

Curriculum Vita

Dawit Solomon (Ph.D.)

CGIAR's CCAFS East Africa Regional Program Leader/ ILRI

Research Fellow, Atkinson Center for Sustainable Future/ Adjunct Associate Professor/ Soil and Crop Section, School of Integrated Plant Sciences, College of Agriculture and Life Sciences, Cornell University, 920 Bradfield Hall, Ithaca, NY, 14853, USA/ Phone (607) 280-5889, Email: ds278@cornell.edu, Skype:dawit278

Summary of international and national expertise and skills:

- Over 20 years combined capacity building, research, international project development, implementation and supervision experience in sustainable agriculture, integrated environment and ecosystem rehabilitation and management, food and nutrition security, climate-change mitigation, adaptation and resilience working with diverse stakeholders and partners in Africa, Europe, Oceania, South and North America
 - Proven networking, partnership and team building skills in Sub-Saharan Africa and other developing regions
 - Extensive experience working with multicultural national and international institutions of higher learning, research and dissemination, NGOs, bi- and multi-lateral international development partners and governments
 - Extensive project supervision, coordination and reporting (project reports, executive summaries, policy briefs and presentations) skills in sustainable agriculture, environment, food security and climate change
 - Excellent peer-reviewed publication record
 - Developed and lectured undergraduate and graduate level course modules in Soil Sciences, Soil Fertility and Fertilizers, Soil and Water Management, Tropical Soil Fertility Management, Nutrient Cycling in Agroecosystems, Traditional Agriculture etc. in Africa and North America
 - Developed and delivered hands on international capacity building trainings, workshops and higher-level expert briefings for practitioners, government and international development program leaders and policy makers on:
 - Key drivers of land degradation
 - Integrated soil and water management, rehabilitation of degraded lands and ecosystems, nutrient cycling in agroecosystems, role of traditional agriculture for suitability, climate smart food security initiatives and their potential to garner climate finance to incentivize local communities
 - Tracking and reporting of co-benefits (i.e. carbon sequestration, greenhouse gas emissions reduction, potential to rehabilitate degraded land, increase soil fertility and productivity) of safety nets and land-based food security interventions in Africa
 - Enhancing developing country's capacity on climate change adaptation and mitigation, and preparedness for climate financing opportunities
 - Provided higher-level expert briefings and communication on program outcomes and impacts for a wide range of audiences including academics, government land managers, practitioners and development agents, international development program leaders (e.g., The World Bank, USAID, DANIDA, DFID, CARE International etc.) and policy makers at various national and international forums, invited roundtable discussions, workshops, symposiums and conferences including COP 22 of the UNCCCD, UNESCO conferences etc.
 - Strong hands-on classroom, laboratory and field skills in complex, cross-cutting, and cross-scale (from landscape to micro- and nano-level) regional and global biogeochemistry, soil fertility, land degradation, sustainable agriculture, natural resources management, , environmental sciences, climate change mitigation and adaptation strategies, and land-based food security related ecosystem-services and climate financing opportunities
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Education:

- **Parallel post-doctoral training** in soil and water management, sustainable agriculture, environment, food security at the University of Bayreuth, Germany, and Cornell University, USA and 2001-2003
 - **PhD. (Magna Cum Laude):** Geocology/ Soil Sciences, University of Bayreuth, Germany, 2001
 - **MSc** Soil and Water Management, Wageningen Agricultural University, The Netherlands, 1994
 - **BSc:** Plant Sciences, Alemaya Agricultural University, Ethiopia, 1989
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Professional experience and positions held:

- **CGIAR's CCAFS East Africa Regional Program Leader/ILRI since 2017**
- **Senior research associate at Cornell University, 2008-2017**
- **Research fellow at Atkinson Center for Sustainable Future, Cornell University, USA since 2012**

- **House fellow at Flora Rose House, Cornell University, USA 2012**
 - Developed agriculture, environment, food and nutrition security and climate change related grant project proposals for support from NSF, USDA, USAID, World Bank, private foundations etc.
 - Lead, consulted, supervised, managed and coordinated international climate-smart food and nutrition security, sustainable agriculture and environment and ecosystem rehabilitation initiatives and multi-country programs in Africa, Europe, Oceania, and in South and North America
 - Prepared reports, policy briefs, published articles peer reviewed journals
 - Guest lectured, lectured and also involved in various capacity building workshops and related activities
- **Research associate at Cornell University, USA between 2004-2008**
 - Developed agriculture, environment, food and nutrition security and climate change related grant project proposals for support from NSF, USDA, USAID, World Bank, private foundations etc.
 - Co-lead, consulted, supervised, managed and coordinated international climate-smart food and nutrition security, sustainable agriculture and environment and ecosystem rehabilitation initiatives and multi-country programs in Africa, Europe, Oceania, and in South and North America
 - Prepared reports, policy briefs, published articles peer reviewed journals
 - Guest lectured, lectured and also involved in various capacity building workshops and related activities
- **Research scientist, 1997-2001**
 - Served as investigator in various international agriculture, environment, ecology projects in Africa and Asia
- **Head of Soil Science Section at Jimma University, Ethiopia from 1989-1992 and from 1994-1995**
 - Prepared course modules and taught in class, lab and in the field Introduction to Soil Sciences, Soil and Water Management, Tropical Soil Fertility and Management, Coffee and Tea Soil Management and supported Agronomy courses
 - Advised, counseled and supported undergraduate students
 - Lead the research and extension programs of the section, as well as capacity building efforts geared towards supporting various agriculture, natural resources and food security related ministries
- **Agricultural extension agent, Ministry of Agriculture, Ethiopia, 1988**
 - Under the supervision of senior extension agents, supported and advised smallholder subsistence farmers in integrated pest management, soil and water management, soil fertility and fertilizer use, food security and other efforts as needed

Selected externally supported food security, sustainable agriculture and climate change related projects (from over 20 projects):

- Project title: **Productive Safety Net Program's (PSNP) Climate-Smart Food security Initiative in Ethiopia**
 - Source: World Bank Trust Fund; Location: Ethiopia; Duration: 2013-2015
- Project title: **Forest for Life - Sustainable and Thriving Environments for West African Regional Development (STEWARD) project**
 - Source: USAID-USFS-IP; Location: Sierra Leone and Guinea; Duration: 2012-2015
- Project title: **Indigenous bio-fertilizer development for agro-ecological intensification of sustainable legume-cereal crops production in South and Southwestern Ethiopian smallholder farming system**
 - Source: The McKnight Foundation; Location: Ethiopia; Duration: 2012-2016
- Project title: **Shifting Paradigms in Research and Technology Transfer in Amhara National Regional State-Ethiopia**
 - Source: USAID; Location: Ethiopia; Duration: 2003-2008
- Project title: **Towards Sustainable Management of the Munesa Forest, Ethiopia: Fundamentals of Geobotany, Soil Science and Plant Physiology.**
 - Source: German Research Council (GFD)USAID; Location: Ethiopia; Duration: 2001-2003

Recent sustainable agriculture, food security and climate change related comprehensive reports and policy briefs:

1. **Woolf, D., Solomon, D., and Lehmann, L.** (2017) *Social safety nets can also provide climate change mitigation: lessons from Ethiopia's food-security program.* Environmental Science and Policy, Submitted for publication.

