894618. doi: 10.3389/frsen.2022.894618

Friedl M.A., C.E. Woodcock, P. Olofsson, Z. Zhu, T. Loveland, R. Stanimirova, P. Arévalo, E. Bullock, K-T. Hu, Y. Zhang, K. Turlej, K. Tarrio, K. McAvoy, N. Gorelick, J.A. Wang, C.P. Barber & C. Souza. 2022. Medium Spatial Resolution Mapping of Global Land Cover and Land Cover Change Across Multiple Decades From Landsat. *Frontiers in Remote Sensing*, 3:894571. doi: 10.3389/frsen.2022.894571

**Stanimirova, R.** & R. Garrett. 2020. Pasturelands, Rangelands, and Other Grazing Social-ecological Systems. In *In Managing Soils and Terrestrial Systems, 2nd Edition*. Ed. B. Fath & S. Jorgensen. Boca Raton: CRC Press, <https://doi.org/10.1201/9780429346255>

Vasilaky, K., S.M. Saenz, R. Stanimirova, & D.E. Osgood. 2020. Perceptions of Farm Size Heterogeneity and Demand for Group Index Insurance. *Games*, 11, 15. <https://doi.org/10.3390/g11010015>

**Stanimirova, R.**, P. Arévalo, R.K. Kaufmann, V. Maus, M. Lesiv, P. Havlik, & M.A. Friedl. 2019. Modeling Sensitivity of Global Pasturelands to Climate Variability. *Earth's Future*, 7.

<https://doi.org/10.1029/2019EF001316>

**Stanimirova, R.**, Z. Cai, E.K. Melaas, J.M. Gray, L. Eklundh, P. Jönsson, & M.A. Friedl. 2019. An Empirical Assessment of the MODIS Land Cover Dynamics and TIMESAT Land Surface Phenology Algorithms. *Remote Sensing* 11(19): 2201. <https://doi.org/10.3390/rs11192201>

PUBLICATIONS IN  
PREPARATION

Arévalo, P., **R. Stanimirova**, E. Bullock, Y. Zhang, K. Tarrio, K. Turlej, K-T. Hu, K. McAvoy, V.J. Pasquarella, C.E. Woodcock, P. Olofsson, Z. Zhu, N. Gorelick, T. Loveland, C. Barber & M.A. Friedl. Global Land Cover Estimation (GLanCE) yearly 30 m (GLanCE30.001) V001, 2022, distributed by NASA EOSDIS Land Processes DAAC

**Stanimirova, R.**, J. Graesser, & M.A. Friedl. Satellite-based Estimates of Land Degradation Across Ecoregions in the Southern Cone of South America in Support of the 2030 Agenda for Sustainable Development. *Nature Sustainability*

**Stanimirova, R.**, K. Tarrio, K. Turlej, K. McAvoy, K-T. Hu, S. Stonebrook, Y. Zhang, P. Arévalo & M. A. Friedl. A Landsat-based Global Land Cover Training Dataset from 1985 to 2019. *Scientific Data*

CONFERENCE  
PRESENTATIONS

**American Geophysical Union (AGU)** - "Advances in the Application of Earth Observations to Characterize and Address Land Degradation and Associated Ecosystem Responses," Primary Convener and Chair, New Orleans, LA, December 2021

**American Geophysical Union (AGU)** - "Satellite-based Estimates of Land Degradation Across the Southern Cone of South America in Support of the 2030 Agenda for Sustainable Development," eLightning and Virtual Poster Presentation, online, December 2020

**American Geophysical Union (AGU)** - "Mapping Pasture and Rangeland Degradation in the Southern Cone of South America using Landsat," Poster Presentation, San Francisco, CA, December 2019

**Global Land Programme Open Science Meeting** - "Mapping Pasture and Rangeland Degradation in the Southern Cone of South America using Landsat," Poster Presentation, Bern, Switzerland, April 2019

**NASA Land Cover/Land Use Change Science Meeting** - "Assessing Pastureland Degradation in the Southern Cone of South America Using Spectral Mixture Analysis," Lightning Talk and Poster Presentation, Rockville, MD, April 2019

**American Geophysical Union (AGU)** - "Mapping Continuous Fields of Bare Ground, Grass, and Woody Cover in the Southern Cone of South America using Landsat," Poster Presentation, Washington DC, December 2018

