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MAY

EXPERIMENT **THERMO-MECHANICAL MODEL**

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Now we are trying to regenerate the results of another paper.

A Model of Failure and Localization of Basalt
at Temperature and Pressure Conditions
Spanning the Brittle-Ductile Transition
Francesco Parisio 1,2
, Christoph Lehmann 3 , and Thomas Nagel 1

In this paper, we have a 2D rectangular geometry in which we have temperature and confining stress. So its a thermo-mechanical problem. Xue Rui sent me another prj file for a thermo-mechanical simulation for a cubic geometry. She also sent along the geometry files for that cubic geometry. This model uses the same physical parameters as is described in the paper. I read the constitutive model , section 2, in the paper thoroughly and found all the parameters were defined in the prj file as well, just with slightly different values.

So now my task is to
1- modify the parameters to the same values as in the paper.
2- modify the boundary and initial conditions to match the 2D case in the paper.
3- I have to also make a new 2d geometry gml file and refer to that in the prj file instead of the 3D cube Xue Rui provided me.
4- Then run the prj file and get similar plots for temperature and stress distributions as in Fig. 4 of the paper.

All the files relevant to this task are in the folder
/home/tanzeela/My folders/Xue_hiwi/Tanzeela/1_example/**BDT_model**

Also, Xue Rui uploaded the folder in the seafile link called BDT_model. It has its own ogs file with a library that I need to run the prj file specific to this case.

I had to run it by also copying the libraries from previous “lib” folder. Also have to use the chmod command in command line so that it doesn’t deny the permission

Changing parameter values