

Curriculum Vitae  
**Matthew C. Hansen**  
Department of Geography  
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**Education:**

**Doctor of Philosophy**, 2002, Department of Geography, University of Maryland, College Park, MD, USA

**Master of Science in Engineering**, 1995, Department of Civil Engineering, University of North Carolina at Charlotte, NC, USA

**Master of Arts**, 1993, Department of Geography, University of North Carolina at Charlotte, NC, USA

**Bachelor of Electrical Engineering**, 1988, Auburn University, Auburn, AL, USA

**Professional Experience:**

**2011-Present, Professor, Department of Geography**, University of Maryland, College Park, MD  
Perform research on land cover extent and change at national, continental and global scales, advancing research methods to operational implementations in collaboration with government and non-government partners. Teach classes on land cover characterization using remotely sensed data sets and regional geographies. Provide service in support of department and campus as well as professional organizations.

**2004-2011, Co-Director and Professor, Geographic Information Science Center of Excellence**, South Dakota State University, Brookings, SD  
Led new research center on the science of large area earth observation and monitoring. Initial tasks included the hiring of 5 faculty and administration of new doctoral program in Geospatial Science and Engineering. Developed interdisciplinary research agenda to utilize engineering to efficiently and accurately process data, geography to create meaningful thematic depictions of land cover and land use change, and science applications to focus on the resultant effects of change on the geosphere, biosphere and hydrosphere.

**2002-04, Assistant Research Scientist**, University of Maryland, College Park, MD  
Managed and performed analytical tasks as investigator on multiple land cover mapping projects. Developed and implemented procedures for classifying land cover and detecting land cover change, including non-traditional approaches for describing land cover transition zones and mosaics. Produced first global forest change estimates from satellite data for the years 1982-1999. Led field validation activities for continuous field tree cover mapping project of the lower 48 United States and for selected sites in central Africa and the Amazon.

**1994-02, Faculty Research Assistant**, University of Maryland, College Park, MD  
Developed and implemented methodologies for mapping land cover at the global scale using remotely sensed data sets. Work included the first supervised classification of the earth surface at a 1km spatial resolution. Created a multi-resolution approach to mapping percent cover. This work led to an operational algorithm used with the MODIS sensor to produce global continuous fields of vegetation characteristics at a spatial resolution of 500 meters.

**1996/2003, Class Instructor**, University of Maryland, College Park, MD  
Taught senior/graduate level digital image processing class. Developed syllabus, lectures, exams and wrote exercises for laboratory section of class. Also taught junior-level Geography of Africa class, including physical, social, political, economic and historical aspects of Sub-Saharan African geography. Duties included writing syllabus, lecturing and developing writing-intensive examinations and exercises.

**1991-94, Graduate Teaching/Research Assistant**, University of North Carolina at Charlotte  
Instructed analytical laboratory procedures for an introductory Earth Sciences class. Taught digital image processing techniques of remotely sensed data sets for the laboratory section of a lecture class. Also, led field research responsible for data acquisition and analysis for water resources project. Duties included digital image processing, depth profiling, radar scanning and sediment sampling of retention basins in metropolitan Charlotte.

**1988-91, Aquaculture Extension Agent**, United States Peace Corps, Bandudu, Zaire (DRC).  
Initiated aquaculture practices in 25 rural villages. Taught individual farmers comprehensive fish farming techniques including site selection, construction, stocking, raising, harvesting and marketing. Engineered twenty-five gravity flow multi-pond systems and oversaw the construction of 43 ponds.

### **Courses taught:**

Land Cover Characterization Using Multi-Spectral Remotely Sensed Data Sets, graduate remote sensing course, enrollment of 25 students, fall 2018 and 2019

Changing Geographies of Sub-Saharan Africa, 400-level undergraduate course of 15 students, fall 2017

Remote Sensing: Digital Processing and Analysis, 400-level course of 25 students, fall 2015 and 2019

Geography of Sub-Saharan Africa, 300-level course of 25 students, University of Maryland, fall semester annually beginning in fall 2012

Land Cover Characterization, graduate remote sensing course, enrollment of 10 students, spring semester annually, spring 2012 - 2014.

Quantitative Remote Sensing, senior-level undergraduate advanced remote sensing course, enrollment typically under 10 students, Spring 2008 to 2011.

Advanced Methods in Geospatial Modeling: Land Cover Mapping, Geospatial Science and Engineering doctoral program and cross listed graduate Geography elective course of 15 students, spring 2007.

Seminar in Geospatial Science and Engineering, doctoral degree program required course, South Dakota State University, spring and fall annually.

Remote Sensing/Digital Image Processing, 400-level course with mix of 30 undergraduate and graduate students, University of Maryland, spring 2002 and spring 2003.

Geography of Africa, 300-level course of 30 students, University of Maryland, spring 1996.

Digital Image Processing laboratory, 400-level lab section of 2-5 students, University of North Carolina at Charlotte, 1993.

Earth Science laboratory, 100-level lab section of 30 students, University of North Carolina at Charlotte, 1991-1992.

### **Student Advisees:**

Primary Advisor: Mark Broich, Ph.D. student, South Dakota State University, GISc Center of Excellence, *Advancing the quantification of humid tropical forest cover loss with multi-resolution optical remote sensing: Sampling and wall-to-wall mapping*, graduated, working for the University of New South Wales.

Primary Advisor: Bolambee Bwangoy-Bankanza, Ph.D. student, South Dakota State University, GISc Center of Excellence, *Mapping the inundated forests of the Congo Basin using multi-source remotely sensed data*, graduated, working for Wildlife Works.

Primary Advisor: Erik Lindquist, Ph.D. student, South Dakota State University, GISc Center of Excellence, *Using MODIS and Landsat data to advance regional, high-spatial resolution change monitoring for the humid tropical forests of the Congo Basin*, graduated, NASA Earth System Science Fellowship Award Winner, working at the United Nations Food and Agricultural Organization.

Primary Advisor: Belinda Arunarwati Margono, Ph.D. student, University of Maryland, GISc Center of Excellence, *Forest cover, type, and structure monitoring in Indonesia using time-series Landsat imagery*, graduated, working for the Indonesian Ministry of Environment and Forestry.

Primary Advisor: Alexandra Tyukavina, Ph.D. student, University of Maryland, Department of Geographical Sciences, *Integrating MODIS, Landsat and GLAS data in characterizing forest dynamics*, graduated, working at the University of Maryland, Department of Geographical Sciences.

Primary Advisor: Yolande Munzimi, University of Maryland, GISc Center of Excellence, *Hydrological response to land cover and land use change in the Congo Basin*, graduated, NASA Earth System Science Fellowship Award Winner.

Primary Advisor: Giuseppe Molinario, Ph.D student, University of Maryland, Department of Geographical Sciences. *Forest cover dynamics of shifting cultivation in the Democratic Republic of Congo*, graduated, working at the World Bank.

Primary Advisor: Ahmad Khan, Ph.D. student, University of Maryland, Department of Geographical Sciences. *Wheat area estimation for Punjab, Pakistan using Landsat seasonal time series and high resolution imagery*, graduated, working at University of Maryland, Department of Geographical Sciences.

Primary Advisor: Matthew Cooper, Ph.D student, University of Maryland, Department of Geographical Sciences. *People and Pixels: integrating remotely-sensed and household survey data for food security and nutrition*, third year.

Primary Advisor: Sam Jantz, Ph.D. student, University of Maryland, Department of Geographical Sciences, *Global biodiversity modeling in the context of land cover change*, ninth year.

Primary Advisor: Qing Ying, Ph.D. student, University of Maryland, Department of Geographical Sciences, *Role of forest plantations in climate change mitigation in China*, ninth year.

Primary Advisor: Diana Parker, Ph.D student, University of Maryland, Department of Geographical Sciences. *Palm Oil Governance in Indonesia: Understanding Sustainable Development Strategies*, sixth year.

Primary Advisor: Viviana Zalles, Ph.D student, University of Maryland, Department of Geographical Sciences. *Quantifying impacts of commodity crop expansion on forests in South America*, sixth year.

Primary Advisor: Nathan Morrow, Ph.D student, University of Maryland, Department of Geographical Sciences. *Rooting the future: measuring on-farm (out-of-forest) trees and their relationship to wellbeing and resilience through joint analysis of historical high-resolution data from earth observation satellites and panel surveys*, sixth year.

Primary Advisor: Amy Pickens, Ph.D student, University of Maryland, Department of Geographical Sciences, fourth year.

Primary Advisor: Alison Thieme, Ph.D student, University of Maryland, Department of Geographical Sciences, second year.

Primary Advisor: Jiaming Lu, Ph.D student, University of Maryland, Department of Geographical Sciences, fourth year.

Primary Advisor: Xinyuan Li, Ph.D student, University of Maryland, Department of Geographical Sciences, first year.

Primary Advisor: Mary LeeAnn King, Masters student, University of Maryland, Department of Geographical Sciences, *Advancing global soybean cultivated area estimation*, graduated.

Primary Advisor: Confiance Mfuka, Masters student, Geography, South Dakota State University, *Relating in situ forest structure data to Landsat-derived forest cover extent and loss data*, graduated.

Primary Advisor: Adam Case, Masters student, Geography, South Dakota State University, *Correlating in situ canopy measurements with very high and moderate spatial resolution satellite data sets*, graduated.

Primary Advisor: Bernard Adusei, M.S. in Geography, South Dakota State University, *Landsat scene normalization using a MODIS 250 meter tree cover map*, graduated, working at the University of Maryland, Department of Geographical Sciences.

Primary Advisor: Eugene Ochieng, Masters student, Geography, South Dakota State University, *Mapping the land cover of Africa using 250 meter MODIS data*, graduated.

Primary Advisor: Namita Giree, Masters student, Geography, South Dakota State University, *Quantifying forest cover loss in Malaysia, 1990 to 2005*, graduated.

Committee Member: Chris Barnes, Ph.D. student, South Dakota State University, GISc Center of Excellence, *Radiative forcing due to land cover and land use change*, graduated, NASA Earth System Science Fellowship Award Winner, graduated.

Committee Member: Steve Flanagan, Ph.D. student, University of Maryland, Department of Geographical Sciences, *Climate sensitivity, plant migration, and the future carbon balance of forested systems*, graduated.

Committee Member: Gabriela Rodrigues, Ph.D. student, University of Maryland, Department of Geographical Sciences, *Physical and socioeconomic factors of tree cover variation in rural Haiti*, fourth year

Committee Member: Amadou Moctar Dieye, Ph.D. student, South Dakota State University, GISc Center of Excellence, *Land use land cover change and soil organic carbon under climate variability in Sahelian West Africa (1975-2055)*, NASA Earth System Science Fellowship Award Winner, graduated.

Committee Member: Sumalika Biswas, Ph.D. student, University of Maryland, Department of Geographical Sciences. *Fire related forest disturbances and the effect on ecosystems*, graduated.

Committee Member: Hasan Jackson, Ph.D. student, University of Maryland, Department of Geographical Sciences. *Investigating Regional Vegetation Productivity and its Degradation in a Semi-Arid Rangeland of Australia*, graduated.

Committee Member: Laura Duncanson, Ph.D. student, University of Maryland, Department of Geographical Sciences, *Linking allometric scaling theory with lidar remote sensing for improved biomass estimation and ecosystem characterization*, graduated.

Committee Member: Jose Castano, Ph.D. student, University of Maryland, Department of Geographical Sciences, *Addressing the Impact on Soil Degradation of change from Grassland to Cropland: A Case Study in the Uruguayan Grasslands*, graduated.

Committee Member: Xiaopeng Song, Ph.D. student, University of Maryland, Department of Geographical Sciences, *Improved Quantification of Forest Cover Change and Implications for the Carbon Cycle*, graduated.

Committee Member: Cheng Fu, Ph.D. student, University of Maryland, Department of Geographical Sciences, *Modeling Impact of Urban Land Use on Human Activity and its Application in Classifying Urban Land Use: Case Study in New York City, Washington D.C. and Baltimore City as Example*, graduated.

Committee Member: Yuan Xue, Ph.D. Student, University of Maryland, Department of Geographical Sciences. graduated.

Committee Member: Kristofer Lasko, Ph.D. Student, University of Maryland, Department of Geographical Sciences. *Characterizing small-holder crop residue burning practices and emissions in Hanoi Vietnam*. graduated.

Committee Member: Danielle Rappaport, Ph.D. Student, University of Maryland, Department of Geographical Sciences. *Integrating LIDAR and bioacoustics to evaluate the biodiversity legacy of forest degradation in Amazon*, graduated.

Committee Member: Ibraheem Khan, Ph.D. Student, University of Maryland, Department of Geographical Sciences. *Ecosystem services mapping in US Mid-Atlantic under increasing urbanization and climate change*, graduated.

Committee Member: Joshua Wayland, Ph.D. Student, University of Maryland, Department of Geographical Sciences. *Natural Resources, Civil Conflict, and the Political Ecology of Scale*, graduated.

Committee Member: Suzanna Marselis, Ph.D. Student, University of Maryland, Department of Geographical Sciences. *Characterizing tree species diversity in the tropics using full-waveform lidar data*.

Committee Member: Meghavi Prashnani, Ph.D. Student, University of Maryland, Department of Geographical Sciences.

### **Peer-reviewed publications:**

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.

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.

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.

