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Multidisciplinary approach to the Monte Netto loess-paleosols sequence: implications for the evolution of the central sector of the northern Po Plain

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In the area of the Po Plain South of Brescia several isolated relieves are present (Castenedolo and Ciliverghe hills, Monte Netto), corresponding to the top of Late Quaternary anticlines. The Castenedolo and Ciliverghe area was widely explored in the last decades and deep sequences of pedosediments furnished a detailed archives for the evolution of that part of the Po Plain. A new thick and complex loess-paleosols sequence lying upon fluvial and fluvio-glacial deposits exposed in a clay pit at the top of the Monte Netto hill will give more information. The Monte Netto is a large flat hill, gently undulated at its top, and the clay pit was opened close to the centre of the anticline, where fluvial and fluvio-glacial deposits are deformed. This succession, probably dating to the middle Pleistocene, is buried by loess-paleosols sequence 2 to 7 m thick; the depth of the loess is related to its physiographic position, it become deeper going away from the top of the anticline. Furthermore, the upper pedosediments are disturbed by a gravity graben, evidence a bending-moment faults that is indicative for the high seismic activity of the Brescia area. The preliminary pedological investigation on the whole extension of the quarry, shows a distinctive difference between the loess-paleosols sequence at the top of the anticline and the one placed at its southern fringe (around 150 m far). On the centre of the anticline under a weakly weathered loess (2.5 YR 8/4), there is a deeply weathered red paleosols (10R 4/8) developed in loess; in this soil also a small lithic assemblage dating to the Middle Palaeolithic was found. The

pedosedimentary sequence at the southern fringe of the anticline consists of at least seven loess layers showing different degrees of weathering (from 2.5 YR 8/4 to 5 YR 4/6). A tentative interpretation of the exposed profiles is the following: since the Middle Pleistocene, the anticline was wrapped by loess layers, successively weathered (and probably truncated) during several Interglacials and Interstadials. These events should correspond to the number of loess-paleosols couples identified in the outer part of the anticline; in this sense the light weathered horizons could represent buried paleosols. Furthermore the highly rubefied paleosols at the top of the anticline should be regarded as a polygenetic soil or as a vetusol, developed for a long time since the Middle Pleistocene. Ongoing pedological, sedimentological, archaeological and seismic analyses, including OSL dating and the definition of soil development indexes, together with the drilling of a deep core (covering the whole loess, fluvial and fluvioglacial deposits) for palaeo-magnetic and palynological analyses, will permit to define the time and steps of development of the Monte Netto hill; the climatic and tectonic context during which the sediments where deposed, deformed, and weathered will be clarified.