Alexandra (Sasha) Tyukavina, Ph.D.

Associate Research Professor, Department of Geographical Sciences, University of Maryland
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Education

Ph.D. in Geographical Sciences, 2015, University of Maryland, Department of Geographical Sciences; Dissertation: "Characterizing forest disturbance dynamics in the humid tropics using optical and Lidar remotely sensed data sets"

M.Sc. in Cartography, 2006-2011 (5-year joint M.Sc.-B.Sc. program), Lomonosov Moscow State University, Faculty of Geography, Department of Cartography and Geoinformatics, Laboratory of Aerospace Methods, graduated with honors

Professional experience

Department of Geographical Sciences, University of Maryland, College Park, MD

2023 – present: Associate Research Professor

Developed a conceptual framework summarizing global sampling methods for map accuracy and area estimation and wrote a review paper (*in review*). Co-led a working group of 34 scientists (from 17 institutions, 9 countries) to update global land cover map validation guidelines as a part of the CEOS LPV Land Cover focus area activities (version 0.1 released for community review in August 2024). Secured funding for and organized an international cropland validation workshop (47 participants from 9 countries), co-organized by CEOS LPV LC and GEOGLAM and hosted by the International GEO Center.

2019 – 2023: Assistant Research Professor

Participated in securing research funding, including writing proposals. Managed a research team of 6-9 people mapping global hotspots of forest loss as a PI of a NASA LCLUC-funded project. Performed research on sample-based assessment of global forest loss drivers. Mapped global forest loss due to fire and updated the map annually. Participated in onramp vendor evaluation of the NASA CSDA program (Planet and BlackSky). Contributed to multiple projects as a Co-I via conceptualizing and designing research, performing statistical analyses, training image interpreters, writing and editing manuscripts and educational materials. Published results of my research in peer-reviewed journals and communicated them via international conferences and meetings, popular blogs, and interviews. Performed service at the department, campus, national and international levels, including hosting workshops, leading working groups, serving on dissertation committees, and reviewing articles and grant proposals. Participated in teaching activities via guest lectures, international schools, workshops, webinars, and seminars.

2015 – 2019: Post-Doctoral Research Associate

Performed research on sample-based assessment of forest loss drivers in the tropics (Brazilian Amazon and Congo Basin), published results in peer-reviewed journals, and presented at the international conferences and meetings. Contributed to multiple projects as a support scientist or Co-I via data processing and visualization, writing code, collecting training and reference data, performing statistical analyses, writing, and editing manuscripts. Participated in teaching and capacity building activities via guest lectures and workshops. Performed service via peer review and serving on department committees.

2012 – 2015: Graduate Research Assistant

Supported accuracy assessment of the first high-resolution (30m) global forest loss map as a part of the Global Forest Watch (funded by Norwegian Climate and Forest Initiative) and Quantifying Global Forest Cover Change (funded by Gordon and Betty Moore Foundation) research projects. Contributed to regional forest change assessment and capacity-building activities as a part of the Central Africa Regional Program for the Environment

(CARPE), funded by USAID. Performed fieldwork in the Republic of the Congo and Mexico. Supported teaching by supervising labs for a graduate-level land cover mapping class.

Research and Development Center ScanEx, Moscow, Russia
2011: Cartographer, Specialist of Technological Department
Supported automated geo-registration of a bulk order of GeoEye imagery.

Geographic Information Science Center of Excellence, South Dakota State University, Brookings, SD
2011: Research Intern
Mapped forest cover changes in Mexico using Landsat data and participated in fieldwork in the Black Hills National Forest.

Faculty of Geography, Department of Cartography and Geoinformatics, Lomonosov Moscow State University, Moscow, Russia
2010 – 2011: Undergraduate Research Assistant
Participated in the fieldwork in the Russian Arctic (Taimyr peninsula and Putorana Plateau) as a part of the PPS Arctic project, coordinated by the Norwegian Institute for Nature Research. Helped organize a project workshop. Performed research on utilizing field crown measurements to map the northernmost sparse larch forests in the tundra-taiga ecotone, and published results in a peer-reviewed journal (in Russian).

Institute for Information and Communication Technologies, Graz, Austria
2009: Cartography Intern
Mapped glacier dynamics in Severnaya Zemlya using historic topographical maps and radar interferometry. Prepared resulting maps for publication as high-quality large-format printed maps.

Research awards

Period	Role	Sponsor	Title	Award amount
2021 – 2025	Co-I	Bezos Earth Fund via World Resources Institute	Global Land Cover and Land Use Monitoring in Support of Environmental Sustainability	$12,750,000
2024 – 2025	Co-I	World Wildlife Fund Canada	Canadian Primary Forest Mapping	$210,000
2022 – 2024	Co-I	Norwegian Ministry of Climate and the Environment via World Resources Institute	Global Forest Watch 4.0	$1,400,353
2023 – 2024	PI	NASA	A joint-workshop to develop community good practices and product accuracy protocols for cropland and crop type products by the Committee on Earth Observation Satellites working group	$74,354
2021 – 2023	PI	NASA LCLUC Program	Multi-resolution quantification and driver assessment of hot spots of global forest disturbance Sub-award: NASA Commercial Smallsat Data Acquisition (CSDA) program's Onramp #2 BlackSky Evaluation	$844,256, including $774,256 main award, $70,000 sub-award.
2020 – 2022	Co-I	NASA LCLUC Program	Shifting Cultivation at a Crossroads: Drivers and Outcomes of Recent Land-use Changes in Lao PDR	$742,285
2019 – 2022	Co-I	NASA SERVIR Program	Supporting Operational Regional Land Cover Monitoring at High Spatial and Temporal Resolution for the Hindu-Kush-Himalayan Region	$660,000

2018 – 2022	Co-I	USGS-NASA Landsat Science Team	Generating time-series maps that accurately reflect land change area: A strategy for global land monitoring	$1,229,536
2017 – 2018	Co-I	World Resources Institute	Nationalization of the Hansen tree cover loss/gain dataset for Madagascar	$221,839
2016 – 2019	Co-I	NASA SERVIR Program	Supporting satellite-based national land cover and land use change monitoring systems in Southeast Asian countries (Burma, Cambodia, Laos, Thailand, and Vietnam)	$654,275

Teaching experience

- Teaching assistant: GEOG 498R (Land Cover Characterization Using Multi-Spectral, Multi-Temporal Remotely Sensed Data Sets), Spring 2013 and 2014;
- Visiting lecturer: GEOG 172 (Earth from Space), Spring 2022-2024, Summer 2022-2024; GEOG 372 (Remote Sensing), Fall 2016 and 2017; GEOG 472 (Remote Sensing: Digital Processing and Analysis), Fall 2014 and 2015; GEOG 422 (Changing Geographies of Sub-Saharan Africa), Fall 2017; GEOG 617 (Land Cover Characterization Using Multi-Spectral Remotely Sensed Data Sets), Fall 2018 and 2019.