2. **Solomon, D.,** Woolf, D., Jirka, S., De'Gloria, S., Belay, B., Ambaw, G., Getahun, K., Ahmed, M., Ahmed, Z., and Lehmann, L. (2016) Ethiopia's Productive Safety Net Program (PSNP): Soil carbon and fertility impact assessment. *A World Bank Climate Smart Initiative (CSI) Report*. Cornell University. <https://ecommons.cornell.edu/handle/1813/41301>.
3. Jirka, S., Woolf, D., **Solomon, D.,** and Lehmann, J. (2015) "Climate finance and carbon markets for Ethiopia's Productive Safety Net Programme (PSNP): Executive Summary for Policymakers." *A World Bank Climate Smart Initiative (CSI) Report*. Cornell University. <https://ecommons.cornell.edu/handle/1813/41302>.
4. Jirka, S., Woolf, D., **Solomon, D.,** and Lehmann, J. (2015) "Climate Finance for Ethiopia's Productive Safety Net Programme (PSNP): Comprehensive report on accessing climate finance and carbon markets to promote socially and environmentally sustainable public works social safety net programs." *A World Bank Climate Smart Initiative (CSI) Report*. Cornell University. <https://ecommons.cornell.edu/handle/1813/41298>.
5. Jirka, S., Woolf, D., **Solomon, D.,** and Lehmann, J. (2015) "Guide to Developing Agriculture, Forestry and Other Land-Use (AFOLU) Carbon Market Projects under Ethiopia's Productive Safety Net Programme (PSNP)." *A World Bank Climate Smart Initiative (CSI) Report*. Cornell University. <https://ecommons.cornell.edu/handle/1813/41297>.
6. Mulugeta Tefera, Alastair Strickland, Jeremy Lind, Dominic Woolf, Stefan Jirka, Dawit Solomon. (2015). Policy brief - Carbon finance Carbon finance opportunities for Ethiopia's PSNP. Joint IDS and Cornell Climate Smart Initiative Policy Brief for Ethiopian Government.
7. **Solomon, D.,** Woolf, D., Jirka, S., De'Gloria, S., Belay, B., Ambaw, G., Getahun, K., Ahmed, M., Ahmed, Z., and Lehmann, L. (2015) "Ethiopia's Productive Safety Net Program (PSNP) national baseline database (NBD): Georeferenced site, management, topography, climate, soil carbon, soil fertility indicators, yield and low-cost soil mid-infrared (MIR) analysis results". *A World Bank Climate Smart Initiative (CSI) Report*. Cornell University. <https://ecommons.cornell.edu/handle/1813/41299>.
8. Woolf, D., Jirka, S., Milne, E., Easter, M., De'Gloria, S., **Solomon, D.,** and Lehmann, J. 2015. Climate Change Mitigation Potential of Ethiopia's Productive Safety-Net Program (PSNP). *A World Bank Climate Smart Initiative (CSI) Report*. Cornell University. <https://ecommons.cornell.edu/handle/1813/41296>.

Publications in peer-reviewed sustainable agriculture, environment, ecosystem and climate change journals:

9. Zia Ahmed, Peter Woodbury, Jonathan Sanderman, Bruce Hawke, Verena Jaus, **Dawit Solomon,** Johannes Lehman. (2017). Assessing soil carbon vulnerability in the Western USA by geo-spatial modeling of pyrogenic and particulate carbon stocks. *Journal of Geophysical Research – Biogeosciences*, Accepted Article online: 26 JAN 2017.
10. **Dawit Solomon,** Johannes Lehmann, James Angus Fraser, Melissa Leach, Kojo Amanor, Victoria Frausin, Søren Munch Kristiansen, Dominique Millimouno, James Fairhead. (2016) Indigenous African soil enrichment as climate-smart sustainable agriculture alternative. *Frontiers in Ecology and the Environment*. 14: 71–76.
11. Benjamin L. Turner, Leo M Condron, Christine AM France, Johannes Lehmann, **Dawit Solomon,** Duane A Peltzer, Sarah J Richardson, (2016). Sulfur dynamics during long-term ecosystem development. *Biogeochemistry*. DOI 10.1007/s10533-016-0208-6.
12. Zwetsloot Marie, Lehmann Johannes, and **Solomon Dawit.** (2015) Recycling slaughterhouse waste into fertilizer: how do pyrolysis temperature and biomass additions affect phosphorus chemistry in bone char? *Journal of Agricultural and Food Chemistry*. 95: 281–288.
13. Andrew Simons, **Dawit Solomon,** Worku Chibssa, Garrick Blalock, and Johannes Lehmann. (2014) Filling the phosphorus fertilizer gap in poor countries. *Nature Geoscience*, 7:3 doi:101038/ngeo2049.
14. Blum, S.C., Lehmann, J., **Solomon, D.,** Caires, E., and Alleoni, L.R. (2013) Sulfur Forms in Organic Substrates Affecting S Mineralization in Soil. *Geoderma*, 200–201: 156–164.
15. Liang, B., Wang, CH, **Solomon, D.,** Kinyangi, J., Luizao, F., Wirrick, S., Skjemstad, J., and Lehmann, J. (2013) Oxidation is key for black carbon surface functionality and nutrient retention in Amazon Anthrosols. *British Journal of Environmental and Climate Change*, 3: 9-23.
16. **Solomon, D.,** Lehmann, J., Wang, J., Kinyangi, J., Heymann, K., Lu, Y., Wirrick, S., and Jacobsen, C. (2012) Micro- and nano-environments of C sequestration in soil: A multi-elemental STXM–NEXAFS assessment of black C and organomineral associations. *The Science of Total Environment*, 438:372–388.
17. **Solomon, D.,** Lehmann, J., Harden, J., Wang, J., Kinyangi, J., Heymann, K., Karunakaran, C., Lu, Y., Wirrick, S., and Jacobsen, C. (2012) Micro- and nano-environments of carbon sequestration: Multi-element STXM–NEXAFS spectromicroscopy assessment of microbial carbon and mineral associations. *Chemical Geology*, 329:53–73.
18. **Solomon D,** Lehmann J, Knott de Zarruk K, Dathe J, Kinyangi J, Liang B, and Machado S. (2011) Speciation and long- and short-term molecular-level dynamics of soil organic sulfur studied by X-ray absorption near-edge structure spectroscopy. *Journal of Environmental Quality*, 40:704-718.
19. Heymann, K., Lehmann, J., **Solomon, D.,** Schmidt M.W.I., Regier, T. (2011) C 1s K-edge near-edge X-ray absorption fine structure (NEXAFS) spectroscopy for characterizing functional group chemistry of black carbon *Organic Geochemistry*, 42:1055–1064.
20. Milne, A.E., Lehmann, J., **Solomon, D.,** Lark, R.M. (2011) Wavelet analysis of soil variation at nanometre- to micrometre-scales; an example of organic carbon content in a micro-aggregate. *European Journal of Soil Science*, 62: 617-628.

