

Curriculum Vitae

Prof. Prof. h. c. Dr. Sci. Anatoly Z. Shvidenko,
Russian, born September, 20, 1937 in Ukraine

Currently: Senior Research Scientist, Ecosystem Services and Management, International Institute for Applied Systems Analysis
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Home institution: Principal Investigator, V.N. Sukachev Institute of Forest, Siberian Branch, Russian Academy of Sciences, 660036 Krasnoyarsk, Russia

Education:

Ukrainian National Agrarian University (Forest Faculty) in 1954 -1959, Kiev, Ukraine, engineer, forestry and forest management

Kiev State University (Faculty of Mathematics) in 1968 -1972, Kiev, Ukraine, mathematician, applied mathematics

postgraduate study in 1965-1968, Ukrainian Agricultural Academy (currently National University of Life Sciences and Nature Management), Kiev, Ukraine, forest inventory and monitoring, modeling of ecological processes

Professional Employment History:

Current-2011	Senior Research Scientist, Ecosystem Services and Management, IIASA
2011-2009	Acting Program Leader, Ecosystem Services and Management (previously Forestry) Program, International Institute for Applied Systems Analysis, Laxenburg, Austria
2008-1992	Senior Research Scientist, Forestry Program, International Institute for Applied Systems Analysis, Laxenburg, Austria
current-2002	Principal Investigator, Institute of Forests, Siberian Branch of the Russian Academy of Sciences, Krasnoyarsk, Russia
2002-1992	Principal Investigator, All-Russia Research & Information Center for Forest Resources, Moscow, Russia
1992-1988	Director, All-Russia (before 1991- All-Union) Research & Information Center for Forest Resources, Moscow, Russia
1988-1981	Head of Department, Forest Inventory, Monitoring & Planning Department, Leader, Problem Laboratory on State & Productivity of Forests, Ukrainian National Agricultural University, Kiev, Ukraine
1981-1968	Deputy Head, Professor, Associate Professor, Forest Inventory & Monitoring Department, Ukrainian Agricultural University, Kiev, Ukraine
1968-1965	Postgraduate Student, Ukrainian National Agricultural University, Forest Inventory & Monitoring Department, Kiev, Ukraine
1965-1963	Main Forest Manager, Dolinsk State Forest Enterprise, Sakhalin region, Russia
1963-1961	Research Scholar, Sakhalin Forest Experimental Station, Sakhalin region, Russia

1961-1959 Forest Inventory Field Engineer, Far Eastern Forest Inventory & Planning Enterprise, Khabarovsk, Russia
 1959-1954 Student, Ukrainian National Agrarian University, Forest Faculty

Scientific titles, membership and awards:

- Candidate of Sciences (PhD) (1968)
- Doctor of Sciences (1982)
- Full Professor (1983)
- Honorary Professor of the National University of Life Sciences and Nature Management of Ukraine (2007)
- Academician of the UN International Academy of Informatics since 1994
- Academician of the Ukrainian Forestry Academy since 2007
- Laureate of the Ukrainian State Prize on Science and Technology in 1991
- Vice President of the International Boreal Forest Research Association from 1998 to 2006
- Member of the Steering Committee of the International Boreal Forest Research Association since 2006
- Member of the Scientific Council of the World Commission on Forestry and Sustainable Development (1994-2000)
- Member of the Steering Committee of the Global Terrestrial Observation System (GTOS) of FAO, ICSU, UNEP, UNESCO, and WMO in 1994-1998
- Coordinator of IUFRO Working Group 4.02.06 (1994-1998)
- Member of the Terrestrial Carbon Panel of FAO, WMO in 1999-2004
- Member of the Editorial Board of the *International Journal of Applied Earth Observation and Geoinformatics*, The Netherlands (1996-2008)
- Member of the Editorial Board of the *Mitigation and Adaptation Strategy for Climate Change*, Elsevier (2000-currently)
- Member of the Editorial Board of the *Eurasian Journal of Forest Research*, Japan (2002-currently)
- Member of the Editorial Board of the International Journal "Forest Inventory and Planning" [*Lesoustroistvo i Lesnaja Taxazija*] (Russia) (1992-currently)
- Member of the IGBP Terrestrial Carbon Working Group (1996-2004)
- Lead Author of the 2nd, 3rd and 4th IPCC Assessment
- Lead Author of the IPCC Special Report on Land-Use and Forestry (2001)
- Member of the Steering Committee of the FAO Global Forest Assessment-2000
- Coordinated Lead Author of the 3rd Millennium Ecosystem Assessment (Chapter 21 – Forests and Woodlands)
- Member of the American Geophysical Union
- Member of the European Geophysical Union
- Member of the Editorial Board of the *International Journal of the Siberian Federal University ("Ecology")* (2006-currently)
- Member of the Siberian Committee for the IGBP – 2006-currently
- Recognized among the network of scientists who shared in the 2007 Nobel Peace Prize awarded to the IPCC
- Awarded by Honorary Medal of Forestry Society by the Russian Union of Foresters for merits in science (2008)

