

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- 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:

Geography of Sub-Saharan Africa, 300-level course of 25 students, University of Maryland, fall, 2012.

Land Cover Characterization, graduate remote sensing course, enrollment of 10 students, Spring 2012

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.

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*, fourth year.

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*, fourth year, NASA Earth System Science Fellowship Award Winner.

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

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*, second year.

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

Primary Advisor: Mary LeeAnn King, Ph.D. student, University of Maryland, Department of Geographical Sciences, *Advancing global soybean cultivated area estimation*, fourth 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*, second year

Primary Advisor: Maria Rivera, Ph.D. student, University of Maryland, Department of Geographical Sciences, *Reducing Emissions from Deforestation and forest Degradation – assessment of Congo Basin activities*, first year

Primary Advisor: Confiance Mfuka, M.S. in Geography, South Dakota State University, *Relating in situ forest structure data to Landsat-derived forest cover extent and loss data*, second year..

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.

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)*, fourth year, NASA Earth System Science Fellowship Award Winner.

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.

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*, second year.

Peer-reviewed publications:

Bwangoy, J.-R.B.B., Hansen, M.C., Potapov, P., Turubanova, S., Lumbuenamo, R.S., 2013, Identifying nascent wetland forest conversion in the Democratic Republic of the Congo, *Wetlands Ecology and Management*, 21, 29-43.

Harris, N.L., Brown, S., Hagen, S.C., Saatchi, S.S., Petrova, S., Salas, W., Hansen, M.C., Potapov, P.V., and Lotsch, A., Baseline map of carbon emissions from deforestation in tropical regions, *Science*, 336, 1573-1576.

Margono, B.A., Turubanova, S., Zhuravleva, I., Potapov, P., Tyukavina, A., Baccini, A., Goetz, S., and Hansen, M.C., 2012, Mapping and monitoring deforestation and forest degradation in Sumatra (Indonesia) using Landsat time series data sets from 1990 to 2010, *Environmental Research Letters*, 7, doi:10.1088/1748-9326/7/3/034010.

Hansen, M.C., and Loveland, T.R., A review of large area monitoring of land cover change using Landsat data, *Remote Sensing of Environment*, 2012, 122, 66-74.

Potapov, P.V., Turubanova, S.A., Hansen, M.C., Adusei, B., Broich, M., Altstatt, A., Mane, L., and Justice, C.O., Quantifying forest cover loss in Democratic Republic of the Congo, 2000-2010, with Landsat ETM+ data, *Remote Sensing Environment*, 2012, 122, 106-116.

Potapov, P., Turubanova, S., Zhuravleva, I., Hansen, M., Yaroshenko, A., and Manisha, A., 2012, Forest cover change within the Russian European North after the breakdown of the Soviet Union (1990-2005), *International Journal of Forestry Research*, 2012, doi:10.1155/2012/729614.

Dieye, A.M., Roy, D.P., Hanan, N.P., Liu, S., Hansen, M., and Toure, A., 2012, Sensitivity analysis of the GEMS soil organic carbon model to land cover land use classification uncertainties under different climate scenarios in Senegal, *Biogeosciences*, 9, 631-648.

Houghton, R.A., House, J.I., Pongratz, J., van der Werf, G.R., DeFries, R.S., Hansen, M.C., Le Quere, C., and Ramankutty, N., Carbon emissions from land use and land-cover change, *Biogeosciences*, 9, 5125-5142.

Townshend, J.R., Masek, J.M., Huang, C., Vermote, E., Gao, F., Channan, S., Sexton, J.O., Feng, M., Narasimhan, R., Kim, D., Song, K., Song, D., Song, X.-P., Noojipady, P., Tan, B., Hansen, M.C., Li, M., and Wolfe, R.E., 2012, Global characterization and monitoring of forest cover using Landsat data: opportunities and challenges, *International Journal of Digital Earth*, DOI:10.1080/17538947.2012.713190.