Munzimi, Y.A., Hansen, M.C., Kwabena A.O. (2019) Estimating daily streamflow in the Congo Basin using satellite-derived data and a semi-distributed hydrological model. *Hydrological Sciences Journal*, 64(12), pp. 1472-1487

- Pickering, J., Stehman, S.V., Tyukavina, A., Potapov, P., Watt, P., Jantz, S.M., Bholanath, P., 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 Environment* 221, 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. and John, N. (2019) Near doubling of Brazil's intensive row crop area since 2000. *Proceedings of the National Academy of Sciences*, 116 (2) 428-435.
- Hansen, A., Barnett, K., Jantz, P., Phillips, L., Goetz, S. J., Hansen, M.C., Venter, O. et al. (2019). Global humid tropics forest structural condition and forest structural integrity maps. *Scientific data*, 6(1), 1-12.
- 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*.
- 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
- Ying, Q., Hansen, M.C., Sun, L., Wang, L., and Steininger, M. (2019) Satellite-detected gain in built-up area as a leading economic indicator. *Environmental Research Letters*, 12, 114015.
- Zhu, Z., Wulder, M.A., Roy, D.P., Woodcock, C.E., Hansen, M.C., Radeloff, V.C., Healy, S.P. et al. (2019). Benefits of the free and open Landsat data policy. *Remote Sensing of Environment*, 224, 382-385.
- Jantz, S.M., Pintea, L., Nackoney, J., and Hansen, M.C. (2018) Global forest maps in support of conservation monitoring. In: *Satellite Remote Sensing for Conservation Action - Case Studies from Aquatic and Terrestrial Ecosystems* (A. Leidner & G. Buchanan, Eds.). Cambridge, U.K.: Cambridge University Press.
- Turubanova, S., Potapov, P., Tyukavina, A., and Hansen, M. (2018) Ongoing primary forest loss in Brazil, Democratic Republic of the Congo, and Indonesia. *Environmental Research Letters*.
- Curtis, P.B., Slay, C.M., Harris, N.L., Tyukavina, A., Hansen, M.C. (2018) Classifying drivers of global forest loss. *Science* 361 (6407), 1108-1111
- Tyukavina, A., Hansen, M.C., Potapov, P.V., Parker, D., Okpa, C., Stehman, S.V., Kommareddy, I., Turubanova, S. (in press) Congo Basin forest loss dominated by increasing smallholder clearing. *Science Advances*.
- 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* 560, 639-643.
- Khan, Ahmad, Matthew C. Hansen, Peter V. Potapov, Bernard Adusei, Amy Pickens, Alexander Krylov, and Stephen V. Stehman. "Evaluating Landsat and RapidEye Data for Winter Wheat Mapping and Area Estimation in Punjab, Pakistan." *Remote Sensing* 10, no. 4 (2018): 489.
- Egorov, Alexey, Roy, David, Zhang, Hankui, C. Hansen, Matthew, Kommareddy, Anil. (2018). Demonstration of Percent Tree Cover Mapping Using Landsat Analysis Ready Data (ARD) and Sensitivity with Respect to Landsat ARD Processing Level. *Remote Sensing*. 10. 10.3390/rs10020209.
- Waldner, François, Matthew C. Hansen, Peter V. Potapov, Fabian Löw, Terence Newby, Stefanus Ferreira, and Pierre Defourny. "National-scale cropland mapping based on spectral-temporal features and outdated land cover information." *PloS one* 12, no. 8 (2017): e0181911.

- Egorov, Alexey V., David P. Roy, Hankui K. Zhang, Matthew C. Hansen, and Anil Kommareddy. "Demonstration of Percent Tree Cover Mapping Using Landsat Analysis Ready Data (ARD) and Sensitivity with Respect to Landsat ARD Processing Level." *Remote Sensing* 10, no. 2 (2018): 209.
- 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*, 12, 104001.
- Potapov, P., Hansen, M.C., Laestadius, L., Turubanova, S., Yaroshenko, A., Thies, C., Smith, W., Zhuravleva, I., Komarova, A., Minnemeyer, S., Esipova, E. (2017) The last frontiers of wilderness: Tracking loss of intact forest landscapes from 2000 to 2013. *Science Advances*, vol.3, No. 1.
- Song, X.P., Potapov, P.V., Krylov, A., King, L., Di Bella, C.M., Hudson, A., Khan, A., Adusei, B., Stehman, S.V., Hansen, M.C. (2017) National-scale soybean mapping and area estimation in the United States using medium resolution satellite imagery and field survey. *Remote Sensing of Environment*, 190, 383-395.
- 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*, 194, 161-176.
- 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.
- King, L., Adusei, B., Stehman, S.V., Potapov, P.V., Song, X.P., Krylov, A., Di Bella, C., Loveland, T.R., Johnson, D.M., Hansen, M.C. (2017) A multi-resolution approach to national-scale cultivated area estimation of soybean. *Remote Sensing of Environment*, vol. 195, pp. 13-29.
- 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, 104015.
- 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*, 185, 221-232.
- McRoberts, R., Vibrans, A., Sannier, C., Naesset, E., Hansen, M.C., Walters, B., Lingner, D. (2016) Methods for comparing the utilities of local and global maps for increasing the precision of estimates of subtropical forest area. *Canadian Journal of Forest Research*, 46, 924-932.
- Joshi, A.R., Dinerstein, E., Wikramanayake, E., Anderson, M.L., Olson, D., Jones, B.S., Seidensticker, J., Lumpkin, S., Hansen, M.C., Sizer, N.C., Davis, C.L., Palminteri, S., and Hahn, N.R., (2016) Tracking changes in critical tiger habitat through cloud-based computing, *Science Advances*, vol. 2, no. 4.
- Khan, A., Hansen, M. C., Potapov, P., Stehman, S. V., & Chatta, A. A. (2016) Landsat-based wheat mapping in the heterogeneous cropping system of Punjab, Pakistan. *International Journal of Remote Sensing*, 37(6), 1391–1410. <http://doi.org/10.1080/01431161.2016.1151572>
- Jantz, S.M., Pinteá, L., Nackoney, J., Hansen, M.C. (2016) Landsat ETM+ and SRTM Data Provide Near Real-Time Monitoring of Chimpanzee (Pan troglodytes) Habitats in Africa. *Remote Sensing*, 8(5), 427.
- 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*, vol. 25, issue 2, pp. 151-163

Goetz, S. J., Hansen, M., Houghton, R. A., Walker, W., Laporte, N., & Busch, J. (2015) Measurement and monitoring needs, capabilities and potential for addressing reduced emissions from deforestation and forest degradation under REDD+. *Environmental Research Reviews*, 10(12), 123001. doi:10.1088/1748-9326/10/12/123001

Skidmore, A.K., Pettorelli, N., Coops, N.C., Geller, G.N., Hansen, M.C., Lucas, R., Mucher, C.A., O'Connor, B., Paganini, M., Pereira, H.M., Schapman, M.E., Turner, W., Wang, T., and Wegman, M. (2015) Environmental science: Agree on biodiversity metrics to track from space, *Nature*, 523, 403-405.

Flanagan, S.A., Hurtt, G., Fisk, J.P., Sahajpal, R., Hansen, M.C., Dolan, K.A., Sullivan, J.H., and Zhao, M. (2015) Potential Vegetation and Carbon Redistribution in Northern North America from Climate Change. *Climate*. 3:1 doi:10.3390/cli30x000x

Zarin, D. J., Harris, N. L., Baccini, A., Aksenov, D., Hansen, M. C., Ramos, C. A., Tyukavina, A., 2015, Can carbon emissions from tropical deforestation drop by 50% in five years? *Global Change Biology*, n/a–n/a. <http://doi.org/10.1111/gcb.13153>

Tyukavina, A., Hansen, M. C., Potapov, P. V., Krylov, A. M., & Goetz, S. J. (2015). Pan-tropical hinterland forests: mapping minimally disturbed forests: Pan-tropical hinterland forests. *Global Ecology and Biogeography*, n/a–n/a. <http://doi.org/10.1111/geb.12394>

Molinario, G., Hansen, M.C., and Potapov, P.V. 2015 “Forest Cover Dynamics of Shifting Cultivation in the Democratic Republic of Congo: A Remote Sensing-Based Assessment for 2000 – 2012” *Environmental Research Letters*. 10:094009 doi: 10.1088/1748-9326/10/9/094009

Egorov, A.V., Hansen, M.C., Roy, D.P., Kommareddy, A., and Potapov, P.V. “Image interpretation-guided supervised classification using nested segmentation” *Remote Sensing of the Environment* 165: 135-147. doi:10.1016/j.rse.2015.04.022

Song, X.P., Huang, C., Saatchi, S.S., Hansen, M.C., and Townshend, J.R. (2015) Annual carbon emissions from deforestation in the Amazon basin between 2000 and 2010, . *PLoS ONE*, 10, e0126754.

Fritz, S., See, L., McCallum, I., You, L., Bun, A., Moltchanova, E., Duerauer, M., Albrechy, F., Schill, C., Perger, C., Havlik, P., Mosnier, A., Thornton, P., Wood-Sichra, U., Herrero, M., Becker-Reshef, I., Justice, C., Hansen, M.C., Gong, Peng., Abdel Aziz, S., Cipriani, A., Cumani, R., Cecchi, G., Conchedda, G., Ferreira, S., Gomex, A., Haffani, M., Kayitakire, F., Malanding, J., Mueller, R., Newby, T., Nonguierma, A., Olusegun, A., Ortner, S., Rajak, D.R., Rocha, J., Schepaschenko, D., Schepaschenko, M., Terekhoc, A., Tiangwa, A., Vancutsem, C., Vintrou, E., Wenbin, W., Van Der Velde, M., Dunwoody, A., Kraxner, F & Obersteiner, M. (2015). Mapping global cropland and field size. *Global Change Biology*, 21(5), 1980–1992. <http://doi.org/10.1111/gcb.12838>

Busch, J., Ferretti-Gallon, K., Engelmann, J., Wright, M., Austin, K.G., Stolle, F., Turubanova, S., Potapov, P.V., Margono, B., Hansen, M.C., and Baccini, A., (2015). Reductions in emissions from deforestation from Indonesia’s moratorium on new oil palm, timber, and logging concessions, *Proceedings of the National Academy of Sciences*, 112, 1328-1333.

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 managed tropical forests from 2000 to 2012. *Environmental Research Letters*, 10(7), 074002. <http://doi.org/10.1088/1748-9326/10/7/074002>



Staver, A. C. and Hansen, M. C. (2015), Analysis of stable states in global savannas: is the CART pulling the horse? – a comment. *Global Ecology and Biogeography*, 24: 985–987. doi:10.1111/geb.12285

Krylov, A., McCarty, J., Potapov, P.V., Loboda, T., Tyukavina, A., Turubanova, S., and Hansen, M.C. (2014) Remote Sensing estimates of stand-replacement fire in Russia, 2002-2011 *Environmental Research Letters*, 9(10), 105007.

M. Hansen, P. Potapov, B. Margono, S. Stehman, S. Turubanova, A. Tyukavina. (2014) Response to Comment on “High-resolution global maps of 21st-century forest cover change”, *Science*, 344, 981

Nackoney, J., G. Molinario, P. Potapov, S. Turubanova, M.C. Hansen, T. Furuichi (2014). Impacts of civil conflict on primary forest habitat in northern Democratic Republic of the Congo, 1990-2010. *Biological Conservation* 170: 321-328.

Potapov P.V., Turubanova S.A., Tyukavina A.Yu, Krylov A.M., McCarty J.L., Radeloff, V.C., and Hansen M.C. 2014, Eastern Europe forest cover dynamic from 1985 to 2012 quantified using Landsat archive, *submitted Remote Sensing of the Environment*.

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### **Editorial replies:**

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M. Hansen, P. Potapov, S. Turubanova, A. Tyukavina, A. Pickens, A. Serna, D. Parker, X. Song, A. Lima, P. Amani, E. Bongwele, A. Mazinga, V. Zalles, J. Pickering, X. Li, M. Steininger, A. Kommareddy, A. Khan, I. Kommareddy, B. Adusei, S. Jantz, Q. Ying, Global forest monitoring update, The Science Behind Forest Change Data – Webinar Hosted by World Resources Institute, April 21, 2020.

M. Hansen, P. Potapov, A. Serna, X. Li, A. Tyukavina, S. Turubanova, Aboveground biomass change, GEDI Science Team Meeting, April 14 – 16, 2020.

M. Hansen, P. Potapov, A. Tyukavina, X. Song, S. Turubanova, M. Steininger, A. Khan, A. Hudson, P. Amani, A. Lima, Q. Ying, V. Zalles, B. Adusei, J. Pickering, A. Mazinga, E. Bongwele, Towards global land change monitoring, Geospatial Forum, Raleigh, NC, March 5, 2020.

M. Hansen, P. Potapov, A. Tyukavina, X. Song, S. Turubanova, M. Steininger, A. Khan, A. Hudson, P. Amani, A. Lima, Q. Ying, V. Zalles, B. Adusei, J. Pickering, A. Mazinga, E. Bongwele, Monitoring Global Land Change, Data Science Initiative RED Talk, Raleigh, NC, March 4, 2020.

M. Hansen, P. Potapov, A. Tyukavina, X. Song, S. Turubanova, M. Steininger, A. Khan, A. Hudson, P. Amani, A. Lima, Q. Ying, V. Zalles, B. Adusei, J. Pickering, A. Mazinga, E. Bongwele, Monitoring Global Land Change using Satellite-based Earth Observations, AAAS Annual Meeting, Seattle, WA, February 13 – 16, 2020.

M. Hansen, A. Pickens, M. Hancher, P. Potapov, S. Stehman, Monitoring the dynamics of global surface water 1999-2017, Landsat Science Team Winter Meeting, Phoenix, AZ, February 4 – 6, 2020.

M. Hansen, P. Potapov, I. Kommareddy, A. Kommareddy, S. Turubanova, A. Pickens, B. Adusei, A. Tyukavina, Q. Ying, Landsat Analysis Ready Data for Global Land Cover and Land Use Change Mapping, Landsat Science Team Winter Meeting, Phoenix, AZ, February 4 – 6, 2020.

### **2019**

M. Hansen, P. Potapov, A. Tyukavina, X. Song, S. Turubanova, M. Steininger, A. Hudson, P. Amani, A. Serna, J. Pickering, A. Mazinga, E. Bongwele, Forest monitoring in Central Africa, World Bank Forest-Water-Climate Interactions in the Congo Basin 2nd Discussion Session, December 16, 2019.

M. Hansen, P. Potapov, X. Song, B. Adusei, A. Khan, V. Zalles, J. Pickering, M. Adami, C. DiBella, Towards Global Monitoring of Key Commodity Crops using Multi-Source Data, American Geophysical Union Fall Meeting 2019, San Francisco, CA, December 9 – 13, 2019.

