Insitu acoustic emission test to investigate rock burst

Master`s Thesis Topic

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v. 1.0

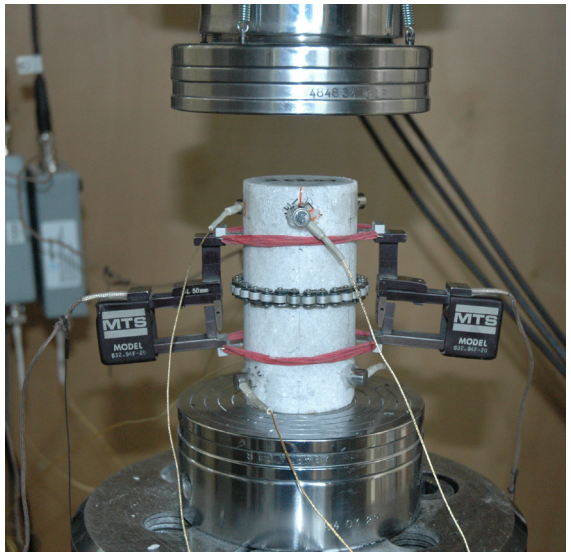
Introduction

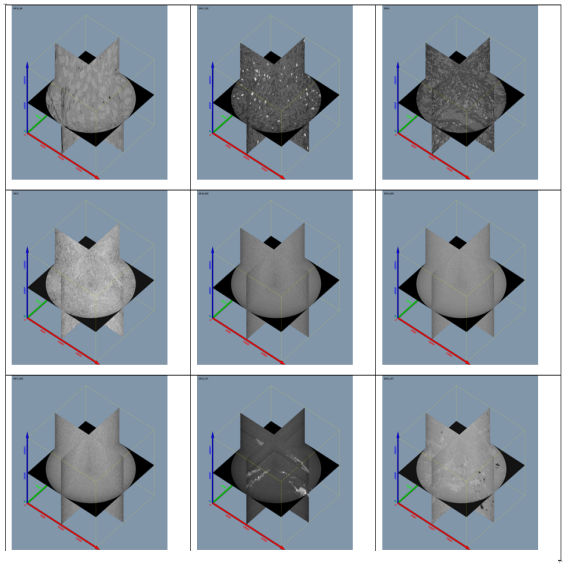
https://www.youtube.com/watch?v=7Oprlj6Hc4E

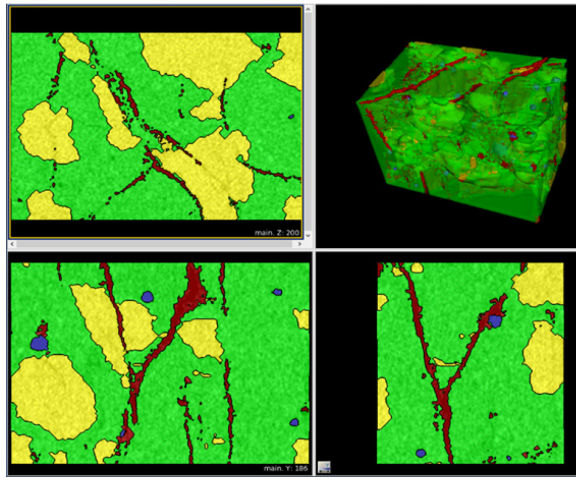
Introduction

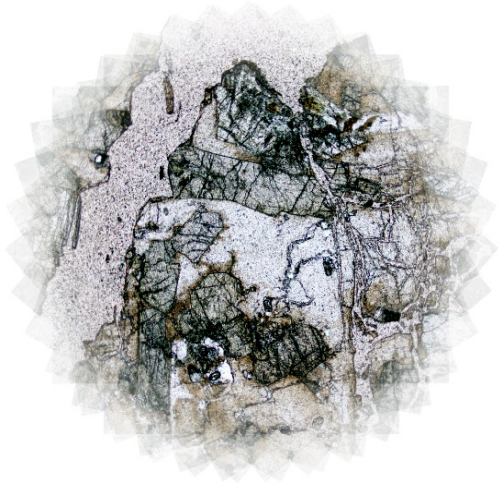
Rockburst - Example of brittle failure in mining and tunnelling (Ortlepp, 1997)