Broich, M., Hansen, M., Stolle, F., Potapov, P., Margono, B.A. and Adusei, B., 2011, Remotely sensed forest cover loss shows high spatial and temporal variation across Sumatra and Kalimantan, Indonesia 2000-2008, *Environmental Research Letters*, 6, doi:10.1088/1748-9326/6/1/014010.

Broich, M., Hansen, M.C., Potapov, P., Adusei, B., Lindquist, E., Stehman, S.V., 2011, Time-series analysis of multi-resolution optical imagery for quantifying forest cover loss in Sumatra and Kalimantan, Indonesia, *International Journal of Applied Earth Observation and Geoinformation*, 13, 277-291.

Hansen, M.C., Egorov, A., Roy, D.P., Potapov, P., Ju, J., Turubanova, S., Kommareddy, I., and Loveland, T.R., 2011, Continuous fields of land cover for the conterminous United States using Landsat data: first results from the Web-Enabled Landsat Data (WELD) project, *Remote Sensing Letters*, 2, 279-288.

Potapov, P., Hansen, M.C., Gerrand, A.M., Lindquist, E.J., Pittman, K.; Turubanova, S., Løyche Wilkie, M., 2011, The global Landsat imagery database for the FAO FRA remote sensing survey, *International Journal of Digital Earth*, 4, 2-21.

- Stehman, S.V., Hansen, M.C., Broich, M., and Potapov, P.V., 2011, Adapting a global stratified random sample for regional estimation of forest cover change derived from satellite imagery, *Remote Sensing of Environment*, 115, 650-658.
- Fritz, S., You, L., Bun, A., See, L., McCallum, I., Schill, C., Perger, C., Liu, J., Hansen, M., and Obersteiner, M., 2011, Cropland for sub-Saharan Africa: A synergistic approach using five land cover data sets, *Geophysical Research Letters*, 38, DOI: 10.1029/2010GL046213.
- Pittman, K., Hansen, M.C., Becker-Reshef, I., Potapov, P.V., and Justice, C.O., 2010, Estimating global cropland extent with multi-year MODIS data, *Remote Sensing*, 2, 1844-1863.
- Scharlemann, J. P.W., Kapos, V., Campbell, A., Lysenko, I., Burgess, N.D., Hansen, M.C., Gibbs, H.K., Dickson, B. and Miles, L., 2010, Securing tropical forest carbon: the contribution of protected areas to REDD, *Oryx*, 44, 352-357.
- Hansen, M.C., Stehman, S.V., and Potapov, P.V., 2010, Quantification of global gross forest cover loss, *Proceedings of the National Academy of Sciences*, 107, 8650-8655.
- DeFries, R., Rudel, T., Uriarte, M., and Hansen, M., 2010, Deforestation driven by urban population growth and agricultural trade in the 21st century, *Nature Geoscience*, 3, 178-181.
- Potapov, P., Turubanova S., Hansen M.C., 2011, Regional-scale boreal forest cover and change mapping using Landsat data composites for European Russia, *Remote Sensing of Environment*, 115, 548-561
- Potapov, P., Hansen, M. C., Stehman, S. V., Pittman, K. and Turubanova, S., 2009, Gross forest cover loss in temperate forests: biome-wide monitoring results using MODIS and Landsat data, *Journal of Applied Remote Sensing*, 3, 1-23 [DOI: 10.1117/1.3283904].
- Wulder, M.A., White, J.C., Gillis, M.D., Walsworth, N., Hansen, M.C, Potapov, P., 2009, Multi-scale satellite and spatial information and analysis framework in support of a large-area forest monitoring and inventory update, *Environmental Monitoring and Assessment*. (DOI: 10.1007/s10661-009-1243-8.
- Bankanza, J-R.B., Hansen, M.C., Roy, D.P., DeGrandi, G., and Justice, C.O., 2009, Wetland mapping in the Congo Basin using optical and radar remotely sensed data and derived topographical indices, *Remote Sensing of Environment*, 114, 73-86.
- Roy, D.P., Junchang, J., Kline, K., Scaramuzza, P.L., Kovalsky, V., Hansen, M., Loveland, T.R., Vermote, E., and Zhang, C., 2009, Web-enabled Landsat data (WELD): Landsat ETM+ composited mosaics of the conterminous United States, *Remote Sensing of Environment*, 114, 35-49.
- Broich, M., Stehman, S.V., Hansen, M.C., Potapov, P., and Shimabukuro, Y.E., 2009, A comparison of sampling designs for estimating deforestation from Landsat imagery: A case study of the Brazilian Legal Amazon, *Remote Sensing of Environment*, 113, 2448-2454.
- Hansen, M.C., Stehman, S.V., Potapov, P.V., Arunarwati, B., Stolle, F., and Pittman, K., 2009, Quantifying changes in the rates of forest clearing in Indonesia from 1990 to 2005 using remotely sensed data sets, *Environmental Research Letters*, 4(3) doi: 10.1088/1748-9326/4/3/034001.
- Maeda, E.E., Formaggio, A.R., Shimabukuro, Y.E., Balue Arcoverde, G.F., and Hansen, M.C., 2009, Predicting forest fire in the Brazilian Amazon using MODIS imagery and artificial neural networks, *International Journal of Remote Sensing*, 11, 265-272.
- Lindquist, E. J., Hansen, M. C., Roy, D.P., and Justice, C.O., 2008, The suitability of decadal image data sets for mapping tropical forest cover change in the Democratic Republic of Congo: implications for the global land survey, *International Journal of Remote Sensing*, 29, 7269-7275.

