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FREEZE THAW RESISTANCE OF DIYARBAKIR CITY WALLS

Dursun, F.¹ and Topal, T.²

¹ Department of Geological Engineering, METU, 06800, Ankara, Turkey, felatdursun@gmail.com

² Department of Geological Engineering, METU, 06800, Ankara, Turkey

The Diyarbakir Citadel and City walls are appreciated as a masterpiece structural design of human history. Hence, UNESCO World Heritage Committee added the structure into the World Heritage List. It is considered to be a result of different cultures combined from different historical periods. The structure is shaped from the basalts of Karacadag Volcanic Complex. Based on the field surveys two types of basalts used in the Diyarbakir City Walls were identified. These are classified as massive and vesicular basalts. The City Walls reveal some signs of weathering. The freeze-thaw activity plays an important role on the deterioration of the basalt. Therefore, freeze-thaw test is carried out to assess the freeze-thaw resistance of the fresh basalts. Moreover, some physico-mechanical properties such as water absorption, weight loss, effective porosity, dry unit weight, saturation coefficient, uniaxial compressive strength (UCS) and sonic velocity of both massive and vesicular basalts are recorded at different test cycles. The cyclic test results demonstrate that the basalts are adversely affected by the freeze-thaw tests.