Service

- Peer review: Science, Nature Geoscience, Nature Communications, Remote Sensing of Environment, Communications Earth and Environment, Environmental Research Letters, Remote Sensing, Scientific Reports, International Journal of Wildland Fire, International Journal of Remote Sensing, Forests, Ecological Management and Restoration, Conservation Letters, Science of the Total Environment, Canadian Journal of Forest Research, Biotropica, African Geographical Review, Forest Ecosystems, Global Environmental Change;
- International collaboration: co-lead of the Land Cover focus area within the Committee on Earth Observation Satellites (CEOS) Land Product Validation (LPV) subgroup, 2021 – 2027;
- Grant review: NASA SERVIR and LCLUC programs, NSF, European Science Foundation.
- Ph.D. Committee member, defense examiner or opponent:
  Rebecca Traldi, D. of Geographical Sciences, U. of Maryland, College Park, MD (Ph.D. 2022)
  Robert Masolele, D. of Environmental Sciences, Wageningen U., Netherlands (Ph.D. 2023)
  Dingfan Xing, C. of Environmental Science and Forestry, SUNY, Syracuse, NY (Ph.D. 2023)
  Aleksandra Mikus, D. of Geographical Sciences, U. of Maryland (Ph.D. ongoing).
- Research faculty representative, Department of Geographical Sciences, University of Maryland: Graduate Committee, 2018-2019; AV Williams Task Force, 2018; Department Committee, 2015-2016, 2021-2024; International Center Task Force, 2021.
- Graduate student representative, Department of Geographical Sciences, University of Maryland: Graduate Committee, 2013-2014; Orientation Committee May-August 2012;
- Content manager: UMD GLAD team social media (facebook.com/UMDGLAD, >1,200 followers and twitter.com/UMD_GLAD, >2,400 followers) and website (glad.umd.edu) since 2015, and instagram.com/umd_glad since 2023.
- Alumni panelist: The College Behavioral and Social Sciences (BSOS) Dean's Graduate Student Advisory Council (DGSAC) Fall Graduate Resources for the Outside World (GROW) Alumni Panel & Networking Event, 2018;
- Workshop host: CEOS LPV LC and GEOGLAM Cropland validation workshop, 12-14 September 2023, Beltsville, MD; bilateral workshop between Lund University (LU) and University of

Maryland (UMD) "Advancing methods for multi-temporal satellite and in-situ data analysis", 1-5 May 2017, College Park, MD; Final workshop of Norway-Russia cooperation project BENEFITS, 24-27 February 2011, Moscow, Russia

Awards

- 2022 – Leading Women in Machine Learning for Earth observation (ML4EO) award by the Radiant Earth Foundation;
- 2018 – NASA SERVIR Collaboration Award to the Regional Land Cover Monitoring System Team;
- 2015 – Baker Award for outstanding performance by a graduate student, Department of Geographical Sciences, University of Maryland;
- 2014 – Excellence in Graduate Research Award, Department of Geographical Sciences, University of Maryland.

Publications

Google Scholar**:** https://scholar.google.com/citations?user=ZjLPnXcAAAAJ&hl=en

Peer-reviewed journal papers

Parker, D., Tosiani, A., Yazid, M., Sari, I. L., Kartika, T., Kustiyo, Firmansyah, R., Said, Z., Wijaya, A., Potapov, **Tyukavina, A.**, Stehman, S.V., Zalles, V., Pickens, A., Pickering, J., Turubanova, S., Hansen, M. C. (2024) Land in limbo: Nearly one third of Indonesia's cleared old-growth forests left idle. *Proceedings of the National Academy of Sciences*, 121(28), e2318029121.

Xu, P., Tsendbazar, N.-E., Herold, M., de Bruin, S., Koopmans, M., Birch, T., Carter, S., Fritz, S., Lesiv, M., Mazur, E., Pickens, A., Potapov, P., Stolle, F., Tyukavina, A., Van De Kerchove, R., Zanaga, D. (2024) Comparative validation of recent 10 m-resolution global land cover maps. *Remote Sensing of Environmen*t, v. 311, 114316.

Khan, A., Potapov, P., Hansen, M. C., Pickens, A. H., **Tyukavina, A.**, Serna, A. H., Uddin, K., & Ahmad, J. (2024) Perennial snow and ice cover change from 2001 to 2021 in the Hindu-Kush Himalayan region derived from the Landsat analysis-ready data. *Remote Sensing Applications: Society and Environment*, 34, 101192.

Turubanova, S., Potapov, P., Hansen, M. C., Li, X., **Tyukavina, A.,** Pickens, A. H., Hernandez-Serna, ... & Stolle, F. (2023) Tree canopy extent and height change in Europe, 2001–2021, quantified using Landsat data archive. *Remote Sensing of Environment*, 298, 113797.

Traldi, R., Silva, J. A., Potapov, P., **Tyukavina, A.,** Epprecht, M., Gore, M. L., & Phompila, C. (2023) Cultivating inequality? Regional rubber dynamics and implications for voluntary sustainability programs in Lao PDR. *World Development*, 170, 106312.

Potapov, P., Hansen, M. C., Turubanova, S., **Tyukavina, A.**, Zalles, V., Song, X. P., & Khan, A. (2023) Reply to: Measuring the world's cropland area. Nature Food, 4(1), 33-34.

Tyukavina, A., Potapov, P., Hansen, M.C., Pickens, A.H., Stehman, S.V., Turubanova, S.V., Parker, D., Zalles, V., Lima, A., Kommareddy, I., Song, X-P., Wang, L., Harris, N. (2022) Global trends of forest loss due to fire from 2001 to 2019. *Frontiers in Remote Sensing*.

Pendrill, F., Gardner, T., Meyfroidt, P., Persson, M., Adams, J., ... **Tyukavina A.**, ... West, C. (2022) Disentangling the numbers behind agriculture-driven tropical deforestation. *Science*, 377, 6611, eabm9267

Potapov, P., Hansen, M.C., Pickens, A.H., Hernandez-Serna, A., **Tyukavina, A.**, Turubanova, S., Zalles, V., Li, X., Khan, A., Stolle, F., Harris, N., Song, X-P., Baggett, A., Kommareddy, I., Kommareddy, A. (2022) The global 2000-2020 land cover and land use change dataset derived from the Landsat archive: first results. *Frontiers in Remote Sensing*.

Pickens, A.H., Hansen, M.C., Stehman, S.V., **Tyukavina A.**, Potapov, P., Zalles, V., Higgins, J. (2022) Global seasonal dynamics of inland open water and ice. *Remote Sensing of Environment*, 272, 112963.

Fagan, M.E., Kim, D-H., Settle, W., Ferry, L., Drew, J., Carlson, H., Slaughter, J., Schaferbien, J., **Tyukavina, A.**, Harris, N.L., Goldman, E., Ordway, E.M. (2022) The expansion of tree plantations across tropical biomes. *Nature Sustainability.*

Hansen, M.C., Potapov, P.V., Pickens, A., **Tyukavina, A.**, Hernandez Serna, A., Zalles, V., Turubanova, S., Kommareddy, I., Stehman, S.V., Song, X., Kommareddy, A. (2021) Global land use extent and dispersion within natural land cover using Landsat data. *Environmental Research Letters*

Potapov, P., Turubanova, S., Hansen, M.C., **Tyukavina, A.**, Zalles, V., Khan, A., Song, X-P, Pickens, A., Shen, Q., Cortez, J. (2021) Global maps of cropland extent and change show accelerated cropland expansion in the twenty-first century, *Nature Food*, 3, 19-22.

Pickering, J., **Tyukavina, A.,** Khan, A., Potapov, P., Adusei, B., Hansen, M.C., Lima, A. (2021) Using multi-resolution satellite data to quantify land dynamics: applications of PlanetScope imagery for cropland and tree-cover loss area estimation. *Remote Sensing*, 13(11), 2191.

Song, X.-P., Hansen, M.C., Potapov, P., Adusei, B., Pickering, J., Adami, M., Lima, A., Zalles, V., Stehman, S.V., Di Bella, C.M., Cecilia, C.M., Copati, E.J., Fernandes, L.B., Hernandez-Serna, A., Jantz, S.M., Pickens, A.H., Turubanova, S., **Tyukavina A.** (2021). Massive soybean expansion in South America since 2000 and implications for conservation. *Nature Sustainability*.

Rodrigues-Eklund, G., Hansen, M.C., **Tyukavina, A.**, Stehman, S.V., Hubacek, K., Baiocchi, G. (2021) Sample-Based Estimation of Tree Cover Change in Haiti Using Aerial Photography: Substantial Increase in Tree Cover between 2002 and 2010. *Forests*, 12(9), 1243.