21. **Solomon, D.**, Lehmann, J., Heymann, K. and Harden, J. (2010) Nano-scale spatial biogeochemical complexity of Organomineral assemblages using C K, Ca L2,3- and Fe L2,3-edges NEXAFS spectromicroscopy. *Canadian Light Source Activity Report*, Saskatoon, Canada.
22. Heymann, K., Lehmann, J., **Solomon, D.**, Regier, T. (2010) C 1s NEXAFS study of changes in black carbon chemistry as a result of interaction with clay minerals, *Canadian Light Source Activity Report*, Saskatoon, Canada.
23. Liang, B., Lehmann, B., Sobi, S.P., Thies, J.E., O'Neill, B., Trujillo, L., Gaunt, J., **Solomon, D.**, Grossman, J., Neves, E.G. and Luizão, F.J. (2010) Black carbon affects the cycling of non-black carbon in soil. *Organic Geochemistry* 41, 206–213.
24. **Solomon, D.**, Lehmann, J., Kinyangi, J., Liang, B., Hanley, K., Heymann, K., Wirick, S. and Jacobsen, C. (2009) Carbon (1s) NEXAFS spectroscopy of biogeochemically relevant organic reference compounds. *Soil Science Society of America Journal*, 73:1817-1830.
25. **Solomon, D.**, Lehmann, J., Kinyangi, J., Pell, A., Riba, S., Theis, J., Solomon, N., Amelung, A., Lobe, I., Machado, S., and Janzen, H. (2009) Anthropogenic and climate influences on biogeochemical dynamics and molecular-level speciation of soil sulfur. *Ecological Applications*, 19: 989-1002.
26. Sato, S., Neves E.G., **Solomon D.**, Liang B. and Lehmann J. (2009) Biogenic calcium phosphate dynamics in soils over millennial time scales. *Journal of Soil and Sediment*. 9: 194-205.
27. Lehmann, J., and **Solomon, D.** (2008) Nitrogen speciation in soils by near-edge X-ray absorption fine structure (NEXAFS) spectroscopy and scanning transmission X-ray microscopy (STXM). *Canadian Light Source Activity Report*, Saskatoon, Canada.
28. Lehmann, J., **Solomon, D.**, Zhao, F. and McGrath, S.P. (2008) Atmospheric SO₂ Emissions Change Organic Sulfur Forms in Soils. *Environmental Science and Technology*, 42: 3550-3555.
29. Liang, B., Lehmann, J., **Solomon, D.**, Sobi, S., Thies, J., Skjemstad, J.O., Luizão, F.J., Engelhard, M., Neves, E., and Wirick, S. (2008) Stability of Biomass-derived Black Carbon in Soils. *Geochimica et Cosmochimica Acta*, 72 (2008) 6069–6078.
30. Lehmann, J., **Solomon, D.**, Kinyangi, J., Dathe, L., Wirick, S., and Jacobson, C. (2008). Spatial Complexity of Soil Organic Matter Forms at Nanometer Scales. *Nature Geoscience*, 1: 238-242.
31. **Solomon, D.** Lehmann, J., Thies, J., Liang, B., Kinyangi, J., Skjemstad, J.O., Luizão, F.J., Petersen, J., Neves E.G. and Schäfer, T. (2007) Molecular Signature of Organic C in Black C-rich Amazonian Dark Earth. *Geochimica et Cosmochimica Acta*, 71:2285-2298.
32. **Solomon, D.**, Lehmann, J., Kinyangi, J., Amelung, W., Lobe, I., Ngoze, S., Riba, S., Pell, A., Verchot, L., Mbugua, D., Skjemstad, J., and Schäfer T. (2007) Long-term Impacts of Anthropogenic Perturbations on the Dynamics and Speciation of Organic Carbon in Tropical Forest and Subtropical Grassland Ecosystems. *Global Change Biology*, 13: 511-530.
33. Lehmann, J., Kinyangi, J. and **Solomon, D.** (2007) Organic Matter Stabilization in Soil Microaggregates: Implications from Spatial Heterogeneity of Organic Carbon Contents and Carbon Forms. *Biogeochemistry*, 85: 45-57.
34. Zhao, F. J., Lehmann, J., **Solomon, D.**, Fox, M. A., and McGrath S. P. (2006) Sulphur Speciation and Turnover in Soils: Evidence from Sulphur K-edge XANES Spectroscopy and Isotope Dilution Studies. *Soil Biology and Biochemistry*, 38: 1000-1007.
35. James Kinyangi, **Dawit Solomon**, Biqing Liang, Sue Wirick and Johannes Lehmann (2006) Nanoscale Biogeochemical Complexity of the Organomineral Assemblage in Soil: Application of STXM Microscopy and C 1s-NEXAFS Spectroscopy. *Soil Science Society of American Journal*, 70:1708–1718.
36. Liang, B., Lehmann, J., **Solomon, D.**, Kinyangi, J., Grossman, J., O'Neill, B., Skjemstad, J.O., Thies, J., Luizão, F.J., Petersen, J. and Neves E.G. (2006) Black Carbon Increases Cation Exchange Capacity in Soils. *Soil Science Society of American Journal*, 70:1719–1730.
37. Wang J., **Solomon D.**, Lehmann J., Zhang X. and Amelung, W. (2006) Climatic Effects on Organic Sulfur Constituents of Native and Cultivated Soils of the Great Plains of North America. *Geoderma*, 133: 160-172.
38. **Solomon, D.**, Lehmann, J., Kinyangi, J., Liang, B and Shafer T. (2005) Carbon K-edge NEXAFS and FTIR-ATR Spectroscopy Investigation of Organic Carbon Speciation in Tropical Soils. *Soil Science Society of American Journal*, 69, 107-119.
39. **Solomon, D.**, Lehmann, J., Lobe, I., Martinez, C., Treitnes S., Du Preez, C. C. and Amelung W. (2005) Speciation of sulphur in subtropical soils: Evidence from degradative wet-chemical analysis and S K-edge XANES. *European Journal of Soil Science*, 56: 621-634.
40. Sato, S., **Solomon, D.**, Hyland, C., Ketterings, Q. and Lehmann, J. (2005) Phosphorus Speciation in Manure and Manure-applied Soils Using XANES Spectroscopy. *Environmental Science and Technology*, 39: 7485-7491.
41. Lehmann, J. Liang, B. **Solomon, D.** Lerotic, M. Kinyangi, J. Schäfer, T. Wirick, S. and Jacobsen, C. (2005) Near-edge X-ray Absorption Fine Structure (NEXAFS) Spectroscopy for Mapping Nano-scale Distribution of Organic Carbon Forms in Soil: Application to Black Carbon Particles. *Global Biogeochemical Cycles*, doi: 10.1029/2004GB002435.
42. Lehmann, J., Lan, Z., Hyland, C., Sato, S., **Solomon, D.**, Ketterings, Q.M. (2005) Long-term Dynamics of Phosphorus Forms and Retention in Soils under Manure Applications. *Environmental Science and Technology*, 39: 6672-6680.
43. **Solomon, D.**, Lehmann, J. and Martinez, C. E. (2003) Sulphur K-edge X-ray Absorption Near-Edge Structure (XANES) Spectroscopy as a Tool for Understanding S Dynamics. *Soil Science Society of American Journal*, 67, 1721-1731.
44. **Solomon, D.**, Fritzsche, F., Mamo, T., Lehmann, J. and Zech, W. (2002) Soil Organic Matter Dynamics in the Subhumid Agroecosystems of the Ethiopian Highlands: Evidence from Natural ¹³C Abundance and particle-size fractionation. *Soil Science Society of American Journal*, 66: 969-978.