**NASA Land Cover/Land Use Change Science Meeting** - "Modeling the Dynamics of Global Pasturelands to Climate Variability and Human Impact," Lightning Talk and Poster Presentation, Gaithersburg, MD, April 2018

**American Geophysical Union (AGU)** - "Modeling Sensitivity of Global Pasturelands to Climate Variability and Human Management," Oral Presentation, New Orleans, LA, December 2017

**American Geophysical Union (AGU)** - "An Empirical Assessment of the MODIS Land Cover Dynamics and TIMESAT Land Surface Phenology Algorithms," Oral Presentation, San Francisco, CA, December 2016

**American Geophysical Union (AGU)** - "Organic Carbon Transport through Holocene and Pleistocene Sediment from Southeast Asia: Implications for Arsenic Mobilization," Poster Presentation, San Francisco, CA, December 2013

INVITED  
PRESENTATIONS

**Natural Capital Symposium** - "Earth Observations for Ecosystem Services," Stanford Uni-

versity, Stanford, CA, March 2018

**Global Food+ Symposium** - "Modeling and Monitoring Global Rangeland Dynamics," Oral Presentation, Tufts University, Boston, MA, February 2018

LEADERSHIP  
EXPERIENCE

**Graduate Women in Science and Engineering (GWISE)**  
**Boston University**, Boston, Massachusetts, USA

*Communications Director*

**June 2017 - June 2019**

- Managed GWISE's website, social media, and bi-weekly newsletter, which reached all graduate women in STEM at Boston University
- Initiated and coordinated relationships with organizations both on and off campus

*Girl Science Club Officer*

**June 2015 - August 2019**

- Coordinated volunteers for weekly hands on science activities with elementary school girls at the West End House Boys and Girls Club
- Managed the club's finances and reimbursements for all volunteers

**Department of Earth and Environment**  
**Boston University**, Boston, Massachusetts, USA

*Biogeosciences Officer*

**January 2015 - May 2018**

- Organized an alumni career panel, invited and hosted speakers at the department of Earth and Environment
- Coordinated and lead outreach and outing events for graduate students such as middle school science fair, science communication at farmer's markets and nature hikes

TEACHING  
EXPERIENCE

**Teaching Fellow**, Environmental Change and Sustainability, Boston University

- Designed and implemented weekly in-class worksheets and homework (2 semesters)

**Teaching Fellow**, Natural Environments: The Atmosphere, Boston University

- Instructed weekly lab lectures for up to 60 students introducing concepts and experiments for natural environment courses (1 semester)

**Guest Lecturer**, Environmental Change and Sustainability, Boston University

- Lecture Title: The Laws of Energy and Matter

**Guest Lecturer**, Remote Sensing of Environment, Boston University

- Lecture Title: Modeling dynamics of South American pasturelands to climate variability and human impact

**Guest Lecturer**, Environmental Change and Sustainability, Boston University

- Lecture Title: Driving Forces of Environmental Change

FIELD EXPERIENCE

**Argentina and Uruguay (2017-2018)**

- Established connections with local collaborators
- Collected GPS coordinates and observations of land cover and crop type for assessment of remote sensing data

**Dominican Republic (2012-2014)**

- Facilitated four capacity building workshops and participatory games in English and Spanish
- Assisted in conducting a field financial instruments experiment

**Costa Rica (2011)**

- Collected soil samples from traditional and agroforestry coffee plantations

HONORS AND AWARDS	<p>NASA Earth and Space Science Fellowship, 2017-2020 (\$30,000/year)</p> <p>Young Scientists Summer Program, International Institute for Applied Systems Analysis, Austria, Summer 2017 (\$6,000)</p> <p>Graduate Summer Fellowship, Frederick S. Pardee Center for the Study of the Longer-Range Future, Boston University, Summer 2016 (\$6,000)</p> <p>Biogeoscience Symposium Outstanding Elevator Pitch Award, Boston University, 2016</p> <p>Dean's Fellowship, GRS Graduate Fellowship, Boston University, Spring 2015 (\$10,250)</p> <p>The Lillian Berle Dare Prize for advanced study in Geography, Barnard College, 2012 (\$500)</p> <p>Hughes Science Pipeline Project, Barnard College, 2010-2011 (\$3,000)</p>
LANGUAGES	<p>Fluent in Bulgarian</p> <p>Full Professional Proficiency in Spanish</p>
MEMBERSHIP	<p>American Geophysical Union</p> <p>Global Land Programme</p> <p>Association for Women in Science Massachusetts Chapter</p>