Hansen, M.C., Shimabukuro, Y., Potapov, P., and Pittman, K., 2008, Comparing annual MODIS and PRODES forest cover change data for advancing monitoring of Brazilian forest cover, *Remote Sensing of Environment*, 112, 3784-3793.

Potapov P., Hansen M. C., Stehman S. V., Loveland T. R., Pittman K., 2008, Combining MODIS and Landsat imagery to estimate and map boreal forest cover loss, *Remote Sensing of Environment*, 112, 3708-3719.

Hansen, M. C., Stehman, S. V., Potapov, P. V., Loveland, T. R., Townshend, J. R. G., DeFries, R. S., Arunarwati, B., Stolle, F., Steining, M., Carroll, M., and DiMiceli, C., 2008, Humid tropical forest clearing from 2000 to 2005 quantified using multi-temporal and multi-resolution remotely sensed data, *Proceedings of the National Academy of Sciences*, 105, 9439-9444.

Hansen, M.C., Roy, D., Lindquist, E., Justice, C.O., and Altstaat, A., 2008, A method for integrating MODIS and Landsat data for systematic monitoring of forest cover and change in the Congo Basin, *Remote Sensing of Environment*, 112, 2495-2513.

Steining, M.K., Hansen, M., Townshend, J.R.G., Tucker, C.J., Skole, D., and DeFries, R., 2008, Convincing evidence of tropical forest decline, *Proceedings of the National Academy of Sciences*, 105, 34.

Achard F., DeFries, R., Eva, H., Hansen, M., Mayaux, P., Stibig, H-J., 2007, Improved pan-tropical observations and mid-resolution monitoring of deforestation, *Environmental Research Letters*, 2, 11.

Chang, J., Hansen, M.C., Pittman, K., Dimiceli, C., and Carroll, M., 2007, Corn and soybean mapping in the United States using MODIS time-series data sets, *Agronomy Journal*, 1654-1664.

Strahler, A. H., L. Boschetti, G. M. Foody, M. A. Friedl, M. C. Hansen, M. Herold, P. Mayaux, J. T. Morisette, S. V. Stehman, and C. E. Woodcock, 2006, *Global Land Cover Validation: Recommendations for Evaluation and Accuracy Assessment of Global Land Cover Maps*, Report of Institute of Environmental Sustainability, Joint Research Centre, European Commission, Ispra, Italy.

Hansen, M. C., Townshend, J. R. G., DeFries, R. S., and Carroll, M., 2005, Estimation of tree cover using MODIS data at global, continental and regional/local scales, *International Journal of Remote Sensing*, 26, 4359-4380.

