Preliminary study of granite slabs exposed to contact charge

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Norway's hilly landscape facilitates the extensive use of mountains for establishing shelters and other facilities requiring robust protection against military threats. A crucial aspect of ensuring the adequate design of these facilities is a deeper understanding of the rock's material properties under relevant load scenarios. The mountains in Norway comprise various rock types with differing properties. Typically, rocks exhibit high compressive strength and brittle fracture mechanisms, somewhat akin to the behavior of concrete. To ensure accurate material calibration, a variety of validation cases is needed, covering variations in strain rate, pressure, and more. In this study, we aim to supplement the existing validation cases for granite by designing an experimental setup to test granite slabs exposed to contact charge loading. Here, we focus on the preliminary numerical study of the experimental setup. To model the granite slabs, we use a relatively simple concrete model known as the modified Holmquist-Johnson-Cook model (MHJC).