M. Hansen, P. Potapov, D. Parker, A cobra in the forest? Quantifying the impact of perverse incentives from Indonesia's deforestation moratorium, 2011 to 2016, Land Cover / Land Use Change SARI Webinar Series 2019, December 2, 2019.



M. Hansen, P. Potapov, A. Tyukavina, X. Song, S. Turubanova, M. Steininger, A. Khan, A. Hudson, P. Amani, A. Lima, Q. Ying, V. Zalles, B. Adusei, J. Pickering, A. Mazinga, E. Bongwele, Forest Monitoring, Presentation to the National Forest Institute of Paraguay, Asuncion, Paraguay, November 19, 2019.

M. Hansen, P. Potapov, A. Tyukavina, X. Song, S. Turubanova, M. Steininger, A. Khan, A. Hudson, P. Amani, A. Lima, Q. Ying, V. Zalles, B. Adusei, J. Pickering, A. Mazinga, E. Bongwele, Land Monitoring, Presentation to the National Forest Institute of Paraguay, Asuncion, Paraguay, November 18, 2019.

M. Hansen, P. Potapov, A. Tyukavina, X. Song, S. Turubanova, M. Steininger, A. Khan, A. Hudson, P. Amani, A. Lima, Q. Ying, V. Zalles, B. Adusei, J. Pickering, A. Mazinga, E. Bongwele, Towards Global Land Change Monitoring, Presentation to the Department of Ecology and Evolutionary Biology, Brown University, Providence, RI, November 5, 2019.

M. Hansen, P. Potapov, A. Tyukavina, X. Song, S. Turubanova, M. Steininger, A. Khan, A. Hudson, P. Amani, A. Lima, Q. Ying, V. Zalles, B. Adusei, J. Pickering, A. Mazinga, E. Bongwele, Monitoring Global Land Change using Earth Observation Data, Clark University Atwood Lecture, Worcester, MA, October 24, 2019.

M. Hansen, L. Wang, X.-P. Song, A. Tyukavina, S. Turubanova, P. Potapov and S. Stehman, Fate of Tropical Forest Fragments, Pecora 21 Conference, Baltimore, MD, October 6 – 11, 2019.

M. Hansen, P. Potapov, X. Song, B. Adusei, A. Khan, V. Zalles, J. Pickering, M. Adami, C. DiBella, Advancing Global Crop Type Mapping and Area Estimation, Sixteenth Session of the AMIS Global Food Market Information Group, Rio de Janeiro, Brazil (remote presentation), October 7 – 9, 2019.

M. Hansen, P. Potapov, M. Humber, A. Pickens, V. Zalles, S. Turubanova, X. Song, and A. Tyukavina, Tree Cover Gain, NYDF-Global Restoration Watch Roundtable, New York, NY, September 25, 2019.

M. Hansen, P. Potapov, M. Humber, A. Pickens, V. Zalles, S. Turubanova, X. Song, and A. Tyukavina, An interpretation of recent Amazon Basin fires, Brazilian Academy of Sciences Land Use and Coverage Monitoring Systems Seminar, Rio de Janeiro, Brazil, September 4, 2019.

M. Hansen, P. Potapov, A. Tyukavina, X. Song, S. Turubanova, M. Steininger, A. Hudson, P. Amani, Q. Ying, V. Zalles and B. Adusei, Advancing Operational Land Monitoring and Reporting, 4th MapBiomass Seminar, Brasilia, Brazil, August 29, 2019.

M. Hansen, P. Potapov, A. Tyukavina, X. Song, S. Turubanova, M. Steininger, A. Hudson, P. Amani, Q. Ying, V. Zalles and B. Adusei, Advancing Operational Land Monitoring and Reporting, Presentation at Catholic of University Louvain la Neuve, Louvain la Nueve, Belgium, July 23, 2019.

M. Hansen, Supporting Satellite-based National Land-Cover and Land-use Change Monitoring Systems in South-East Asian Countries, SERVIR Applied Sciences Team Meeting, Washington, DC, June 27 – 28, 2019.

M. Hansen, P. Potapov, X. Song, A. Khan, B. Adusei, V. Zalles, J. Pickering, M. Adami, C. DiBella, Advancing Global Crop Type Mapping and Area Estimation, HARVEST Partners All Hands Meeting, Washington, DC, June 24 – 26, 2019.

M. Hansen, P. Potapov, X. Song, A. Khan, B. Adusei, V. Zalles, J. Pickering, M. Adami, C. DiBella, Earth observations in support of commodity crop monitoring - examples of crop type mapping and area estimation, HARVEST Partners All Hands Meeting, Washington, DC, June 24 – 26, 2019.

M. Hansen, P. Potapov, A. Khan, A. Tyukavina, S. Turubanova, P. Amani, J. Pickering, A. Hernandez Serna, E. Bongwele, A. Mazinga, Examples of multi-source large area land monitoring, USGS-NASA Landsat Science Team Meeting, Sioux Falls, June 19-21, 2019.

M. Hansen, P. Potapov, A. Khan, A. Tyukavina, S. Turubanova, P. Amani, J. Pickering, A. Hernandez Serna, E. Bongwele, A. Mazinga, Use of Planet data in land cover and land use change studies, Hill Briefing to Communicate to Congressional Staffers the Impacts of Commercial Earth imaging, Rayburn House Office Building, Washington, DC, June 13, 2019.

Evaluation of high resolution data - Large area crop type and forest loss area estimation and forest carbon stock loss, NASA Data Buy Program Meeting, Rockville, MD, May 24, 2019.

M. Hansen, P. Potapov, A. Tyukavina, X. Song, S. Turubanova, M. Steininger, A. Hudson, P. Amani, Q. Ying, V. Zalles, B. Adusei, Advancing operational land monitoring and reporting, Living Planet Symposium, Milan, Italy, May 13 – 17, 2019.

M. Hansen, N. Hidayat, Land cover and land use monitoring using Earth observation data, Presentation to Vice-Bupati of Tegal, Tegal, Indonesia, May 13, 2019.

M. Hansen, A. Pickens, P. Potapov, A. Tyukavina, GLAD near-real time forest alerts, Presentation to Indonesian Space Agency, Jakarta, Indonesia, May 8, 2019.

M. Hansen, A. Pickens, P. Potapov, A. Tyukavina, GLAD near-real time forest alerts, Presentation to WRI Indonesia, Jakarta, Indonesia, May 7, 2019.

M. Hansen, P. Potapov, S. Turubanova, A. Tyukavina, X. Song, M. Steininger, A. Khan, A. Hudson, P. Amani, Q. Ying, V. Zalles and B. Adusei, SilvaCarbon and the Initiative for Sustainable Forest Landscapes Workshop on Exchange of Experiences on Land Use Change Mapping, Washington, DC, March 25 – 27, 2019.

M. Hansen, P. Potapov, X. Song, V. Zalles, J. Pickering, M. Adami, A. Lima, A. Pickens, A. Tyukavina, Monitoring soybean expansion, Transparency and Accountability Workshop, Meridian Institute, Washington, DC, March 19, 2019.

M. Hansen, P. Potapov, A. Serna, A. Tyukavina, Update on time-series tree cover and height estimates, Conservation International Workshop on Earth Observing in Support of Restoration, , Arlington, VA, February 26 – 27.

M. Hansen, Some thoughts on restoration, Conservation International Workshop on Earth Observing in Support of Restoration, , Arlington, VA, February 26 – 27.

M. Hansen, P. Potapov, X. Song, B. Adusei, A. Khan, V. Zalles, J. Pickering, M. Adami, L. Fernandes, C. DiBella, C. Conde, Advancing global crop type mapping and area estimation, Eighth Session of the AMIS Rapid Response Forum, Geneva, Switzerland, February 25 – 26, 2019.

M. Hansen, Experiences using GLAD System, SilvaCarbon and the Initiative for Sustainable Forest Landscapes workshop on Exchange of Experiences on Land Use Change Mapping, Washington, DC, March 26, 2019.

## **2018**

M. Hansen, P. Potapov, A. Tyukavina, X. Song, S. Turubanova, M. Steininger, A. Hudson, P. Amani, Q. Ying, V. Zalles, B. Adusei, A strategy for monitoring human-induced land change at the global scale, American Geophysical Union Fall Meeting, Washington, DC, December 10 – 14, 2018.

M. Hansen, P. Potapov, A. Tyukavina, X. Song, S. Turubanova, A. Hudson, P. Amani, Q. Ying, V. Zalles and B. Adusei, Global land monitoring using public earth observation imagery, University of Illinois NRES Seminar Series, November 9, 2018.

M. Hansen, P. Potapov, X. Song, B. Adusei, A. Khan, V. Zalles, G. Molinario, Advances in the Global Crop Type Mapping Challenges, ASA, CSSA, and CSA Annual Meeting, Baltimore, MD, November 7, 2018.

M. Hansen, A. Pickens, P. Potapov, A. Krylov, A. Tyukavina, GLAD near-real time forest alerts, WRI Forest Legality Week, Washington, DC, October 23 – 25, 2018.

M. Hansen, A strategy for global land change monitoring, Keynote – International Conference on Advanced Remote Sensing, Wuhan, China, October 16 – 18, 2018.

M. Hansen, P. Potapov, S. Turubanova, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles and B. Adusei, Global land monitoring using public earth observation imagery, Presentation to the Wuhan University School of Engineering, Wuhan, China, October 15, 2018.

M. Hansen, P. Potapov, A. Tyukavina, X. Song, S. Turubanova, A. Hudson, P. Amani, Q. Ying, V. Zalles and B. Adusei, The making of the very first global forest information system, European Land Monitoring at its crossroads – opportunities and challenges, Innsbruck, Austria, October 8 – 9, 2018.

M. Hansen, Space-based monitoring of the Congo Basin, AGU Chapman Conference on the Congo Basin, Washington, DC September 25 – 27, 2018.

M. Hansen, P. Potapov, S. Turubanova, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles and B. Adusei, Global land monitoring using public earth observation imagery, University of Washington GeoHack Week Lecture, Seattle, WA, September 11, 2018.

M. Hansen, P. Potapov, S. Turubanova, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles and B. Adusei, Generating reliable earth observation-derived land cover and land use information, Expert Advisory Group Meeting on the future of GEO and GEOSS, Geneva, Switzerland, September 6 – 7, 2018.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles and B. Adusei, Large area land monitoring enabled by freely available, long-term global acquisitions of Landsat imagery, USGS-NASA Landsat Science Team, Boulder, CO, August 8 – 10, 2018.

Matthew C. Hansen, Peter V. Potapov, A. Tyukavina, S. Turubanova, P. Amani, A. Serna, A. Hudson, Congo Basin Forest Monitoring, Presentation to USAID Mission and CARPE Program, Kinshasa, Democratic Republic of Congo, July 27, 2018.

M. Hansen, A strategy for global land change monitoring, Keynote – EARSeL LULC & NASA LCLUC Workshop, Greece, July 8 – 13, 2018.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles and B. Adusei, Advancing global land mapping and monitoring, Machine Learning for Global Land Cover Classification - A Radiant.Earth Expert Workshop to Further Global Development, June 14 – 15, 2018.

M. Hansen, A. Pickens, 30m daily forest disturbance alerts, All Eye on the Amazon Annual Meeting, June 5 – 7, 2018, Quito, Ecuador.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles, B. Adusei, FIP – Maryland activities, Forest Integrity Project April 2018 Team Meeting, Crystal City, VA, April 23, 2018.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles and B. Adusei, A strategy for global land change monitoring, DLR Conference on Climate Change, Cologne, Germany, April 17-19, 2018.

M. Hansen, P. Potapov, S. Turubanova, A. Tyukavina, X. Song, A. Hudson, P. Amani, Integrating Landsat 7, 8 and Sentinel 2 data in improving crop type identification and area estimation, NASA Land Cover and Land Use Program, NASA LCLUC Spring Science Team Meeting, Bethesda, MD, April 3 – 5, 2018.

M. Hansen, P. Potapov, S. Turubanova, A. Tyukavina, X. Song, A. Hudson, P. Amani, Forest canopy cover, time since disturbance, and forest height data, NASA/UNDP Forest Integrity Project Webinar, March 23, 2018.

M. Hansen, P. Potapov, S. Turubanova, A. Tyukavina, X. Song, A. Hudson, P. Amani, Global Forest Watch: Mapping and monitoring, UMD-GFW Workshop, World Bank, Washington, DC, March 14, 2018.

M. Hansen, Introduction to national-scale cropland mapping, GEOGLAM National-scale Cropland Mapping Workshop, College Park, MD, March 5 – 9, 2018.

M. Hansen, P. Potapov, X. Song, and A. Tyukavina, Generating time-series maps that accurately reflect land change area: a strategy for global land monitoring, USGS-NASA Landsat Science Team Meeting, Sioux Falls, SD, February 21 – 22, 2018.

M. Hansen, Innovating methods for forest monitoring, Global Forest Watch Advisory Meeting, Washington, DC, February 14 – 15, 2018.

M. Hansen, A. Pickens, M. Hancher, P. Potapov, W. Huang, Inter-annual and seasonal surface water dynamics, Brown Bag Lunch Presentation to the Water and Sanitation Division of the Inter-American Development Bank, Washington, DC, February 13, 2018.

M. Hansen, P. Potapov, X. Song, B. Adusei, A. Khan, V. Zalles, G. Molinario, B. Rudorff, C. DiBella, Crop area estimation, Emerging Technologies and Methods in Earth Observation for Agricultural Monitoring, Beltsville, MD, February 13 – 15, 2019.

M. Hansen, Peter V. Potapov, A. Tyukavina, S. Turubanova, P. Amani, A. Serna, A. Hudson, Applying global forest mapping methods at national scales, SilvaCarbon Workshop on Exchange of Experiences in Mapping Forest Cover Change, USGS, Reston, VA, January 30, 2018.

## **2017**

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles and B. Adusei, A Strategy for Global Land Cover Monitoring Using Landsat and Sentinel 2, Pecora 20 Conference – Observing a Changing Earth, Sioux Falls, SD, Nov14-16.