Morton, D.C., DeFries, R.S., Shimabukuro, Y.E., Anderson, L.O., Del Bon Espírito-Santo, F., Hansen, M.C. and Carroll, M., 2005, Rapid Assessment of Annual Deforestation in the Brazilian Amazon Using MODIS Data, *Earth Interactions*, 9, Paper 8, [online journal].

Jasinski, E., Morton, D., DeFries, R., Shimabukuro, Y., Anderson, L., and Hansen, M., 2005, Physical Landscape Correlates of the Expansion of Mechanized Agriculture in Mato Grosso, Brazil, *Earth Interactions*, 9, Paper 16, [online journal].

DeFries, R., Hansen, A., Newton, A.C., and Hansen, M.C., 2005, Increasing isolation of protected areas in tropical forest over the past twenty years, *Ecological Applications*, 15, 19-26.

Hansen, M. C., and DeFries, R. S., 2004, Detecting long term global forest change using continuous fields of tree cover maps from 8km AVHRR data for the years 1982-1999, *Ecosystems*, 7, 695-716.

Hansen, M. C., DeFries, R. S., Townshend, J. R. G., Carroll, M., Dimiceli, C., and Sohlberg, R. A., 2003, Global percent tree cover at a spatial resolution of 500 meters: First results of the MODIS vegetation continuous fields algorithm, *Earth Interactions*, 7, paper no. 10, 15 pp. [online journal]

Morisette, J. T., Nickeson, J. E., Davis, P., Wang, Y., Tian, Y., Woodcock, C. E., Shabanov, N., Hansen, M., Cohen, W. B., Oetter, D. R., and Kennedy, R. E., 2003, High spatial resolution satellite observations

for validation of MODIS land products: IKONOS observations acquired under the NASA Scientific Data Purchase. *Remote Sensing of Environment*, 88, 100-110.

Hansen, M.C., DeFries, R.S., Townshend, J.R.G., Sohlberg, R., Carroll, M. and Dimiceli, C., 2002, Towards an operational MODIS continuous field of percent tree cover algorithm: examples using AVHRR and MODIS data, *Remote Sensing of Environment*, 83(1&2), 303-319.

Hansen, M.C., DeFries, R.S., Townshend, J.R.G., Marufu, L. and Sohlberg, R., 2002, Development of a MODIS percent tree cover validation data set for Western Province, Zambia, *Remote Sensing of Environment*, 83(1&2), 320-335.

DeFries, R. S., Houghton, R. A., Hansen, M. C., Field, C. B., Skole, D., and Townshend, J., 2002, Carbon emissions from tropical deforestation and regrowth based on satellite observations for the 1980s and 1990s, *Proceedings of the National Academy of Sciences of the United States of America*, 99, 14256-14261.

Hansen, M.C., DeFries, R.S., Townshend, J.R.G., and Sohlberg, R., 2000, Global land cover classification at 1 km spatial resolution using a classification tree approach, *International Journal of Remote Sensing*, 21, 1331-1364.

Hansen, M.C., and Reed, B., 2000, A comparison of the IGBP DISCover and University of Maryland 1 km global land cover products, 2000, *International Journal of Remote Sensing*, 21, 1365-1374.

Zhan, X., DeFries, R., Townshend, J.R.G., DiMiceli, C., Hansen, M., Huang, C., and Sohlberg, R., 2000, The 250m global land cover change product from the Moderate Resolution Imaging Spectroradiometer of NASA's Earth Observing System, *International Journal of Remote Sensing*, 21, 1433-1460.

Teillet, P.M., El Saleous, N., Hansen, M.C., Eidenshink, J.C., Justice, C.O., and Townshend, J.R.G., 2000, An evaluation of the global 1-km AVHRR land data set, *International Journal of Remote Sensing*, 21, 1987-2021.

DeFries, R., Hansen, M., and Townshend, J., 2000, Global continuous fields of vegetation characteristics: A linear mixture model applied to multiyear 8km AVHRR data, *International Journal of Remote Sensing*, 21, 1389-1414.

