Damien Sulla-Menashe - Curriculum Vitae

Department of Earth and Environment, Boston University, 685 Comm. Ave, Boston MA 02215

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EDUCATION

Boston University, Boston, Massachusetts, USA

Doctor of Philosophy (Ph.D.) in Natural Geography and Remote Sensing   Sep 2009 – Sep 2015
With Certificate in Biogeosciences
Advisor: Mark Friedl
Research areas: Remote sensing, climate change, time series analysis, and above-ground biomass monitoring.

Dual Degree Program: Sep 2002 – Dec 2006
Master of Arts (M.A.) in Geographic Information Systems and Remote Sensing of the Environment
Bachelor of Arts (B.A.) in Environmental Science
Honors: Summa Cum Laude
Cumulative GPA: 3.8 / 4.0

RESEARCH EXPERIENCE

Land Cover and Surface Climate Group, Boston University

Research Scientist, Earth and Environment Department   Jan 2007 – Present
* Developed the Collection 6 MODIS Land Cover Type (MCD12Q1) product.
* Increased the computational efficiency of the classification process and the overall quality of data produced.
* Managed and improved the System for Terrestrial Ecosystem Parameterization (STEP) database of 3,000 sites worldwide. This database was used to train the decision trees used by the C5 and C6 MCD12Q1 product.
* Created an independent global land cover validation database to validate the VIIRS Surface Type and MODIS Land Cover products.
* Prototyped a hierarchical land cover classification for the Northern Eurasia region.
* Developed and produced the Collection 5 MODIS Land Cover Type (MCD12Q1) product, which is publicly available and has been used in many studies from topics that range from conservation to modeling evapotranspiration to global climate models.

Woods Hole Research Center, Falmouth, MA

Post-Doctoral Research Scientist   Sep 2015 – Present
* Previously developed multi-date composites of MODIS imagery for a large-scale tropical biomass monitoring effort. Also assisted in assessing overall uncertainty of the biomass maps.
* Created seamless, gap-filled mosaics of Landsat data and used the synthetic imagery to train randomForest regression trees for mapping trends in carbon density across Mexico between 1984-2015.

PUBLICATIONS

2017

Baccini A., Walker, W., Carvalho, L., Farina, M., **Sulla-Menashe, D.**, & Houghton, R.A. (in review). Tropical forests are a net carbon source based on new measurements of gain and loss. Submitted to *Science*.

Li, Y., **Sulla-Menashe, D.**, Motesharrei, S., Song, X., Kalnay, E., Ying, Q., Li, S., & Ma, Z. (in review). Inconsistent estimates of forest cover change in China during the 2000s from multiple datasets. Submitted to *Scientific Reports*.

Sulla-Menashe, D., Friedl, M.A., & Woodcock, C.E. (in review). Boreal forest greening and browning is primarily caused by disturbance, not climate change. Submitted to *Environmental Research Letters*.

2016

Melaas, E.K., **Sulla-Menashe, D.**, Gray, J.M., Black, T.A., Morin, T.H., Richardson, A.D., & Friedl, M.A. (2016). Multisite analysis of land surface phenology in North American temperate and boreal deciduous forests from Landsat. *Remote Sensing of Environment*, 186, 452-464. doi: 10.1016/j.rse.2016.09.014.

Sulla-Menashe, D., Friedl, M.A., & Woodcock, C.E. (2016). Sources of bias and variability in long-term Landsat time Series over Canadian boreal forests. *Remote Sensing of Environment*, 177, 206-219. doi: 10.1016/j.rse.2016.02.041.

2015 Mertes, C.M., Schneider, A., **Sulla-Menashe, D.**, Tatem, A.J., & Tan, B. (2015). Detecting change in urban areas at continental scales with MODIS data. *Remote Sensing of Environment,* 158, 331-347. doi: 10.1016/j.rse.2014.09.023.

Schneider, A., Mertes, C.M., Tatem, A.J., Tan, B., **Sulla-Menashe, D.**, Graves, S.J., Patel, N.N., Horton, J.A., Gaughan, A.E., Rollo, J.T., Schelly, I.H., Stevens, F., & Dastur, A. (2015). A new urban landscape in East-Southeast Asia, 2000-2010. *Environmental Research Letters,* 10 (3), 1-14. doi: 10.1088/1748-9326/10/3/034002.