- Awarded by Gold Medal as a Laureate of the International Competition “Elite of Informatiologists of the World” (2012)

Areas of research & experience:

Forest Management, Inventory and Monitoring, including development of forest inventory manuals, forest resources assessment, theory and practice of sustainable forest management, remote sensing applications

Modeling of structure, productivity and growth of forests of Northern Eurasia

Ecology of ecosystems of Northern Eurasia under global change, assessment of the interactions of temperate and boreal ecosystems on global biogeochemical cycles

Adaptation and mitigation measures under global change

Publications:

Author and co-author of above 400 articles, working papers, chapters in books and other publications (including publications in *Ambio*, *Science*, *Global Change Biology*, *Climate Change*, *Tellus*, *Journal of Geophysical Research*, *Geophysical Research Letters*, *Journal of Vegetation Science*, *Remote Sensing of Environment*, *Water, Air and Soil Pollution*, *Lesovedenie (Forest Science, Moscow)*, *Pochvovedenie (Soil Science, Moscow)*, *Proceedings of the Russian Academy of Sciences (Doklady Earth Sciences)*, *Biomass and Bioenergy*, *Unasylva*, *World Resources Review*, *Environmental Science & Policy*, *Siberian Ecological Journal*, *Russian Journal of Ecology*, *Forest Management (Lesnoe Khozjaistvo, Moscow)*, *Canadian Journal of Remote Sensing*, *Ecological Modelling*, etc.) and 15 books.

Publications of 2010-2011 (* peer reviewed)

2010

*McCallum I., Wagner, W., Schullius, C., Shvidenko, A., Obersteiner, M., Fritz, S., Nilsson, S. 2010. Comparison of four global FAPAR datasets over Northern Eurasia for the year 2000. *Remote Sensing of Environment*, doi:10.1016/j.rse.2009.12.009.

*Kurganova I.N., Lopes de Gerenye V.O., Shvidenko A.Z., Sapozhnikov P.M. 2010. Changes in the organic carbon pool of abandoned soils in Russia (1990-2004). *Eurasian Soil Science*, Vol. 43, No 3, 333-340. Russian publication in *Soil Science (Pochvovedenie)*, 2010, No3, 361-368.

*Shvidenko A.Z., Sokolov V.A., Vtorina O.P., Vedrova E.F., Chuprova V.V. 2010. Aspects of realization of the Kyoto Protocol provisions in Krasnoyarsk kray. In: I.V. Semechkin (ed.) *Management of Sustainable Forestry in Krasnoyarsk kray*, ISBN978-5-7692-1104-1, V.N. Sukachev Institute of Forest SB RAS, Novosibirsk, pp. 176-197 (in Russian).

*Gustafson E.J., Shvidenko A.Z., Sturtevant B.R., Scheller R.M. 2010. Predicting global change effects on forest biomass and composition in south-central Siberia. *Ecological Applications*, 20 (3), 700-715

Rozhkov V.A., Shvidenko A.Z. 2010. The first digitized maps of phytomass, mortmass and net primary production. In: Dobrovolsky G.V., Kudeyarov V.N., Tishkov A.A. (eds) Geography of Productivity and Biogeochemical Turnover of Terrestrial Landscapes: by Centenary of Prof. N. Bazilevich. Proceedings of the Conference, 19-22 April 2010, Puschino, Russia. Institute of Geography, Russian Academy of Science, Moscow, pp. 104-125 [in Russian].