Scepan, J., Menz, G., and Hansen, M., 1999, The DISCover validation image interpretation process, *Photogrammetric Engineering and Remote Sensing*, 65, 1075-1081.

DeFries, R., Townshend, J. R. G. and Hansen, M., 1999, Continuous fields of vegetation characteristics at the global scale at 1km resolution, *Journal of Geophysical Research - Atmospheres*, 104, 911-916 & 925.

DeFries, R., Hansen, M., Townshend, J.R.G., and Sohlberg, R., 1998, Global land cover classifications at 8 km spatial resolution: The use of training data derived from Landsat imagery in decision tree classifiers, *International Journal of Remote Sensing*; 19, 3141 – 3168.

DeFries, R., Hansen, M., Steininger, M., Dubayah, R., Sohlberg, R., and Townshend, J., 1997, Subpixel forest cover in Central Africa from multisensor, multitemporal data, *Remote Sensing of Environment*, 60, 228 – 246.

Hansen, M., Dubayah, R., and DeFries, R., 1996, Classification trees: An alternative to traditional land cover classifiers, *International Journal of Remote Sensing*, 17, 1075-1081.

DeFries, R., Hansen, M. and Townshend, J., 1995, Global discrimination of land cover types from metrics derived from AVHRR Pathfinder data, *Remote Sensing of Environment*, 54, 209 – 222.

Edited books:

Achard, F. and Hansen, M., (Eds.), 2012, *Global Forest Monitoring from Earth Observation*, Taylor and Francis, New York, pp. 354.

Book contributions:

Hansen, M.C., Potapov, P., and Turubanova, S., 2012, Use of Coarse Resolution Imagery to Identify Hot Spots of Forest Loss at the Global Scale, in Achard. F. and Hansen, M. (Eds.), *Global Forest Monitoring from Earth Observation*, Taylor and Francis, New York.

Achard, F., and Hansen, M., 2012, Use of Earth Observation Technology to Monitor Forests over the Globe, in Achard. F. and Hansen, M. (Eds.), *Global Forest Monitoring from Earth Observation*, Taylor and Francis, New York.

Loveland, T., and Hansen, M., 2012, Global Data Availability from US Satellites: Landsat and MODIS, in Achard. F. and Hansen, M. (Eds.), *Global Forest Monitoring from Earth Observation*, Taylor and Francis, New York.

Potapov, P., Turubanova, S., Hansen, M., Zhuravleva, I., Yaroshenko, A., and Laestadius, L., 2012, Monitoring Forest Loss and Degradation at National to Global Scales Using Landsat Data, in Achard. F. and Hansen, M. (Eds.), *Global Forest Monitoring from Earth Observation*, Taylor and Francis, New York.

Belward, A., Achard, F., Hansen, M., Arino, O., 2012, Future Perspectives (Way Forward), in Achard. F. and Hansen, M. (Eds.), *Global Forest Monitoring from Earth Observation*, Taylor and Francis, New York.

Hansen, M.C., 2012, Classification Trees and Mixed Pixel Training Data, in *Remote Sensing of Land Cover: Principles and Applications*, Chandra Giri, Ed., Taylor and Francis, New York.

Mayaux, P., Vancutsem, J.-F. P., de Wasseige, C., Defourny, P., Hansen, M.C., and Mane, L., 2012, Continental and Regional Approaches for Improving Land-Cover Maps for Africa, in *Remote Sensing of Land Cover: Principles and Applications*, Chandra Giri, Ed., Taylor and Francis, New York.

Potapov, P., Hansen, M.C., and Stehman, S.V., 2011, High-latitude forest cover loss in Northern Eurasia, 2000 to 2005. In: *Eurasian Arctic land cover and land use in a changing climate*, Gutman G., and Reissell A., Eds, Springer Verlag: New York, 37-52.

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Hansen, M. C. and Sohlberg, R. A., 2002. World land cover, in *National Geographic Family Reference Atlas*, ed. C. Mehler. National Geographic Society, Washington, D. C. 30-31.