Sulla-Menashe, D. (2015). *Using multi-resolution remote sensing to monitor disturbance and climate change impacts on northern forests* (Doctoral dissertation). Retrieved from ProQuest Dissertations and Theses. (Accession Order No. AAT 3736169).

2014 Broxton, P.D., Zeng, X., **Sulla-Menashe, D.**, & Troch, P.A. (2014). A global land cover climatology using MODIS data. *Journal of Applied Metereology and Climatology,* 53, 1493-1605. doi: 10.1175/JAMC-D-13-0270.1.

Cai, S., Liu, D., **Sulla-Menashe, D.**, & Friedl, M.A. (2014). Enhancing MODIS land cover product with a spatial-temporal modeling algorithm. *Remote Sensing of Environment,* 147, 243-255. doi: 10.1016/j.rse.2014.03.012.

Glanz, H., Carvalho, L., **Sulla-Menashe, D.**, & Friedl, M.A. (2014). A parametric model for classifying land cover and evaluating training data based on multi-temporal remote sensing data. *ISPRS Journal of Photogrammetry and Remote Sensing,* 97, 219-228. doi: 10.1016/j.isprsjprs.2014.09.004.

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(C), 114-123. doi: 10.1016/j.rse.2013.07.042.

Yin, H., Pflugmacher, D., Kennedy, R., **Sulla-Menashe, D.**, & Hostert, P. (2014). Mapping annual land use and land cover changes using MODIS time series. *IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing,* 7(8), 3421-3427. doi: 10.1109/JSTARS.2014.2348411.

2012 Baccini, A., Goetz, S.J., Walker, W.S., Laporte, N.T., Sun, M., **Sulla-Menashe, D.**, Hackler, B., Beck, P.S.A., Dubayah, R., Friedl, M.A., Samanta, S., & Houghton, R.A. (2012). Estimated carbon dioxide emissions from tropical deforestation improved by carbon-density maps. *Nature Climate Change,* 2, 182-185. doi: 10.1038/nclimate1354.

Olofsson, P., Stehman, S.V., Woodcock, C.E., **Sulla-Menashe, D.**, Sibley, A.M., Newell, J.D., Friedl, M.A., & Herold, M. (2012). A global land-cover validation data set, part 1: fundamental design principles. *International Journal of Remote Sensing,* 33(18), 5768-5788. doi: 10.1080/01431161.2012.674230.

Rebbapragada, U., Brodley, C.E., **Sulla-Menashe, D.**, & Friedl, M.A. (2012). Active label correction. *IEEE 2012: Proceedings of the 12th International Conference on Data Mining (ICDM),* 1080-1085. doi: 10.1109/ICDM.2012.162.

Yaozhong, P., Li, L., Jinshui, Z., Shunlin, L., Xiufang, Z., & **Sulla-Menashe, D.** (2012). Winter wheat area estimation from MODIS-EVI time series data using the Crop Proportion Phenology Index. *Remote Sensing of Environment,* 119, 232-242. doi: 10.1016/j.rse.2011.10.011.

2011 Pflugmacher, D., Krankina, O.N., Cohen, W.B., Friedl, M.A., **Sulla-Menashe, D.**, Kennedy, R.E., Nelson, P., Loboda, T.V., Kuermmerle, T., Dyukarev, E., Elsakov, V., & Kharuk, V.I. (2011). Comparison and assessment of coarse resolution land cover maps for Northern Eurasia. *Remote Sensing of Environment,* 115(12), 3539-3553. doi: 10.1016/j.rse.2011.08.016.

Sulla-Menashe, D., Friedl, M.A., Krankina, O.N., Baccini, A., Woodcock, C.E., Sibley, A., Sun, G., Kharuk, V., & Elsakov, V. (2011). Hierarchical mapping of northern Eurasia using MODIS data. *Remote Sensing of Environment,* 115, 392-403. doi: 10.1016/j.rse.2010.09.010.

2010 Friedl, M.A., **Sulla-Menashe, D.**, Tan, B., Schneider, A., Ramankutty, N., Sibley, A., & Huang, X. (2010). MODIS collection 5 global land cover: algorithm refinements and characterization of new datasets. *Remote Sensing of Environment,* 114(1), 168-182. doi: 10.1016/j.rse.2009.08.016.

