Geophysical Research Abstracts
Vol. 21, EGU2019-14016, 2019
EGU General Assembly 2019

New data on structural-geomorphological and petro-paleomagnetic investigations of Kandalaksha Bay Islands in the White Sea

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Numerous White Sea islands are convenient model for studying the interaction of endogenic and exogenic factors in landform (relief) formation. Data on the main geological and geomorphological peculiarities of islands and dynamics of the island development allow to characterize conditions and factors of their formation. Main objective of the research is to correlation the modern landforms of the Kandalaksha Bay islands of the White Sea with the neotectonic plan of the White Sea region on the basis of complex (integrative) geological, geomorphological and petro-paleomagnetic investigations.

The present research based on 15 islands of a middle part of Kandalaksha Bay. The field work includes geological and geomorphological descriptions of the main points of research area, geomorphological cartography and the profiling of the shore islands using GPS and photo-documentation. For petro-paleomagnetic studies of the deposits composing above-mentioned islands we performed thorough collection of the oriented cut blocks of rocky breeds not less than 20 cm long, and of friable deposits by means of the oriented cubic plastic containers. Structural elements of islands were measured with the help of the Fieldmove Clino program of the smartphone. The elements included - elements of gneissose bedding, mute cleavage, crushed zone which were interpreted mostly as a small fault and less than a fault polish. Each point included up to 150 similar measurements.

Obtained data allowed detailed characterization of the relief, factors of its formation and modern processes of land formation of studded islands. The main genetic forms of a relief are reflected in the large-scale geomorphological maps. Petro- and paleomagnetic investigations allowed developing of the preliminary magnetostratigraphic schemes for each section, and typification of primary magnetic parameters of deposits. The measurements of structural elements resulted in stereographic projections for a gneissose, for faults and mute cleavages. The obtained data allowed to state that gneissose falling in the northern direction with small hades (angle of incidence) (23-43) prevails in the Great Salma Strait. The correlation is revealed between the faults – crushed zones, - and smaller structures - the cleavages. Thus it is possible to assume that they were formed under the influence of the some processes.

The work was supported by RFBR grant № 18-35-00666.