Harris N.L., Gibbs D.A., Baccini A., Birdsey R.A., de Bruin S., Farina M., Fatoyinbo L., Hansen M.C., Herold M., Houghton R.A., Potapov P.V., Requena Suarez D., Roman-Cuesta R.M., Saatchi S.S., Slay C.M., Turubanova S.A., **Tyukavina A.** (2021) Global maps of twenty-first century forest carbon fluxes. *Nature Climate Change,* 1, 234-240

Potapov P., Li X., Hernandez-Serna A., **Tyukavina A**., Hansen M.C., Kommareddy A., Pickens A., Turubanova S., Tang H., Silva C.E., Armston J., Dubayah R., Blair J.B., Hofton M. (2020) Mapping global forest canopy height through integration of GEDI and Landsat data. *Remote Sensing of Environment,* 253, 112165.

Hansen M.C., Wang L., Song X.P., **Tyukavina A.**, Turubanova S., Potapov P.V., Stehman S.V. (2020) The fate of tropical forest fragments. *Science Advances*, 6(11), eaax8574.

Potapov P., Hansen M.C., Kommareddy I., Kommareddy A., Turubanova S., Pickens A., Adusei B., **Tyukavina A**., Ying, Q. (2020) Landsat Analysis Ready Data for Global Land Cover and Land Cover Change Mapping. *Remote Sensing*, 12(3), 426.

Pickens, A.H., Hansen, M.C., Hancher, M., Stehman, S.V., **Tyukavina, A.**, Potapov, P., Marroquin, B., Sherani, Z. (2020) Mapping and sampling to characterize global inland water dynamics from 1999 to 2018 with full Landsat time-series. *Remote Sensing of Environment,* 243, 111792.

Molinario, G., Hansen, M., Potapov, P., **Tyukavina, A.**, Stehman, S. (2020) Contextualizing Landscape-Scale Forest Cover Loss in the Democratic Republic of Congo (DRC) between 2000 and 2015. *Land*, 9(1), 23.

Saah, D., Tenneson, K., Matin, ..., **Tyukavina, A.**, ... Chishtie, F. (2019) Land Cover Mapping in Data Scarce Environments: Challenges and Opportunities. *Frontiers in Environmental Science*.

Hansen, M.C., Potapov, P., and **Tyukavina, A.** (2019) Comment on "Tropical forests are a net carbon source based on aboveground measurements of gain and loss". *Science*, 363, 6423, eeaar3629.

Potapov, P., **Tyukavina, A.**, Turubanova, S., Talero, Y., Hernandez-Serna, A., Hansen, M.C., Saah, D., Tenneson, K., Poortinga A., Aekakkararungroj, A., Chishtie, F., Towashiraporn P., Bhandari, B., Aung, K.S., Nguyen, Q.H. (2019) Annual continuous fields of woody vegetation structure in the Lower Mekong region from 2000-2017 Landsat time-series. *Remote Sensing of Environment* 232, 111278

Krylov, A., Steininger, M.K., Hansen, M.C., Potapov, P.V., Stehman, S.V., Gost, A., Noel, J., Talero Ramirez, Y., **Tyukavina, A.**, Di Bella, C.M., Ellis, E.A., Ellis, P. (2019) Contrasting tree-cover loss and subsequent land cover in two neotropical forest regions: sample-based assessment of the Mexican Yucatán and Argentine Chaco. *Journal of Land Use Science*.

Pickering J., Stehman S.V., **Tyukavina A.**, Potapov P., Watt P., Jants S.M., Bholanath P. and Hansen M.C. (2019) Quantifying the trade-off between cost and precision in estimating area of forest loss and degradation using probability sampling in Guyana. *Remote Sensing of Environm*ent, 221, pp.122-135.

Zalles V., Hansen M.C., Potapov P.V., Stehman S.V., **Tyukavina A**., Pickens A., Song X.-P., Adusei B., Okpa C., Aguilar R., John N., Chavez S. (2019) Near doubling of Brazil's intensive row crop area since 2000. *PNAS*

Tyukavina A., Hansen M.C., Potapov P., Parker D., Okpa C., Stehman S.V., Kommareddy I., Turubanova S. (2018) Congo Basin forest loss dominated by increasing smallholder clearing. *Science Advances* 4(11), eaat2993

Curtis P.G., Slay C.M., Harris N.L., **Tyukavina A.**, Hansen M.C. (2018) Classifying drivers of global forest loss. *Science* 361(6407), 1108-1111

Song X.-P., Hansen M.C., Stehman S.V., Potapov P.V., **Tyukavina A.**, Vermote E.F., Townshend J.R. (2018) Global land change from 1982 to 2016. *Nature* 506 (7720), 639.

Turubanova S., Potapov P.V., **Tyukavina A**., Hansen M.C. (2018) Ongoing primary forest loss in Brazil, Democratic Republic of the Congo, and Indonesia. *Environmental Research Letters*, 13(7), 074028.

Tyukavina A., Hansen M.C., Potapov P.V., Stehman S.V., Smith-Rodriguez K., Okpa C., Aguilar R. (2017) Types and rates of forest disturbance in Brazilian Legal Amazon, 2000-2013. *Science Advances*, vol. 3, no. 4, e1601047.

Potapov P., Siddiqui B.N., Iqbal Z., Aziz T., Zzaman B., Islam A., Pickens A., Talero Y., **Tyukavina A.**, Turubanova S., Hansen M.C. (2017) Comprehensive monitoring of Bangladesh tree cover inside and outside of forests, 2000–2014. *Environmental Research Letters*, 12(10), 104015.

Ying Q., Hansen M.C., Potapov P.V., **Tyukavina A**., Wang L., Stehman S.V., Moore R., Hancher M. (2017) Global bare ground gain from 2000 to 2012 using Landsat imagery. *Remote Sensing of Environment*, vol. 194, pp. 161-176.

Molinario G., Hansen M.C., Potapov P.V., **Tyukavina A**., Stehman S., Barker B., Humber M. (2017) Quantification of land cover and land use within the rural complex of the Democratic Republic of Congo. *Environmental Research Letters,* 11(10), 104001.

Zscheischler J., Mahecha M.D., Avitabile V., …, **Tyukavina A.,** … Reichstein M. (2017) Reviews and syntheses: An empirical spatiotemporal description of the global surface–atmosphere carbon fluxes: opportunities and data limitations. Biogeosciences, 14(15), 3685-3703.

Dinerstein E., Olson D., Joshi A., …, **Tyukavina A.,** …, Saleem M. (2017) An ecoregion-based approach to protecting half the terrestrial realm. *BioScience*

Hansen M.C., Potapov P.V., Goetz S.J., Turubanova S., **Tyukavina A.**, Krylov A., Kommareddy A., Egorov A. (2016) Mapping tree height distributions in Sub-Saharan Africa using Landsat 7 and 8 data. *Remote Sensing of Environment*, vol. 185, pp. 221-232.

Hansen M.C., Krylov A., **Tyukavina A.,** Potapov P.V., Turubanova S., Zutta B., Suspense I., Margono B., Stolle F., Moore R. (2016) Humid tropical forest disturbance alerts using Landsat data. *Environmental Research Letters*, 11, 034008.

Tyukavina A., Hansen M.C., Potapov P.V., Krylov A.M., & Goetz S.J. (2016) Pan-tropical hinterland forests: mapping minimally disturbed forests. *Global Ecology and Biogeography*, 25(2), 151-163.

Zarin, D.J., Harris, N.L., Baccini, A., Aksenov, D., Hansen, M.C., Ramos, C.A., Azevedo, T., Margono, B.A., Alencar, A.C., Gabris, C., Allegretti, A., Potapov, P., Farina, M., Walker, W.S., Shevade, V.S., Loboda, T.V., Turubanova, S., **Tyukavina A.** (2015) Can carbon emissions from tropical deforestation drop by 50% in five years? *Global change biology,* vol. 22, № 4, pp. 1336-1347.