Introduction

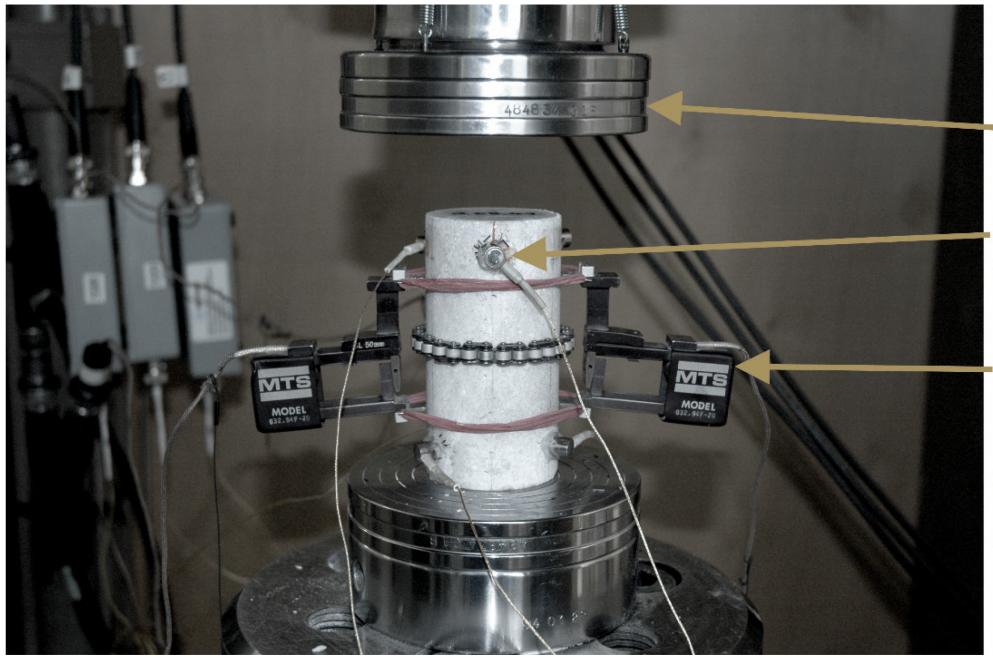








Acoustic Emission

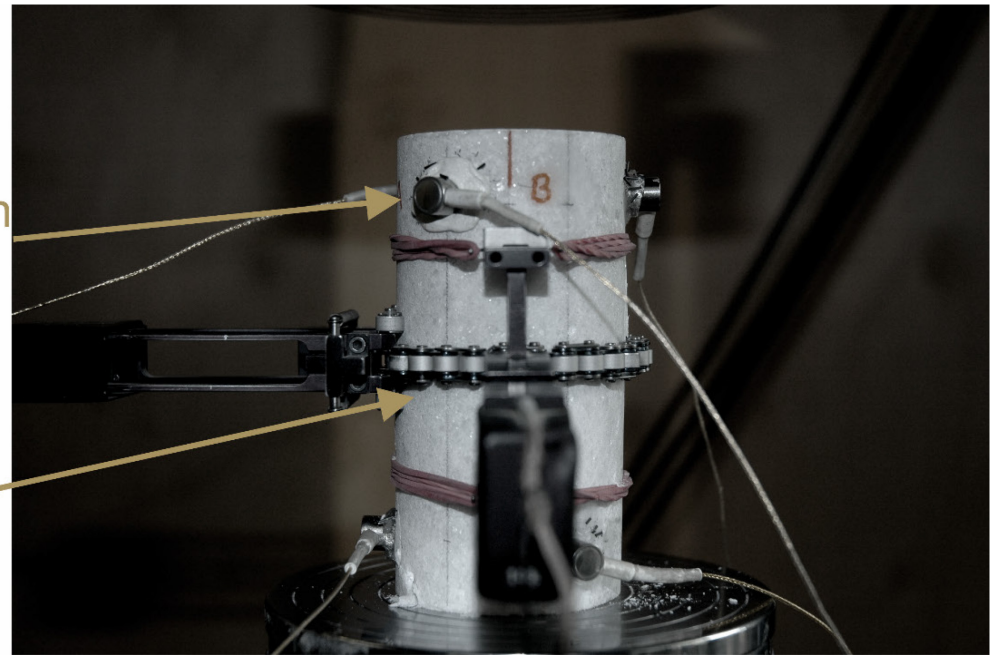


