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White Sea Islands: contemporary relief dynamics and history of the development.

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The fundamental problem of isolated areas of land relief formation that created and changed by the interaction of both continental and oceanic natural processes. The main objective is to reveal the main geomorphological features of islands and their development tendencies, to reconstruct the late Pleistocene and Holocene formation history, and to systematize the present ideas according to integrated geomorphological approach.
The main objects of study are so called «small» islands with the areas not exceeding few hundred square kilometers. A small land area, surrounded by water, is a good model that allows to visualize the results of interaction between endogenous and exogenous factors and relief formation conditions (continental and oceanic).
Relationship between conditions, factors and processes of relief formation on islands are extremely complex, variable and ambiguous. A small island gives an opportunity to trace the initial stages of land origin, the first stages of subaerial relief development, and in general – the first steps of nature evolution after its emergence from the ocean. Therefore, their integrated study is an important fundamental problem in modern science.
Our preliminary studies included:
• Analysis of existing information on the White Sea islands relief.
• Elaboration of the geological and geomorphologic array concept based on remotely sensed data.
• Typify the islands using compiled data sets.
• Large-scale mapping of geomorphologic and morpho-structural peculiarities of islands and/or island groups and allocation of the key model territories.
The present field studies include:
1. Geomorphologic survey of the selected areas.
2. Drilling and sinking of prospect-holes of lacustrine-swamp, alluvial, marine, aeolian, and other deposits with sampling for further analysis (diatom, lithologic, etc.) to determine the conditions of sediments formation.
Particular attention is paid to identification and sampling of carbon containing material for radiocarbon dating.
The geodesic methods include high-precision tacheometry, GPS-mapping, barometric profiling and are widely used in the survey.
Using the newly obtained results and existing data helps to reconstruct the paleogeographic environment during the Late Pleistocene – Holocene within the main regions of small islands and archipelagos distribution and to elaborate their detailed classification.