

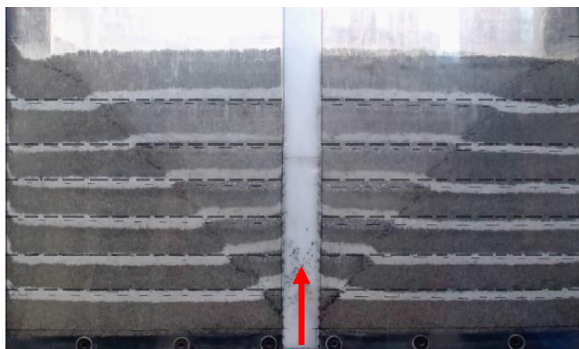
ROCARC annual seminar in 2021

The annual seminar of the project ROCARC was held on 10 November 2021 in NTNU. The participants were people from the consortium partners and some external experts in the reference group of the project. The following six presentations were delivered in the seminar:

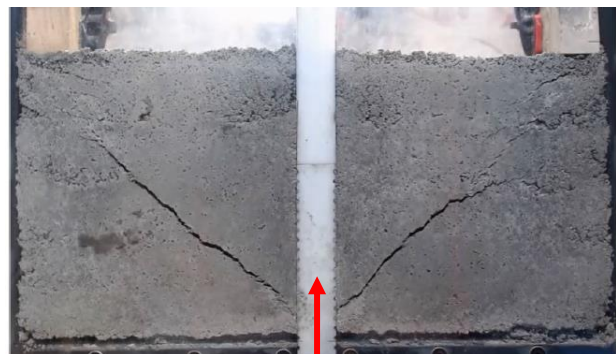
1. A brief of the project progress, Charlie Li, IGP / NTNU
2. Laboratory tests on the failure mode of frictional and low-cohesive materials under the load of a ground anchor, Hanna Høgset, NTNU / Rambøll
3. Laboratory tests and numerical modeling of block models for evaluation of rock mass behaviour when subject to an anchoring load, Karsten Aasbø, NTNU / NCC
4. A literature study and field pull tests in Tromsdalen, Bjarte Grindheim and Charlie Li, NTNU
5. Rock bond strength site investigation tests, Andris Bērziņš, Peikko Group Corporation, Latvia
6. Road cut support using partial factor and safety factor methods, Johanne Austad, NTNU; Are Håvard Høyen, NPRA

Laboratory model tests in frictional and low-cohesive materials

Two-dimensional physical model tests were carried out on a mini test rig to study the failure pattern of frictional and low-cohesive materials under a concentrated upward load in the middle of the model which simulated the loading condition of a rock anchor. The anchor block in the model transferred the load to the material through friction at the block-material interface. A conic failure body was uplifted to the end both in the frictional and low-cohesive materials.



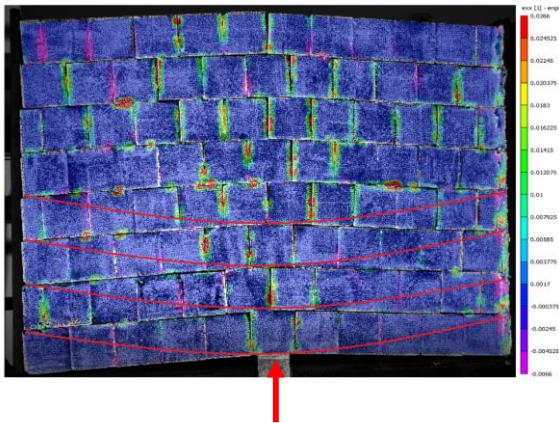
Frictional material



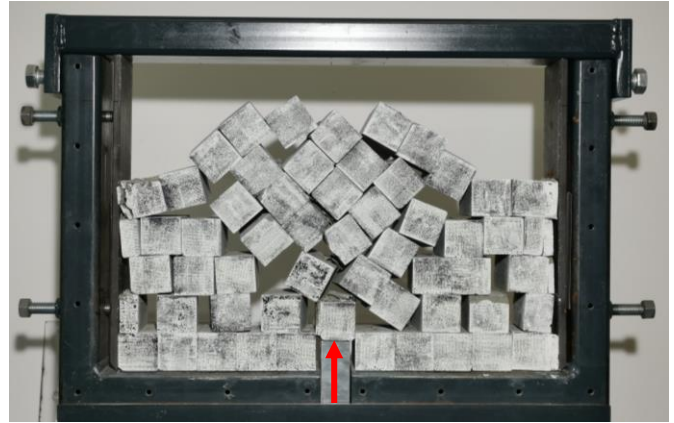
Low cohesive material

Laboratory tests of block models

Two-dimensional block models were tested in the same loading means as the tests of the frictional and low-cohesive materials on the mini test rig to study the load-arching effect in blocky rock masses and also the failure pattern of the blocks under the load of a rock anchor. The full-field strains were measured by DIC technology. The load-arching effect was clearly observed in the block models. The failure pattern is also conic in the block models.



Strains by DIC measurements



Failure pattern of the blocks

Field pull tests of rock anchors

Full-scale field pull tests were carried out in limestone quarry to test the load capacity of the anchors with different anchoring schemes. The tests showed that the anchoring method affected the behavior of the rock anchor. The results of the field tests are under analysis at present.

