

A New Paradigm of Soil Formation

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Most fundamental processes determining the properties of a soil (e.g., mineral composition, organo-mineral interactions) involve the exchange of protons and electrons at a specific time over its evolutionary trend. The Eh-pH diagram has in fact been used by Macías and Chesworth (1992) as a framework for defining the main geochemical trends of mineral weathering. In order to propose a new paradigm of soil formation the authors further elaborate the Eh-pH framework model and incorporate the concepts developed by Pédro (1983) on weathering systems. Based on this new paradigm, we describe the genesis of the different soil orders of the World Reference Base for Soil Resources (2014).

Macías, F., W. Chesworth. 1992. Weathering in humid regions, with emphasis on igneous rocks and their metamorphic equivalents. In: Weathering, Soils, Paleosols. I.P. Martini, W. Chesworth (ed.). Elsevier, Amsterdam.

Pédro, G. 1983. Structuring of some basic pedological processes. *Geoderma*, 31:289-299.

World Reference Base for Soil Resources. 2014. FAO-UN.