M. Hansen, P. Potapov, A. Tyukavina, S. Turubanova, P. Amani, A. Serna, and A. Hudson, Forest monitoring from global to national scales, Group on Earth Observations Plenary Global Forest Observations Initiative Side-Event, Washington, DC, October 24, 2017.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles, B. Adusei, C. DiBella, and B. Rudorff, GLAD mapping and monitoring of land cover and land use change, World Resources Institute Brown Bag Seminar, Washington, DC, September 22, 2017.

M. Hansen, P. Potapov, X. Song, B. Adusei, L. King, A. Krylov, and V. Zalles, Integrating Landsat 7, 8 and Sentinel 2 data in improving crop type identification and area estimation, NASA MUSLI Science Team Seminar (webex), Washington, DC, September 19, 2017

M. Hansen, P. Potapov, A. Tyukavina, S. Turubanova, P. Amani, A. Serna, and A. Hudson, Congo Basin forest monitoring, SilvaCarbon Tech Team Call (webex), Washington, DC, September 14, 2017.

M. Hansen and P. Potapov, National forest assessment and monitoring using the satellite data archives, Meeting at USFS International Programs, Washington, DC, September 13, 2017.

Matthew C. Hansen, Peter V. Potapov, A. Tyukavina, S. Turubanova, P. Amani, A. Serna, A. Hudson, Sample-based area estimation of forest change at national scale, Indonesian Space Agency (LAPAN), Jakarta, Indonesia, September 4, 2017.

M. Hansen, P. Potapov, A. Tyukavina, S. Turubanova, P. Amani, A. Serna, and A. Hudson, Sample-based area estimation of DRC forest change, 2000-2014, Comparaison des produits GFC et DIAF-FAO pour l'estimation des surfaces forestiere, non-forestiere et de deforestation de la RDC, Représentation FAO en RDC, Kinshasa, DRC, July 18, 2017.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles, B. Adusei and G. Molinario, Land cover and land use change mapping and monitoring in support of the UN SDGs, HLPF Learning Session on July 12 - EO Data Applied to the SDGs, United Nations Headquarters, New York, NY, July 12, 2017.

M. Hansen, P. Potapov, S. Turubanova, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles, L. Wang, and B. Adusei, Global tree cover extent and change monitoring using Landsat data, Crossing scales and disciplines to identify global trends in tree mortality as an indicator of forest health, Thünen Institute of Forest Ecosystems, Hanover, Germany, June 21, 2017.

M. Hansen, Peter V. Potapov, A. Tyukavina, S. Turubanova, P. Amani, A. Serna, and A. Hudson, An approach to national-scale forest monitoring, Appui technique à la DIAF et réalisation de la comparaison des analyses de changements du couvert forestier de la RDC, Kinshasa, DRC, May 16, 2017.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles, B. Adusei, C. DiBella, and B. Rudorff, Mapping of land cover change at national, continental and global scales, XVII SBSR Brazilian Symposium on Remote Sensing, Santos, Brazil, May 28- 31, 2017.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles, B. Adusei and G. Molinario, Cicero Center for International Climate Research, Forskningsparken, Oslo, Norway, May 23, 2017.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles, B. Adusei and G. Molinario, An approach to national-scale forest monitoring, Seminar at the Ministry of Climate and Environment of Norway, Oslo, Norway, May 22, 2017.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles and B. Adusei Advancing global land monitoring, Seminars on large scale satellite remote sensing for agriculture & PhD Dissertations, Catholic University of Louvain, Louvain-la-Neuve, Belgium, May 18, 2017.

M. Hansen, P. Potapov, A. Tyukavina, S. Turubanova, P. Amani, A. Serna, and A. Hudson, CARPE III - NASA/UMD/OSFAC, USAID mission, Kinshasa, Democratic Republic of the Congo, May 15, 2017.

M. Hansen, P. Potapov, X. Song, B. Adusei, L. King, A. Krylov, and V. Zalles, Integrating Landsat 7, 8 and Sentinel 2 data in improving crop type identification and area estimation, Land Cover and Land Use Change Program, Bethesda, MD, April 13, 2017.

M. Hansen and P. Potapov, Forest Integrity for Sustainable Development Planning Team Meeting, UNDP Offices, New York, NY, April 10, 2017.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles and B. Adusei, Applying global forest mapping methods at national scales, Remote Sensing Spring Seminar Series, Virginia Tech University, Blacksburg, VA, March 27, 2017.

M. Hansen, P. Potapov, and A. Tyukavina, Height and biomass change, GEDI Science Definition Team Meeting, Annapolis, MD, April 4-6, 2017.

M. Hansen, P. Potapov, Y. Talero, A. Tyukavina, M. Steininger, and G. Galindo, Methods for contributing to SDG and IPCC reporting – examples of the IDEAM and University of Maryland collaboration, Towards Integration of National Statistics and Earth Observations for SDG Monitoring in Colombia, Bogota, Colombia (WebEx presentation), March 30, 2017.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles, B. Adusei and G. Molinario, The power of information: How data on changes in forest cover can help policy makers, civil society, and the private sector, World Bank Land Conference, Plenary Keynote Opening, March 20-24, 2017.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles and B. Adusei, Advancing global land cover monitoring, Worldcover 2017 Conference, Frascati, Italy, March 14-16, 2017

M. Hansen, P. Potapov, S. Turubanova, and A. Tyukavina, National forest monitoring, Presentation to the Royal Forest Department of Thailand, Bangkok, Thailand, March 6, 2017.

M. Hansen, P. Potapov, S. Turubanova, and A. Tyukavina, National forest monitoring, Presentation to Lao Forestry Department, Vientiane, Laos, March 9, 2017.

M. Hansen, P. Potapov, S. Turubanova, and A. Tyukavina, National forest monitoring, Presentation to Cambodian Ministry of Environment, Phnom Phen, Cambodia, March 13, 2017.

M. Hansen, Next steps in land monitoring, Global Forest Watch Partners Meeting, Washington, D.C., February 6, 2017.

## **2016**

M. Hansen, P. Potapov, X. Song, V. Zalles, and B. Adusei, Soybean area estimation method overview and field work planning, Soybean area estimation planning meeting, Florianopolis, Brazil, December 8-9, 2016.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles and B. Adusei, Land cover, congress on harnessing big data for the environment, sponsored by the Renewable Natural Resources Foundation, American Geophysical Union headquarters, Washington, DC, December 6-7, 2016.

M. Hansen, The future of earth observation – a perspective, The Future of Earth Observation Memorial Colloquium for Prof. Dr. Gunter Menz, Bonn, Germany, November 18, 2016.

M. Hansen, Panel participant at the Global Landscapes Forum – Climate Action for Sustainable Development, Conference of the Parties Side-Event, Marrakesh, Morocco, November 16, 2016.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles and B. Adusei, Current state of global forest monitoring methods, Workshop on Economic Development and Deforestation, Hosted by the Office of the Chief Economist, Africa Region and the Norwegian School of Economic (NHH), World Bank, Washington, DC, November 14, 2016.

M. Hansen, Seeing the Forest and the Trees, Co-presented with Fred Stolle, U.S. Forest Service International Programs Seminar Series, USFS International Programs Office, Washington, DC, November 14, 2016.

M. Hansen, SilvaCarbon and WRI mapping efforts: WRI-Himalayas work / UMD-Nepal, Co-presented with Rachael Peterson, GFOI Coordination Meeting, The Hague, Netherlands, November 4, 2016.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, X. Song, A. Hudson, P. Amani, Q. Ying, V. Zalles and B. Adusei, Advancing global land mapping and monitoring, GFOI R&D and GOFC-GOLD Land Cover Science Meeting, The Hague, Netherlands, October 31-November 4, 2016.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, A. Hudson, X. Song, P. Amani, Q. Ying, V. Zalles and B. Adusei, Advancing global land mapping and monitoring, Seminar for School of Geography, Beijing Normal University, Beijing, China, October 24, 2016.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, A. Hudson, X. Song, P. Amani, Q. Ying, V. Zalles and B. Adusei, Advancing global land mapping and monitoring, Global Land Programme 3rd Open Science Meeting, Beijing, China, October 24-27, 2016.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, A. Hudson, X. Song, P. Amani, Q. Ying, V. Zalles and B. Adusei, Advancing global land mapping and monitoring, Seminar for the University of Maryland Center for Environmental Sciences Appalachian Laboratory, Frostburg, MD, October 22, 2016.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, Y. Talero, Monitoring national-scale forest extent and change, Meeting to discuss methods of forest monitoring in Guatemala, Guatemalan Ministry of Environment and Natural Resources, Guatemala City, Guatemala, October 20, 2016.

M. Hansen, P. Potapov, A. Krylov, and A. Tyukavina, Integrating earth observation and forest inventory data in quantifying biomass in degraded forests of the Republic of Congo, A SilvaCarbon Research Workshop on Innovative Solutions for Monitoring Forest Carbon - Advancing Climate Action through Improved Information, Washington, DC, September 28-29, 2016.

M. Hansen, P. Potapov, and A. Tyukavina, Level 4A Model Demonstration Outputs - Biomass change, GEDI Science Team Meeting, NASA Goddard Space Flight Visitor Center, Greenbelt, MD, September 21-23, 2016.

M. Hansen, Remote sensing of land use and land cover, Peace Corps Connect 2016, Session on geospatial data and methods, 9-23-2016.

M. Hansen, P. Potapov and A. Krylov, Global forest disturbance alerts from Landsat, USAID/USFS Workshop on Utilization of Deforestation Alert Systems, Lima, Peru, September 13th to 15th, 2016.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, Y. Talero, Monitoring large area forest extent and change (remote call-in), Reading, United Kingdom, 9-8-2016.

M. Hansen, P. Potapov, S. Turubanova, A. Tyukavina, A. Krylov, P. Amani, G. Molinario, J. Nackoney, S. Jantz, Y. Munzimi, A. Altstatt and J. Tucker, Monitoring forest resources in the Congo Basin, IUCN World Conservation Congress in Hawaii: CARPE - Conservation and Sustainable Development Accomplishments, 1-10 September 2016.

M. Hansen, P. Potapov, S. Turubanova, A. Tyukavina, A. Krylov, P. Amani, G. Molinario, J. Nackoney, S. Jantz, Y. Munzimi and A. Altstatt, Global land monitoring and protected area assessment, IUCN World Conservation Congress in Hawaii: WCPA - SSC - What factors determine protected area success in conserving biodiversity on land and sea? What are the policy implications of the new research?, 1-10 September 2016

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, A. Hudson, X. Song, P. Amani, Q. Ying, V. Zalles and B. Adusei, Assessing global land change in support of biodiversity monitoring, GEOBON 2016 Open Science Conference and All Hands Meeting, Leipzig, Germany, July 4-8, 2016.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, A. Tyukavina, A. Hudson, X. Song, P. Amani, Q. Ying, V. Zalles and B. Adusei, Advancing global land cover mapping and monitoring, 36TH EARSEL Symposium "Frontiers in Earth Observation", Bonn, Germany, June 20-24, 2016.

M. Hansen, P. Potapov, and S. Turubanova, Intact forest landscapes, High Conservation Values Regional Working Group (HCV-RWG) Meeting, Brazzaville, Republic of Congo, 6-15-2016.

M. Hansen and M. Schmidt, Integrated approaches to capturing forest type change, Joint GFOI / GOF-C-GOLD / CONABIO / SilvaCarbon R&D Expert and Capacity Building workshop on: Regional solutions to forest type stratification and characterising the forest state for national forest monitoring and carbon emissions reporting, National Autonomous University of Mexico, Mexico City, 6-6-2016.

M. Hansen, Global forest monitoring, IIASA/GWF Workshop: What is a "Good Enough" Forest Monitoring System?, Bonn, Germany, 5-25-2016.

M. Hansen, Quantifying global land cover, GEO and UN-GGIM Workshop: Towards a Sustainable Operational System for Land Cover Classifications that Can Meet Varied User Needs, Gospatial World Forum, Rotterdam, Netherlands, 5-23-16.

M. Hansen, P. Potapov, S. Turubanova, A. Krylov, and A. Tyukavina, Monitoring global forest disturbance, Climate Action 2016 Forum, Sustainable Land Use: Carbon Monitoring and Modeling in the Land Use Sector, University of Maryland, College Park, MD, 5-4-2016.

M. Hansen, Monitoring forests from space: Challenges and progress on reducing emissions from deforestation, TERP Climate forum, University of Maryland, College Park, MD, 4-22-2016.

M. Hansen, P. Potapov, X. Song, L. King, B. Adusei, A. Krylov, A. Khan, V. Zalles, A. Tyukavina, S. Turubanova, S. Stehman, C. Di Bella, P. Zhiyuan, and B. Rudorff, Advancing methods for global crop area estimation, Land Cover Land Use Change Program Science Meeting, Bethesda, MD, March 29, 2016.



M. Hansen and P. Potapov, Global monitoring of land cover extent and change, IBM Watson Research Center, Yorktown Heights, NY, 3-25-2016.

M. Hansen and P. Potapov, Global forest change products from remote sensing data, USAID mission visit, Lima, Peru, 3-17-2016.

M. Hansen, Global forest monitoring, A DC Science Café Event: Three Trillion Trees, 3-2-2106, Busboys and Poets, Washington, DC.

M. Hansen, P. Potapov, S. Turubanova, A. Tyukavina, A. Krylov, Y. Talero, P. Amani, L. Wang, A. Hudson, X. Song, G. Molinario, A. Altstatt, J. Noel, and V. Zalles, Global Forest Watch – monitoring forests with Landsat data, GeoJournalism: Telling the Story of Science with Data, Maps, and Sensors Seminar at 2016 AAAS Annual Meeting, 2-14-2016, Washington, DC.

M. Hansen, Using visuals for science communication, Communicating Science Seminar at 2016 AAAS Annual Meeting, 2-11-2016, Washington, DC.

M. Hansen, P. Potapov, and A. Tyukavina, Quantifying global land cover / land use, Carbon Emissions from Land Use Change: Bringing together the latest products for improved global and regional estimates, LSCE, Paris, France, 8th – 10th February 2016.