Hansen, M. C., et al., 2002. World and continental land cover (images), in *National Geographic Concise Atlas of the World*, ed. C. Mehler. National Geographic Society, Washington, D. C. 10,34-35,48-49,56-57,66-67,76-77,86-87,94-95,100-101.

Editorial replies:

Hansen, M.C., Stehman, S.V., and Potapov, P.V., 2010, Reply to Reams et al.: Quantifying forest cover change at local and global scales, *Proceedings of the National Academy of Sciences*, 107, E146.

Hansen, M.C., Stehman, S.V., and Potapov, P.V., 2010, Reply to Wernick et al.: Global scale quantification of forest change, *Proceedings of the National Academy of Sciences*, 107, E148.

Presentations:

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., 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.

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.

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, 34th 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.

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.

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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).

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, GOF-C-GOLD and SEA START Programs on Land-Cover/Land-Use Change Processes in Monsoon Asia Region, Khon Kaen, Thailand, January 12-17, 2009.

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, 3rd GOF-C-GOLD Land Cover Symposium, Jena, Germany, October 12-17, 2008.

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

Hansen, M.C., MODIS/Landsat monitoring, 3rd GOF-C-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, South Dakota State University, Brookings, SD.

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, 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, 2000, 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.

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, GOFC-GOLD Symposium on Forest and Land Cover Observations, March 21-25, 2006, Jena, Germany.

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.

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, 9th 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'Aménagement 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, 19th ISPRS Congress, July 2000, Amsterdam, Netherlands.

Hansen, M. C., and DeFries, R. S., Continuous fields of vegetation properties derived from remotely sensed data, 96th 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, 95th Annual Meeting of the Association of American Geographers, March 1999, Honolulu, Hawaii.

Recent grant funding:

Project/Proposal Title: Quantifying global land cover change
PI: Matthew C. Hansen
Source of Support: Gordon and Betty Moore Foundation
Total Award Period: 2011-2013
Total Award Amount: \$1,698,526

Project/Proposal Title: Development of the Global Land Cover Initiative Suite of Products
Co-I: Peter Potapov
Source of Support: United States Geological Survey
Total Award Period: 2011-2015
Total Award Amount: \$999,699

Project/Proposal Title: Integrating MODIS, Landsat and GLAS in characterizing forest extent, structure and change
PI: Dr. Matthew C. Hansen
Source of Support: NASA Science of Terra and Aqua, Dr. Diane Wickland, diane.e.wickland@nasa.gov
Total Award Period: 2011-2014
Total Award Amount: \$739,319
Commitment by PI: 1.2 months per year

Project/Proposal Title: Advancing methods for global crop are estimation
PI: Dr. Matthew C. Hansen
Source of Support: NASA LCLUC, Dr. Garik Gutman, garik.gutman@nasa.gov
Total Award Period: 2011-2014
Total Award Amount: \$798,017
Commitment by PI: 0.6 months per year

Project/Proposal Title: Web-enabled Landsat data (WELD) - a consistent seamless near real time MODIS-Landsat data fusion for the terrestrial user community

PI: Dr. David Roy

Source of Support: NASA MEASURES, Dr. Martha Maiden, martha.e.maiden@nasa.gov

Total Award Period: 2008-2013

Total Award Amount: \$3,600,000

Commitment by PI: 1.2 month per year.

Project/Proposal Title: Earth Science Data Records of Global Forest Cover Change

PI: Dr. John R.G. Townshend

Source of Support: NASA MEASURES, Dr. Martha Maiden, martha.e.maiden@nasa.gov

Total Award Period: 2008-2013

Total Award Amount: \$363,000

Commitment by PI: 1 month per year in kind

Project/Proposal Title: Congo Basin Forest Monitoring Using Satellites for CARPE4

PI: Dr. Christopher O. Justice

Source of Support: NASA, Dr. Compton Tucker; compton@ltpmail.gsfc.nasa.gov

Total Award Period: 2009-2012

Total Award Amount: sub-award of \$649,000

Commitment by PI: 1.2 months per year

Project/Proposal Title: Quantifying carbon stocks and emissions in the forests of the Congo Basin