Load frame

Acoustic emission sensors

axial strain gage

Circumferencial strain gage



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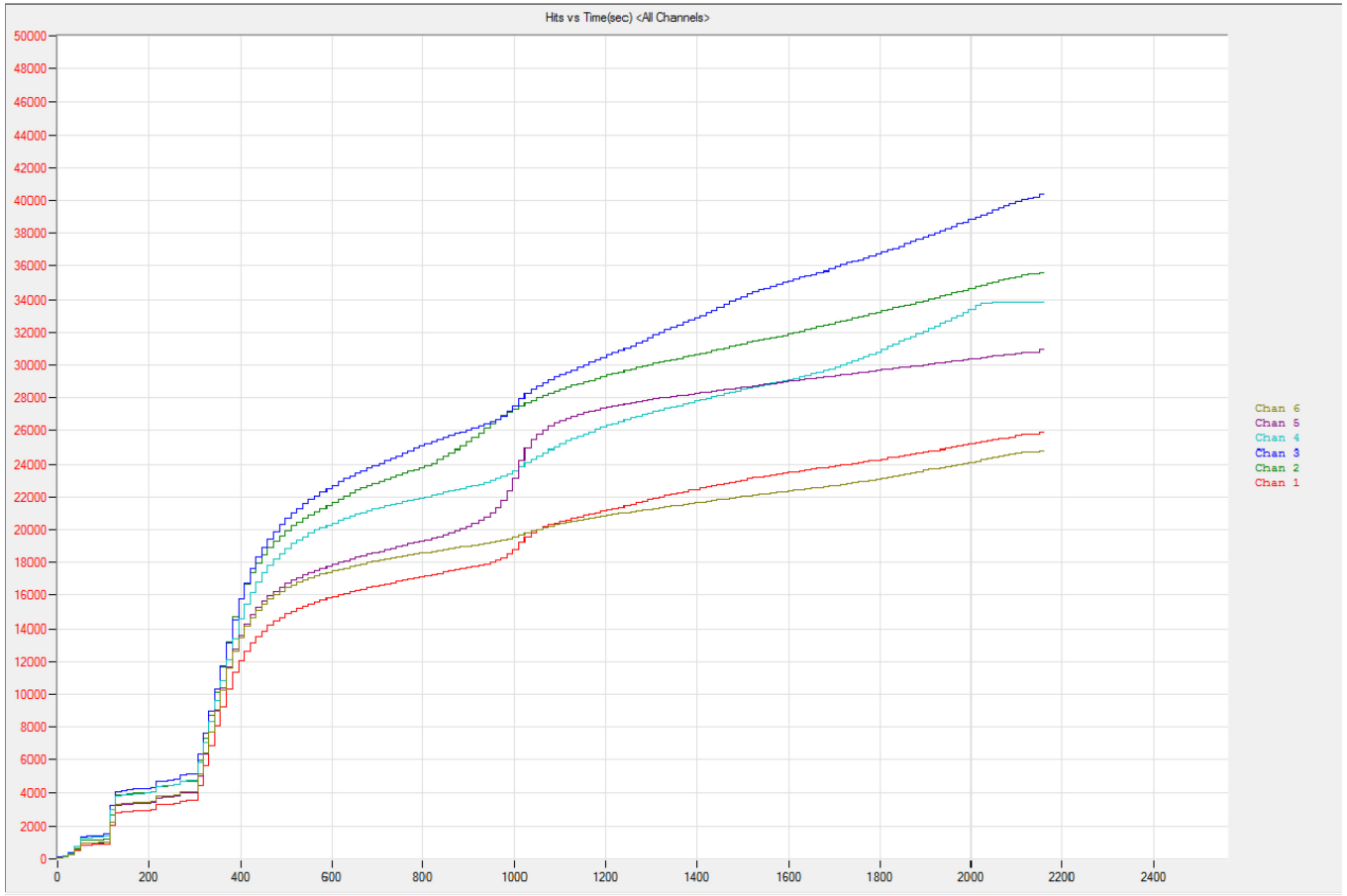
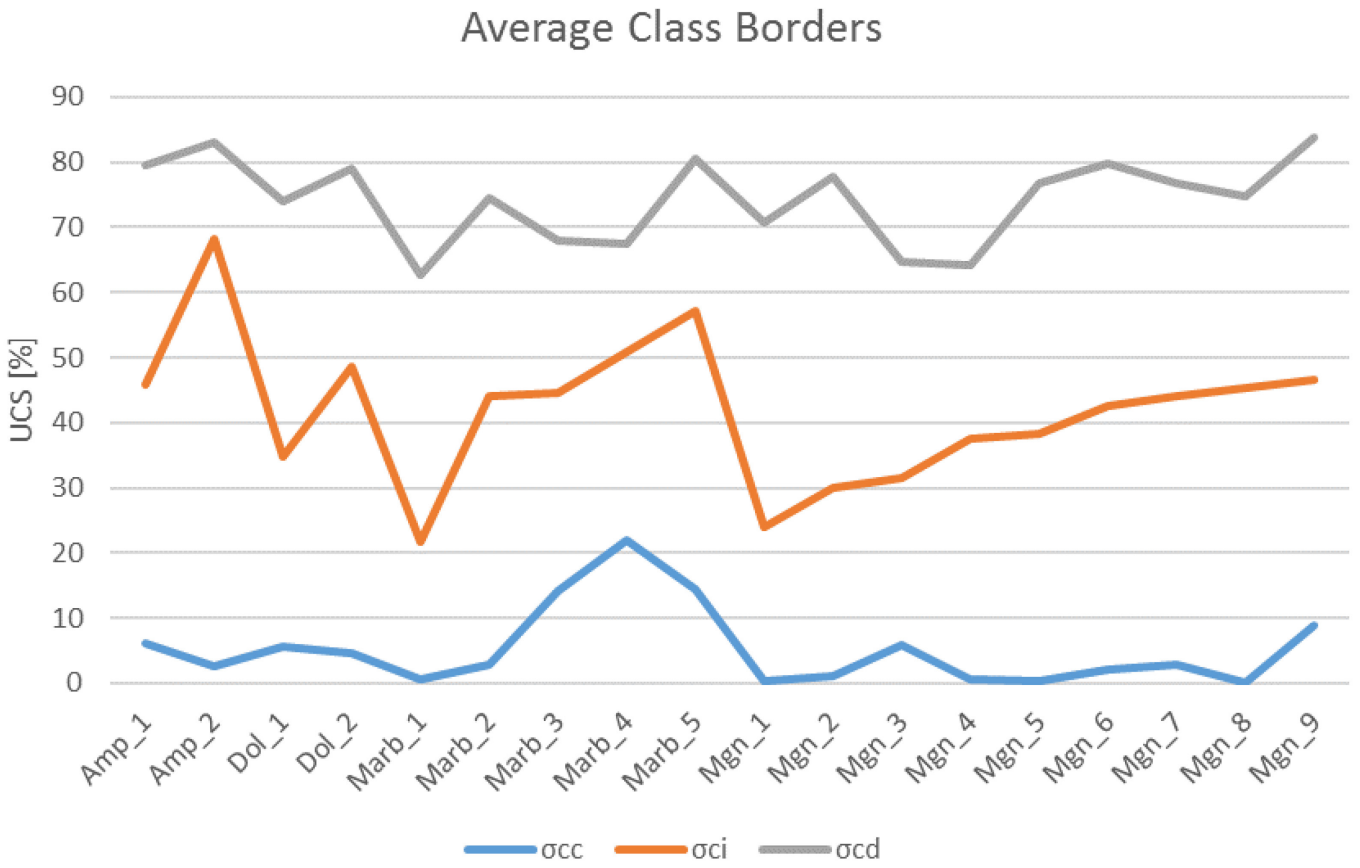