M. Hansen, P. Potapov, S. Turubanova, A. Tyukavina, A. Krylov, Y. Talero, P. Amani, L. Wang, A. Hudson, X. Song, G. Molinario, A. Altstatt, J. Noel, and V. Zalles, University of Maryland global forest monitoring, Global Forest Watch Partners Meeting, Washington, DC, 2-2-2016.

M. Hansen and P. Potapov, Validating forest cover loss – examples for the humid tropics, SilvaCarbon workshop in Santa Rosa, Philippines, 1-26-2016.

M. Hansen and P. Potapov, Global forest change products from remote sensing data, International LCLUC Regional Science Team Meeting in South and Southeast Asia, Myanmar, 1/12-1/18, 2016.

M. Hansen and P. Potapov, A perspective on global land monitoring, USGS EGSC Weekly Seminar, USGS headquarters, Reston, VA, 1-6-2016.

## **2015**

Hansen, M.C., Krylow, A., Tyukavina, A., Potapov, P.V., and Turubanova, S., Global forest disturbance alerts, Global Landscapes Forum, UNCoP - Session on Pixel perfection for carbon detection: How technologies and communities can curb global emissions from land-use change, Paris, France, 2015 Dec.

Hansen, M. and Potapov, P., A perspective on global forest monitoring, Norwegian Foreign Ministry Meeting, Wageningen University, Netherlands, 2015 Nov

Hansen, M., Potapov, P., Turubanova, S., Tyukavina, A., Krylov, A., Talero, Y., Amani, P., Wang, L., Hudson, A., Song, X., Molinario, G., Zalles, V., Altstatt, A., and Noel, J., Global forest change, Workshop on Methodologies for Monitoring Forest Change in Central America, San Salvador, El Salvador, 2015 Nov, Viviana Zalles presented on my behalf.

Hansen, M., Krylov, A., Tyukavina, A. and Potapov, P., Near-real time forest disturbance alerts with Landsat, Presentation to the Brazilian Ministry of Environment, Brasilia, Brazil, 2015 Nov

Hansen, M., Estimating crop type cultivated area using remotely sensed data, Presentation to the Brazilian Ministry of Environment, Brasilia, Brazil, 2015 Nov

Hansen, M., Potapov, P., Turubanova, S., Tyukavina, A., Krylov, A., Talero, Y., Amani, P., Wang, L., Hudson, A., Song, X., Molinario, G., Zalles, V., Altstatt, A., and Noel, J., Global forest change, Climate technology transfer mechanisms and networks in Latin America and the Caribbean, San Jose, Costa Rica, 2015 Oct, Skyped into this meeting.

Nourbakhsh, I., and Hansen, M., Discovering Disruptive Change with Big Data, World Economic Forum, Dalian, China, 2015 Sep, Co-presentation led by Illah Nourbakhsh of Carnegie-Mellon University

Hansen, M., Land cover monitoring with Landsat data, USAID India SAR Study Tour, College Park, MD, 2015 Jul

Hansen, M., Potapov, P., Turubanova, S., Tyukavina, A., Krylov, A., Talero, Y., Amani, P., Wang, L., Hudson, A., Song, X., Molinario, G., King, L., Zalles, V., Altstatt, A., and Noel, J., Quantifying global land cover, Guest lecture at UCL, Louvain la Neuve, Belgium, 2015 Jul

Hansen, M., Potapov, P., Turubanova, S., Tyukavina, A., Krylov, A., Talero, Y., Amani, P., Wang, L., Hudson, A., Song, X., Molinario, G., King, L., Zalles, V., Altstatt, A., and Noel, J., Quantifying global land cover, Guest lecture at UNFAO, Rome, Italy, 2015 Jul

Hansen, M., Becker-Resher, I., Dempewolf, J., Adusei, B., and Justice, C., University of Maryland update on Tanzania cropland extent mapping, STARS General Meeting, Enschede, Netherlands, 2015 Jun

Hansen, M., Potapov, P., Turubanova, S., Tyukavina, A., Krylov, A., Talero, Y., Amani, P., Wang, L., Hudson, A., Song, X., Molinario, G., Zalles, V., Altstatt, A., and Noel, J., A perspective on global forest monitoring, Google Earth Engine User Summit, Mountain View, California, 2015 Jun

Hansen, M., Potapov, P., Townshend, J., and Justice, C., History of global land cover mapping and monitoring using earth observation data, 36th International Symposium on Remote Sensing of the Environment, Berlin, Germany, 2015 May

Hansen, M., A Perspective on Global Earth Observation Monitoring, 36th International Symposium on Remote Sensing of the Environment, Berlin, Germany, 2015 May, Plenary session panel on Perspectives on the Future of Global Earth Observation

Hansen, M., Potapov, P., Turubanova, S., Tyukavina, A., Krylov, A., Talero, Y., Amani, P., Wang, L., Hudson, A., Song, X., Molinario, G., Zalles, V., Altstatt, A., and Noel, J., Update on global forest monitoring using Landsat, Seminar on user needs for dedicated REDD+ MRV satellites, Oslo, Norway, 2015 May, Hosted at Norwegian Space Center

Hansen, M., Potapov, P., Moore, R., Hancher, M., Turubanova, S., Tyukavina, A., Thau, D., Stehman, S., Goetz, S., Loveland, T., Kommareddy, A., Egorov, A., Chini, L., Justice, C., and Townshend, J., High-resolution global maps of 21st-century forest cover change, XVI SBSR Brazil Symposium on Remote Sensing, Jao Pessoa, Brazil, 2015 Apr

Hansen, M., and Potapov, P., Quantifying forest degradation, UNFAO-sponsored workshop on monitoring forest degradation using remote sensing, Buenos Aires, Argentina, 2015 Apr

Hansen, M., Potapov, P., Turubanova, S., Tyukavina, A., Krylov, A., Talero, Y., Amani, P., Wang, L., Hudson, A., Song, X., Molinario, G., Zalles, V., Altstatt, A., and Noel, J., Monitoring forest change from global to local scales using earth observation data, Applying Deforestation Data to Climate Effective Conservation in the Yucatan Peninsula and Mexico, Mexico City, Mexico, 2015 Mar

Deforestation in the Congo Basin: How Will it Affect the Development of the Region?, Africa Regional Overview of Sub-Saharan Africa Seminar, Foreign Service Institute, Arlington, VA, 2015 Mar, Guest lecture at training session for new foreign service postings in Sub-Saharan Africa

M. Hansen, P. Potapov, S. Turubanova, Y. Talero, A. Krylov, A. Tyukavina, B. Margono, J. Nackoney, P. Amani, and S. Jantz, Advances in Earth Observation: Enabling New Insights into Global Environmental Change, American Association for the Advancement of Science, San Jose, California, 2015 Feb

Hansen, M., Potapov, P., Turubanova, S., Tyukavina, A., Krylov, A., Talero, Y., Amani, P., Wang, L., Hudson, A., Song, X., Molinario, G., Zalles, V., Altstatt, A., and Noel, J., Monitoring forest change from global to local scales using earth observation data, Forest Change and Forest Cover Workshop, Guatemala City, Guatemala, 2015 Feb, Presentations to project team and national partners of "Analysis of the GFW platform and its capabilities for Guatemala."

Hansen, M., Satellite-based global forest disturbance monitoring in support of landscape conservation, The Society for Conservation GIS 2015 east coast symposium, Washington, DC, 2015 Feb

## **2014**

Hansen, M., Satellite-based global forest disturbance monitoring in support of landscape conservation, The Society for Conservation GIS 2015 east coast symposium, Washington, DC, 2015 Feb

Hansen, M.C., Potapov, P., Turubanova, S., Talero, A., Krylov, A., and Tyukavina, A., Updates on global forest monitoring, Google booth, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. 15-19, 2014.

Hansen, M.C., Potapov, P., Turubanova, S., Talero, A., Krylov, A., and Tyukavina, A., Monitoring forest cover loss with Landsat data, Technologies and innovations to better understand changes in land use, Global Landscapes Forum, Lima, Peru, Dec. 6-7, 2014.

Hansen, M.C., Potapov, P., Turubanova, S., Stehman, S., Tyukavina, A., Krylov, A., Forest Disturbance Mapping with Landsat: The Potential for Assessing Tropical Forest Protected Areas, NASA Hyperwall at the World Parks Congress, Sydney, Australia, Nov. 12-19, 2014.

Hansen, M.C., Potapov, P., Turubanova, S., Stehman, S., Tyukavina, A., Krylov, A., Global tree cover loss, Global Forest Watch Annual Partnerships Meeting, Washington, D.C., Sep. 29-30, 2014.

Hansen, M.C., Potapov, P., Turubanova, S., Tyukavina, A., Stehman, S., Egorov, A., Krylov, A., and Noel, J., USA, DRC, Peru and Pan-Tropical forest loss area estimation, SilvaCarbon/GFOI Workshop on Accuracy Assessment and Area Estimation, Bogota, Colombia, Sep. 22-23, 2014.

Hansen, M.C., Potapov, P., Turubanova, S., Tyukavina, A., Amani, P., Krylov, A., and Talero, Y., Sharing our experience and capabilities in large area forest extent and change monitoring, Global Observations of Forests Initiative Summit, Armenia, Colombia, Sep. 17-19, 2014.

Hansen, M.C., Potapov, P., Turubanova, S., Stehman, S., Tyukavina, A., University of Maryland forest mapping update, Guyana REDD+ Meeting, Georgetown, Guyana, Sep. 7-9, 2014.

Hansen, M.C., Potapov, P., King, L., Adusei, B., Mapping crop type at national scales, visit by Brazilian National Supply Company (CONAB), College Park, MD, July 14-16, 2014.

Hansen, M.C., Potapov, P., Moore, R., Hancher, M., Turubanova, S., Tyukavina, A., Thau, D., Stehman, S., Goetz, S., Loveland, T., Kommareddy, A., Egorov, A., Chini, L., Justice, C. and Townshend, J., Monitoring global forest change at local scales using earth observation data, WWF Science for Nature seminar series, Washington, D.C., June 19, 2014.

Hansen, M.C., Potapov, P., Turubanova, S., Stehman, S., Tyukavina, A., Mane, L., Altstadt, A., Nackoney, J., Amani, P., Munzimi, Y., and Molinario, G., Deforestation in the Congo Basin: How Will it Affect the Development of the Region?, World Bank Africa REDD+ Seminar Series, Washington, D.C., with connections to Kinshasa, DRC, Brazzaville, RoC, and Yaounde, Cameroon, June 18, 2014.

Hansen, M.C., Potapov, P., Turubanova, S., Dempewolf, J., Mapping with Landsat data, STARS kick-off meeting, University of Twente, Enschede, Netherlands, June 10-11, 2014.

Hansen, M.C., Potapov, P., Turubanova, S., Tyukavina, A., Stehman, S., Global forest monitoring using Landsat data, World Bank Learning Seminar - Forest Carbon Finance: Global Forest Watch - See what is happening in forests worldwide, Washington, D.C., May 22, 2014.

Hansen, M.C., Google Earth Engine, Forest Cover Change case, Annual LP DAAC UWG Technical Exchange, Sioux Falls, SD, April 22-23, 2014.

Hansen, M.C., Potapov, P., Moore, R., Hancher, M., Turubanova, S., Tyukavina, A., Thau, D., Stehman, S., Goetz, S., Loveland, T., Kommareddy, A., Egorov, A., Chini, L., Justice, C. and Townshend, J., Global land monitoring using Landsat data, presentation to Data Science MD, Columbia, MD, April 10, 2014.

Hansen, M.C., Potapov, P., Moore, R., Hancher, M., Turubanova, S., Tyukavina, A., Thau, D., Stehman, S., Goetz, S., Loveland, T., Kommareddy, A., Egorov, A., Chini, L., Justice, C. and Townshend, J., Global land monitoring using Landsat data, Program in Science, Technology and Environmental Policy seminar series, Princeton University, Princeton, NJ, April 7, 2014.

Hansen, M.C., Potapov, P., Moore, R., Hancher, M., Turubanova, S., Tyukavina, A., Thau, D., Stehman, S., Goetz, S., Loveland, T., Kommareddy, A., Egorov, A., Chini, L., Justice, C. and Townshend, J., Global land monitoring using Landsat data, AniMove 2014 training course, Smithsonian-Mason School of Conservation, Smithsonian Conservation Biology Institute, Front Royal, VA, April 1, 2014.

Hansen, M.C., Potapov, P., Turubanova, S., Stehman, S., Tyukavina, A., Mane, L., Altstadt, A., Nackoney, J., Amani, P., Munzimi, Y., and Molinario, G., Justice, C., Tucker, J., Forest extent and change, International conference on land use change and forest biomass in Central Africa, Libreville, Gabon, March 21-22, 2014.

Hansen, M.C., Potapov, P., Turubanova, S., Tyukavina, A., Stehman, S., Using remote sensing to monitor global forests, presentation at the University of Marien Ngouabi, Brazzaville, Republic of Congo, Mar. 16, 2014.

Hansen, M.C., Becker-Reshef, I., Justice, C., Dempewolf, J., Potapov, P., and Adusei, B., Agricultural monitoring using MODIS, Landsat and RapidEye data sets, presentation to the National Geospatial Intelligence Agency, Springfield, VA, March 4, 2014.

Hansen, M.C., Potapov, P., Turubanova, S., Tyukavina, A., Stehman, S., Global forest monitoring using Landsat data, Meeting on the need and potential of global maps to guide national results-based forest monitoring, Norwegian Space Center, Oslo, Norway, March 3-4, 2014.

Hansen, M.C., Project overview, thematic definitions and prioritization, MEaSUREs Vegetation Continuous Field Modeling Working Group, College Park, Maryland, Feb. 25, 2014.

