Iron oxides in a fluvio-lacustrine paleosol sequence in Southern Italy

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This study aims at defining pedogenetic processes which occurred in in a fluvio-lacustrine sediments paleosol sequence the Boiano area. In order to obtain more information of the pedogenic process, we combine magnetic signals and geochemical weathering indicators related with iron oxides. The Boiano intermontane basin is located in the southern Italy, between Matese and Sannio Mountains, it was made by tectonized meso-caenozoic limestones and terrigenous sediments thick about 2 – 3 km. The results show that Boiano basin consists of a complex alluvium-detrital sequence with inclusions of paleosols having different thickness and development, more specifically Andosols in the top and Vertisols and fluventic Entisols in the sequence. The result indicated that both pedoclimate and pedogenesis duration influence the degree of weathering and depletion of iron in soil, and hence its content in ferrimagnets and, based on our model, the width of the maghemite GSD and the Hm/GT ratio. Other indicators related to the degree of weathering, such as the trace elements and iron and manganese oxides provide information detail on the integral of the effect of climate with time. The top soils developed after 17 ka under temperate climates with dry seasons such as those of the Mediterranean region, while paleosols sequence show different combinations of temperature and water regimes that can result in different iron oxides formation.

References

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Curriculum Vitae

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Education	
1979 - 1986	**M. S.** in Agronomy Science, Faculty of Agronomy Science University of Naples, Italy
1989 – 1993	**Ph. D.** in Soil Science University of Cordoba Spain
Professional Main Activity	
1990 – 1998	**Researcher** Soil Chemistry Department Faculty of Agronomy Science University of Naples, Italy
1998 – 2004	**Associate Professor Soil Chemistry** Molise University Faculty of Agronomy
Since 2004	**Full Professor Soil Science** Molise University Faculty of Agronomy
2008 - pres.	**Deputy** of Italian Soil Science Society
2009 - pres.	**Member** of the Directive Commission of the Italian Pedology Society (SIPe).
2011 - 2013	**Visiting professor fellowship of the CAS,** Department of Soil Environmental Science, Research Centre for Eco-environmental Sciences, Beijing
2013	**Visiting Professor** at the Department of Earth & Environmental Sciences, Gyeongsang National University, GNU, Jinju city, South Korea
2013 - pres.	**Rector's Delegate** for International Affairs, Molise University
Representative Publications	

[1] C. Colombo, V. M. Sellitto, G. Palumbo, E. Di Iorio, F. Terribile, D. G. Schulze. *Geoderma* 213, 346–356 (2014)

[2] R. Angelico, A. Ceglie, He J.Z., Liu Y.R, G. Palumbo, C. Colombo, *Chemosphere* 99, 239–247 (2014)

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Major Research Interests
Current research interests are characterization of clay minerals surface properties with particular emphasis in iron and aluminum oxides, minerlogy of volcanic soils, mineralogy and genesis of paleosols.