45. **Solomon, D.**, Fritzsche, F., Mamo, T., Lehmann, J. and Zech, W. (2002) Soil Organic Matter Composition in the Sub-humid Ethiopian Highlands as Influenced by Deforestation and Agricultural Management. *Soil Science Society of American Journal*, 66: 68-82.
46. **Solomon, D.**, Fritzsche, F., Mamo, T., Lehmann, J. and Zech, W. (2002) Phosphorus Forms and Dynamics as Influenced by Land Use in the Sub-humid Ethiopian Highlands: Sequential Extraction and ³¹P NMR Spectroscopy. *Geoderma*, 105:21-48.
47. **Solomon, D.**, Lehmann, J. Mamo, T., Fritzsche, F. and Zech, W. (2001) Sulfur Fractions in Particle-size Separates of the Sub-humid Ethiopian Highlands as Influenced by Land Use Changes. *Geoderma*, 102: 41-59.
48. **Solomon, D.**, Lehmann, J. and Zech, W. (2001) Land Use effects on Amino Sugar signatures of Chromic Luvisols in the Semi-arid Part of Northern Tanzania. *Biology and Fertility of Soils*, 33: 33-40.
49. Glaser, B., Lehmann, J., Führböter, M., **Solomon, D.** and Zech, W. (2001) Carbon and Nitrogen Mineralization in Cultivated and Natural Savanna Soils of Northern Tanzania. *Biology and Fertility of Soils*, 33: 301-309.
50. **Solomon, D.** and Lehmann, J. (2000) Loss of Phosphorus from Soil in Semi-arid Northern Tanzania as a Result of Cropping: Evidence from Sequential Extraction and ³¹P NMR Spectroscopy. *European Journal of Soil Science*, 51: 699-708.
51. **Solomon, D.**, Lehmann, J. and Zech, W. (2000) Land Use Effects on Soil Organic Matter Properties of Chromic Luvisols in Semiarid Northern Tanzania: Carbon, Nitrogen, Lignin and Carbohydrates. *Agriculture Ecosystems and Environment*, 78: 203-213.
52. Turrión, M.B., Glaser, B., **Solomon, D.**, Ni, A. and Zech, W. (2000). Effects of Deforestation on Phosphorus Pools in Mountain Soils of the Allay Range, Khyrgyzia. *Biology and Fertility of Soils*, 31: 134-142.
53. Glaser, B., Turrión, M.B., **Solomon, D.**, Ni, A. and Zech, W. (2000). Soil Organic Matter Pools Quantity and Quality in Mountain Soils of the Allay Range, Kyrzyzia, affected by land use change. *Biology and Fertility of Soils*, 31: 407-413.

Book chapters:

54. Lehmann, J., **Solomon D.**, Brandes J., Fleckenstein H., Jacobson C. and Thieme J. (2009). Synchrotron-based near-edge X-ray Spectroscopy of NOM in soils and sediments. In: Senesi, N., Xing P. and Huang, P.M. (Eds.), *Biophysico-Chemical Processes Involving Natural Nonliving Organic Matter in Environmental Systems IUPAC Series on Biophysico-Chemical Processes in Environmental Systems*, Wiley, NJ, pp. 729-781.
55. Johannes Lehmann and **Dawit Solomon**. (2010) Organic Carbon Chemistry in Soils Observed by Synchrotron-based Spectroscopy. In: Singh, B., and Gräfe, M. (Eds.), *Developments in Soil Science Vol. 34. Synchrotron-based Techniques in Soils and Sediments*. Elsevier B.V., The Netherlands, pp. 289-312.
56. Zech, W., Glaser, B., Turrión, M.B., **Solomon, D.**, Hailu, G., Ni, A. Petrov, M. and Lemzin, I. (2000). Effects of Deforestation on Organic Matter Properties of Mountain Soils of the Allay Range, Khyrgyzia: A Geocological Case Study in High Asia. In: Miebe, G and Yili, Z. (Eds.), *Environmental Changes in High Asia*. Marburg, Germany, pp. 83-93.

Publications submitted or under preparation for submission to peer reviewed journals:

57. Karen Heymann, **Dawit Solomon**, Jeff Baldock, Eduardo Neves, Tom Regier, Johannes Lehmann. 2017. Estimating char carbon concentrations and property in soils using near-edge x-ray fine structure spectroscopy. (Submitted to *Applied Geochemistry*)
58. Karen Heymann, Johannes Lehmann, **Dawit Solomon**, Biqing Liang, Eduardo Neves, Sue Wirrick. (2017) Do black humic acids exist? (Under preparation).
59. Karen Heymann, Johannes Lehmann, **Dawit Solomon**, Stephen Joseph, Chee Chia, Tom Regier. (2017) Pyrogenic organic matter and mineral interactions in soil. *European Journal of Soil Science* (Under preparation).