Acoustic Emission

Crack Classes

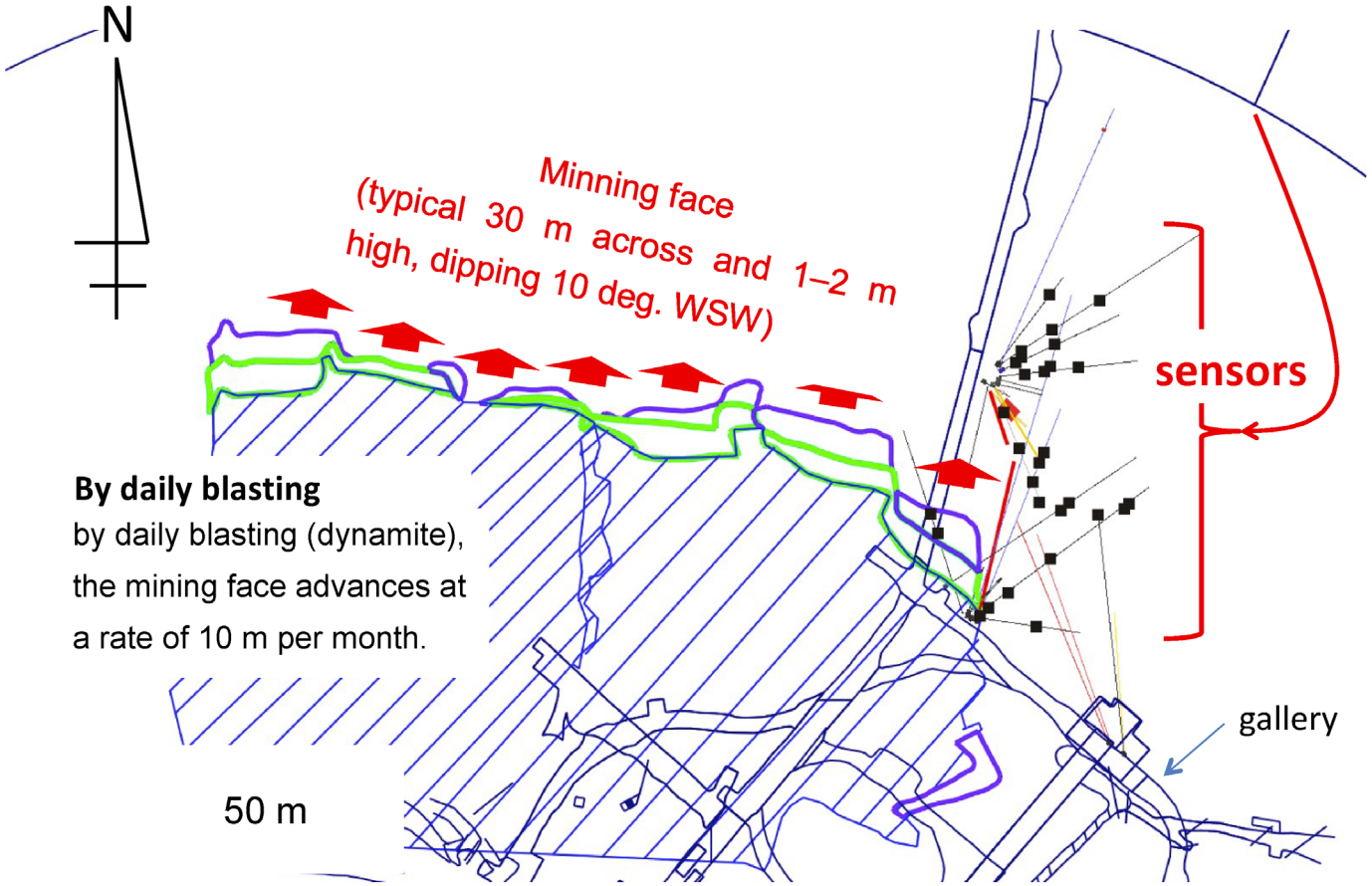
- σ_{cc} – Crack Closure Stress
- σ_{ci} – Crack Initiation Stress
- σ_{cd} – Crack Damage Stress

Boyce et al., 1981



Acoustic Emission Insitu

- From the Lab to the Site
- Trying to find a practical use for the research results
- Recording Acoustic Emissions on site
- The goal is to develop a method to detect rock that is prone to rock burst and prevent accidents