*Ciais P., Canadell J.g., Luysaert S., Chevallier F., Shvidenko A., Poussi Z., Jonas M., Peylin P., King A.W., Schulze E.-D., Piao S., Rödenbeck C., Peters W. and Bréon F.-M. 2010. Can we reconcile atmospheric estimates of the Northern terrestrial carbon sink with land-based accounting? *Current Opinion in Environmental Sustainability*, 2010, **2**: 1-6, doi:10.1016/j.cosust.2010.06.008

Shvidenko A., Schepaschenko D., Maksyutov Sh. 2010. Impact of terrestrial ecosystems of Russia on the global carbon cycle from 2003-2008: An attempt of synthesis. Proceedings of the International Conference on Environmental Observations, Modeling and Information ENVIROMIS-2010, July 5-11, 2010, Tomsk, Russia. ISBN 978-5-89702-264-9. Tomsk, 2010, pp. 48-52.

Schepaschenko D., McCallum I., Shvidenko A. 2010. Hybrid cover in 2009 for Russia: A methodology for integrating statistics, remote sensing and in-situ information. Proceedings of the International Conference on Environmental Observations, Modeling and Information ENVIROMIS-2010, July 5-11, 2010, Tomsk, Russia. IABN 978-5-89702-264-9. Tomsk, 2010, pp. 58-61.

Zhuang Q., Melillo J., Kicklighter D., Reilly J., Shvidenko A., Tchebakova N., Parfenova E., Peregon A., Sirin A., Maksyutov Sh., Zhou G. 2010. Role of climate change and human activities in changes of land cover and land use and greenhouse gas emissions in Northern Eurasia. Proceedings of the International Conference on Environmental Observations, Modeling and Information ENVIROMIS-2010, July 5-11, 2010, Tomsk, Russia. IABN 978-5-89702-264-9. Tomsk, 2010, pp. 52-53.

Santoro M., Beer Ch., Cartus O., Schmullius Ch., Shvidenko A., McCallum I., Wegmüller U., Wiesmann A. 2010. The BIOMASAR algorithm: An approach for retrieval of forest growing stock volume using stacks of multi-temporal SAR data. Proceedings of ESA's Living Planet Symposium 2010, 28 June to 2 July 2010, Bergen, Norway .

* Rozhkov V.A., Shvidenko A.Z. 2010. The first digitized maps of biological productivity parameters. *Eurasian Soil Science*, 43(11), 1202-1210

Shvidenko A., Schepaschenko D., McCallum I., Schmullius C. 2010. Use of remote sensing in a terrestrial ecosystems verified full carbon accounting: Experiences from Russia. International Conference Earth Observation for Land-Atmosphere Interaction Science, 3-5 November, Frascati, Italy, Abstract Book, p. 19.

*Shvidenko A., Schepaschenko D., McCallum I., Nilsson S. 2010. Can the uncertainty of full carbon accounting of forest ecosystems be made acceptable to policy makers? *Climatic Change*, 103, 137-157.

*Shvidenko A.Z., Buksha I.F., Dubin V.G., Lakida P.I. 2010. Forests of Ukraine in a changing world. Chapter 6.5 in V.I. Ljalko (ed) *Earth Systems Change over Eastern Europe*, National Academy of Sciences of Ukraine, NEESPI and IIASA, Kyiv, pp. 339-367 [in Russian].

Shvidenko A., Schepaschenko D., Maksyutov S. 2010. A terrestrial ecosystem full verified carbon accounting for Russian Land: Results and uncertainties. Presentation at the AGU Fall Meeting, abstract B31F-0366. available at <http://agu-fm10.abstractcentral.com.planner>.

Birdsey R., Pan Y., Fang J., Kauppi P., Kurz W.A., Phillips O., Piao, S., Shvidenko A.Z., Canadell J., Ciais P., Houghton R.A., Jackson R.B., Pacala S. 2010. The carbon sink of the world forests: Trends and causes of change in boreal, temperate and tropical regions from forest inventories. Presentation at the AGU Fall Meeting, abstract B34C-03, available at <http://agu-fm10.abstractcentral.com.planner>.

Zhuang Q., Melillo J.M., Kicklighter D.W., Reilly J.M., Paltsev S., Shvidenko A., Sokolov A.P., Tchrbakova N., Parfenova E., Peregon A., Sirin A., Maksyutov S., Zhou G. 2010. Changes of land use and land cover and biogeochemistry in northern Eurasia in response to climate change and the global economy. Presentation at the AGU Fall Meeting, abstract GC41D-06, available at <http://agu-fm10.abstractcentral.com.planner>.

*Schepaschenko D., McCallum I., Shvidenko A., Fritz S., Kraxner F., Obersteiner M. 2010. A new hybrid land cover dataset for Russia: a methodology for integrating statistics, remote sensing and in situ information. On-line publication in *Journal of Land Use Science*, iFirst, doi: 10.1080/1747423X.2010.511681, 1-15.