Sustainable agriculture, food security and climate change related constructive interactions (invited presentations, conference proceedings, posters, capacity building workshops and symposiums):

60. **Dawit Solomon**, Dominic Woolf, Stefan Jirka, David Bluhm and Johannes Lehmann. 2017. Land-based food security interventions can deliver both climate-change mitigation and adaptation benefits in SSA: Lessons from Ethiopia's Productive Safety Net Program. February 2, 2017. Co-hosted by the Agriculture Global Practice and the Social Protection Global Practice of The World Bank Group. Washington DC, USA.
61. **Dawit Solomon**, Alessandro Peressotti Lucia Brusegan. 2017. Biochar Systems for climate smarting Africa. Wednesday, January 18, 2017 hosted by Climate Smart Agriculture Global Solutions Group (CSA GSG). of The World Bank Group. Washington DC, USA.
62. **Dawit Solomon**, Johannes Lehmann, Melissa Leach and James Fairhead. 2016. 700 year-old indigenous African soil enrichment technique as a climate-smart sustainable agriculture alternative. *Indigenous knowledge and climate change - International Conference UNESCO-CNRS*, 2-3 November 2016, Marrakech, Morocco.
63. **Dawit Solomon**, Johannes Lehmann, Dominic Woolf, Stefan Jirka, Steve DeGloria, and Berhanu Belay. 2016. Land-based food security interventions can deliver both climate change mitigation and adaptation benefits in Sub-Saharan Africa: Lessons from Ethiopia's Productive Safety Net Program (PSNP). *Climate Smart Agriculture, Agroecology, and Food Security: Lessons Learned from Research and Community Development Projects in Africa a Cornell and UNDP side event*, Tuesday, November 8, 12:00-4:00 p.m. Salle 1, Africa Pavilion, COP22, Marrakech, Morocco
64. Johannes Lehmann, **Dawit Solomon**, Dominic Woolf, Stefan Jirka, Steve DeGloria, Eleanor Milne and Berhanu Belay 2015. Food Security Interventions for Mitigating Climate Change in Sub-Saharan Africa: Lessons from Ethiopia's Social Safety Net Program.

- Presentation at the climate change, agroecology, nutrition and food security: Critical Lessons from project interventions in Sub-Saharan Africa. Dec 3, 2015, African Pavilion, United Nations conference on climate change – Cop 21, PARIS France.*
65. Johannes Lehmann, Dominic Woolf, Stefan Jirka, Steve DeGloria, **Dawit Solomon**, Eleanor Milne, Mark Easter, Berhanu Belay, Gebermedihin Ambaw, Keefelegn Getahun, and Milkiyas Ahmed. 2015. Food-security interventions are a vehicle for climate change mitigation. Poster presented at the climate change, agroecology, nutrition and food security: critical lessons from project interventions in Sub-Saharan Africa. Dec 3, 2015, African Pavilion, United Nations conference on climate change – Cop 21, PARIS, France.
 66. **Dawit Solomon**, Dominic Woolf, Stefan Jirka, Berhanu Belay, Gebremedihin Ambaw, Keefelegn Getahun and Stephen DeGloria. 2015. Quantifying Ethiopia's PSNP soil fertility co-benefits, carbon sequestration and climate-change mitigation impacts in chronically food insecure parts of Ethiopia. Presentation on Dec 16, 2015 for The United States Agency for International Development (USAID) staff at US Embassy and on Dec 21, 2015 for Department for International Development (DFID) and Ethiopia's other development partners (EU, Irish Aid and DANIDA) at the UK Embassy in Addis Ababa, Ethiopia.
 67. **Dawit Solomon**, Dominic Woolf, Stefan Jirka, Steve De'Gloria, Johannes Lehmann, Berhanu Belay, Gebermedihin Ambaw, Keefelegn Getahun, Milkiyas Ahmed, Zia Ahmed. 2015. Ethiopia's Productive Safety Net Program (PSNP) potential National baseline database (NBD) and soil carbon and fertility co-benefit assessment. World Bank and CARE-Ethiopia workshop on Ethiopia's Productive Safety Net Program (PSNP) Climate Smart Initiative (CSI) project validation workshop December 18, 2015, Nazareth, Ethiopia.
 68. Dominic Woolf, Stefan Jirka, Steven DeGloria, **Dawit Solomon**, and Johannes Lehmann. 2015. Quantifying PSNP's Carbon Sequestration and Climate-Change Mitigation Impacts. World Bank and CARE-Ethiopia workshop on Ethiopia's Productive Safety Net Program (PSNP) Climate Smart Initiative (CSI) project validation workshop December 18, 2015, Nazareth, Ethiopia.
 69. Dominic Woolf, Stefan Jirka, **Dawit Solomon** and Johannes Lehmann. 2015. Climate Finance for PSNP. World Bank and CARE-Ethiopia workshop on Ethiopia's Productive Safety Net Program (PSNP) Climate Smart Initiative (CSI) project validation workshop December 18, 2015, Nazareth, Ethiopia.
 70. Dawit Solomon, Dominic Woolf, Stefan Jirka, Steve De'Gloria, Johannes Lehmann, Berhanu Belay, Gebermedihin Ambaw, Keefelegn Getahun, Milkiyas Ahmed, Zia Ahmed. 2015. Ethiopia's Productive Safety Net Program (PSNP) potential for carbon sequestration and enhancements of soil fertility in Ethiopia. World Bank and CARE-Ethiopia and Cornell University carbon benefits workshop on climate change in Ethiopia: Implications and financial opportunities for PSNP, sustainable land management and food security, March 23rd - 25th, 2015, Addis Ababa, Ethiopia.
 71. Dominic Woolf, **Dawit Solomon**, Johannes Lehmann. 2015. Climate change in the Ethiopian context: What is climate smart land management? World Bank and CARE-Ethiopia and Cornell University carbon benefits workshop on climate change in Ethiopia: Implications and financial opportunities for PSNP, sustainable land management and food security, March 23rd - 25th, 2015, Addis Ababa, Ethiopia.
 72. **Dawit Solomon**, Johannes Lehmann, James Angus Fraser, Melissa Leach, Kojo Amanor, Søren Munch Kristiansen, James Fairhead. 2014. Indigenous African Soil Enrichment as Climate-Smart Sustainable Agriculture Alternative. 20th world congress of soil science, 6, 286-286.
 73. Dominic Woolf, **Dawit Solomon** and Eleanor Milne. 20014. Tracking and reporting carbon benefits (greenhouse gas emissions and carbon stock changes) in land management projects in Ethiopia. World Bank and CARE-Ethiopia and Cornell University workshop on Ethiopia's Productive Safety Net Program (PSNP) Climate Smart Initiative (CSI) project. July 10th - 11th, 20014. Addis Ababa, Ethiopia.