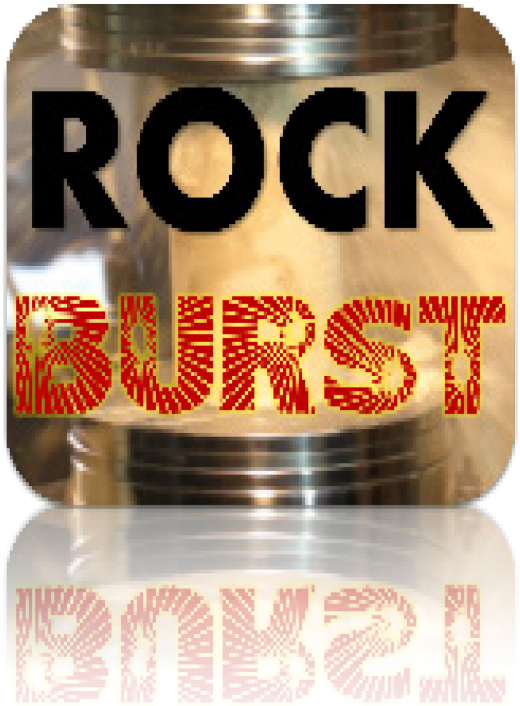
Manthei & Plenkers (2018)

Tasks of the Master's Thesis

- Research on existing literature on the topic
- Development of a routine for in situ acoustic emission tests
- Application of this routine on site

Benefits of the Master's Thesis

- In depth knowledge about rock burst
- In depth understanding of acoustic emission testing
- Possible on site experience (e.g. Chile)



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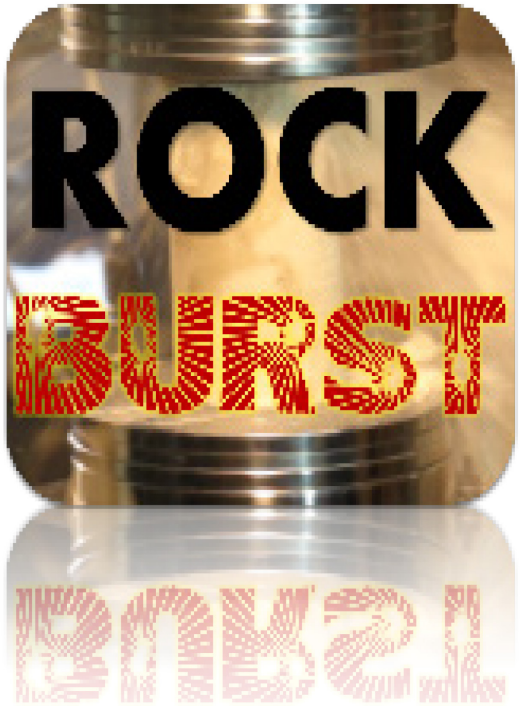

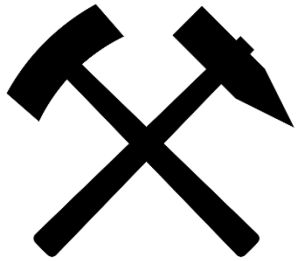

Glück Auf!

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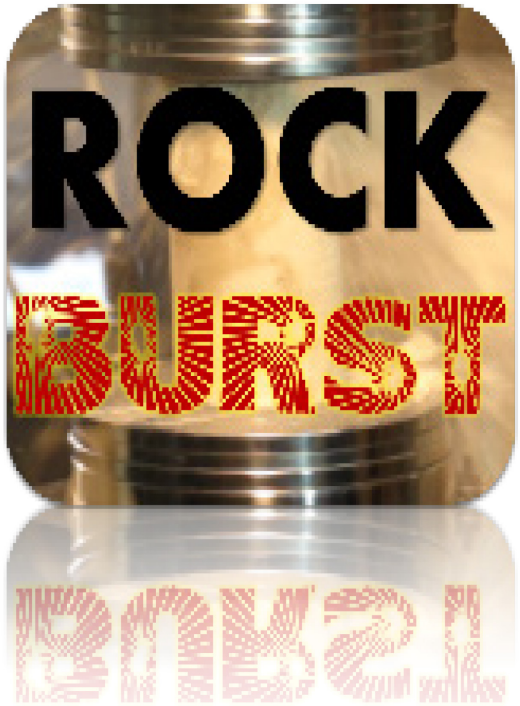

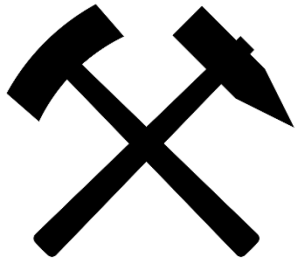

Luck Up!