Preston, D.R., Brodley, C.E., Khardon, R., **Sulla-Menashe, D.**, & Friedl, M. (2010). Redefining class definitions using constraint-based clustering: an application to remote sensing of the earth's surface. *KDD '10: Proceedings of the 16th ACM SIGKDD international conference on knowledge discovery and data mining,* Washington, D.C., USA, July 25-28, 823-831.

MEETING ABSTRACTS & PRESENTATIONS

Sulla-Menashe, D., Friedl, M.A., & Woodcock, C.E. **Poster.** Boreal forest greening and browning is primarily caused by disturbance, not climate change. American Geophysical Union Fall 2016 Meeting, December 12-16, 2016, San Francisco, CA, USA.

Sulla-Menashe, D., Woodcock, C.E., Melaas, E.K. & Friedl, M.A. **Oral Presentation.** Landscape-scale histories and active monitoring of disturbance, seasonality, and greenness trends for ABoVE from Landsat. The 14th International Circumpolar Remote Sensing Symposium, September 12-16, 2016, Homer, AK, USA.

Sulla-Menashe, D., Gray, J., & Friedl, M.A. **Oral Presentation.** Collection 6 MODIS land cover and land cover dynamics. MODIS Science Team Meeting, June 6-10, 2016, Silver Springs, MD, USA.

Sulla-Menashe, D., Friedl, M.A., & Woodcock, C.E. **Poster.** Divergent responses of Canadian boreal forests to recent climate warming. American Geophysical Union Fall 2015 Meeting, December 14-18, 2015, San Francisco, CA, USA.

Sulla-Menashe, D., Friedl, M.A., & Woodcock, C.E. **Poster.** On the use of Landsat data to detect long-term NDVI trends in Canadian boreal forests. American Geophysical Union Fall 2014 Meeting, December 15-19, 2014, San Francisco, CA, USA.

Sulla-Menashe, D., Gray, J., & Friedl, M.A. **Oral Presentation.** Collection 6 MODIS land cover and land cover dynamics. MODIS Science Team Meeting, April 28-30, 2014, Columbia, MD, USA.

Sulla-Menashe, D., Olofsson, P., Woodcock, C.E., Friedl, M.A., Holden, C.E., Metcalfe, M., Stehman, S.V., Herold, M., & Giri, C. **Oral Presentation.** Development of an independent global land cover validation database. American Geophysical Union Fall 2012 Meeting, December 3-7, 2012, San Francisco, CA, USA.

Sulla-Menashe, D., Yang, Z., Kennedy, R.E., Braaten, J., Krankina, O.N., & Friedl, M.A. **Oral Presentation.** Detecting forest disturbance in the Pacific Northwest from MODIS time series using temporal segmentation. ForestSAT Conference 2012, September 11-14, 2012, Oregon State University, Corvallis, OR, USA.

Sulla-Menashe, D., Yang, Z., Braaten, J., Krankina, O.N., Friedl, M.A., & Kennedy, R.E. **Poster.** Detecting forest disturbance in the Pacific Northwest from MODIS time series using temporal segmentation. MODIS Science Team Spring 2012 Meeting, May 7-9, 2012, Silver Spring, MD, USA.

Sulla-Menashe, D., Yang, Z., Braaten, J., Krankina, O.N., Friedl, M.A., & Kennedy, R.E. **Poster.** Detecting forest disturbance in the Pacific Northwest from MODIS time series using temporal segmentation. American Geophysical Uniton Fall 2011 Meeting, December 5-9, 2011, San Francisco, CA, USA.

Sulla-Menashe, D., Yang, Z., Braaten, J., Krankina, O.N., Friedl, M.A., & Kennedy, R.E. **Poster.** Detecting forest disturbance in the Pacific Northwest from MODIS time series using temporal segmentation. 2011 NASA Carbon Cycle and Ecosystems Joint Science Workshop, October 3-7, 2011, Hilton Alexandria Mark Center, Alexandria, VA.