Hansen, M.C., Potapov, P., Margono, B., Turubanova, S., Stolle, F., Moore, R., Hancher, M., Tyukavina, A., and Stehman, S., Global forest cover loss and Indonesia primary forest cover loss, 2<sup>nd</sup> Roundtable Discussion on Deforestation Calculation: Linking Science and Policy: Current Science Community Results on Deforestation Estimates and its Contribution to Enhance the Robustness of National Forest Governance, Jakarta, Indonesia, Feb. 7, 2014

Hansen, M.C., Justice, C., Tucker, J., Mane, L., Altstatt, A., Potapov, P., Turubanova, S., Stehman, S., Nackoney, J., Tyukavina, A., Amani, P., Munzimi, Y., and Molinario, G., NASA/UMd/OSFAC consortium, CARPE Partners Central Africa Regional Program for the Environment (CARPE) Partners Meeting, Washington, D.C., Jan. 27-28, 2014.

Hansen, M.C., Potapov, P., Moore, R., Hancher, M., Turubanova, S., Tyukavina, A., Thau, D., Stehman, S., Goetz, S., Loveland, T., Kommareddy, A., Egorov, A., Chini, L., Justice, C. and Townshend, J., Observing the forest and the trees: the first high resolution map of global forest change, User needs and future system solutions for low-cost high-resolution (1-5m) optical satellite data for global forest monitoring maps, Norwegian Space Center, Oslo, Norway, January 16-17, 2014.

Hansen, M.C., Earth observation data and derived products as a set of facts, presentation to the Planet Labs Impact Advisory Working Group, San Francisco, CA , January 13-14, 2014.

## **2013**

Hansen, M.C., Potapov, P., Becker-Reshef, I., Adusei, B., King, L., Noel, J., Ernst, C., Loveland, T., Stehman, S., Mueller, R., Rudorff, B., Shimabukuro, Y., and Di Bella, C., Estimating soybean cultivated area using multi-source remotely sensed data, American Geophysical Union Fall Meeting, San Francisco, CA, Dec. 9-13, 2013.

Hansen, M.C., Potapov, P., Moore, R., Hancher, M., Turubanova, S., Tyukavina, A., Thau, D., Stehman, S., Goetz, S., Loveland, T., Kommareddy, A., Egorov, A., Chini, L., Justice, C. and Townshend, J., Global forest cover map using Landsat, NASA Hyperwall at the American Geophysical Union Fall Meeting, San Francisco, CA, Dec. 9-13, 2013.

Hansen, M.C., Moore, R., Loveland, T., Arroyo, P., Masek, J., Mapping global forest change: Discussion, demonstration, live Q&A, <https://www.youtube.com/watch?v=NXHhsaU3o0Y>, Google Mountain View campus, Mountain View, CA, Nov. 18, 2013.

Hansen, M.C., Potapov, P., Stehman, S., Adusei, B., King, L., Noel, J. and Ernst, C., Crop type area estimation, Presentation to Agrosatellite, Florianopolis, Brazil, Oct. 17, 2013.

Hansen, M.C., Potapov, P., Becker-Reshef, I., Adusei, B., King, L., Noel, J., Ernst, C., Loveland, T., Stehman, S., Mueller, R., Rudorff, B., Shimabukuro, Y., and Di Bella, C., Advancing methods for global crop area estimation, NASA Applied Sciences Program, Water Resources Meeting, Lincoln, NE (called in), Sep. 24-25, 2013.

Hansen, M.C., Potapov, P., Moore, R., Hancher, M., Turubanova, S., Tyukavina, A., Thau, D., Stehman, S., Goetz, S., Loveland, T., Kommareddy, A., Egorov, A., Chini, L., Justice, C. and Townshend, J.,

Observing the forest and the trees: the first high resolution map of global forest change, Gordon and Betty Moore Foundation, Palo Alto, CA, Sep. 23, 2013.

Hansen, M.C., Potapov, P., Turubanova, S., Tyukavina, A., Stehman, S., Nackoney, J., Amani, P., Munzimi, Y., Molinario, G., Altstatt, A., and Mane, L., Monitoring the forests of Central Africa, Central Africa Forest Initiative Meeting, Paris, France, Sep. 20-21, 2013.

Hansen, M.C., Potapov, P., Stehman, S., Adusei, B., King, L., Noel, J. and Ernst, C., Crop type area estimation, visit by the Pakistan space agency, SUPARCO and Punjab crop reporting service, College Park, MD, Sep. 13, 2013.

Hansen, M.C., Potapov, P., Stehman, S., Adusei, B., King, L., Noel, J. and Ernst, C., Soybean cultivated area estimation, visit to the Chinese Academy of Agricultural Engineering, Beijing, China, Aug. 19, 2013.

Hansen, M.C., Potapov, P., Turubanova, S., Egorov, A., Tyukavina, A., Loveland, T., Giri, C., Roy, D., Moore, R., Hancher, M., Thau, D., Ilyushchenko, S., Goetz, S., and Baccini, A., Towards monitoring of global land cover, visit by the College of Information and Electrical Engineering, China Agricultural University, College Park, MD, Aug. 14, 2013.

Hansen, M.C., Potapov, P., Turubanova, S., Tyukavina, A., Moore, R., and Hancher, M., Forest cover monitoring in Africa using Landsat data, GOF-C-GOLD Miombo Network Meeting, Maputo, Mozambique, Jul. 22-24, 2013.

Hansen, M.C., Potapov, P., Turubanova, S., and Tyukavina, A., Quantifying land cover dynamics through supervised learning and data mining of the Landsat archive, *Instituto de Estudios Peruanos* (IEP) and the *Grupo de Análisis para el Desarrollo* (GRADE) Workshop on Information Systems for Deforestation Monitoring in the Peruvian Amazon, Lima, Peru, Jul. 17-19, 2013.

Hansen, M.C., Justice, C., Potapov, P., Turubanova, S., Altstatt, A., Bankanza, B., Nackoney, J., Munzimi, Y., Tyukavina, A., Molinario, G., Mfuka, C., Amani, P., University of Maryland REDD+ - related monitoring research, REDD+ and CARPE Technical Toolkit Workshop, Arlington, VA, May 15-16, 2013.

Hansen, M.C., Potapov, P., Turubanova, S., Egorov, A., Tyukavina, A., Loveland, T., Giri, C., Roy, D., Moore, R., Hancher, M., Thau, D., Ilyushchenko, S., Goetz, S., and Baccini, A., Defining forest monitoring terms for area extent and change, Prince's Rainforest Project Meeting: Critical Challenges and Opportunities for Tropical Forest Science, London, May 7-8, 2012.

Hansen, M.C., Potapov, P., Turubanova, S., Egorov, A., Tyukavina, A., Loveland, T., Giri, C., Roy, D., Moore, R., Hancher, M., Thau, D., Ilyushchenko, S., Goetz, S., and Baccini, A., Data and processing for global land monitoring, Prince's Rainforest Project Meeting: Critical Challenges and Opportunities for Tropical Forest Science, London, May 7-8, 2012.

Hansen, M.C., Goetz, S., Townsend, P., Ustin, S., and Green, R., Future direction in passive optical remote sensing, Breakout group report, NASA Terrestrial Ecology Meeting, La Jolla, CA, April 29 – May 2, 2013

Hansen, M.C., Potapov, P., Turubanova, S., Egorov, A., Tyukavina, A., Loveland, T., Giri, C., Roy, D., Moore, R., Hancher, M., Thau, D., Ilyushchenko, S., Goetz, S., and Baccini, A., Towards global land monitoring with Landsat data, IUCN Red List of Ecosystems Workshop, Boulder, CO, Apr. 22-25, 2013.

Hansen, M.C., Potapov, P., Turubanova, S., Egorov, A., Tyukavina, A., Loveland, T., Giri, C., Roy, D., Moore, R., Hancher, M., Thau, D., Ilyushchenko, S., Goetz, S., and Baccini, A., Towards global land monitoring, GOF-C-GOLD Implementation Team Meeting, Wageningen, Netherlands, April 16-20, 2013.

Hansen, M.C., Potapov, P., Margono, B., Mane, L., Capacity building for national-scale forest monitoring in Indonesia, the Congos, and Peru, GOF-C-GOLD Implementation Team Meeting, Wageningen, Netherlands, April 16-20, 2013.

Hansen, M.C., Potapov, P., Margono, B., and Bankanza, Bwangoy, National-scale wetland characterization, SWAMP South America Workshop Agenda, Feb. 26-27, 2013.

Hansen, M.C., Potapov, P.V., Turubanova, S., Tyukavina, A., Egorov, A., Roy, D., Moore, R., Hancher, M., Thau, D., Ilyushchenko, S., Goetz, S., Baccini, A., Loveland, T., and Giri, C., Towards monitoring of global land dynamics with Landsat data, Michigan Tech University, Ann Arbor, Michigan, February 14, 2013.

Hansen, M.C., Chair, Roundtable Discussion: Towards a Robust and Internationally Recognized Deforestation Accounting Methodology, hosted by the President's Delivery Unit on Development Monitoring and Oversight (UKP4) for Indonesia, Jakarta, Indonesia, February 7-8, 2013.

Hansen, M.C., Forest classification, "Building REDD+ Reference Levels" – a WWF-FCPF Technical Workshop, Washington, D.C., Jan. 28-29, 2013.

Hansen, M.C., Potapov, P.V., Turubanova, S., Tyukavina, A., Egorov, A., Roy, D., Moore, R., Hancher, M., Thau, D., Ilyushchenko, S., Goetz, S., Baccini, A., Loveland, T., and Giri, C., Towards monitoring of global forest disturbance with Landsat data, Identifying the Top 10 Conservation Challenges that Can Be Answered Through Remote Sensing Technologies, National Conservation Training Center, Shepardstown, West Virginia, January 7-11, 2013.

## **2012**

M. Hansen, INCAS (Indonesian National Carbon Accounting Systems) meeting in Jakarta. November 13 – 17, 2012.

M. Hansen, LUC emissions, data and modeling meeting, Exeter, United Kingdom. October 17 – 19, 2012.

Hansen, M.C., Potapov, P.V., Turubanova, S., Tyukavina, A., Egorov, A., Roy, D., Moore, R., Hancher, M., Thau, D., Ilyushchenko, S., Goetz, S., Baccini, A., Loveland, T., and Giri, C., Towards monitoring of global land dynamics, SBSC Launch symposium "Spatial Biodiversity Science and Conservation at a Global Scale", Yale University, New Haven, Connecticut, October 23-24, 2012.

Hansen, M.C., Carpe and earth observation science, presentation to Jane Goodall and team from the Jane Goodall Institute, College Park, Maryland, October 12, 2012.

Hansen, M.C., Potapov, P.V., Turubanova, S., Egorov, A., and Tyukavina, A., Large area forest monitoring with Landsat, ForestSAT 2012, Corvallis, Oregon, September 11-14, 2012.

Hansen, M.C., Mueller, R., Loveland, T., Stehman, S., Becker-Reshef, I., Rudorff, B., Shimabukuro, Y., DiBella, C., and McCarty, J., Integrating MODIS crop characterization capabilities with AWiFS and agricultural survey data in support of USDA NASS DSS and Advancing methods for global crop area estimation, NASA Applied Sciences Program, Water Resources PI Team Meeting, NASA Ames Research Center, Moffett Field, California, September 5-6, 2012.

Hansen, M.C., Potapov, P.V., and Turubanova, S., Forest Cover Monitoring with Landsat and MODIS Data, Presentation to the Peru Ministry of Environment, Lima, Peru, July 20, 2012.

Hansen, M.C., Potapov, P.V., Turubanova, S., and Tyukavina, S., Sixth GEO-FCT Workshop on Forest Monitoring, San Jose, Costa Rica, August 20-24, 2012.

Hansen, M.C., Justice, C., Becker-Reshef, I., Dempewolf, J., Sullivan, M., Guindin, N., Adusei, B., King, L., Noel, J. and Ernst, C., Monitoring croplands with MODIS and Landsat data, The National Space Agency of Pakistan (SUPARCO), Islamabad, Pakistan, June 22, 2012.

Hansen, M.C., CARPE and earth observation science, United States Agency for International Development Geographic Intelligence Center, Washington, DC, May 29, 2012.

Hansen, M.C., Potapov, P.V., DiMiceli, C., Sohlberg, R., and Carroll, M., MODIS continuous fields for large area monitoring of land cover, MODIS Science Team Meeting, Silver Spring, MD, May 7-8, 2012.

Hansen, M.C., Potapov, P.V., and Turubanova, S., National-scale monitoring of Indonesia forest cover, Indonesia One Map Study Visit, USGS Headquarters, Reston, VA, April 24, 2012.

Hansen, M.C., Potapov, P.V., and Turubanova, S., Methods overview for national-scale monitoring of Indonesia forest cover, Forest mapping and monitoring workshop, Indonesia Space Agency Headquarters, Jakarta, Indonesia, April 16-20, 2012.

Hansen, M.C., Global cultivated soybean area estimation using multi-resolution, multi-temporal satellite data sets, Opening of Joint Center on Global Change and Earth System Science between the University of Maryland and Beijing Normal University, College Park, MD, February 28, 2012.

## **2011**

Hansen, M.C., Potapov, P., Turubanova, S., Loveland, T., Giri, C., Roy, D., and Egorov, A., Global land cover monitoring – progress and remaining challenges, International Symposium on Remote Sensing and GIS Methods for Change Detection and Spatio-temporal Modelling, Hong Kong, China, December 14-17, 2011.

Hansen, M.C., Potapov, P., Turubanova, S., Roy, D., Egorov, A., Loveland, T., and Giri, C., Mapping national land cover disturbance for the continental United States, American Geophysical Union Annual Meeting, San Francisco, CA, December 5-9, 2011.

Hansen, M.C., Potapov, P., Turubanova, S., Roy, D., Egorov, A., Loveland, T., and Giri, C., Monitoring U.S. land cover change, National Climate Assessment (NCA) Land Use-Land Cover (LULC) National Stakeholder Workshop, Salt Lake City, November 29-December 1, 2011.

Hansen, M.C., Potapov, P., Turubanova, S., Loveland, T., Giri, C., Roy, D., and Egorov, A., Forest cover monitoring with MODIS and Landsat data, Presentation to the Peru Ministry of Environment, Lima, Peru, November 18, 2011.

