Dr. Dmitry SCHEPASCHENKO

Senior Research Scholar

- Agriculture, Forestry, and Ecosystem Services (AFE)
  Biodiversity and Natural Resources Program (BNR)
- Novel Data Ecosystems for Sustainability (NODES)
  Advancing Systems Analysis Program (ASA)

International Institute for Applied Systems Analysis (IIASA)
Schlossplatz 1, A-2361 Laxenburg, Austria
schepd@iiasa.ac.at | https://iiasa.ac.at/web/bnr/afe.html

Bio

Dr. Dmitry Schepaschenko has 30+ years research experience in the field of forest ecology, forest management and remote sensing. He actively participates in international research networks, including IBFRA (International Boreal Forest Research Association) and IUFRO (International Union of Forest Research Organizations). His recent projects have included global and regional land cover, forest, and biomass mapping; full carbon account of Northern Eurasia; remote sensing applications; modeling of structure, productivity and growth of forests; adaptation and mitigation strategies under global change.

Dr. Shchepashchenko received his master's degree in Forestry in 1988 from the Moscow State Forest University. He was awarded his PhD in Soil science in 1993 from the Dokuchaev Soil Science Institute in Moscow. He was awarded his Doctor Habilitation degree in Ecology in 2005 from the Moscow State Forest University.

Publications	100+ peer-reviewed publications including journals *Science, Nature, Nature Scientific Reports, Nature Ecology & Evolution, Nature Scientific Data*, Nature Geoscience, etc.
H-factor	46 (Google Scholar) / 34 (Scopus)
ORCID ID	0000-0002-7814-4990

Major Scientific Interests

- Global land cover, forest cover, cropland and biomass mapping/analysis
- Remote sensing and crowdsourcing applications
- Carbon accounting for terrestrial ecosystems (with special focus to Russia and Ukraine)
- Ecosystems ecology
- Modeling of structure, productivity and growth of forests
- Soil carbon and soil respiration
- Adaptation and mitigation under global change

Editorials

- **Member of editorial board:** Forestry Ideas, MDPI Forests, Nature Scientific Data, Siberian Forest Journal.

- **Guest editor**: Environmental Research Letters, MDPI Remote Sensing, MDPI Land.
- **Papers reviewed for WoS Q1 journals**: Applied Geography, Biological Conservation, Biogeosciences, Catena, Environmental Research Letters, European Journal of Forest Research, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, International Journal of Applied Earth Observation and Geoinformation, Journal of the Royal Society Interface, ISPRS Journal of Photogrammetry and Remote Sensing, Forest Ecology and Management, Forests, PLoS One, Scientific Data, PNAS, Remote Sensing, Remote Sensing of Environment.
- **Grant proposals reviewed**: Mega grants by the Ministry of Education and Science of Russian Federation; OeAD (Austrian centre for European and international mobility and cooperation programmes); National Science Foundation (NSF, USA), Russian Science Foundation.

Professional Career

2007 – present	**Research Scholar**, (2018) **Senior Research Scholar**, *International Institute for Applied Systems Analysis (IIASA)*, Laxenburg, Austria.
1993 – 2016	**Lecturer,** (1996) **Associate Professor,** (2004) **Professor**, (2007) guest Professor – *Moscow State Forest University*, Department of Soil Science. Mytischi, Moscow reg., Russia
1995	Scholarship for Young Scientists, *International Institute for Applied Systems Analysis*, Laxenburg, Austria
1990 – 1993	**PhD Candidate**, Soil Science. *Dokuchaev Soil Science Institute*, Moscow, Russia
1988 – 1990	**Research assistant** – *Moscow State Forest University*, Department of Forest Mensuration and Management.
1983 – 1988	**Undergraduate**, Forestry and Pedology. *Moscow State Forest University*, Mytischi, Russia.