Sulla-Menashe, D., Friedl, M.A., Krankina, O.N., Baccini, A., Woodcock, C.E., Sibley, A.M., Sun, G., Kharuk, V., Elsakov, V., Olofsson, P., Stehman, S.V., Herold, M., Newell, J., & Ahlqvist, O. **Oral Presentation.** Hierarchical land cover classification with MODIS & an independent global land cover validation database. International Workshop on Global Land cover Mapping, January 12-14, 2011, Tsinghua University, Beijing, China.

Sulla-Menashe, D., Olofsson, P., Stehman, S.V., Woodcock, C.E., Herold, M., Newell, J., Sibley, A.M., & Friedl, M.A. **Poster.** Validation of global land cover products using an independent global reference validation database. American Geophysical Union Fall 2010 Meeting, December 13-16, 2010, San Francisco, CA, USA.

Sulla-Menashe, D., Friedl, M.A., Krankina, O.N., Woodcock, C.E., Baccini, A., Sibley, A., Sun, G., Kharuk, V., & Elsakov, V. **Poster.** Hierarchical mapping of Northern Eurasia land cover using MODIS. Joint NASA LCLUC Science Team Meeting & GOFC-GOLD/NERIN, NEESPI Workshop, August 25-28, 2010, Tartu, Estonia.

Sulla-Menashe, D., Friedl, M.A., Baccini, A., Woodcock, C.E., & Krankina, O.N. **Oral Presentation.** Mapping land cover in Northern Eurasia using a hierarchical land cover classification system. Land Cover Mapping at High Latitudes, GOFC-GOLD/NERIN, July 2008, Syktyvkar Russia.

Sulla-Menashe, D., Baccini, A., Friedl, M.A., Woodcock, C.E., & Krankina, O.N. **Poster.** Mapping land cover in Northern Eurasia using a hierarchical land cover classification system. 2008 NASA Carbon Cycle and Ecosystems Meeting, April 28-30, 2008, University of Maryland Inn and Conference Center, Adelphi, MD.

PROFESSIONAL AFFILIATIONS & ACTIVITIES	**American Geophysical Union**, Washington D.C., USA

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<tr><td>PROFESSIONAL AFFILIATIONS & ACTIVITIES</td><td>American Geophysical Union, Washington D.C., USA
Member</td><td>2010 – Present</td></tr>
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PROFESSIONAL AFFILIATIONS & ACTIVITIES

American Geophysical Union, Washington D.C., USA
Member   2010 – Present

Journal of Remote Sensing of Environment
ISPRS Journal of Photogrammetry and Remote Sensing
Journal of Remote Sensing
Forests
Sensors
Journal reviewer

CAMPUS ACTIVITIES

Graduate Student Organization, Boston University
Travel Grant Coordinator   Sep 2010 – May 2012
Participated in GSO meetings as the Geography Department representative.
At the end of each semester, I organized the Travel Grant Committee from a representative sample of graduate students.
We judged up to fifty applications and together awarded five travel grants each semester.

OTHER WORK EXPERIENCE

The Encyclopedia of Earth, Boston, MA, USA
Copy Editor   Feb 2007 – May 2008
Implemented basic wiki editing code, including creating tables, inserting pictures, and incorporating hyperlinks.
Contributed fifteen hours per month within the topics of ecology, biodiversity, and conservation.
Conducted research to identify content partners for the future expansion of the encyclopedia.

Pickering Educational Resources Library, Boston, MA, USA
Circulation Desk Manager   Sep 2002 – Dec 2006
Organized test collection and facilitate checkout of reserve material.
Advised students and faculty in locating reference materials and in performing computer-based research.
Entered patron data into the library database.

Paul J. Sulla Attorney at Law
Secretary/Paralegal   Jun 2006 – Aug 2006
Assisted in the editing and drafting of motions, briefs, and letters.
Organized a database to assist in monthly bill-paying.
Answered phones and carried out correspondences.

SKILLS

Programming languages: Proficient in C, C++, UNIX, R, LaTeX, and ESRI Arc Macro Language. Knowledge of IDL, SQL, Matlab, and Python.
GIS applications: ESRI (ArcMap, ArcInfo, ArcScene, ArcToolbox, ArcCatalog), QGIS, OGR/GDAL, and GoogleEarth.
Image processing software: IPW, ENVI, ECognition, and Adobe Photoshop.
Microsoft Office Suite (Word, Excel, and Powerpoint).
Wiki formatting language.
Advanced knowledge of Spanish.