Other constructive interactions (invited presentations, conference proceedings and posters):

74. Alain F. Plante, Steven R. Beupré, **Dawit Solomon**, Johannes Lehmann, James Angus Fraser, Melissa Leach, James Fairhead (2014) Long-term carbon stabilization in African Dark Earth soils. The Californian Goldschmidt, June 8th and June 13th, Sacramento, California.
75. Manna Fujii, Alain F. Plante, Tsutomu Ohno, **Dawit Solomon**, Johannes Lehmann, James Angus Fraser, Melissa Leach, James Fairhead (2014) Characterization of extractable soil organic matter pools from African Dark Earths (AfDE): A case study in historical biochar and organic waste amendments. European Geosciences Union General Assembly, 27 April – 02 May, Vienna, Austria
76. **Solomon, D.**, Lehmann, J., Fairhead, J., Fraser, J. Leach, M., Amanor, K. Berhanu, B., Gebremedihin, A., Milkiyas, A. 2014. Biochar-based climate-smart smallholder agriculture in Africa. Energy, Health, Agriculture and Environmental Benefits from Biochar Use: Building Capacities in ACP countries (Biochar Plus). Key note speaker - University of Udine, Udine, Italy, February 24-26.
77. **Solomon, D.**, Lehmann, J., Fairhead, J., Fraser, J. Leach, M., Amanor, K. 2013. Bridging scales in Environmental Sciences Research: micro- and nano-environments of C sequestration. Jimma University Invited Public Lecture, January 22, Jimma, Ethiopia.
78. **Solomon, D.**, Lehmann, J., Fairhead, J., Fraser, J. Leach, M., Amanor, K. 2013. Uncovering the ecological and agricultural importance of African Dark Earths – relevance to the smallholder agricultural system of Sierra Leone. Freetown, Sierra Leone, CARE-Sierra Leone-IITA-University of Njala AfDE-Meeting; January 18, 2013.
79. **Solomon, D.**, Lehmann, J., Fairhead, J., Fraser, J. Leach, M., Amanor, K. 2013. Are there anthropogenic dark earths in Africa? African Biochar Initiative Workshop, Kisumu, Kenya January 08-10, 2013.

80. **Solomon, D.**, Lehmann, J., Harden, J. W.; Wang, J.; Muller, D. 2011. *Micro- and nano-environments of C sequestration: Multi-element spectromicroscopy assessment of soil organomineral assemblages* American Geophysical Union, Fall Meeting San Francisco, California, Biogeosciences invited speaker abstract #B22E-03.
81. **Solomon, D.**, Lehmann, J. (2011) *Submicron scale C sequestration*. AFRI/NRI Soil Processes Project Directors Meeting. Asheville, NC. May 26-2011.
82. **Solomon, D.**, Lehmann, J., Heymann, K., Harden, J. 2010. *Nano-scale spatial biogeochemical complexity of organomineral assemblages using NEXAFS spectromicroscopy*. In *Organic matter stabilization and ecosystem functions conference Poster S2-P13*, 19 to 23 September 2010 - Presqu'île de Giens (Côte d'Azur) France.
83. **Solomon, D.** and Lehmann, J. (2010) *Micro- and nano-environments of carbon sequestration* USDA AFRI NIFA- investigators meeting. Washington DC.
84. Cheng, C.H., Lehmann, J., Kinyangi, J., **Solomon, D.**, Ting-Leub Wu, T-L. (2010) *Long-term effects of black carbon on soil properties*. *Proceedings of the 19th World Congress of Soil Science: Soil solutions for a changing world*, Brisbane, Australia, 1-6 August 2010. *Symposium 4.1.2 Management and protection of receiving environments* Pages: 86-89 Published: 2010
85. **Solomon, D.** (2009) *Bridging scales from landscape- to micro- and nano-level research for understanding natural and anthropogenic influences in terrestrial ecosystems*. Invited presentation at the Forschungszentrum Jülich, Jülich, Germany.
86. **Solomon, D.** (2009) *Biogeochemistry of wetlands*. Invited presentation at the Forschungszentrum Jülich, Jülich, Germany.
87. Kassabun, H., Nicholson, C.F., **Solomon, D.**, Collick, A., and Steenbuis, T. (2009) *Economics and policy context for the biological management of soil fertility (BMSF) in Ethiopia*. Cornell Soil and Water Lab Publication.
88. Heymann, K., Lehmann, J., **Solomon, D.**, and Wirrick, S. (2009) *Black carbon humic acids: Do They Exist?* ASA, CSSA, SSSA Nov 1-5 2009. Pittsburg, Pennsylvania.
89. **Solomon, D.** 2009. *Micro- and nano-level imaging in terrestrial ecosystems*. Invited presentation at the Ethiopian Institute for Agricultural Research, Addis Ababa, Ethiopia.
90. **Solomon, D.**, Lehmann, J., Harden, J., Wirrick, S., and Karunakaran, C. (2009) *Nano-scale biogeochemistry of C, N, Ca, Fe and Si in organo-mineral assemblages*. *International Symposium on Soil Organic Matter Dynamics: Land Use, Management and Global Change*, Colorado Springs, Colorado, USA, July 6-9.
91. Heymann, K., Lehmann, J., **Solomon, D.**, Wirrick, S. 2009. *Black carbon humic acids: Do They Exist?* Joint Annual Meeting of ASA-CSSA-SSSA, Pittsburgh, PA.
92. **Solomon, D.**, Lehmann, J., Kinyangi, J., Liang, B., and Machado, S. (2008) *Molecular-level biogeochemical dynamics of organic sulfur revealed by XANES spectroscopy*. *Synchrotron Environmental Science IV (SESIV) meeting*, December 11-13, San Francisco, California, USA.
93. Lehmann, J., and **Solomon, D.** (2008). *Nitrogen speciation in soils by near-edge X-ray absorption fine structure (NEXAFS) spectroscopy and scanning transmission X-ray microscopy (STXM)*. *Annual Report, Canadian Light Source, Saskatoon*.
94. **Solomon, D.**, Lehmann, J., and Haymann K. (2007). *Applications of X-ray Spectroscopy for Understanding Anthropogenic Influences on Soil Biogeochemistry*. Invited talk at the The School for Environmental Sciences with Synchrotrons (SESS 2007), at the Advanced Photon Source (APS) U.S. Department of Energy's Argonne National Laboratory, Argonne, IL.
95. **Dawit Solomon**, Johannes Lehmann, James Kinyangi, Alice Pell, Susan Riha, Solomon Ngoze, Janice Theis, Wulf Amelung, Ingo Lobe, Stephen Machado, and Henry Janzen (2007) *Applications of XANES spectroscopy for understanding anthropogenic and temperature impacts on sulfur speciation and biogeochemical dynamics in temperate, subtropical and tropical ecosystems*. 3rd International Conference on Mechanisms of Organic Matter Stabilization and Destabilization in Soils and Sediments. September 23 to 26th, Adelaide, Australia.
96. **Solomon, D.**, (2007). *Application of XANES Spectroscopy for Understanding Sulfur Speciation and Biogeochemical Dynamics in the Ecosystem* at the "Tender" X-ray Absorption Spectroscopy (at 1-5 KeV) workshop" Invited talk at the joint National Synchrotron Light Source (NSLS)/Center for Functional Nanomaterials (CFN) Joint Users' Meeting Brookhaven National Laboratories (BNL), May 22, 2007, NY, USA.
97. **Solomon, D.**, Lehmann, J., Thies, J., Liang, B., Kinyangi, J., Luizão, F., and Skjemstad, J. (2006) *Macromolecular Speciation of Organic Matter in Black C rich Anthrosols: Insight from ¹³C CP-MAS NMR and Synchrotron Based C (1s) NEXAFS and FTIR-ATR Spectroscopy*. 18th world Congress of Soil Science, July 9-15, Philadelphia, Pennsylvania, USA.
98. **Solomon, D.**, Kandiva, V., Kinyangi, J., Mabaya, E. and Mwaniki, A. (2006): *African Perspectives on Food Security in Africa*. CIIFAD Seminar Series. Video: <http://ciifad.cornell.edu/activities/seminars/agroecsem/sem06/semF06.cfm>.
99. Lehmann, J., **Solomon, D.** and Kinyangi, J. (2006) *Chemical speciation of organic matter on mineral surfaces and in micropores using NEXAFS*. November, 13, ASA-CSSA-SSSA, Indianapolis, Indiana, USA.
100. Lehmann, J., Kinyangi, J. and **Solomon, D.** (2006) *In-Situ Assessment of the Spatial Association of Organic Carbon and Clay Mineral Forms in Soil*. November, 13, ASA-CSSA-SSSA, Indianapolis, Indiana, USA.
101. **Solomon, D.**, Lehmann, J., Kinyangi, J., Liang, B., Lobe, I., Amelung, W. and Schäfer, T. (2006) *Soil organic C speciation and transformations following long-term anthropogenic perturbations in tropical ecosystems: evidence from ¹³C NMR and synchrotron-based C (1s) NEXAFS and FTIR-ATR spectroscopy*. 18th world Congress of Soil Science, July 9-15, Philadelphia, Pennsylvania, USA.