Hansen, M.C., Potapov, P., Turubanova, S., Loveland, T., and Giri, C., Global land cover mapping, PECORA 18 – Forty Years of Earth Observations...Understanding a Changing World, Herndon, VA, November 14-17, 2011.

Hansen, M.C., Potapov, P.V., Turubanova, S., Arunarwati, B., and Broich, M., MODIS and Landsat regional products – example of Indonesia forest monitoring, Workshop of Land Cover Land Use Change, Southeast Asia, Hanoi, Vietnam, November 5-11, 2011.

Hansen, M.C. and Potapov, P.V., Challenges to quantifying degradation using Landsat data, SilvaCarbon Workshop on Forest Degradation and Associated Emissions, Westin Hotel, Washington, D.C., October 24-26, 2011.

Hansen, M.C., Wetland mapping in Indonesia – examples of potential data inputs, Indonesia One Map Initiative Team Meeting, United States Forest Service International Programs Office, Washington, D.C. October 12, 2011.

Hansen, M.C., Global crop type assessment – soybean area estimation, Carbon Cycle and Ecosystems Science Joint Workshop, Land Cover and Land Use Change program side session, Alexandria, VA, October 3-7, 2011.



Hansen, M.C., Advancing methods for global crop area estimation, Chinese Academy of Agricultural Engineering, Beijing, China and Harbin, China, September 26-30, 2011.

Hansen, M.C., Global land cover data sets, Characterizing and Validating Global Agricultural Landcover, IIASA Conference Center, Laxenburg, Austria, June 13-15, 2011

Hansen, M.C., The Geographic Information Science Center of Excellence, Presentation to visiting Department of Interior dignitaries, SDSU, Brookings, SD, May 23, 2011

Hansen, M.C., Potapov, P., Stehman, S., Egorov, A., Broich, M., Turubanova, S., Adusei, B., Arunarwati, B., Roy, D., Lindquist, E., and Goetz, S., Towards global land cover change monitoring, MODLAND Science Team Meeting, Adelphi, MD, May 18-20, 2011.

Hansen, M.C., Global land cover monitoring using remotely sensed data sets, Series of presentation to faculty, staff and students at the Institut National Polytechnique de Toulouse (INPT), Ecole Nationale Supérieure Agronomique (ENSAT), Toulouse, France, May 3-13, 2011.

Hansen, M.C., The Geographic Information Science Center of Excellence, Presentation to the South Dakota State University Board of Trustees, SDSU Union, Brookings, SD, April 29, 2011

Hansen, M.C., Potapov, P., Egorov, A., Broich, M., Turubanova, S., Adusei, B., Arunarwati, B., Roy, D., and Ju, J., Forest cover mapping, SilvaCarbon Workshop on Estimating Forest Carbon Stocks, International Programs Office of the U.S. Forest Service, Washington, DC, April 18-19, 2011.

Hansen, M.C., Potapov, P., Egorov, A., Broich, M., Turubanova, S., Adusei, B., Arunarwati, B., Roy, D., and Ju, J., Towards global monitoring of forest cover, 34<sup>th</sup> International Symposium on Remote Sensing of Environment, Sydney, Australia, April 10-15, 2011.

Hansen, M.C., Potapov, P., Egorov, A., Broich, M., Turubanova, S., Adusei, B., Arunarwati, B., Roy, D., and Ju, J., National-scale mapping of land cover and change with Landsat data, NASA LCLUC program meeting, Adelphi, MD, March 28-30, 2011.

## **2010**

Hansen, M.C., Potapov, P., Broich, M., Turubanova, S., Adusei, B., and Arunarwati, B., National scale disturbance mapping in support of REDD monitoring systems, American Geophysical Union Annual Meeting, San Francisco, CA, December 13-17, 2010.

Hansen, M.C., Google Earth Engine, UNFCCC Conference of the Parties 16 side-event sponsored by Google, (presented on Landsat data policy and cloud computing, with Mexico example), Cancun, Mexico, December 2, 2010.

Hansen, M.C., Towards 30m global land cover, EROS visit by Matt Larsen (Associate Director, USGS) and Anne Castle (DOI Assistant Secretary for Water and Science), November 3-4, 2010.

Hansen, M.C., Fundamentals of remote sensing and forest cover and change mapping, Technical Training and Planning Workshop – Quantifying Forest Degradation and Associated Greenhouse Gas Emissions in the Republic of Congo, Brazzaville, Republic of Congo, October 12-18, 2010.

Hansen, M.C., Mane, L., and Souza, C., Présentation des méthodologies de mesure et de suivi des changements de la couverture forestière et de la dégradation, Technical Training and Planning Workshop – Quantifying Forest Degradation and Associated Greenhouse Gas Emissions in the Republic of Congo, Brazzaville, Republic of Congo, October 12-18, 2010.

Hansen, M.C., Potapov, P., Broich, M., Stehman, S., Turubanova, S., Adusei, B., Arunarwati, B., Roy, D., and Lindquist, E., Global land cover monitoring using remotely sensed data sets, University of North

Carolina at Charlotte Department of Geography and Earth Sciences seminar, Charlotte, NC, September 24, 2010.

Hansen, M.C., Potapov, P.V., Broich, M., and Arunarwati, B., Monitoring Indonesia forest cover and change, U.S. Forest Service meeting on REDD Monitoring, Reporting and Verification in Indonesia, Boise, ID, September 14, 2010, (via teleconference)..

Hansen, M.C., The Geographic Information Science Center of Excellence, SDSU campus visit by Senator Tim Johnson and USGS Director Marcia McNutt, September 1, 2010

Hansen, M.C., Towards 30m global land cover, EROS visit by the Office of Management and Budget, August 17-18, 2010.

Hansen, M.C., Potapov, P.V., Stehman, S.V., and Broich, M., MODIS VCF and change: Global disturbance monitoring, IEEE Geoscience and Remote Sensing Society 2010 annual meeting, Honolulu, HI, July 25-30, 2010.

Hansen, M.C., Potapov, P.V., Stehman, S.V., Broich, M., and Arunarwati, B., Forest mapping and monitoring with Landsat data, REDD MRV Workshop, Ford Foundation, Jakarta, Indonesia, July 20, 2010.

Hansen, M., Potapov, P., Broich, M., Turubanova, S., Adusei, B., Arunarwati, B., and Stehman, S., Global forest change monitoring system using multi-resolution and multi-temporal remotely sensed data, Living Planet Symposium, Bergen, Norway, June 27 – July 2, 2010.

Hansen, M., Potapov, P., Broich, M., Turubanova, S., Adusei, B., Arunarwati, B., Lindquist, E., Roy, D., Altstatt, A., Mane, L., Justice, C., and Goetz, S., GEO Forest Carbon Tracking Task and Science Data Summit, Woods Hole Research Center, Woods Hole, MA, May 11-12, 2010.

Hansen, M., Potapov, P., Broich, M., Stehman, S., Turubanova, S., Adusei, B., Arunarwati, B., Lindquist, E., and Goetz, S., Producing Composite Imagery and Forest Cover and Change Characterizations, NASA LCLUC program meeting, Bethesda, MD, April 20-22, 2010.

Hansen, M.C., Pittman, K., Annual corn and soybean cultivated area estimation for the United States using MODIS data, Association of American Geographers Annual Meeting, Washington, D.C., April 14-18, 2010.

Hansen, M. and Potapov, P., MODIS VCF-based forest cover change, in Earth Science Data Records (ESDR) of Global Forest Cover Change – Science Review, NASA MEASURES program science review, College Park, MD, April 10, 2010.

Hansen, M., Global environmental change quantified from space, Leadership Brookings Meeting, Brookings, SD, March 11, 2010.

Hansen, M., Potapov, P., Broich, M., Lindquist, E., and Adusei, B., Mass Processing Landsat for Monitoring Forest Cover Changes in the Humid Tropical and Boreal Biomes, Landsat Science Team Meeting, Mountain View, CA, January 19-21, 2010.

Hansen, M., Pittman, K., Adusei, B., Mueller, R., Johnson, D., Feedstock crop type mapping project, North Central Region Sun Grant Annual Meeting, Reno, NV, January 12-13, 2010.

Hansen, M., Potapov, P., Stehman, S., Broich, M., Adusei, B., and Lindquist, E., Global Forest Change Monitoring System Using Multi-Resolution and Multi-Temporal Remotely Sensed Data, Norwegian Space Center, Oslo, Norway, January 11-12, 2010, (via teleconference).

## **2009**

Hansen, M., Methods for mapping cloud and shadow cover in Landsat imagery, Training workshop on Landsat mapping in support of INCAS, Indonesian Space Agency (LAPAN), Jakarta, Indonesia, December 14-17, 2009.

Hansen, M., Workshop on multi-temporal, multi-spectral agricultural monitoring methods for crop cover estimation, Chinese Academy of Agricultural Engineering, Chinese Ministry of Agriculture, Beijing, China, November 22, 2009.

Hansen, M., Pittman, K., Adusei, B., Mueller, R., and Johnson, D., Mapping crop type in support of USDA agriculture monitoring, GIScCE, Geographic Information Science Center of Excellence Spring Seminar Series, South Dakota State University, Brookings, SD, December 7, 2009.

Hansen, M., Stehman, S., Potapov, P., Broich, M., Lindquist, E., Adusei, B. and Arunarwati, B., Methods for monitoring large area forest cover change – OSFAC's implementation in support of CARPE, OSFAC (Observatoire Satellital des Forêts d'Afrique Centrale), Kinshasa, Democratic Republic of the Congo, October 21, 2009.

Hansen, M., Potapov, P., Broich, M., and Lindquist, E., *Mass Processing Landsat for Forest Change Estimation*, American Society of Photogrammetry and Remote Sensing Upper Midwest Chapter Meeting, USGS EROS, Garretson, SD, October 5-7, 2009.

Hansen, M., Stehman, S., Potapov, P., Broich, M., Lindquist, E., Adusei, B. and Arunarwati, B., Global Forest Cover Monitoring Using Remotely Sensed Data Sets, Ecology & Environmental Biology seminar, South Dakota State University, Brookings, SD, September 24, 2009.

Hansen, M., Potapov, P., Broich, M., Turubanova, S., Adusei, B., and Lindquist, E., Global forest monitoring using Landsat, Landsat User Workshop, USGS EROS, Garretson, SD, September 21, 2009.

Hansen, M., Mapping algorithms and themes for forest cover mapping using multi-spectral data sets, Training workshop on MODIS and Landsat mapping in support of INCAS, Indonesian Space Agency (LAPAN), Jakarta, Indonesia, August 18-21, 2009.

Hansen, M., Bankanza, B., Munzimi, Y., Broich, M., Lindquist, E., and Potapov, P., Congo Basin forest cover in global and regional contexts, Central Africa Forests and Institutions (CAFI) research project advisory meeting, Ann Arbor, MI, May 7-8, 2009.

Hansen, M., Stehman, S., Potapov, P., Broich, M., Lindquist, E., Adusei, B. and Arunarwati, B., Global forest cover loss, 2000 to 2005, Geographic Information Science Center of Excellence Spring Seminar Series, South Dakota State University, Brookings, SD, April 20, 2009.

Hansen, M. and Potapov, P., Global tree cover mapping and Landsat sample block staging, FRA2010 Remote Sensing Survey workshop, Rome, Italy, March 30 – April 3, 2009.

Hansen, M., Potapov, P., Stehman, S., and Pittman, K., Global gross forest cover loss and carbon release, Association of American Geographers Annual Meeting, Las Vegas, NV, March 22-29, 2009.

Hansen, M., Pittman, K., and Chang, J., Biofuel Feedstock Mapping: Integrating MODIS and AWIFS Data for Operational Crop Type Monitoring, American Society of Photogrammetry and Remote Sensing Annual Meeting, Baltimore, MD, March 9-13, 2009. (given by Rick Mueller of USDA NASS SARS)

Hansen, M.C., Stehman, S.V., Potapov, P.V., Arunarwati, Usman, A.B., Rahman, S., Sari, R., Napitupulu, D., Lindquist, E., Broich, M., and Bankanza, B., Using MODIS and Landsat to monitor forest cover: examples in support of Indonesia forest monitoring, Remote Sensing Meeting in Support of the Indonesian National Carbon Accounting System, February 9-11, 2009.

Hansen, M.C., Stehman, S.V. and Potapov, P.V., Global forest cover loss, 2000-2005, REDD Capacity Development Workshop on: Forest Area Change Assessment: The Experience of Existing Operational Systems, INPE, San Jose dos Campos, Brazil, February 4-6, 2009.

Hansen, M.C., Stehman, S.V., Potapov, P.V., Arunarwati, Usman, A.B., Rahman, S., Sari, R., Napitupulu, D., Lindquist, E., Broich, M., and Bankanza, B., Indonesia and the Democratic Republic of Congo: Using MODIS and Landsat to monitor forest cover change, REDD Capacity Development Workshop on: Forest Area Change Assessment: The Experience of Existing Operational Systems, INPE, San Jose dos Campos, Brazil, February 4-6, 2009.

Hansen, M. C., Brazil's Forest Ecosystems in the Context of Global Forest Cover Loss, Symposium on Brazil: A Rising Power in the New Global Order, South Dakota State University, January 30, 2009.

Hansen, M.C., Justice, C.O., Potapov, P.V., Stehman, S.V., Lindquist, E., and Broich, M., Using MODIS and Landsat for monitoring forest cover and change, NASA-LCLUC Science Team Joint Meeting with MAIRS, GOFC-GOLD and SEA START Programs on Land-Cover/Land-Use Change Processes in Monsoon Asia Region, Khon Kaen, Thailand, January 12-17, 2009.

## **2008**

Hansen, M.C., Stehman, S.V., Potapov, P.V., Lindquist, E., and Broich, M., Monitoring large area forest cover change using multi-resolution satellite data sets, American Geophysical Union fall meeting, San Francisco, CA. December 15-19, 2008.

Hansen, M.C., FAO/FRA 2010 block processing update – proposed approach, FAO FRA 2010 Remote Sensing Survey Project Review Meeting, Ispra, Italy, November 20-21, 2008.