Tyukavina A., Baccini A., Hansen M.C., Potapov P.V., Stehman S.V., Houghton R.A., Krylov A.M., Turubanova S., Goetz S.J. (2015) Aboveground carbon loss in natural and human-modified tropical forests from 2000 to 2012. *Environmental Research Letters,* vol. 10, № 7, pp 1-14.

Potapov P.V., Turubanova S.A., **Tyukavina A.**, Krylov A.M., McCarty J.L., Radeloff V.C., Hansen M.C. (2015) Eastern Europe's forest cover dynamics from 1985 to 2012 quantified from the full Landsat archive. *Remote Sensing of Environment,* 2015, vol. 159, pp. 28-43.

Krylov A., McCarty J. L., Potapov P., Loboda T., **Tyukavina A.**, Turubanova S., Hansen M.C. (2014) Remote sensing estimates of stand-replacement fires in Russia, 2002-2011. *Environmental Research Letters*, 2014, vol. 9, № 10, pp 1-8.

Hansen M.C., Egorov A., Potapov P.V., Stehman S.V., **Tyukavina A.**, Turubanova S.A., Roy D.P., Goetz S.J., Loveland T.R., Ju J., Kommareddy A., Forsythe C., Bents T. (2014) Monitoring conterminous United States (CONUS) land cover change with Web-Enabled Landsat Data (WELD). *Remote Sensing of Environment*, 2014, vol.140, pp. 466-484.

Hansen M.C., Potapov P.V., Moore R., Hancher M., Turubanova S.A., **Tyukavina A.**, Thau D., Stehman S.V., Goetz S.J., Loveland T.R., Kommareddy A., Egorov A., Chini L., Justice C.O., Townshend J.R.G. (2013) High-resolution global maps of 21-st-century forest cover change. *Science:* 342 (6160), 850-853.

Tyukavina A., Stehman S.V., Potapov P.V., Turubanova S.A., Baccini A., Goetz S.J., Laporte N.T., Houghton R.A., Hansen M.C. (2013) National-scale estimation of gross forest aboveground carbon loss: a case study of the Democratic Republic of the Congo. *Environmental Research* Letters, 2013, vol.8, №4, pp 1-14.

Zhuravleva I., Turubanova S., Potapov P., Hansen M., **Tyukavina A**., Minnemeyer S., Laporte N., Goetz S., Verbelen F., Thies C. (2013) Satellite-based primary forest degradation assessment in the Democratic Republic of the Congo, 2000–2010. Environmental Research Letters, 2013, vol.8, №2, pp. 1-13.

Margono B.A., Turubanova S., Zuravlevla I., **Tyukavina A**., Potapov P., Goetz S., Bachini A., Hansen M.C. (2012) Mapping and monitoring deforestation and forest degradation in Sumatra (Indonesia) using Landsat time series datasets from 1990 to 2010. *Environmental Research Letters*, 2012, vol. 7, №3, pp. 1-16.

Tyukavina A.Yu. (2012) Estimation of tree crown density in sparse larch forests of Taimyr peninsula with multiresolution satellite images. *Issledovanie Zemli iz Kosmosa*, 2012, №4, pp. 1-11 [in Russian].

Kravtsova V., **Tyukavina A.** (2010) Stereoscopic computer decoding of aerospace images in geographical research. *Geodesy and Cartography*, 2010, №3, p. 34-39 [in Russian].

Book chapters

McCarty J.L., Krylov A., Prishchepov A.V., Banach D. M., **Tyukavina A**., Potapov P., Turubanova S. (2016) Agricultural fires in European Russia, Belarus, and Lithuania and their impact on air quality, 2002-2012. In: Gutman G., Radeloff V. (Ed.) Land-Cover and Land-Use in Eastern Europe after the Collapse of the Soviet Union in 1991, pp. 193-221.

Sharov A.I., **Tyukavina A.Yu.,** Bushueva I.S. (2010) Generation of glacier data products. In: Sharov A. (Ed.) Satellite Monitoring und Regional Analysis of Glacier Dynamics in the Barents-Kara Region. Reproteam, Graz, ISBN 9783200-016187, pp. 25 -36.

Other publications

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Potapov, P., Turubanova, S., **Tyukavina, A.**, Krylov A. (2017) Forest Cover Dynamics at the End of the Twentieth and the Beginning of the Twenty-First Centuries. In: European Russian Forests, Springer, Dordrecht, Editors: Smirnova O., Bobrovsky, M., Khanina, L., pp. 509-513.

Turubanova S., Potapov P., Krylov A., **Tyukavina A.,** McCarty J.L., Radeloff V.C., Hansen M.C. (2015) Using the Landsat data archive to assess long-term regional forest dynamics assessment in Eastern Europe, 1985-2012. The International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences, Volume XL-7/W3, 2015. 36th International Symposium on Remote Sensing of Environment, 11-15 May 2015, Berlin, Germany.

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Elsakov V., Shanov V., **Tyukavina A.** (2010) The vegetation cover dynamic of north-east European Russia in ecological gradients by radar and optical data. Proc. 4th Joint PI Symposium of ALOS Data Nodes for ALOS science program in Tokyo, 15-17 November 2010, p. 107.

Tyukavina A. (2009) Remote sensing study of permafrost lakes and ponds dynamics in the Yana river lower course region. In: Young geographer's research: collection of articles by the winners of International student, postgraduate and young scientist conference "Lomonosov", section "Geography" / Edit. A.N. Ivanov. Moscow, Geographical department MSU, 2009, ISBN 978-5-89575-174-8, p.109-112 [in Russian].

Sharov A.I. and **Tyukavina A.Yu.** (2009): Mapping and interpreting glacier changes in Severnaya Zemlya with the aid of differential interferometry and altimetry. Proc. Fringe 2009 Workshop, Frascati, ESA SP-677, 8 p.

Popular blog posts

MacCarthy, J., **Tyukavina, A.,** Weisse, M., and Harris, N. Canada's Record-breaking 2023 Wildfires Released Nearly 4 Times More Carbon than Global Aviation. World Resources Institute blog. June 27, 2024.

MacCarthy, J., **Tyukavina, A.,** Weisse, M., and Harris, N. New Data Confirms: Forest Fires Are Getting Worse. World Resources Institute blog. August 17, 2022 (updated August 13, 2024)

Richter, J., MacCarthy, J., Weisse, M. and **Tyukavina, A.** Two Decades of Fire-Driven Loss in Unprecedented Detail. Global Forest Watch Technical Blog. August 17, 2022.

Presentations and posters

Tyukavina A. (2024, *oral*) Quantifying the extent and drivers of global forest loss with high-resolution satellite data. ForestSAT conference, 9-13 September 2024, Rotorua, New Zealand.

Tyukavina A. (2024, *virtual*) Overview of the UMD GLAD land cover monitoring products. 3rd International Quantitative Remote Sensing Summer School, International GEO Center, University of Maryland, 12 July 2023.

Tyukavina A. (2024, *oral*) Committee on Earth Observation Satellites (CEOS) Working Group on Calibration and Validation (WGCV) Land Product Validation (LPV) subgroup Land Cover (LC) focus area activities. NASA LCLUC Science Team Meeting, 2-4 April 2024, Gaithesburg, Maryland.

Tyukavina A. & Bontemps S. (2023, *oral*) The CEOS LPV perspective: Validation of Cropland as a class of multi-class land cover maps and its current validation state at the national-to global scale. CEOS LPV LC and GEOGLAM Cropland validation workshop, 12 September 2023, Beltsville, MD.

Tyukavina A. (2023, *virtual*) Overview of the University of Maryland GLAD lab's satellite-based global land cover monitoring products and tools. 2nd International Quantitative Remote Sensing Summer School, International GEO Center, University of Maryland, 7 July 2023.

