

ΠΑΡΦΕΝΙΟΥΚ

**ANALYSIS OF THE COLLISIONAL UPLIFTS EROSION INFLUENCE ON
THE OVERTHRUSTED STRUCTURES AND THE PROCESS OF DEEP
CRUSTAL ROCKS EXHUMATION (NUMERICAL MODELING)**

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The investigation of collisional structures is being conducted using the complex model of thermal and mechanical evolution of overthrusting zone for the rheologically layered lithosphere, which includes brittle upper crust and the lower crust and lithospheric upper mantle with different effective viscosity values. Finite element models with Lagrangian approach were used to simulate the problem. Horizontal shortening leads to the upper crust overthrusting along the fault zone, additional loading to the lower layers and erosion of the uplift. These processes are compensated by ductile flow of the lower crust and the upper mantle. The calculations with different erosion rates (0.25 – 5 mm/yr) show that this parameter has a weak effect on the postcollisional uplift value, which is determined chiefly by the viscosity values of the lower crust and lithospheric upper mantle. But denudation results in different metamorphic crustal rocks exposure.

Keywords: lithosphere, the Earth's crust, collision, overthrusting, erosion, rheology.