

Slope Instabilities at the Areas of the Monasteries of Mount Athos, in N. Greece

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In the present paper, some representative Monasteries were investigated in Mount Athos (N. Greece), by means of the geotechnical failures and the intervention methods proposed or used. Mount Athos peninsula is an area of great historical and religious interest, where only Monasteries for men, of 10th-11th c. AD, are built. Administratively, the area belongs directly to the Patriarchate of Konstantinople.

The instabilities observed at the sites of the Monasteries in Mount Athos are mainly related to the presence of active faults and the geometry of the tectonic discontinuities, in relation to the active seismotectonic regime. The groundwater activity also decreases the shear strength of the rockmass at the foundation area. The description of building stones, degradation forms and mortars as well as the quantitative determination of their physico-mechanical properties are necessary for estimating their deterioration and proposing appropriate measures for their protection.

The area is very fractured and is traversed by joints of various directions. Many important faults cut the studied area in E-W and N-S general directions. These discontinuities can cause unstable geotechnical conditions, especially at the slopes of the construction area. These instability phenomena are related to the neotectonic conditions of the broader area.

In our previous research, slope stability analyses were performed with the determination of important unstable wedge and plane failures and the calculation of their factors of safety, using both field measurements and laboratory tests results (Christaras et al., 1994)

For the stabilisation of the unstable geological formations (rocks or soils) different retaining structures were proposed or used.