Tyukavina A., Potapov, P., Hansen, M.C., Pickens, A., Turubanova, S., Parker, D., Zalles, V., Lima, A., Kommareddy, I., Song, X-P, Stehman, S., Wang, L., Harris, N. (2023, *oral, invited*) Global forest loss due to fire data by UMD GLAD on Global Forest Watch: what the data shows. WRI Land & Carbon Lab's Summit 2023, 27-29 June 2023, Brussels, Belgium.

Tyukavina A. (2023, *panelist*) Panel discussion: "Feeding the Machine: Reference and Training Data for Optimal Results" WRI Land & Carbon Lab's Summit 2023, 27-29 June 2023, Brussels, Belgium.

Tyukavina A., Potapov, P., Hansen, M.C. (2023, *oral*) Approaches to global sampling for land cover map validation LPVE23 – Workshop on Land Product Validation and Evolution. 12-14 June 2023, ESA-ESRIN, Frascati, Italy.

Tyukavina A., Hansen M.C., Potapov, P., Pickering J., Adusei B., Poulson A. J., Byrne W., Mikus A., Baggett A., Oktaviandra A., Ortiz-Dominguez C., Painter S., Thomas L., Ireland A., Papagika H.M., Song X.-P. (2023, *oral*) Multi-Resolution Quantification and Driver Assessment of Hot Spots of Global Forest Disturbance. NASA LCLUC Science Team Meeting, 8-9 May 2023, College Park, Maryland.

Tyukavina A., Hansen M.C., Potapov, P., Pickering J., Adusei B., Poulson A. J., Byrne W., Mikus A., Baggett A., Oktaviandra A., Ortiz-Dominguez C., Painter S., Thomas L., Ireland A., Papagika H.M., Song X.-P. (2022, *virtual, oral*) PlanetScope and Sentinel-2 Data to Quantify the Extent and Drivers of Global Forest Loss: Sample-Based Analysis. AGU Fall Meeting 2022. 12-16 December 2022, Chicago, Illinois.

Tyukavina A. (2022, *virtual*) Overview of the University of Maryland GLAD Lab's global forest monitoring products and tools. USFS-IP Women in Forest Carbon Initiative (WFCI) Mentorship Program. 8 December 2022.

Tyukavina A. (2022, *oral*) Tropical forest loss area and driver assessment using multi-source data. The 22nd William T. Pecora Memorial Remote Sensing Symposium. 23-28 October 2022, Denver, Colorado.

Tyukavina A., Hansen M.C., Potapov, P., Pickering J., Adusei B., Poulson A. J., Byrne W., Mikus A., Baggett A., Oktaviandra A., Ortiz-Dominguez C., Painter S., Thomas L., Ireland A., Papagika H.M., Song X.-P. (2022, *poster*) Multi-resolution quantification and driver assessment of hot spots of global forest disturbance. NASA LCLUC 25th Anniversary Science Team Meeting. 18-20 October 2022, Bethesda, Maryland.

Tyukavina A. (2022, *panelist*) Panel on Challenges for Forests in LCLUC Science. NASA LCLUC 25th Anniversary Science Team Meeting. 18-20 October 2022, Bethesda, Maryland.

Tyukavina A. (2022, *oral*) Sample-based area estimation and map accuracy assessment. SilvaCarbon Training workshop on implementing GLAD ARD tools for annual land cover monitoring in Vietnam. 26 September - 7 October 2022, College Park, Maryland.

Tyukavina A. (2022, *virtual*) Multi-resolution quantification and driver assessment of hot spots of global forest disturbance. LCLUC Agriculture and Forestry Hotspots Webinar Series 2022, 30 September 2022.

Tyukavina A. (2022, *virtual*) Using Global Forest Watch to explore active fires and trends. Global Forest Watch Webinar. 13 September 2022

Tyukavina A. (2022, *virtual*) University of Maryland GLAD land cover monitoring products. International Quantitative Remote Sensing Summer School, International GEO Center, University of Maryland, 5-13 July 2022.

Tyukavina A., Hansen M.C., Potapov, P., Pickering J., Adusei B., Poulson A. J., Byrne W., Mikus A., Baggett A., Oktaviandra A., Ortiz-Dominguez C., Painter S., Thomas L., Ireland A., Papagika H.M., Song X.-P. (2022, *poster*) Global sample-based forest loss area and driver assessment using PlanetScope and Sentinel-2 data. ESA Living Planet symposium, 23-27 May 2022, Bonn, Germany.

Tyukavina A. (2022, *virtual*) University of Maryland GLAD Lab's global land cover monitoring solutions. Greenpeace Global Mapping Hub Webinar. 17 March 2022.

Tyukavina A. (2021, *virtual*) Sample-based area estimation and map accuracy assessment. SilvaCarbon national capacity building workshop. 19 October 2021, Hanoi, Vietnam.

Tyukavina A., Hansen M., Potapov P., Song X., Adusei B., Khan A., Zalles V., Pickering J., Adami M., DiBella C. (2020, *oral*) Towards Global Monitoring of Key Commodity Crops. A joint workshop sponsored by the NASA Harvest program, the United States Department of Agriculture (USDA) and Agriculture and Agri-Food Canada (AAFC) “Emerging Technologies and Methods in Earth Observation for Operational Agricultural Monitoring”, 25-27 February 2020, Beltsville, MD.

Tyukavina A., Hansen M.C., Potapov P., Parker D., Okpa C., Stehman S., Kommareddy I., Turubanova S. (2018, *poster*) Sample-based Assessment of Direct Drivers and Rates of Forest Disturbance in the Congo Basin. AGU Fall meeting 2018, 10-14 December, Washington D.C.

Tyukavina A. (2018, *oral*) Calibrating UMD GLAD forest monitoring products for the South Caucasus region. A series of national capacity building workshops "Upscaling Global Forest Watch in Caucasus Region", 7-19 November 2018, Baku (Azerbaijan), Tbilisi (Georgia), Yerevan (Armenia)

Tyukavina A. (2018, *virtual*) UMD GLAD Global Forest Monitoring: From Landsat archive mining to operational products. Society for Conservation GIS and Conservation Biology Institute Webinar Series, 1 November 2018, online (215 registered participants)

Tyukavina A., Hansen M.C., Potapov P., Parker D., Okpa C., Turubanova S., Kommareddy I., Stehman S.V., Tosiani A., Yazid M., Purwanto J., Nugroho S., Sari I., Kartika T., Firmansyah R., Said Z., Wijaya A. (2018, *oral*) Sample-based assessment of forest loss trends and drivers in three major humid tropical forest regions using Landsat time-series data. ForestSAT conference, 1-5 October 2018, College Park, MD

Tyukavina A. (2018, *oral*) Introduction to sample-based tree cover and change quantification. National capacity building training workshop: Implementing GLAD system for forest cover change monitoring in Madagascar, 16-27 April 2018, College Park, MD

Tyukavina A. (2018, *oral*) Accuracy assessment and area estimation using stratified sampling. GEOGLAM workshop on national-scale cropland mapping. 5-9 March, 2018 College Park, MD

Tyukavina A. (2018, *oral*) Congo and Amazon Basin forest loss area and land use driver assessment. SilvaCarbon capacity building workshop for Guatemala, Peru, Colombia, Cameroon, Nepal and Vietnam. 31 January 2018, College Park, MD

Tyukavina A., Hansen M., Potapov P., Turubanova S., Krylov A., Song X.P., Hudson A., Amani P., Ying Q., Zalles V., Adusei B. (2018, *oral*) A strategy for global land change monitoring. NASA Workshop on "Enabling Analytics in the Cloud for Earth Science Data", 21-23 February 2018, Annapolis, MD