102. Sato, S., Liang, B., **Solomon, D.** and Lehmann, J. (2006) Changes in soil phosphorus fractions and species in Amazonian Dark Earths (Terra Preta) across a long chronosequence. 18th world Congress of Soil Science, July 9-15, Philadelphia, Pennsylvania, USA.
103. Kinyangi, J., Lehmann, J., Liang, B. and **Solomon, D.** (2006) Microscale Synchrotron-FTIR Mapping of Carbon "Hot Spots" on Mineral Surfaces in Soil. 18th world Congress of Soil Science, July 9-15, Philadelphia, Pennsylvania, USA.
104. Liang, B., Lehmann, J., Kinyangi, J., **Solomon, D.**, Thies, J. and Luizão, F. (2006) Long-Term Oxidation of Biomass-Derived Black Carbon and Effects on Soil Fertility and Organic C Cycling. 18th world Congress of Soil Science, July 9-15, Philadelphia, Pennsylvania, USA.
105. O'Neill, B., Grossman, J., Tsai, S.M., Gomes, J.E., Garcia, C.E., **Solomon, D.**, Liang, B., Lehmann, J. and Thies, J. (2006) Isolating Unique Bacteria from Terra Preta Systems: Using Culturing and Molecular Techniques as Tools for Characterizing Microbial Life in Amazonian Dark Earths. 18th world Congress of Soil Science, July 9-15, Philadelphia, Pennsylvania, USA.
106. Lehmann, J., Rondon, M., Major, J., Kimetu, J., Cheng, C.H., Trujillo, L., Day, D., Liang, B., Gaunt, J., Sobi, S., **Solomon, D.** and Luizão, F. (2006) Terra Preta – opportunities for meeting world-wide challenges of soil degradation and climate change. To be presented at the American Association for the Advancement of Science (AAAS) meeting between 16-20th of February 2006, St. Louis, Missouri, USA.
107. Zech, R., Manhart, A., Glaser, B., Solomon, D. and Zech, W. 2005. A High-Resolution Lateglacial Climate Record from Lake Sediments in the Ethiopian Bale Mountains. American Geophysical Union, Fall Meeting, abstract number PP21A-1554.
108. Johannes, L., Biqing, L. and **Solomon, D.** (2005) Properties and functions of black carbon in soil. Geophysical Research Abstracts. Vol. 7. EGU05-A-00103. European Geosciences Union. Vienna, Austria.
109. Biqing, L., Johannes, L. and **Solomon, D.** (2005) Long-term C mineralization studies in high black carbon Anthrosols and adjacent low black carbon Oxisols. Geophysical Research Abstracts. Vol. 7. EGU05-A-01333. European Geosciences Union. Vienna, Austria.
110. **Solomon, D.**, Lehmann, J., Kinyangi, J., Liang, B., Lobe, I., Amelung, W. and Schäfer, T. (2005) Organic carbon in tropical ecosystems: Insights into chemical speciation and transformation using C-NEXAFS, SR-FTIR-ATR and ¹³C NMR spectroscopy. Abstracts for the Second NASA Conference on Mechanisms of Soil Organic Matter Stabilization will be held October 9-13 at the Asilomar, Monterey, California, USA.
111. Lehmann, J., Kinyangi, J. and **Solomon, D.** (2005) Carbon stabilization in biogenic nano-structures of soil microaggregates. Abstracts for the Second NASA Conference on Mechanisms of Soil Organic Matter Stabilization will be held October 9-13 at the Asilomar, Monterey, California, USA
112. Liang, B., Lehmann, J., Major, J., Luizão, F., **Solomon, D.** (2005) Black C effects on soil fertility and implications for nutrient cycling and management. Abstracts for the XV International Plant Nutrition Colloquium Beijing, The Peoples Republic of China, September 14-19, 2005 for session Symposium 9: Nutrient cycling and management.
113. Kinyangi, J.M., Lehmann, J. and **Solomon D** (2004) Using carbon k-edge XANES to assess organic matter stabilization in microaggregates during 100 years of cropping. Proceedings of the Agronomy Society of America, Crop Science Society of America and Soil Science Society of America annual meeting, October 31-November 4, Seattle, Washington, USA, CD ROM.
114. Sato S., Hyland C., **Solomon D.**, Ketterings, Q. and Lehmann C.J. (2004) Phosphorus Speciation in Poultry Manure and Manure-applied Soils Using XANES Spectroscopy. (6364). Proceedings of the Agronomy Society of America, Crop Science Society of America and Soil Science Society of America annual meeting, October 31-November 4, Seattle, Washington, USA, CD ROM.
115. Liang, B., and Lehmann, J. and **Solomon, D.** (2004) Novel synchrotron-based STMX technique for in situ study of black carbon chemical properties. Poster presentation at the Energy & Agricultural Carbon Utilization Symposium, June 10-11, Athens, GA, USA.
116. Johann A.C., **Solomon D.**, Fritzsche F., Guggenberger G., Zech W. (2003) Catena-Studie zum Umsatz von organischem C, N und S in stabilisotopen-markierter Streu an Waldstandorten im äthiopischen Hochland. Mitt. Dtsch. Bodenkundl. Ges. 102/2, 839–840.
117. **Solomon, D.** and Lehmann, J. (2002) Sulfur K-edge X-ray Absorption Near-Edge Structure (XANES) Spectroscopy as a Tool for Understanding Sulfur Dynamics in Soil Organic Matter Following Land Use Changes. National Synchrotron Light Source, Brookhaven National Laboratory Activity Report United States Department of Energy, NY, USA.
118. Lehmann, J. and **Solomon, D.** (2002) Long-term Carbon Stabilization in Soils - The Role of Aggregates as Revealed by Synchrotron Based FTIR Spectroscopy. National Synchrotron Light Source, Brookhaven National Laboratory Activity Report, United States Department of Energy, NY, USA.
119. **Solomon, D.** and Lehmann, J. (2002) Sulfur K-edge XANES spectroscopy in soil organic matter study. Proceedings of the Agronomy Society of America, Crop Science Society of America and Soil Science Society of America annual meeting (November 10-14). Indianapolis, Indiana, USA, CD ROM.
120. Johannes Lehmann, **Dawit Solomon**, Henry Janzen, Wulf Amelung, Steinar Treitnes, Carmen Martinez Ingo Lobe, Christian DuPreez, and Stephen Machado (2002). Biogeochemical Cycling of Sulfur in Soil. Proceedings of the Fall Meeting of the American Geophysical Union, AGU (December 6-10). San Francisco, California, USA.
121. **Solomon, D.**, Lehmann, J. Mamo, T., Fritzsche, F. and Zech, W. (2000) Land use Effects on Sulfur Fractions in Fine Earth and Particle-size Separates of Soils in Southern Ethiopian Highlands. (Poster for the German Society for Tropical Ecology (gtö), Würzburg, Germany).