2011

*Quegan, S., Beer, C., Shvidenko, A., McCallum, I., Handoh, I.C., Peylin, P., Rödenbeck, C., Lucht, W., Nilsson, S., Schmullius, C. 2011. Estimating the carbon balance of central Siberia using a landscape-ecosystem approach, atmospheric inversion and Dynamic Global Vegetation Models. *Global Change Biology*, 17 (1), pp. 351-365.

*Santoro, M., Beer, C., Cartus, O., Schmullius, C., Shvidenko, A., McCallum, I., Wegmüller, U., Wiesmann, A. 2011. Retrieval of growing stock volume in boreal forest using hyper-temporal series of Envisat ASAR ScanSAR backscatter measurements, *Remote Sensing of Environment*, vol. 115, 2, pp. 490-507.

Shvidenko A., Klimont Z., Kupiainen K., Rao S., Schepaschenko D., Karklin V., Yulin A., Strakhov V. 2011. The effect of climate change and abatement policies on the value of natural resources in Northern Europe and in the Arctic sea area. Prime Minister's Office Report 1/2011, Finland, 93 pp.

Shvidenko A., Schepaschenko D., McCallum I., Santoro M., Schmullius C. 2011. Use of remote sensing products in a terrestrial ecosystems verified full carbon account: Experiences from Russia. Proceedings of the Int. Conference "Earth Observation for Land-Atmosphere interaction Science", Frascati, Italy, 3-5 November 2010 (ESA SP-688, January 2011, CD ROM, 8 pp.).

Schepaschenko D.G., Shvidenko A.Z., Mukhortova L.V. , Schepaschenko M.V. 2011. Soils in assessment of biospheric role of terrestrial ecosystems. In Proceedings of Int. Conference devoted to the 165 years of V.V. Dokuchaev's birthday, 1-4 March 2011, S. Petersburg, Russia, pp. 511-512 [in Russian]

Shvidenko A., Schepaschenko D., McCallum I. 2011. Productivity of Russian forests during recent decades (1960-2010s). EGU General Assembly, Vienna, 4-8 April 2011, Session Bg5.1, abstract EGU2011-11686 (CD ROM).

Schepaschenko D., Shvidenko A., Mukhortova L. 2011. Organic carbon in Russian soils: A specified spatially explicit assessment. EGU General Assembly, Vienna, 4-8 April 2011, Session Bg5.1, abstract EGU2011-11524 (CD ROM).

*Shvidenko A., Schepaschenko D., Vaganov E.A., Sukhinin A.I., Maksyutov Sh.Sh., McCallum I., Lakyda I.P. 2011. Impacts of wildfire in Russia between 1998-2010 on ecosystems and the global carbon budget. Proceedings of the Russian Academy of Sciences (*Doklady Earth Sciences*), Vol. 441, part 2, pp. 1678-1682. Russian publication Vol. 441, No 4, 544-548

Shvidenko A., Schepaschenko D. 2011. Russia faces tough climate change challenges. Options, Summer 2011, 18-19.

Shvidenko A. 2011. Changing world, boreal forests and IBFRA. In: Proceedings of the Int. Conference *Boreal Forests in a Changing World; Challenges and Needs for Actions*, 15-21 August 2011, Krasnoyarsk, Russia, pp.8-12 (key-note presentation).

Kraxner F., Leduc S., Aoki K., Fuss S., Obersteiner M., Schepaschenko D., Shvidenko A. 2011. A forest-based bioenergy in the Siberian context. In: Proceedings of the Int. Conference *Boreal Forests in a Changing World; Challenges and Needs for Actions*, 15-21 August 2011, Krasnoyarsk, Russia, pp.34-39.

Mukhortova L., Schepaschenko D., Shvidenko A., McCallum I. 2011. A system for heterotrophic soil respiration assessment of Russian land. In: Proceedings of the Int. Conference *Boreal Forests in a Changing World; Challenges and Needs for Actions*, 15-21 August 2011, Krasnoyarsk, Russia, pp.86-90.

Shvidenko A., Kraxner F., Obersteiner M., Schepaschenko D. 2011. Adaptation and mitigation strategies in Northern Eurasian boreal forests. In: Proceedings of the Int. Conference on *Response of Forests and Adaptation Management to Climate Change*, August 8-10, Yichun, Hilongjiang, China, pp. 75-76.