Tyukavina A., Potapov P., Hansen M., Talero Y., Turubanova S., Pickering J., Hudson Pickens A., Hanh Quyen. N., Spirovska Kono, M. (2017, *oral*) National forest cover monitoring in mainland South and Southeast Asia: method development and capacity building. AGU Fall meeting 2017, 11-15 December, New Orleans, LA

Tyukavina A., Hansen M., Potapov P. (2017, *oral*) Regional forest monitoring system for Southeast Asia. SERVIR Annual Global Exchange (SAGE) Conference, 9-13 October 2017, Bilbao, Spain

Tyukavina A., Hansen M., Potapov P., Stehman S., Turubanova S., Krylov A. Sample-based analysis in land cover change studies: area estimation and thematic interpretations (2017, *oral*) Big data for a small planet: workshop between University of Maryland and Lund University, 27-28 February 2017, Lund, Sweden

Tyukavina A. (2017, *oral*) Development of Cameroon forest cover mapping: sample-based estimation process and tool. National capacity building training workshop, 20 February – 10 March 2017, College Park, MD

Tyukavina A., Hansen M., Potapov P., Turubanova S., Krylov A., Steininger M., Margono B. (2017, *oral, invited*) Differentiating types of forest and forest disturbance. 4th Annual Global Forest Watch Partnership Meeting, 8-9 February 2017, Washington D.C.

Tyukavina A., Potapov P., Hansen M., Saah D. (2016, *poster*) Supporting satellite-based national land cover change monitoring systems in Southeast Asian countries. SERVIR Annual Global Exchange (SAGE) Conference, 24-28 October 2016, Pokhara, Nepal

Tyukavina A., Hansen M., Potapov P., Turubanova S., Song X., Ying Q., Krylov A., Hudson A., King L., Talero Y., Khan A., Wang L., Zalles V., Adusei B. (2016 *oral, invited, panelist*) Using Landsat and Sentinel 2 data to baseline and forward monitor land cover change. The 2nd EARSeL SIG LU/LC and NASA LCLUC joint Workshop "Advancing horizons for land cover services entering the big data era", 6-7 May 2016, Prague, Czech Republic

Tyukavina A., Baccini A., Hansen M., Potapov P., Stehman S., Houghton R., Krylov A., Turubanova S. (2015, *oral*) A new pan-tropical estimate of carbon loss in natural and managed forests in 2000-2012. AGU Fall meeting 2015, 14-18 December, San-Francisco, CA

Tyukavina A., Baccini A., Hansen M., Potapov P., Stehman S., Houghton R., Krylov A., Turubanova S., Goetz S. (2015, *poster*) Forest cover and aboveground carbon loss in natural and managed tropical forests in 2000-2012. NASA Carbon Cycle and Ecosystems Joint Science Workshop. 20-24 April 2015, College Park, MD

Tyukavina A., Potapov P., Hansen M. (2014, *oral*) Forest cover change detection using time-series land cover inputs. Southern and Eastern Africa Land Cover Technical Exchange meeting. 22-24 July 2014, EROS Data Center, Sioux Falls, SD

Tyukavina A. (2014, *oral*) Monitoring sparse forests and trees outside the forest using medium-resolution satellite data: limitations. Technical Workshop on Monitoring Trees Across the Sahel. 27-28 May 2014, World Resources Institute, Washington D.C.

Tyukavina A., Hansen M., Stehman S., Potapov P., Turubanova S., Baccini A., Goetz S., Laporte N., Houghton R. (2014, *oral, panelist*) Incorporating uncertainty into forest cover loss estimation. Session on Accuracy and conservativeness session. Land cover and forest biomass in central Africa – International conference, 20-21 March 2014, Libreville, Gabon

Tyukavina A., Hansen M., Potapov P., Stehman S., Turubanova S. (2014, *oral, panelist*) Intact (hinterland) forest mapping in the tropical regions. Forest degradation session. Land Cover and Forest Biomass in Central Africa – International conference, 20-21 March 2014, Libreville, Gabon

Tyukavina A., Hansen M., Stehman S., Potapov P., Turubanova S., Baccini A., Goetz S., Laporte N., Houghton R. (2013, *oral*) Incorporating uncertainty in national-scale estimation of gross forest cover loss in the Democratic Republic of the Congo and Peru. Workshop on Error Propagation for Carbon Estimation, 4-6 December 2013, Mexico City, Mexico

Tyukavina A., Krylov A., Potapov P., Turubanova S., Hansen M., McCarty J. (2013, *oral, invited*) Cropland management dynamics as a driver of forest cover change in European Russia.. AGU Fall meeting 2013, 9-13 December, San-Francisco, CA

Tyukavina A., Stehman S., Potapov P., Turubanova S., Baccini A., Goetz S., Laporte N., Houghton R., Hansen M. (2013, *poster*) Characterizing uncertainties of the national-scale forest gross aboveground biomass (AGB) loss estimate: a case study of the Democratic Republic of the Congo. AGU Fall meeting 2013, 9-13 December, San-Francisco, CA

Tyukavina A., Potapov P., Hansen M., Egorov A., Goetz S. (2012, *poster*) Assessment of Recently Unchanged Forested Areas in the United States Using Landsat-WELD and LIDAR data. AGU Fall meeting 2012, 2-8 December, San-Francisco, CA

Tyukavina A. (2010, *poster*) Small-Scale Remote Sensing Mapping of Geosystems in Taymyr–Putoran Region. IPY Oslo Science Conference, Norway, Oslo, 7-12 June 2010

Popular press coverage

Of my first-author research

2023 catastrophic fires in Canada captured in the **forest loss due to fire map (Tyukavina et al., 2022)** and highlighted in the **McCarthy et al., 2024** short communication in Global Change Biology were covered in:

"Canada's 2023 wildfires outsmoked global aviation, yet emissions go uncounted" Mongabay Environmental News. *Liz Kimbrough* (June 27, 2024)
"Canada's 2023 wildfires burned huge chunks of forest, spewing far more heat-trapping gas than planes" *AP News*. Seth Borenstein (June 27, 2024)
"Canada wildfires dominated 2023's global forest losses" Axios. Andrew Freedman (June 27, 2024)

2023 updates of the global forest loss (Hansen et al., 2013) and **forest loss due to fire (Tyukavina et al., 2022)** maps were featured in:

"Global Forest Loss Remains High, Despite Recent Progress" *The New York Times*. Manuela Andreoni (April 4, 2024)
"Are rainforests doomed? Not necessarily" *Vox*. Benji Jones (April 4, 2024)
"Climate change: Logging decline after political change in Brazil, Colombia" *BBC.* Matt McGrath (April 4, 2024)
"Global rainforest loss continues at rate of 10 football pitches a minute" *The Guardian*. Patrick Greenfield (April 4, 2024)
"Tropical forest loss eased in 2023 but threats remain, analysis shows" *Reuters.* Jake Spring (April 4, 2024)
"Tropical forest loss puts 2030 zero-deforestation target further out of reach" *Mongabay Environmental News*. Hans Nicholas Jong (April 4, 2024)
"Canada's wildfires blamed for rise in global loss of tree cover outside of tropics" *CBS News*. Anand Ram, Benjamin Shingler (April 4, 2024)

2022 updates of the global forest loss (Hansen et al., 2013) and **forest loss due to fire (Tyukavina et al., 2022)** maps were covered in:

"Destruction of world's pristine rainforests soared in 2022 despite Cop26 pledge" *The Guardian*. Patrick Greenfield (June 27, 2023)
"Despite Global Pledges, Tree Loss Is Up Sharply in Tropical Forests" *The New York Times*. Manuela Andreoni (June 27, 2023)
"Tropical forest losses rise in 2022 despite pledge to end them" *Reuters.* Gloria Dickie (June 27, 2023)
"Rainforest destruction soared in 2022 despite global pledges to halt deforestation, new report finds" *CNN.* Caolán Magee (June 27, 2023)
"The World Lost an Area of Tropical Forest as Big as Switzerland in 2022" Bloomberg. Elizabeth Kim (June 27, 2023)
"New data show 10% increase in primary tropical forest loss in 2022" Mongabay Environmental News. Hans Nicholas Jong (June 27, 2023)
"Lula Risks a Big Loss in the Amazon" *The Washington Post.* Eduardo Porter (June 28, 2023)

