Alexandre WADOUX

Born 19 October 1991 in Mont-Saint-Aignan, France
French nationality

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WORK EXPERIENCE

SINCE APRIL 2023	**Marie Curie Fellow** *LISAH - INRAE- France* Spatial evaluation and quantification of soil multifunctionality potential and actual state across Europe. . Collaborations: Soil biology group, Wageningen University and Research
SEPT. 2019 March 2023	**Research Associate** *University of Sydney - Sydney Institute of Agriculture - Australia* Evaluation, quantification and mapping of soil indicators at the regional and national scales in Australia: carbon stocks and sequestration potential, carbon fractions, organic matter stabilization, soil biodiversity and clay minerals. Collaborations: CSIRO Canberra, TERN Australian Soils and Landscapes.
AUG. 2019 SEPT. 2015	**PhD candidate** *Wageningen University & Research - the Netherlands* Marie Curie Initial Training Network (ITN) - Quantifying Uncertainty in Integrated Catchment Studies (QUICS): hydrology, soil, rainfall-runoff. Development of sampling design optimization techniques for soil mapping and hydrological modelling.

	2018 - 2 months	**Visiting researcher** - *Sydney Institute of Agriculture - Australia* Soil spectroscopy and machine learning for mapping soil properties.
	2017 - 3 months	**Visiting researcher** - *British Geological Survey - United Kingdom* Developed sampling design optimization methods for geostatistical modelling of soil properties.
	2016 - 3 months	**Visiting researcher** - *Delft University of Technology - the Netherlands* Bayesian calibration of rainfall runoff models. Case study in a mountainous catchment in Switzerland.
	2016 - 2 months	**Visiting researcher** - *University of Bristol - United Kingdom* Performed research on space-time mapping of rainfall over England using radar and rain gauges.

JUNE 2015 JUNE 2013	**Student Research Assistant** *Eberhard-Karl University of Tübingen - Germany* YangtzeGeo project- soil erosion analysis in the Three-Gorges dam reservoir, central China. Erosion modelling, field sampling and laboratory analysis of soil samples.
JAN.-JUNE 2014	**Research Engineer intern** *SERTIT Strasbourg - France* Analysis of forest cover change using high resolution temporal series of remote sensing images.

EDUCATION

2019   **PhD in Environmental Sciences**, Wageningen University & Research, the Netherlands
Thesis title: "Sampling design optimization for geostatistical modelling and prediction"
Advisors: Prof. Gerard HEUVELINK, Dr. Dick BRUS
Training: hydrology, statistics, modelling, presentation, scientific writing.

2018   **Research Master, Epistemology and History of Sciences**, University of Nantes, France
Thesis title (in French): "Epistemological aspects of soil science in the late nineteenth century"

Advisor: Prof. Stéphane TIRARD

Training: history of life sciences, mathematics and physics, historical document analysis, epistemology general and concepts.

2015 **Master of Science, Landscape System Sciences**, Eberhard-Karl University of Tübingen, Germany
Thesis title: "Mid-infrared spectroscopy for soil and terrain analysis"
Advisor: Dr. Leonardo RAMIREZ-LOPEZ. In collaboration with the ETH Zurich - Soil and Terrestrial Environmental Physics
Training (major in Soil Science and Geomorphology): soils and landscape, soils and geomorphology, geoinformatics and ecosystem processes, hydrogeology, soil landscape modeling.

2012 **Bachelor in Environmental Geography**, University of Angers, France

Scientific activities

Since 2022	Chair, Pedometrics commission of the IUSS.
Since 2020	Associate Editor of *European Journal of Soil Science*. Editorial board of *Geoderma* and *Soil Security*. Editor of a Special Issue in *Soil Security* (2021).
Since 2018	Editor Pedometron, newsletter of the Pedometrics IUSS commission.
Since 2016	Reviewer for international journals (73): Geoderma (23), European Journal of Soil Science (20), Geoderma Regional (9), Catena (3), SOIL (3), Precision Agriculture (3), Journal of Geophysical Research (2), Science of the Total Environment (2).
Since 2015	Dissemination of research to the public - Delft, Bombay, Sheffield, Luxembourg and transfer to industry/users - Aquafin Antwerp, Amsterdam Water Week.
Since 2014	Presentations (10) in international conferences, with one (1) invited and (3) posters.

SCHOLARSHIPS AND AWARDS

2022	Marie Curie Fellowship - Marie Sklodowska-Curie Actions (220 000€ - 100%)
2022	*National Soil Strategy and National Soil Package* (1,250.000€ - 15%)
2021	Margaret Oliver Award 2021
2019	LEB foundation grant
2018	Huub and Julienne Spiertz Fund grant

SKILLS

Language skills

FRENCH:	Mother tongue
ENGLISH:	Proficient - C1-C2 (TOEFL IBT 2019: 107)
SPANISH:	Proficient - C1
GERMAN:	Proficient - B2 - C1

Recent publications

List not exhaustive, see https://scholar.google.com/citations?user=ZWfgRdwAAAAJ&hl)

- **Wadoux, A.M.J-C.**, Malone, B., Minasny, B., Fajardo, M. and McBratney, A.B. (2021). Soil Spectral Inference with R - Analysing Digital Soil Spectra using the R Programming Environment. Progress in Soil Science. Springer, Cham, 310 pages.

