



Università degli Studi di Torino

Dip. di Scienze Agrarie, Forestali e Alimentari

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Eleonora Bonifacio, PhD, soil scientist

Working experience and education

I am full Professor of Pedology at the University of Torino, Dept. of Agricultural Forest and Food Sciences (DISAFA) since October 2016 and have the qualification for professorship since 2013. Previously, I have been Associate professor of Pedology from 2002 to 2016 and researcher in Soil Science from 1992 to 2002 at the same University.

I am currently the Director of the Doctoral School of the University of Torino, after being elected in 2021. From 2018 to 2021 I've been the coordinator of the PhD program in Agricultural, Forest and Food Sciences of the University of Torino, and I've been sitting in the PhD board since 2010.

I speak fluently English and French, and I have also studied German and Russian.

I obtained my PhD in Soil Chemistry and Mineralogy in 1992, defending a thesis on the weathering of soil layer silicates, and have a MSc degree in Agricultural Sciences (1987, Thesis topic: Soil Chemistry).

I spent two periods abroad as a visiting person in research laboratories: in 1991 at Liège University (Belgium) at the Laboratoire de Géologie des Argiles and in 2000, at CSIRO Land and Water in Adelaide (Australia). Besides Italy, I have field/lab experience on soil research in Botswana, Namibia, Czech Republic, Australia, Russia and Japan, acquired during several research projects, mainly funded by the EU.

Teaching activities

I was appointed my first official University course in 1996 and I currently teach "Pedology and land evaluation" (master degree in Agricultural Sciences), "Forest Pedology" (master degree in Forest and Environmental Sciences), "Soil Variability" (master degree in Agricultural Sciences) at the DISAFA of the University of Torino (School of Agricultural and Veterinary Sciences), and "Viticultural Pedology" (master degree in Viticulture and Oenology Sciences and European Master in Oenology and Viticulture) for 180 hours/year. During past years I taught "General Pedology and soil physics" (degree in Forest Sciences), "Land Evaluation" (master degree in Forest Sciences), "Applied Pedology" (master degree in Forest and Environmental Sciences), "Soil Plant and Climate Modelling" (International master degree in Sustainable Farming Systems) and "General Chemistry" (degrees in Agriculture). In the last years the average index of students' satisfaction for my teaching activity was >90%. In addition to standard university courses, I have also lectured at the Hydroaid post-graduated courses organised by the International Labour Organisation from 2002 to 2008, and in 2008 I served as the teaching coordinator of the course "Water resources management for Soil Conservation and Agricultural Development". I lectured at the International PhD Summer School 2012 in Tartu (Estonia) and in several national summer schools. I've been the supervisor of theses both for degree and master degree students, and supervised several PhD students in Applied Pedology (University of Palermo), Environmental Protection (University of Torino), and Agricultural, Forest, and Food Sciences (University of Torino).

Scientific affiliations and reviewer activity

Since January 2022, I am the President of the Italian Society of Pedology (SIPe) after having been the vice-President (2015-2021). I served as the vice-chair of the 2.4 Commission (Soil Mineralogy) of the International Union of Soil Sciences (2002-2006) and was member of the board of the Italian Group of the Association Internationale pour l'Etude des Argiles (2001-2009). I've also served as the chair of the Soil Mineralogy Commission of the Italian Society of Soil Science (2006-2011). I was the Italian MC in the COST Action FP0803 Below ground Carbon turnover in European Forests (2008-2012).

In February 2023 I was nominated Accademico Corrispondente of the National Academy of Agriculture.

I'm one of the three chairs of the Editors-in-Chief of CATENA (Elsevier, Q1), and I've been previously in lower editorial positions (from Associate Editor to Editor in Chief). I also sit in the editorial board of Geoderma (Elsevier, Q1) and EQA-Environmental Quality/Qualité de l'Environnement/Qualità Ambientale (non ISI).



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Despite these editorial duties, I frequently act as a reviewer for some of the most important international soil science-related journals (i.e. in addition to *Catena* and *Geoderma*, among others *Clays and Clay Minerals*, *Soil Science Society of America Journal*, *European Journal of Soil Science*, *Plant and Soil*, *Environmental Pollution*, *Forests*, *Journal of Soils and Sediments*, *Quaternary International*, etc..) and for both Italian and foreign scientific and governmental organisations. I have been the Editor for the proceedings of international and national conferences and as a reviewer also for Italian scientific journals. I have been involved in the scientific committees of several national (e.g. SISS, SIPE) and international conferences (e.g. International Clay Conferences, Conferences on Forest soils etc...).

Projects

I have started being the principal investigator in peer-reviewed national projects in 1997, working on biological weathering of serpentine rocks and, since then I have been either the coordinator or the team leader in both international and national projects. Among EU projects, I acted as the coordinator in OMRISK "Impacts and risks from anthropogenic disturbances on soils, carbon dynamics and vegetation in podzolic ecosystems" (FP6. 8 partners), and took part in other EU demonstration projects, Interreg and older FP4 ones. I coordinated a PRIN national project ("Stabilisation of soil organic matter and pedogenic processes: mechanisms, dynamics and potential accumulation in soils" 5 partners), and participated in two other PRIN projects as team leader. Part of my research activity (past and present) is also funded by the regional government, bank foundations and by private companies.

Research interests

All my research interests are linked by the idea that soil properties are related to the soil genetic pathways, and that understanding these relationships helps in sustainable soil management and use. More specifically, the topics I have developed through the years are related to the building up of fertility properties, with special emphasis on soil developing on serpentinites that reduce plant growth and slow down vegetation succession because of low P and Ca and high heavy metal contents. In addition, I've worked on the impacts of clearcutting and other anthropogenic disturbances, such as plantation of alien species, or contamination on processes occurring in forest soils. More general studies on the mineralogical transformations that occur in the soil and can be followed as pedogenic markers are also among my research interests and have been carried out both in forest and agricultural soils. I am also interested in the building up of soil physical properties, in particular of soil structure. Past and present researches have taken into account the stability of soil aggregates, their formation, the pore distribution inside aggregates of different sizes, the release of nutrients and organic carbon upon aggregate break-up, the relationships between soil structure and erosion and the effects that soil management has on soil physical properties. Because of the importance of the soil as a carbon reservoir in the context of global change, a large part of the research in the last years has investigated the mechanisms of organic matter stabilization in soils, and the different capacity that different soils have to store carbon and to face the effects of climate change such as wildfires.

Publications

I authored or co-authored about 200 scientific publications (including journal articles, book chapters and conference proceedings). The full list of journal articles can be found in Scopus. My Orcid id is: <http://orcid.org/0000-0003-3488-672X>