

Dr Kpade Ozias Laurentin Hounkpatin – CV

I. Personal information

- Name(s): Kapde Ozias Laurentin
- Surname: Hounkpatin
- Key Expertise: Soil properties assessment - Data mining and digital soil mapping of soil properties and functions - Chemometric prediction of soil properties (infrared spectroscopy) - Predictive modelling and representative sampling - Biogeochemical cycling of nutrients – Soil degradation and environmental risks assessment in relation to soil pollutants
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- Skype ID: Eriyemi



II. Education

- 2018- 2019: Post-doctoral studies, Swedish University of Agriculture, Sweden.
- 2012- 2017: PhD in Soil Science and Soil Ecology, University of Bonn, Germany.
- 2008 -2010: Master in Agricultural and Bioresource Engineering, University of Wageningen, Netherlands.
- 2001- 2007: Master in Natural Resources Management, University of Parakou, Benin.

III. Knowledge and Skills

- **Areas of Expertise in Broad:** soil quality; digital soil mapping; land use and soil degradation assessment; uncertainty assessment; soil functions mapping; soil spectroscopy; land use typology definition; impact assessment of climate and land use change on soil properties.
- **Analytical skills:** soil properties and soil functions modelling; machine learning algorithms; Chemometric approaches; geostatistics; regular statistical methods.
- **Computer skills:** Microsoft office; GIS, remote sensing, statistical and spatial software package (ArcGIS, R, Python, SAGA GIS, QGIS, etc.);

IV. Employment history

- **2018 – 2019: Postdoc**, at the Swedish University of Agriculture, Dept. of Soil and Environment, Swedish University of Agriculture, Sweden.
- **2012 – 2017:** PhD researcher at University of Bonn, Dept. of Soil Science and Science Ecology, University of Bonn, Germany.
- **2010 – 2012:** Researcher, Dept. of Natural Resources Management, University of Parakou, Benin
- **2008 - 2010:** Master researcher in Agricultural and Bioresource Engineering, Dept. Farm Technology, University of Wageningen, Netherlands.
- **2007 – 2008:** Researcher, Laboratory for the Study and Forestry Research, University of Parakou, Benin

V. Research Interests

My research focus is in understanding how soil carbon and nutrient cycles have been affected spatially and through time by land use and climate change and the feedback of these changes on the capacity of soil to deliver ecosystem services such as conducive conditions for forest or agricultural productions. In that regards, I am particularly interested in the sink capacity of soils and the development of practical management tools such as digital soil maps for spatial monitoring and mitigation of climate change.

VI. Contribution to research projects/Institutions

For about 6 years I have been working in the assessment of soil properties in relation to different land use such as savannah, agricultural and forest lands. This has consisted in both hand-on field works and soil modelling leading to soil degradation assessment and decision support tools such digital soil maps at different scales. I have gained skills in supplying stakeholders and decision makers with reliable and accessible information on single or multi-functionality of soils based on chemical, physical and biological soil parameters.

- 1) **Name of assignment/project :** Improving National forest inventory-based soil carbon stock change estimates for greenhouse gas inVENTories (INVENT)
Year: 2017 - 2019
Location: Sweden
Funder: ERA-GAS ERA-NET, European Commission
Positions held: Researcher

Activities performed: 1- select and provide high resolution covariates for modelling soil carbon stock 2- develop empirical models and relationships for soil carbon stock and soil carbon change 3- provide uncertainties related to the soil carbon stock and soil carbon change assessments 4- provide guidelines for accurate soil carbon stock prediction in forest soils

- 2) **Name of assignment or project :** Soil carbon dynamics, soil fertility and soil degradation under climate and land use change

Year: 2013 - 2017

Location: Burkina-Faso, Germany

Funder: German Federal Ministry of Education and Research (BMBF)

Positions held: Researcher

Activities performed: 1- Design and conduct of soil sampling for soil properties assessments; 2- quantify soil properties 3- develop soil type maps, soil properties maps for landscape assessment; 4- provide assessment on soil degradation status.

VII. Selected publications

1. Forkuor, Gerald, Ozias KL Hounkpatin, Gerhard Welp, and Michael Thiel. "High resolution mapping of soil properties using remote sensing variables in south-western Burkina Faso: a comparison of machine learning and multiple linear regression models." *PloS one* 12, no. 1 (2017): e0170478.
2. Hounkpatin, Kpade OL, Gerhard Welp, PB Irénikatché Akponikpè, Ingrid Rosendahl, and Wulf Amelung. "Carbon losses from prolonged arable cropping of Plinthosols in Southwest Burkina Faso." *Soil and Tillage Research* 175 (2018): 51-61
3. Hounkpatin, Ozias KL, Felix Op de Hipt, Aymar Yaovi Bossa, Gerhard Welp, and Wulf Amelung. "Soil organic carbon stocks and their determining factors in the Dano catchment (Southwest Burkina Faso)." *Catena* 166 (2018): 298-309.
4. Hounkpatin, Kpade OL, Karsten Schmidt, Felix Stumpf, Gerald Forkuor, Thorsten Behrens, Thomas Scholten, Wulf Amelung, and Gerhard Welp. "Predicting reference soil groups using legacy data: A data pruning and Random Forest approach for tropical environment (Dano catchment, Burkina Faso)." *Scientific reports* 8, no. 1 (2018): 9959.
5. Hounkpatin, Kpade OL, Johan Stendahl, Karlton Erik, Lundblad Mattias, (2019), Modeling the impact of site properties, climate and topography on the spatial distribution of carbon stock in Swedish boreal forest. *In preparation*.

Certification

I certify that (1) to the best of my knowledge and believe, this CV correctly describes me, my qualifications, and my experience.



Date: 18/November/2019