

The Magnetic Susceptibility of the Late Quaternary Loess in North-East of Iran and Its Correlation with Other Palaeoclimatical Parameters

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Abstract : Magnetic susceptibility (χ) is operational to identify of late quaternary glacial-interglacial cycles in loess-paleosol sequences. It is well accepted that many loess-paleosol sequences bear witness to cold-dry/warm-humid periods, well known as glacial-interglacial cycles, respectively. For this study, loess-paleosol sequence of north-east of Iran was magnetically investigated. The study area is situated at about 8 km away of Neka city, on the main road of Sari-Behshahr, in Mazandaran Province, north of Iran. The youngest deposits of study area are the late Quaternary wind-blown accumulations. In this study, the total number of 117 samples was collected from loess-paleosols units. After that, the natural remnant magnetization (NRM) and magnetic susceptibility (MS) of the samples were measured. Variation of MS of more than 110 loess samples was plotted to reveal the correlation of the MS and paleoclimatic changes. This study aims reconstruction of climatic changes (glacial-interglacial and stadials-interstadials cycles). To confirm our results we compared MS (χ) and the curves of other investigations in paleoclimatology. This correspondence abled us to recognize worldly events in the study area such as: Younger Dryas, the Last Glacial Maximum (LGM), deglaciation of Northern Hemisphere etc. The obtained magnetic data indicate that during almost 50 ka, at least two glacial-interglacial periods occurred in north-east of Iran. Further, variation of χ values revealed short period of climatically cycles known as stadials-interstadials. We recognized 4 stadials and a single stadial as colder sub-periods for S₀ (recently soil-paleosol) and S₂ (lower paleosol), respectively, Moreover, we recognized 6 warmer sub-periods (interstadials) for L₁ (upper loess) and one interstadial L₂ (lower loess).

Keywords : glacial-interglacial cycles, Iran, last glacial maximum (LGM), loess, magnetic susceptibility (χ), Neka, stadials-interstadials sub-periods, younger dryas

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