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Rockmagnetic and paleomagnetic records of Karadja range section deposits reflect transgression and regression history of Caspian paleobasin during late Pleistocene

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Rock magnetic features of the 13 m marine/lagoon deposits of the upper marine terrace of the Karadja range section (Azerbaijan) have been investigated. Karadja range is located in Azerbaijan not far from the town Mingechaur (Mingechaur Reservoir, 47 E, 40 N). Samples are equal to the Paleocaspian great Khvalynian transgression and cover a time interval about 45-20 Ka BP. By means of the standard methods of paleomagnetism and a high-resolution environmental magnetic study the object was to test whether a clear magnetic signature is associated with the geomagnetic field variations or climatic changes. The variability of the scalar magnetic parameters were examined and reflect the rhythmic character of transgression and regression of the Caspian paleobasin. The composition of the magnetic minerals was determined by thermomagnetic analysis and isothermal remanent magnetization experiments. Main ore minerals of the rocks are magnetite, maghemite and hematite which were formed during changes of maternal rocks of Caspian paleobasin. A composition of minerals depends of a modification degree of maternal rocks of Caspian paleobasin. As a common amount of ore minerals (parameters K, SIRM, ARM) as a remanent coercitivity Bcr increase in a base of the section and in deposits which are connected with small oscillations of a Caspian paleobasin level. The base of the sectionś main features are high values of coercitivity and a dependence of petromagnetic parameters from the slow variations of the sea level as compared with the ordinary marine deposits. Determination of angle elements of the geomagnetic field (declination and inclination) gave information about four intervals of abnormal behavior of magnetization. One of these diagnostic intervals can be associated with the existence of anisotropy of magnetic susceptibility (AMS). This can characterize a possible layer deformation which has caused a change of NRM vector in the direction of caused factor. The paleomagnetic study showed that there are intervals of abnormal behavior of the NRM during about 25, 29 and 39 ka B.P. which are not connected with the AMS. These diagnostic intervals probably reflect global geomagnetic field changes during the deposition and may be associated with the Mono Lake and Laschamp geomagnetic excursions. This research was supported by RFBR grant no. 08-05-00627-a.