2021 updates of the global forest loss map (Hansen et al., 2013) and **forest loss due to fire (Tyukavina et al., 2022)** were featured in:

"Massive wildfires helped fuel global forest losses in 2021" *The Washington Post (front page)*. John Muyskens, Naema Ahmed and Brady Dennis (Apr. 28, 2022)
"Deforestation Remains High, Despite International Pledges" *The New York Times*. Henry Fountain (Apr. 28, 2022)

"'Relentless' destruction of rainforest continuing despite Cop26 pledge" *The Guardian*. Patrick Greenfield (Apr. 28, 2022)
"Climate change: Record tree losses in 2021 in northern regions" *BBC*. Matt McGrath (Apr. 28, 2022)
"Crucial tropical forests were destroyed at a rate of 10 soccer fields a minute last year" *CNN*. Angela Dewan (Apr. 28, 2022)
"Global tropical forest loss falls in 2021 but outlook bleak". *Thomson Reuters*. Michael Taylor (Apr. 28, 2022)
"The World Has Been Losing 10 Soccer Fields of Tropical Forest Per Minute" *Bloomberg*. Eric Roston (Apr. 28, 2022)

Tyukavina et al. (2022) study on trends of forest loss due to fire was featured in:

"Those wildfires this past summer? They're still wreaking havoc on your health" *AAMCNews*. Gabrielle Redford (Jan. 23, 2024)
"How Can AI Help Prevent WildFires Due To Climatic Change?" *Forbes*. Cindy Gordon (Nov. 19, 2023)
"Trees Are Dying at Shocking Rates — Understanding How Could Ultimately Save Them" *Inverse*. Knowable Magazine and Katarina Zimmer (Oct. 1, 2023)
"Fire is responsible for a quarter of US forest loss since 2021" *Grist*. Jessie Blaeser (Aug. 22, 2022)
"Climate change: 'Staggering' rate of global tree losses from fires" *BBC*. Matt McGrath (Aug. 17, 2022)
"Tree loss due to fire is worst in far northern latitudes, data shows" *The Guardian*. Fiona Harvey (Aug. 17. 2022)
"Climate change driving unprecedented forest fire loss" *AFP*. Patrick Galey (Aug. 17, 2022)
"Forest fires are getting worse, 20 years of data confirm" *Mongabay Environmental News*. Liz Kimbrough (Aug. 17. 2022)
"New high-resolution map shows fires caused one third of global forest loss between 2001 and 2019" *Frontiers Science News*. Suzanna Burgelman (March 15, 2022)

Tyukavina et al. (2018) study on drivers of forest loss in the Congo Basin was covered in:

"The bold plan to save Africa's largest forest" *BBC Future.* Peter Yeung (Jan. 7, 2021)
"The Congo's Ancient Forest Could Be Gone in Our Lifetime" *Earther.* Yessenia Funes (Nov. 9, 2018)
"Massive Congo forest loss driven by hands, not machines" *Cosmos Magazine.* Nick Carne (Nov. 8, 2018)
"Smallholder clearing found to be dominant reason for forest loss in the Congo Basin" *Phys. org* Bob Yirka (Nov. 8, 2018)
"Research Finds Congo Basin's Old-growth Forests Vanishing at Alarming Rate" *UMD Today*. Sara Gavin (Nov. 8, 2018)
"Congo Basin rainforest may be gone by 2100, study finds" *Mongabay Environmental News.* Morgan Erickson-Davis (Nov. 7, 2018)

Tyukavina et al. (2017) study on types and rates of forest disturbance in Brazilian Legal Amazon was featured in:

"Amazon rainforest faces double jeopardy" *Climate News Network*. Tim Radford (May 6, 2017)

Tyukavina et al. (2016) study on the extent of recently undisturbed and unfragmented (hinterland) tropical forests was highlighted in:

"There's no such thing as truly 'pristine' nature anymore" *BBC Future.* Rachel Nuwer (Feb. 8, 2016)
"Where the forest is still primeval" *WHRC press release* (Nov. 10, 2015)

Tyukavina et al. (2015) study on pan-tropical carbon dynamics was covered in:

"Is tropical forest carbon loss in Africa and Southeast Asia higher than we thought?" *EnvironmentalResearchWeb* (Sep. 28, 2015)

Tyukavina et al. (2013) study on carbon loss in the Democratic Republic of the Congo was featured in:

"Conventional satellite imagery may underestimate forest clearing for subsistence agriculture" *Mongabay Environmental News.* Rhett Butler (Dec. 9, 2013)

Of my research in collaboration

Parker et al. (2024) study on old-growth forest clearing in Indonesia was covered in:

"A study finds Indonesia's deforested land is often left idle. But some see potential in that" AP News. Victoria Milko (July 4, 2024)

Potapov et al. (2021) study on global cropland expansion was featured in:

"Global Satellite Data IDs Tensions between Food Production, Biodiversity" *Society of Environmental Journalists*. Gabriel Popkin (May 4, 2022)
"The Spread of Soy in South America" *NASA Earth Observatory Image of the Day*. Adam Voiland (March 30, 2022)
"Crop Expansion Accelerates in Africa" *NASA Earth Observatory Image of the Day*. Adam Voiland (March 28, 2022)
"Global croplands expand" *NASA Earth Observatory Image of the Day*. Adam Voiland (March 24, 2022)
"Cropland has gobbled up over 1 million square kilometers of Earth's surface" *Science News*. Gabriel Popkin (Dec. 23, 2021)

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"Deforestation soars in Nigeria's gorilla habitat: 'We are running out of time'" *Mongabay Environmental News*. Orji Sunday (Oct. 29, 2021)
"Fate of Malaysian forests stripped of protection points to conservation stakes" *Mongabay Environmental News*. Sheryl Lee Tian Tong (Oct. 13, 2021)

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"Slashed forest protections ignites land grabbing frenzy in Brazilian Amazon" Mongabay Environmental News. Ana Ionova (Dec. 22, 2021)
"Illegal roads pierce Indigenous reserve, national parks in Colombian Amazon" *Mongabay Environmental News*. Santiago Luque Pérez (Dec. 20, 2021)
"Indigenous groups call for gov't intervention as land grabbers invade Bolivian protected area" *Mongabay Environmental News*. Ivan Paredes Tamayo (Nov. 12, 2021)
"Indigenous lands under siege as buffalo frenzy grips the Amazon" *Mongabay Environmental News*. Ana Ionova (Nov. 5, 2021)
"Deforestation notches up along logging roads on PNG's New Britain Island" *Mongabay Environmental News*. John C. Cannon (Oct. 21, 2021)
"Deforestation threatens tree kangaroo habitat in Papua New Guinea" *Mongabay Environmental News*. John C. Cannon on (Oct. 14, 2021)
"Deforestation surge continues amid deepening uncertainty in Myanmar" *Mongabay Environmental News*. Carolyn Cowan (Aug. 23, 2021)
"Peru's indigenous tribes use tech tools to track Amazon deforestation" *Thomson Reuters.* Anastasia Moloney (July 12, 2021)

2020 update of the global forest loss data was covered in:

"Tropical Forest Destruction Accelerated in 2020" *The New York Times*. Henry Fountain (March 31, 2021)
"Destruction of world's forests increased sharply in 2020" *The Guardian*. Fiona Harvey (March 31, 2021)
"Global forest losses accelerated despite the pandemic, threatening world's climate goals" *The Washington Post.* Chris Mooney, Brady Dennis and John Muyskens (March 31, 2021)
"Forest Destruction Surged in 2020 Even as Global Economy Slowed" *Bloomberg Green*. Eric Roston (March 31, 2021)
"Global rainforest loss 'relentless' in 2020, but SE Asia offers hope" *Reuters*. Michael Taylor (March 31, 2021)
"Global forest loss increases in 2020, bun pandemic's impact is unclear" *Mongabay Environmental News*. Rhett A. Butler (31 March, 2021)

2019 update of the global forest loss data was highlighted in:

"'Going in the Wrong Direction': More Tropical Forest Loss in 2019" *The New York Times*. Henry Fountain (June 2, 2020)
"Football pitch-sized area of tropical rainforest lost every six seconds" *The Guardian*. Adam Morton (June 2, 2020)
"Climate change: older trees loss continue around the world" *BBC News*. Matt McGrath (June 2, 2020)
"No let-up in global rainforest loss as coronavirus brings new danger" *Reuters*. Michael Taylor (June 2, 2020)
"Cocoa Industry Appears to Make Small Improvements in Tree Loss" *Bloomberg Green.* Eric Roston (June 2, 2020)

Hansen et al. (2020) study on tropical forest publication was covered in:

"Smaller fragments of forest at risk of greater levels of deforestation, study finds" *Mongabay Environmental News*. Lauren Crothers (March 16, 2020)

Molinario et al. (2020) was featured in:

"Subsistence farming topples forests near commercial operations in Congo" *Mongabay Environmental News*. John C. Cannon (Jan. 23, 2020)

2018 update of the global forest loss data was covered in:

"This map shows millions of acres of lost Amazon rainforest" *National Geographic*. Sarah Gibbens (Apr. 26, 2019)
"A Respite From Record Losses, but Tropical Forests Are Still in Trouble" *The New York Times*. Henry Fountain (Apr. 25, 2019)
"Deforestation: Tropical tree losses persist at high levels" *BBC News.* Matt McGrath (Apr. 25, 2019)
"World's forests 'in emergency room' after years of losses" *Thomson Reuters Foundation*. Adela Suliman (Apr. 25, 2019)
"'Death by a thousand cuts': vast expanse of rainforest lost in 2018" *The Guardian.* Damian Carrington (Apr. 25, 2019)
"Tropical forest the size of England destroyed in 2018: report" *Agence France-Presse* (Apr. 25, 2019)

"Alarming Rate of Forest Loss Threatens a Crucial Climate Solution" *Inside Climate News.* Georgina Gustin (Apr. 25, 2019)
"The world lost a Belgium-size area of old growth rainforest in 2018" *Mongabay Environmental News*. Morgan Erickson-Davis (Apr. 25, 2019)
"Deforestation Wipes Out an Area the Size of Belgium" *Bloomberg*. Niklas Magnusson (Apr. 25, 2019)
"Remember the rainforests? We still haven't saved them" *Grist*. Nathanael Johnson (Apr. 25, 2019)
"Global Tree Cover Loss Continues but Is Down from Peak Highs" *EOS*. Randy Showstack (Apr. 25, 2019)

Zalles et al. (2019) study on cropland expansion in Brazil was highlighted in:

"Brazil's key deforestation drivers: Pasture, cropland, land speculation" *Mongabay Environmental News.* Alicia Prager (March 19, 2019)

Curtis et al. (2018) study on global drivers of forest loss was covered in:

"More experiments may help explore what works in conservation" The Conversation. Glenn R. Specht (Nov. 5, 2018)
"What Jair Bolsonaro's Victory Could Mean for the Amazon, and the Planet" *The New York Times*. Somini Sengupta (Oct. 17, 2018)
"What's causing deforestation? New study reveals global drivers" *Mongabay Environmental News*. Rachel Fritts (Sept. 14, 2018)
"A new map reveals the causes of forest loss worldwide" *ScienceNews*. Laurel Hamers (Sept. 13, 2018)
"New global study reveals the 'staggering' loss of forests caused by industrial agriculture" *Science*. Erik Stokstad (Sept. 13, 2018)

Song et al. (2018) study on global land cover change from 1982 to 2016 was highlighted in:

"Earth has more trees than it did 35 years ago - but there's a huge catch" *World Economic Forum.* Johnny Wood (August 30, 2018)
"Earth has more trees now than 35 years ago" *Mongabay Environmental News.* Rhett A. Butler (August 15, 2018)
"Study shows global forest loss over past 35 years has been more than offset by new forest growth" *Phys.org*. Bob Yirka (August 9, 2018)
"Surprise! Trees Are Gaining Ground Globally" *Inside Science.* Gabriel Popkin (August 8, 2018)

Molinario et al. (2017) study was covered in:

"Maps tease apart complex relationship between agriculture and deforestation in DRC" *Mongabay Environmental News*. John C. Cannon (Feb. 2, 2018)
"New map helps distinguish between cyclical farming and deforestation in the Congo Basin" *GFW blog.* Caio de Araujo Barbosa et al. (Jan. 16, 2018)

Ying et al. (2017) study on global bare ground gain was highlighted in:

NASA Earth Observatory Image of the Day (Sept. 27, 2017)

Hansen et al. (2016) article on tree height distributions in Sub-Saharan Africa was featured in:

NASA Earth Observatory Image of the Day (March 8, 2017)

Hansen et al. (2016) paper on a new Landsat-based humid tropical forest disturbance alert method was included by the Editors of Environmental Research Letters (ERL) into the Highlights of 2016 collection. The article was also featured in:

"Satellite Technology Aims to Combat Illegal Logging in Real Time" *Inside Climate News.* Sheila V Kumar (March 25, 2016)
"Massive wildfire rips through Congo rainforest – is logging to blame?" *Mongabay Environmental News*. Morgan Erickson-Davis (March 23, 2016)
"New satellite alerts reveal how forests changed this month" *Phys.org.* James Anderson (March 3, 2016)
"New satellite mapping a 'game changer' against illegal logging" *The Guardian* (March 2, 2016)
"New satellite program aims to cut down illegal logging in real time" *Thomson Reuters Foundation.* Chris Arsenault (March 2, 2016)
"We know how forests changed this month, thanks to new satellite alerts" *GFW blog.* Mikaela Weisse and Octavia Payne (Feb. 29, 2016)
"Satellite alerts track deforestation in real time" *Nature News.* Gabriel Popkin (Feb. 23, 2016)

Potapov et al. (2015) paper on forest cover dynamics in Eastern Europe was featured in:

NASA Earth Observatory Image of the Day (July 16, 2015)
"Eastern Europe's forests" *The Washington Post.* Rick Noack (Aug. 7, 2015)

Hansen et al. (2013) global forest cover loss *Science* article was featured in 54 news stories and multiple blog and social network posts in 2014, and is number 12 in a list of 100 academic research papers that "caught the public imagination in 2014" according to Altmetric. The article is also the most featured in the media among climate change papers in 2011-2015 according to CarbonBrief. The data from the study are also featured on a Global Forest Watch Website: http://www.globalforestwatch.org/

News coverage included:

"Global deforestation is decreasing. Or is it?" *Ensia.* Jeremy L. Hance (Jan 21, 2016)
"New interactive tool helps track Earth's forests" *The New York Times*. Louis Lucero II (Nov. 14, 2013)
"These maps show where the Earth's forests are vanishing" *The Washington Post.* Brad Plumer (Nov. 14, 2013)
"New high-resolution forest maps reveal world loses 50 soccer fields of trees per minute" *The Huffington Post.* Nigel Sizer (Nov. 14, 2013)
"Forest change mapped by Google Earth" *BBC Science News.* James Morgan (Nov. 14, 2013)
"Maps from space show world's disappearing forests" *National Geographic.* Dan Vergano (Nov. 15, 2013)