Selected Research Projects

2015 – 2024	**FOS/IFBN: International Forest Biomass Network** (http://forest-observation-system.net/). IIASA leading project funded by European Space Agency, contract 4000114425/15/NL/FF/gp. Role: **PI**
2018 – 2024	**CCI Biomass** (http://cci.esa.int/biomass). Funding: European Space Agency, contract 4000113100/14/I-NB. Leading partner: Aberystwyth Univ., UK. Role: contributor, **PI** at IIASA
2019 – 2022	**ALPTREES** (https://www.alpine-space.eu/projects/alptrees/en/home), An EC/Alpine Space funded Project on "Sustainable use and management of non-native trees in the alpine region". Role: **task leader**
2017 – 2021	**RESTORE+** | Assessing Landscape Restoration in Indonesia and Brazil www.restoreplus.org, funded by the German BMUB/International Climate Initiative IKI. Role: **task leader**
2019 - 2020	**NatureMap** (https://naturemap.earth/). Funding: Norwegian International Climate and Forest Initiative (NICFI) of the Norwegian Ministry of Climate and Environment). Role: **task Leader**

2014 – 2017 **DUE GlobBiomass** (http://globbiomass.org/). Funding: European Space Agency, contract 4000113100/14/I-NB. Leading partner: Friedrich Schiller University Jena, Germany. Role: contributor.

2010 - 2013 **BalkanGEONet** (https://cordis.europa.eu/project/id/265176) – Towards Inclusion of Balkan Countries into Global Earth Observation Initiative (FP7, no. 265176). Role: contributor, **PI** at IIASA.

Selected peer-reviewed publications

(extended list available on Google Scholar or IIASA pure or ORCID 0000-0002-7814-4990)

Fan L., Wigneron J.P., Ciais P et al. (2022) Siberian carbon sink reduced by forest disturbances. *Nature Geoscience*, DOI: 10.1038/s41561-022-01087-x.

Lesiv M., Schepaschenko D., Buchhorn M., et al. (2022) Global forest management data for 2015 at a 100 m resolution. *Scientific Data* 9, 199. DOI: 10.1038/s41597-022-01332-3.

Gatti R.C., Reich P.B., Gamarra J.G.P., et al. (2022) The number of tree species on Earth. *PNAS*, 119(6), e2115329119. DOI: 10.1073/pnas.2115329119.

Schepaschenko D., Moltchanova E., Fedorov S., et al. (2021). Russian Forest sequesters substantially more carbon than previously reported. *Scientific Reports* 11, 12825. DOI: 10.1038/s41598-021-92152-9.

Schepaschenko D., Chave J., Phillips O.L., et al. (2019). The Forest Observation System, building a global reference dataset for remote sensing of forest biomass. *Scientific Data* 6 (1): e198. DOI:10.1038/s41597-019-0196-1.

Schepaschenko D., See L., Lesiv M., et al. (2019). Recent Advances in Forest Observation with Visual Interpretation of Very High-Resolution Imagery. *Surveys in Geophysics* 40 (4): 839-862. DOI: 10.1007/s10712-019-09533-z.

Steidinger B.S., Crowther T.W., Liang J., et al. (2019). Climatic controls of decomposition drive the global biogeography of forest-tree symbioses. *Nature* 569 (7756): 404-408. DOI: 10.1038/s41586-019-1128-0.

Schepaschenko D., Moltchanova E., Shvidenko A., et al. (2018) Improved Estimates of Biomass Expansion Factors for Russian Forests. *Forests*, 9(6), 312. DOI: 10.3390/f9060312.

Schepaschenko D., Fritz S., See L., Laso Bayas J.C., Lesiv M., Kraxner F., Obersteiner M. (2017). Comment on "The extent of forest in dryland biomes". *Science* 358 (6362): eaao0166. DOI: 10.1126/science.aao0166.

Schepaschenko D., Shvidenko A., Usoltsev V., et al. (2017) A dataset of forest biomass structure for Eurasia. *Scientific Data* 4: 170070. DOI: 10.1038/sdata.2017.70.

Fritz S., Schepaschenko D., See L. (2016) Carbon tracking: Limit uncertainties in land emissions. *Nature*, 534(7609): 621. DOI: 10.1038/534621e.

Gauthier S., Bernier P., Kuuluvainen T., Shvidenko A.Z., Schepaschenko D.G. (2015) Boreal forest health and global change. *Science*, 349: 819-822. DOI: 10.1126/science.aaa9092.