- **Wadoux, A.M.J-C.**, Walvoort, D.J.J., Brus, D.J. (2022). An integrated approach for the evaluation of quantitative soil maps through Taylor and solar diagrams. Geoderma.

- **Wadoux, A.M.J-C.**, McBratney, A.B. (2022). Digital soil science and beyond. Soil Science Society of America Journal.

- **Wadoux, A.M.J-C.**, Heuvelink, G.B.M., Lark, R.M., Lagacherie, P., Bouma, J., McBratney, A.B., Mulder, V. T., Libohova, Z. and Yang, L. (2021). Ten challenges for the future of Pedometrics. Geoderma, 401, 115155.

- **Wadoux, A.M.J-C.**, Román-Dobarco, M. and McBratney, A.B. (2021). Perspectives on data-driven soil research. European Journal of Soil Science, 72, 1675-1689.

- **Wadoux, A.M.J-C.** (2021). Book Review: Moon, David. The American Steppes: The Unexpected Russian Roots of Great Plains Agriculture, 1870s-1930s. European Journal of Soil Science, 72, 1070-1071.

- **Wadoux, A.M.J-C.** and McBratney, A.B. (2021). Hypotheses, machine learning and soil mapping. Geoderma, 383, 114725.

- **Wadoux, A.M.J-C.**, Minasny, B. and McBratney, A.B. (2020). Machine learning for digital soil mapping: applications, challenges and suggested solutions. Earth-Science Reviews, 210, 103359.

- Minasny, B., Akoeb, E.N., Sabrina, T., **Wadoux, A.M.J-C.** and McBratney, A.B. (2020). History and interpretation of early soil and organic matter investigations in Deli, Sumatra, Indonesia. CATENA, 195, 104909.

- **Wadoux, A.M.J-C.**, Heuvelink, G.B.M., Uijlenhoet, R. and De Bruin, S. (2020). Optimization of rain gauge sampling density for river discharge prediction using Bayesian calibration. PeerJ, 8, e9558.

- Minasny, B., McBratney, A.B., **Wadoux, A.M.J-C.**, Akoeb, E.N. and Sabrina, T. (2020). Precocious 19th century soil carbon science. Geoderma Regional, 22, e00306.

- **Wadoux, A.M.J-C.** and Brus, D.J. (2020). How to compare sampling designs for mapping? European Journal of Soil Science. 72, 1-12.

- **Wadoux, A.M.J-C.**, Samuel-Rosa, A., Poggio, L. and Mulder, V.L. (2020). A note on knowledge discovery and machine learning in digital soil mapping. European Journal of Soil Science, 71, 133-136.

- **Wadoux, A.M.J-C.**, Brus, D.J. and Heuvelink, G.B.M. (2019). Sampling design optimization for soil mapping with random forest. Geoderma, 355, 113913.

- **Wadoux, A.M.J-C.** (2019). Using deep learning for multivariate mapping of soil with quantified uncertainty. Geoderma, 351, 59-70.

- **Wadoux, A.M.J-C.**, Padarian, J. and Minasny, B. (2019). Multi-source data integration for soil mapping using deep learning. SOIL, 5, 107-119.

- **Wadoux, A.M.J-C.**, Marchant, B.P. and Lark, R.M. (2019). Efficient sampling for geostatistical surveys. European Journal of Soil Science, 70, 975-989.

- Ramirez-Lopez, L., **Wadoux, A.M.J-C.**, Franceschini, M.H.D., Terra, F.S., Marques, K.P.P., Sayão V.M. and Demattê J.A.M. (2019). Robust soil mapping at farm-scale with vis-NIR spectroscopy. European Journal of Soil Science, 70, 378-393.

- **Wadoux, A.M.J-C.**, Brus, D.J. and Heuvelink, G.B.M. (2018). Accounting for non-stationary variance in geostatistical mapping of soil properties. Geoderma, 324, 138-147.

- **Wadoux, A.M.J-C.**, Brus, D.J., Rico-Ramirez, M.A. and Heuvelink, G.B.M. (2017). Sampling design optimisation for rainfall prediction using a non-stationary geostatistical model. Advances in Water Resources, 107, 126-138.

- Stumpf, F., Schmidt, K., Goebes, P., Behrens, T., Schönbrodt-Stitt, S., **Wadoux, A.**, Xiang, W. and Scholten, T. (2017). Uncertainty-guided sampling to improve digital soil maps. Catena, 153, 30-38.

- Stumpf, F., Goebes, P., Schmidt, K., Schindewolf, M., Schönbrodt-Stitt, S., **Wadoux, A.**, Xiang, W. and Scholten, T. (2017). Sediment reallocations due to erosive rainfall events in the Three Gorges Reservoir Area, Central China. Land Degradation & Development, 28, 1212-1227.