MECHANISM OF CRACKFORMING UNDER PRESSURE OF VOLCANIC STRUCTURES

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It is known that during volcano eruption together with lava is great amount of gas and vapor is released. Those volcanic exposures unload stress-strain condition under earth crust and lower the pressure in deep layers. As a result crust may deflect under pressure of its own weight and weight of erupted lava.On the basis of investigations of stress-strain condition of volcanic structure it is possible to predict crackforming in lava rocks and their spatial distribution. For solution of that problem volcanic ridge is considered as an elastic-viscous multilayer structure on plastic foundation - clays. The pressure on the foundation is represented as the sum of multiples of each layer' thickness on its volumetric weight. The model is an elastic-viscous deflecting endless plate on plastic foundation where stress-strain conditions are mainly determined by its own weight. In the new model massif is considered as a multilayer halfspace, where structure is a distributed loading. By solving differential equations the formulas for calculation of stress components were obtained. The normal stresses in the foundation of some volcanic structures exceeded acceptable values and the self-weight of structure may cause additional crackforming in lava rocks with maximal stresses and crackforming at the transitions of sloped massif surfaces to its plain parts. The results obtained are important for problems as structural geomapping (hydrogeology), as the crackforming zones may be the places of gathering and motion of underground waters.