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Paleomagnetic and magnetostratigraphic studies of the Upper Sarmatian - Lower Maeotian deposits of Panagia Cape section (Taman Peninsula, Russia)

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With the goal to provide the paleomagnetic and magnetostratigraphyc analyses twenty-one samples of Panagia Cape section (45°N, 37°E, Taman Peninsula, Russia) covering the Upper Sarmatian – Lower Maeotian were collected. The section is composed mainly of clays and has a total thickness about 29 m. The composition of the ferromagnetic fraction was examined using dependences of magnetic susceptibility on temperature. This thermomagnetic analysis showed that monoclinic pyrrhotite is the main carrier of the natural remanent magnetization NRM. Coercivity of remanence Bcr values, determined from backfield demagnetization measurements, range between ∼20 and 63 mT. In order to determine true NRM directions, we studied the anisotropy of magnetic susceptibility. The part of the rock samples possesses planar anisotropy, which is characteristic of normal sedimentary rocks. Another part of the collection was isotropic. Alternating field AF-demagnetization of the samples (three duplicates from each level) was used for obtaining NRM vector angle elements. Demagnetization results were analyzed using orthogonal plots and stereographic projections. Polarity components were isolated in most samples between 15-25 mT. The values of the declination D and inclination I of the NRM satisfactory agree for all three duplicates from each level. This allows to average angle elements and construct curves of I and D variations over the thickness of the section. We recognized about four polarity intervals in the studied succession: reversed and normal polarities at the Upper Sarmatian part, reversed and normal polarities at the Lower Maeotian part. As a result of this research the studied interval of Upper Sarmatian can be interpreted as Chron C4r and C4n, and the interval of Lower Maeotian deposits corresponds to the Crons C3Br and C3Bn. New magnetostratigraphic data on the Sarmatian-Maeotian transition are used for dating the biotic event related to the marine transgression at the beginning of the early Maeotian. This work was supported by RFBR, project № 17-05-01085.