*Yude Pan, Richard A. Birdsey, Jingyun Fang, Richard Houghton, Pekka E. Kauppi, Werner A. Kurz, Oliver L. Phillips, Anatoly Shvidenko, Simon L. Lewis, Josep G. Canadell, Philippe Ciais, Robert B. Jackson, Stephen W. Pacala, A. David McGuire, Shilong Piao, Aapo Rautiainen, Stephen Sitch, Daniel Hayes. 2011. A Large and Persistent Carbon Sink in the World's Forests. *Science* 19 August 2011, 988-993.

*Eric J. Gustafson, Anatoly Z. Shvidenko, and Robert M. Scheller. 2011. Effectiveness of forest management strategies to mitigate effects of global change in south-central Siberia. *Canadian Journal of Forest Research* 41, 1405-1421.

*Gustafson E.J., Shvidenko A.Z., Sturtevant B.R., Sheller R.M. 2011. Using landscape disturbance and succession models to support forest management. In: *Landscape ecology in forest management and conservation*. Edited by C. Li, R. Laforzezza, J. Chen, HEP and Springer, Beijing and Berlin, pp. 99-118.

Shvidenko A.Z., Schepaschenko D.G. 2011. Carbon budget of circumpolar boreal forests: an attempt of synthesis. Key-note presentation at the International Science Conference Carbon Pools and Fluxes in Boreal Forest and Peatland Ecosystems, 26-30 September 2011, Syktyvkar, Russia. Abstracts, pp. 9-11. [ISBN 978-5-89606-450-3].

Shvidenko A., Schepaschenko D., Dolman H. 2011. Full carbon account for Russia. Invited presentation at the GEO-Carbon Conference, 24-26 October 2011, Rome, Italy. CDRom, Abstracts.

*Shvidenko A., Schepaschenko D. 2011. What do we know today about Russian forests? *Forest Inventory and Planning*, 1-2 (45-46), pp. 153-172 [in Russian].

* Shvidenko A., Schepaschenko D., McCallum I., Nilsson S. 2011. Can the uncertainty of full carbon accounting of forest ecosystems be made acceptable to policy makers? In *Greenhouse Gas Inventories*, edited by T. White, M. Jonas, Z. Nahorski and S. Nilsson, Springer, pp. 137-157 [previously published in *Climatic Change*, 103, Issues 1-2, 2010, pp. 137-157].

2012

Shvidenko A., Schepaschenko D. 2012. Wildfire in Northern Eurasia and climate change. EGU General Assembly, 23-28 April 2012, Vienna, Session NH7.3/AS4.3/BG2.25, BG67, abstract EGU-2012-7340.

Schepaschenko D., Shvidenko A., Schepaschenko M. 2012. Carbon balance of Russian agricultural land. EGU General Assembly, 23-28 April 2012, Vienna, Session BG5.2, abstract EGU-2012-8544.

Zhuang Q., Kicklighter D., Cai Y., Tchepakova N., Parfenova E., Melillo J., Reilly J., Paltsev S., Sokolov A., Shvidenko A., Sirin A., Zhou G., Maksyutov S., Peregon A. 2012. The role of climate change and human activities in Northern Eurasia on global changes of land cover and land use and carbon biogeochemistry. EGU General Assembly, 23-28 April 2012, Vienna, Session BG67, abstract EGU-2012-12492.

*Shvidenko A.Z., Schepaschenko D.G., Vaganov E.A., Sukhinin A.I., Maksyutov S.S., McCallum I. 2012. Emissions of greenhouse gases due to wildfires in Russia in 1998-2010. *Protection of Atmospheric Air*. *Atmosphere*, 1, pp. 6-12 (in Russian).

Shvidenko A.Z., Buksha I.F., Dubin V.G., Lakida P.I. 2012. Forests of the Ukraine in a changing world. In: Earth Systems Change over Eastern Europe, edited by P.Ya. Groisman and V.I. Lyalko, Kyiv, Akadempriodyka, pp. 239-256.

*Schepaschenko D., See L, Fritz S., McCallum I., Schill C., Perger C., Baccini A., Gallaun H., Kindermann G., Kraxner F., Saatchi S., Obersteiner M., Santoro M., Schmillius C., Shvidenko A., Schepaschenko M. (2012) Observing Forest Biomass Globally. Earthzine. Published on-line 09.06.2012. Available from: <http://www.earthzine.org/2012/06/09/observing-forest-biomass-globally/>.