122. Gigliotti, G. and **Solomon, D.** (2000) *Influence of Organic Refuses Addition to Soil on the Behavior of Terebutylazine. Entering the Third Millennium with a Common Approach to Humic Substances and Organic Matter in Water, Soil and Sediments. Proceedings of the International Humic Substances, Society, Vol. 1, Toulouse, France, pp. 677-680.*
123. Zech, W., Glaser, B., Turrión, M.B., **Solomon, D.**, Hailu, G., Ni, A. Petrov, M. and Lemzin, I. (2000). *Effects of Deforestation on Organic Matter Properties of Mountain Soils of the Allay Range, Khyrgyzia: A Geocological Case Study in High Asia.* In: Miebe, G and Yili, Z. (Eds.), *Environmental Changes in High Asia.* Marburg, Germany, pp. 83-89.
-

Extramural professional service and affiliations:

- Organized workshop on carbon benefits in changing climate: Implications and financial opportunities for Ethiopia's food security Productive Safety Net Program (PSNP) sustainable land management interventions for Government officials, NGOs (SNV, Farm Africa, Mercy Corps, CARE etc.), and Ethiopia's development partners (World Bank, DFID, DANIDA, USAID etc.), March 23rd - 25th, 2015, Addis Ababa, Ethiopia.
 - Organized workshop on tracking and reporting carbon benefits (greenhouse gas emissions and carbon stock changes) in land management projects in Ethiopia for Ethiopia's (PSNP) Climate Smart Initiative (CSI consortium partners, Ethiopian Government officials and Ethiopia's development partners, July 10th - 11th, 20014. Addis Ababa, Ethiopia.
 - Review proposals for NSF, Canadian Light Source, and USDA-NRI
 - Review manuscripts for PNAS, Environmental Science and Technology, Sulfur, Biogeochemistry, Soil Science Society of America, Biology and Fertility of Soils, Journal of Soils and Sediments, Geoderma, Soil Biology and Biochemistry, Waste Management, Geochimica et Cosmochimica Acta etc.
 - Member of Soil Science Society of America, American Society of Agronomy, Crop Science Society of America, American Geophysical Union, European Geosciences Union
-

Fellowships and honors:

- Research fellow, Atkinson Center for Sustainable Future Fellow since 2012
 - Flora Rose House fellow since 2012
 - German Academic Exchange Program (DAAD) competitive Ph.D. fellowship award, 1996
 - Netherlands Ministry of Development Co-operation competitive M.Sc. fellowship award, 1992
-

Language skills:

- English: Excellent; Amharic: Excellent; German: Basic
-

Selected national and international survey, research for development advisory and consultancy services:

- World Bank-CARE-Cornell climate smart food security, agriculture and climate change initiatives in Ethiopia, 2013-2015.
 - Climate-smart indigenous sustainable soil enrichment systems survey in Liberia and Ghana, 2008-2012
 - Soil and farming systems practice survey at Oregon-USA and Alberta-Canada, 2002
 - Ethio-German soil and geocological survey and consultancy, central and southern Ethiopia, 2001
 - Soil survey and field work at the Institute for the High Mountain Study, Austria, 1998
 - Soil science field excursion in Bavaria, southern Germany, 1997
 - Food self-sufficiency and crop protection survey and consultancy, southwestern Ethiopia, 1988
-

Contact information of referees:

- **Prof. Johannes Lehmann**
Professor, Soil Fertility and Biogeochemistry
Soils and Crop Section, Integrated School for Plant Sciences, Cornell University
909 Bradfield Hall, Ithaca, NY, 14853, USA; Tel: +1-607- 254-1236; E-mail: cl273@cornell.edu
- **Dr. James Kinyangi,**
Chief Climate Change & Policy Officer
African Development Bank Group
Abidjan, Côte d'Ivoire
Tel No: +22589012667
Email: J.KINYANGI@afdb.org
SKYPE: jmukidza
- **Prof. Stephen D. DeGloria**
Professor, Resource Inventory and Geographic Information Science and Technology

*Soils and Crop Section, Integrated School for Plant Sciences, Cornell University
232 Emerson Hall, Ithaca, NY 14853, USA; Tel: +1-607 255-5459; Email: sdd4@cornell.edu*

- ***Dr. Dominic Woolf***

Research Associate

Soil Carbon Geospatial Modelling Expert

Soils and Crop Section, Integrated School for Plant Sciences, Cornell University

916 Bradfield Hall, Ithaca, NY, 14853, USA; Tel: +1-607- 255-1730; E-mail: domwoolf@gmail.com

SKYPE: domwoolf