PI: Dr. Fred Stolle

Source of Support: Congo Basin Forest Fund, African Development Bank

Total Award Period: 2010-2012

Total Award Amount: sub-award of \$213,000

Commitment by PI: 0.3 months per year

Project/Proposal Title: Research and improvements for the remote sensing component of Indonesia's national carbon accounting system (INCAS)

PI: Dr. Matthew C. Hansen

Source of Support: AUSAID

Total Award Period: 2010-2012

Total Award Amount: \$342,000

Commitment by PI: 1.2 months per year

Project/Proposal Title: Integrating MODIS crop characterization capabilities with AWiFS and agricultural survey data to improve the accuracy and timeliness of national crop acreage forecasts provided by the USDA NASS Acreage Estimation Decision Support System

PI: Dr. Matthew C. Hansen

Source of Support: NASA ROSES Decision Support through Earth Science Results 2007, Dr. Bradley Doorn, bradley.doorn@nasa.gov

Total Award Period: 2009-2011

Total Award Amount: \$370,000

Commitment by PI: 3 months per year

Project/Proposal Title: Transitioning NASA MODIS and NPP VIIRS observations into the USDA FAS operational Global Agricultural Monitoring System

PI: Dr. Chris Justice

Source of Support: NASA, Dr. Bradley Doorn, bradley.doorn@nasa.gov

Total Award Period: 2009-2011

Total Award Amount: \$86,100

Commitment by PI: 0.6 months per year

Project/Proposal Title: Annual updating of the spatial extent of feedstock agriculture

PI: Dr. Matthew C. Hansen
Source of Support: Sun Grant Initiative, North Central Center, Dr. Kevin Kephart,
kevin.kephart@sdstate.edu
Total Award Period: 2008-2011
Total Award Amount: \$268,000
Commitment by PI: 1.2 month per year in kind.

Project/Proposal Title: Producing Composite Imagery and Forest Cover and Change Characterizations for the Humid Tropics - A Contribution to the MDGLS Activity

PI: Dr. Matthew C. Hansen
Source of Support: ROSES 2007 Land Cover Land Use Change – “Landsat”, Dr. Garik Gutman,
garik.gutman@nasa.gov
Total Award Period: 2008-2010
Total Award Amount: \$399,098
Commitment by PI: 1.2 months per year

Project/Proposal Title: Supporting FAO Forest Resource Assessment 2010

PI: Dr. Matthew C. Hansen
Source of Support: United Nations Food and Agriculture Organization, Dr. Mette Loyche-Wilkie,
Mette.LoycheWilkie@fao.org
Total Award Period: 2009-2010
Total Award Amount: \$100,000
Commitment by PI: none

Workshops hosted:

“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

Examples of popular press coverage:

http://voices.washingtonpost.com/post-carbon/2010/12/google_earth_engine_debuts.html
http://www.usatoday.com/news/nation/environment/2010-04-27-forests27_ST_N.htm
http://news.mongabay.com/2010/0929-hansen_interview.html
<http://earthjournalism.net/program/cop16-fellowship/story/new-google-tool-helps-monitor-worlds-forests>
<http://news.sciencemag.org/scienceinsider/2010/12/new-google-earth-engine.html>
<http://www.gpsworld.com/gis/earth-imaging-and-remote-sensing/news/google-labs-introduces-google-earth-engine-10782>

<http://blogs.kqed.org/climatewatch/2010/12/04/new-google-tool-helps-monitor-worlds-forests/>
<http://www.rainforestsos.org/book/>
<http://news.mongabay.com/2008/0629-deforestation.html>
<http://www.newswise.com/articles/cloud-computing-data-policy-on-track-to-democratize-satellite-mapping>

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.

Professional memberships:

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

Land Cover Implementation Team Member, GOF-C-GOLD

Land Processes Distributed Active Archive Center User Working Group member

Association of American Geographers

American Geophysical Union

Foreign languages:

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