

# Radost Stanimirova, PhD

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## CONTACT INFORMATION

*E-mail:* rkstan@bu.edu  
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*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.

1. **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
2. Graesser, J., R. Stanimirova, K. Tarrio, E.J. Copati, J.N. Volante, S.R. Verón, S. Banchero, 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>
3. 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>
4. 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
5. 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
6. **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>
7. 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>

8. **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>
9. **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

1. 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
2. **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*
3. **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 University, 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**

NASA Earth and Space Science Fellowship, 2017-2020 (\$30,000/year)  
 Young Scientists Summer Program, International Institute for Applied Systems Analysis, Austria, Summer 2017 (\$6,000)  
 Graduate Summer Fellowship, Frederick S. Pardee Center for the Study of the Longer-Range Future, Boston University, Summer 2016 (\$6,000)  
 Biogeoscience Symposium Outstanding Elevator Pitch Award, Boston University, 2016  
 Dean's Fellowship, GRS Graduate Fellowship, Boston University, Spring 2015 (\$10,250)  
 The Lillian Berle Dare Prize for advanced study in Geography, Barnard College, 2012 (\$500)  
 Hughes Science Pipeline Project, Barnard College, 2010-2011 (\$3,000)

#### **LANGUAGES**

Fluent in Bulgarian  
 Full Professional Proficiency in Spanish

#### **MEMBERSHIP**

American Geophysical Union  
 Global Land Programme  
 Association for Women in Science Massachusetts Chapter