

Paleomagnetism of the Upper Carboniferous and Upper Permian sedimentary rocks from Novaya Zemlya Archipelago

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Here we present the first paleomagnetic directions and paleomagnetic poles for Upper Permian and Upper Carboniferous sedimentary rocks (sandstones and limestones) of the Novaya Zemlya Archipelago in the Russian High Arctic region. The paleomagnetic directions were obtained through detailed thermal and alternating field demagnetization experiments, using the principal component analysis of demagnetization data. A positive fold test and a positive reversal test indicate that the isolated paleomagnetic directions correspond to the primary magnetization components. Magnetic remanence carriers were characterized through rock-magnetic analyses, including measurements of temperature dependence of low-field magnetic susceptibility, magnetic hysteresis curves, and first-order reversal curves (FORC). We will describe the rock-magnetic properties of different lithological units and discuss their implications for the stability of natural remanent magnetization (NRM) and the veracity of paleomagnetic record. The tectonics implications of the new paleomagnetic data for the evolution of the Barents-Kara continental margin and the Novaya Zemlya Archipelago will be also discussed. The paleomagnetic poles differ slightly from the corresponding section of the APWP for Baltica, which is probably due to inclination shallowing effect or the tectonic features of the region. The study was supported by Russian Science Foundation grant 14-37-00030, the SIU project HNPIa-2013/10049 (HEAT) and by Ministry of Education and Science of the Russian Federation grant 5.515.2014/K.