

Section 02. Geotechnical Systems Stability

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**Role of Discontinuous Tectonics in the Process of Current Terrain Formation in the Context of Monastyrsky Island**

Geology of right bank of the Dnieper River and Monastyrsky Island is identical. High components of the terrain are crystalline rocks; they either rise or loess rock strata of Quaternary period (loess and loess loams) cover them. Alluvial deposits (mainly sandy deposits of flood-plain terrace and terrace above flood-plain) are located lower areas at the boundary with the water of the river. Country rocks of the island, and coastal areas of the Dnieper are largely represented by migmatites of Pre-Cambrian period.

In an effort to identify peculiarities of topographic form in the neighbourhood of Monastyrsky Island, field observations were carried out and office operations were performed; in addition, research data of previous years were analyzed. In terms of field observations, mineral and petrographic as well as textural and structural characteristics of country rocks of coastal margins within Monastyrsky Island have been studied in rock outcrops. Special attention was paid to the analysis of tectonic fissility of rocks. Massive measurements of tectonic fissures have been made in rock outcrops of right bank of the Dnieper and at Monastyrsky Island. Consequently, fissility diagram has been constructed to analyze the fissility; certain technique was applied to do that.

It has been clarified that intensive tectonic fissility takes place within migmatites of coastal margins of the Dnieper; in turn, the tectonic fissility provokes the development of exogenic fissures. Shear fractures of versatile orientation are basic ones among them. Polished surfaces are available in a small share of fissures. Surface slickensidings are directed mainly in the line of decline; the fact points at dominating sight of rock bloc movement. Metasomatic epidotization as well as lodes of quartz epidotized and epidotized composition are available. The detail means that formation of fissures was a staged process.

Basic tectonic factor determining a shape of Monastyrsky Island as well as orientation of arm of the Dnieper depends on fissility of migmatites. Fissures of prevailing north-easterly direction establish a direction of weathering processes and water erosion of the island.