Schepaschenko D., See L., Lesiv M. et al. (2015). Development of a global hybrid forest mask through the synergy of remote sensing, crowdsourcing and FAO statistics. *Remote Sensing of Environment*, 162: 208-220. DOI: 10.1016/j.rse.2015.02.011.

Schepaschenko D.G., Shvidenko A.Z., Lesiv M.Yu., Ontikov P.V., Shchepashchenko M.V., Kraxner F. (2015) Estimation of Forest Area and its Dynamics in Russia Based on Synthesis of Remote Sensing Products. *Contemporary Problems of Ecology*, 8(7): 811–817. DOI: 10.1134/S1995425515070136.

Mukhortova L., Schepaschenko D., Shvidenko A., McCallum I., Kraxner F. (2015) Soil contribution to carbon budget of Russian forests. *Agricultural and Forest Meteorology*, 200: 97–108. DOI: 10.1016/j.agrformet.2014.09.017.

See L., Schepaschenko D., Lesiv M. et al. (2015). Building a hybrid land cover map with crowdsourcing

and geographically weighted regression. *ISPRS Journal of Photogrammetry and Remote Sensing*. 103: 48-56. DOI: 10.1016/j.isprsjprs.2014.06.016.

Thurner M., Beer C., Santoro M., Carvalhais N., Wutzler T., Schepaschenko D., et al. (2014) Carbon stock and density of northern boreal and temperate forests. *Global Ecology and Biogeography*. 23(3): 297-310. DOI: 10.1111/geb.12125.

Schepaschenko D.G., Mukhortova L.V., Shvidenko A.Z, Vedrova E.F. (2013) The Pool of Organic Carbon in the Soils of Russia. *Eurasian Soil Science* 46(2): 107-116. DOI: 10.1134/S1064229313020129.

Dolman A.J., Shvidenko A., Schepaschenko D. et al. (2012) An estimate of the terrestrial carbon budget of Russia using inventory-based, eddy covariance and inversion methods. *Biogeosciences* 9: 5323-5340. DOI: 10.5194/bg-9-5323-2012.

Fritz S., McCallum I., Schill C., Perger C., See L., Schepaschenko D., van der Velde M., Kraxner F., Obersteiner M. (2012) Geo-Wiki: An online platform for improving global land cover. *Environmental Modelling & Software* 31: 110-123. DOI: 10.1016/j.envsoft.2011.11.015

Schepaschenko D., McCallum I., Shvidenko A., Fritz S., Kraxner F., Obersteiner M. (2011) A new hybrid land cover dataset for Russia: a methodology for integrating statistics, remote sensing and in situ information. *Journal of Land Use Science* 6(4): 245-259. DOI: 10.1080/1747423X.2010.511681.

Shvidenko A.Z., Shchepashchenko D.G., Vaganov E.A. et al. (2011) Impact of Wildfire in Russia between 1998–2010 on Ecosystems and the Global Carbon Budget. *Doklady Earth Sciences.* 441(2): 1678–1682. DOI: 10.1134/S1028334X1.

Shvidenko A., Schepaschenko D., McCallum I., Nilsson S. (2010) Can the uncertainty of full carbon accounting of forest ecosystems be made acceptable to policymakers? *Climatic Change*. 103: 137-157. DOI: 10.1007/s10584-010-9918-2.

Shvidenko A., Schepaschenko D., Nilsson S., Bouloui Yu. (2008) Tables and models of growth and productivity of forests of major forest forming species of Northern Eurasian. Moscow. Federal Agency of forest management. International Institute for Applied Systems Analysis. 886 pp.

Shvidenko A., Schepaschenko D., Nilsson S., Bouloui Yu. (2007) Semi-empirical models for assessing biological productivity of Northern Eurasian forests. *Ecological Modelling*. 204: 163-179. DOI: 10.1016/j.ecolmodel.2006.12.040.

Lapenis A., Shvidenko A., Schepaschenko D. et al. (2005) Acclimation of Russian forests to recent changes in climate. *Global Change Biology*. 11: 2090-2102. DOI: 10.1111/j.1365-2486.2005.001069.x.