Hansen, M.C., Stehman, S. V., and Potapov, P. V., Mapping the Boreal zone – forest cover and forest cover loss 2000 to 2005, 3<sup>rd</sup> GOFC-GOLD Land Cover Symposium, Jena, Germany, October 12-17, 2008.

Hansen, M.C., Accuracy assessment of land cover change products – MODIS/Landsat, 3<sup>rd</sup> GOFC-GOLD Land Cover Symposium, Jena, Germany, October 12-17, 2008.

Hansen, M.C., MODIS/Landsat monitoring, 3<sup>rd</sup> GOFC-GOLD Land Cover Symposium, Jena, Germany, October 12-17, 2008.

Hansen, M.C., Forest monitoring integrating MODIS and Landsat data sets, Forest Resources Information System Workshop, Ministry of Forestry, Indonesia, Jakarta, Indonesia, September 11, 2008.

Hansen, M.C., Remote sensing and terrestrial monitoring systems, Seminar given to the Catholic University of Louvain Unit of Environmetrics and Geomatics, June 9, 2008, Louvain-la-Neuve, Belgium.

Hansen, M.C., Mueller, R., Pittman, K., and Chang, J., Mapping feedstocks using remotely sensed datasets, South Dakota and Biofuels 2008 meeting sponsored by South Dakota Agriculture and Energy, North Central Sun Grant Initiative, and the Western Governor's Association, May 20, 2008, Brookings, SD.

Hansen, M.C., Potapov, P., Stehman, S., Pittman, K., Loveland, T., Carroll, M., and DiMiceli, C., Mapping the Boreal zone – forest cover and forest cover loss 2000 to 2005, 2008 NASA Carbon Cycle and Ecosystems Joint Science Workshop, April 28-May 2, 2008, Adelphi, MD.

Hansen, M.C., Pittman, K., Chang, J., Carroll, M., and DiMiceli, C., MODIS Vegetation Continuous Fields of Crop Type in Support of NASS Annual Crop Indicator Mapping, Association of American Geographers Annual Meeting, Boston, MA, April 15-19, 2008.

Hansen, M.C. et al., CARPE monitoring of the Congo Basin – results and ideas for REDD monitoring, CBFP-COMIFAC Workshop on REDD, Paris, France, April 10-14, 2008.

Hansen, M.C., Potapov, P., Pittman, K., and Stehman, S., Biome-scale forest cover loss monitoring in support of FRA 2010, 1st Meeting of the FRA 2010 Remote Sensing Task Force, 4-5 March 2008, Rome, Italy.

Hansen, M. C., Convergence of evidence for global warming, Focus the Nation on Global Warming, January 30-31, 2009, *South Dakota State University*, Brookings, SD.

## **2007**

Hansen, M.C., Forest cover monitoring of the Congo Basin, CIFOR Forest Day UNFCCC Side-Event, December 8, 2007, Nusa Dua, Bali, Indonesia.

Hermawan, I. and Hansen, M.C., Indonesia forest monitoring, Indonesian Forestry Action for Reducing Emissions Workshop, Ministry of Forestry of Indonesia, December 6-7, 2007, Nusa Dua, Bali, Indonesia.

Hansen, M.C., Stehman, S., Potapov, P., Pittman, K., and Loveland, T., Pan-tropical forest clearing, 2000-2005, American Geophysical Union fall meeting, San Francisco, CA. December 10-15, 2007.

Loveland, T.R., and Hansen, M.C., Trends in mapping, measuring and monitoring land cover change, American Geophysical Union fall meeting, San Francisco, CA. December 10-15, 2007.

Hansen, M.C., REDD and FRA 2010 activity, GOFC-GOLD Executive Committee and LC-IT Planning meeting, October 23-26, 2007, Boston, MA.

Hansen, M. C., Monitoring deforestation with remote sensing (can we estimate carbon stocks in a robust, consistent, affordable way at the national level), 2007 Science for Nature Symposium: Reducing Emissions from Deforestation, World Wildlife Fund, October 18-19, 2007, Washington, D. C.

Hansen, M. C., Convergence of evidence for global warming, South Dakota Climate Challenge Conference: Strategies for the Future, September 28-30, 2007, South Dakota Wildlife Federation, Sioux Falls, SD.

Hansen, M. C., MODIS/Landsat forest cover and change estimation for Indonesia, address delivered to the Minister of Forestry of Indonesia, Malam Sambat Kaban, and his staff, Ministry of Forestry of Indonesia, August 28, 2007, Jakarta, Indonesia.

Hansen, M.C., Chang, J. and Pittman, K., Monitoring global and regional croplands using MODIS data, Association of American Geographers Annual Meeting, April 17-21, 2007, San Francisco, CA.

Hansen, M.C., Establishing a global forest monitoring capability using multi-resolution and multi-temporal remotely sensed data sets, NASA Land Cover and Land Use Change Science Team Meeting, April 4-6, 2007, College Park, MD.

Hansen, M.C., The Geographic Information Science Center of Excellence, South Dakota State University Research Day, January 25, 2007.

## **2006**

Hansen, M.C., MODIS time-series maps of sub-pixel land cover, USFS RSAC Forest Disturbance Mapping Workshop, November 29-30, 2006, Salt Lake City, UT.

Hansen, M.C., Monitoring global land cover, Global Vegetation Workshop Break-Out Group on Land Cover and Change Monitoring (session chair), August 8-10, 2006, Missoula, MT.

Wardoyo, W., Hansen, M.C., and Arunarwati, B., Forest monitoring system using MODIS: Preliminary study in Indonesia, World Resources Institute Meeting on the Use of a New Remote Sensing Product in Forest Law Enforcement and Governance in Indonesia, August, 3, 2006, Washington, DC.

Hansen, M.C., Mapping tropical forest change using remotely sensed data sets, World Resources Institute Meeting on the Use of a New Remote Sensing Product in Forest Law Enforcement and Governance in Indonesia, August, 3, 2006, Washington, DC.

Hansen, M.C., The Geographic Information Science Center of Excellence, South Dakota Board of Regents Meeting, June 22, 2006, Brookings, SD.

Hansen, M.C., Mapping tropical forest change using remotely sensed data sets, 37th Annual South Dakota State Geography Convention, April 6-7, 2006, Brookings, SD.

Hansen, M. C., State of the forest and remote sensing, State of the Forest 2006 Meeting, Congo Basin Forest Partnership, March 15-17, 2006, Kinshasa, Congo.

Hansen, M.C., Tropical forest monitoring integrating MODIS percent tree cover maps and Landsat data, GOF-C-GOLD Symposium on Forest and Land Cover Observations, March 21-25, 2006, Jena, Germany.

## **2005**

Hansen, M. C., Townshend, J. R. G., Loveland, T. R., Pittman, K., and Carroll, M., Multi-Resolution Methods for Mapping Tropical Forest Change, American Geophysical Union Fall Meeting, San Francisco, December 5-9, 2005, U.S.A.

Townshend, J. R. G., Hansen, M. C., Sohlberg, R. A., DeFries, R. S., and Schleeweis, K., Towards A Community Protocol for Validating Global Climate Data Records Representing Sub-Pixel Land Cover Components and Changes Through Time Using AVHRR, MODIS and VIIRS, American Geophysical Union Fall Meeting, San Francisco, December 5-9, 2005, U.S.A.

Hansen, M. C., Multi-Resolution, Multi-Temporal Global Forest Monitoring Using MODIS and Landsat Data, Second International Conference "Earth from Space – The Most Effective Solutions", ScanEx, Inc., Moscow, December 1-2, 2005, Russia.

Hansen, M. C., Improving global land cover mapping using remotely sensed data sets, Department of Geography, University of Minnesota, Minneapolis, November 11, 2005, U.S.A.

Hansen, M. C., Monitoring global land cover using sub-pixel cover estimations, Pecora 16, Sioux Falls, October 23-27, 2005, U.S.A.

Laestadius, L., Hansen, M. C., and Ranganathan, J., Independent, operational forest monitoring tools that support FLEG & FLEGT, United Nations Forum on Forests, Fifth Session, New York, 16 - 27 May 2005, U.S.A.

Hansen, M. C., Global forest change mapping using MODIS data from 2000 to 2004, American Association of Geographers Annual Meeting, Denver, April 5 - 9, 2005, USA.

Hansen, M. C., Operational monitoring of Indonesian forest cover using MODIS data, Workshop on Forest Monitoring System Using Remote Sensing Data, Indonesian Ministry of Forestry, Jakarta, March 29, 2005, Indonesia

Hansen, M. C., Operational monitoring of global percent tree cover, 3rd Expert Meeting on Harmonizing Forest-related Definitions for Use by Various Stakeholders, United Nations Food and Agriculture Organization, Rome, January 17-19, 2005, Italy.

### **2004 and prior**

Hansen, M. C., Townshend, J. R. G., and DeFries, R. S., Validating global continuous fields of vegetative cover – an update, Committee on Earth Observing Satellites Land Cover Validation Workshop, Boston University, February 2-4, 2004.

Hansen, M. C., Tree cover mapping in the Kalahari Transect using multi-resolution data sets, SAFARI 2000 Synthesis Workshop, October 2002, Charlottesville, Virginia.

Hansen, M. C., DeFries, R. S., Townshend, J. R. G., and Sohlberg, R. A., Continuous fields of tree cover for the United States using multi-resolution satellite data, 9<sup>th</sup> Forest Service Remote Sensing Applications Conference, April 2002, San Diego, California.

Hansen, M. C., Global mapping of forest cover, address to the Service Permanent d'Inventaire et d'Amenagement Forestier, Government of the Democratic Republic of the Congo, March 2002, Kinshasa, DRC.

Hansen, M. C., DeFries, R. S., Zhan, X., Sohlberg, R. A., and Townshend, J. R. G., Continuous fields of vegetation characteristics from MODIS data, American Geophysical Union, December, 2000.

Hansen, M. C., Towards operational global forest monitoring using remotely sensed data, Meeting of the Mid-Atlantic Division of the Association of American Geographers, October 2000, Washington, D. C.

Hansen, M. C. and Townshend, J. R. G., Validating global land cover data sets, 19<sup>th</sup> ISPRS Congress, July 2000, Amsterdam, Netherlands.

Hansen, M. C., and DeFries, R. S., Continuous fields of vegetation properties derived from remotely sensed data, 96<sup>th</sup> Annual Meeting of the Association of American Geographers, April 2000, Pittsburgh, Pennsylvania.

Hansen, M. C., DeFries, R. S., Townshend, J. G. R. and Sohlberg, R. A., 1999, A global land cover classification at a spatial resolution of 1km, 95<sup>th</sup> Annual Meeting of the Association of American Geographers, March 1999, Honolulu, Hawaii.

### **Workshops hosted:**

“Workshop on product development and capacity building in support of the WRI Caucasus project,” June 22 – July 6, 2019, College Park, MD.

“Capacity building workshop in support of the USGS Laos project,” July 27 – August 11, 2019, College Park, MD.

“Workshop on forest monitoring and change map products.” November 4 – December 6, 2019, College Park, MD.

“Introduction to national-scale cropland mapping, GEOGLAM National-scale Cropland Mapping Workshop,” March 5 – 9, 2018, College Park, MD.

“Workshop on crop monitoring and soybean area estimation”, December 1-2, 2016, Florianopolis, Brazil.

“CEOS WGCV and GOF-C-GOLD Global Vegetation Continuous Fields Validation Workshop,” October 27-28, 2005, Brookings, SD.

#### **Field work study areas:**

Maryland, USA, June 1999, over 10 sites of *in situ* tree crown/canopy cover data  
Western Province, Zambia, March 2000, 42 sites of *in situ* tree crown/canopy cover data  
Colorado, USA, July 2000, 15 sites of *in situ* tree crown/canopy cover data  
California, USA, July 2000, 15 sites of *in situ* tree crown/canopy cover data  
Oregon/Washington, USA, August 2000, 15 sites of *in situ* tree crown/canopy cover data  
Bandundu, Democratic Republic of the Congo, March 2002, drive-by survey of forest/non-forest cover  
Federal District, Brazil, June 2003, 8 sites of *in situ* tree crown/canopy cover data  
Mato Grosso, Brazil, June 2003, 10 sites of *in situ* tree crown/canopy cover data  
Rondonia, Brazil, July 2003, 8 sites of *in situ* tree crown/canopy cover data  
Wisconsin, USA, June 2006, 2 test areas of *in situ* tree crown/canopy cover data  
South Dakota, USA, August 2006 and 2008, 2 test areas of *in situ* tree crown/canopy cover data  
Minnesota, USA, August 2009, 1 test area of *in situ* tree crown/canopy cover data  
North Dakota, USA, August 2010, 2 test areas of *in situ* tree crown/canopy cover data  
Brazil and Argentina, January-February 2017, soybean survey  
Republic of Congo, June 2015, forest inventory data collection  
USA, August 2017, soybean survey  
Brazil and Argentina, January-February 2018, soybean survey  
USA, August 2018, soybean survey  
Brazil, Argentina and Uruguay, January-February 2018, soybean survey  
USA, August 2018, soybean survey  
Brazil, Paraguay, Argentina and Uruguay, January-February 2019, soybean survey  
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Guest on “Innovation”, South Dakota Public Broadcasting program hosted by Cara Hetland, January 14, 2011.

Guest on “Viewpoint University,” KSOO program hosted by Ruth Aartun, December 21, 2010.

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### **Professional memberships:**

Landsat Science Team Member

Mapbiomas Scientific Advisory Board

Invited Member – GEOSS Expert Advisory Committee – 2018

Senior Fellow at the World Resources Institute – June 2015 - present

Associate Team Member, MODIS land science team, National Aeronautics and Space Administration

Land Cover Implementation Team Member, GOF-C-GOLD

Association of American Geographers

American Geophysical Union

GeoBon Implementation Team – 2014-2017

Land Processes Distributed Active Archive Center User Working Group member – 2014- 2017

SLEEK Advisory Panel invited member – Sept 2, 2014 – August 31, 2015

### **Foreign languages:**

Kikongo (fluent), Lingala (working knowledge), French (working knowledge)