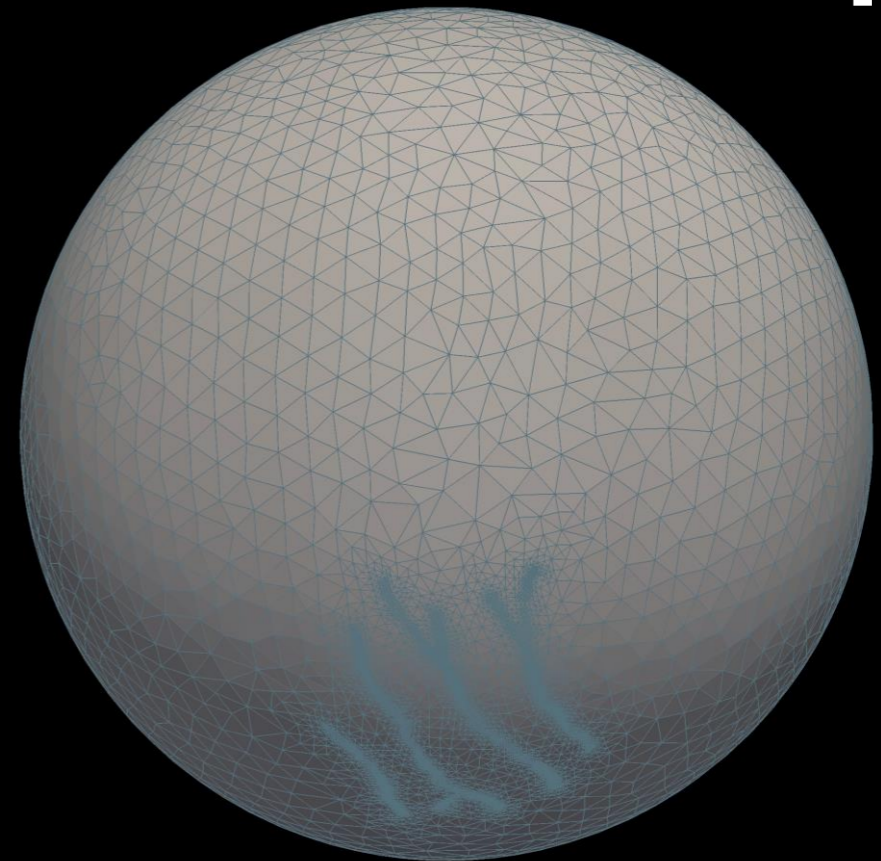
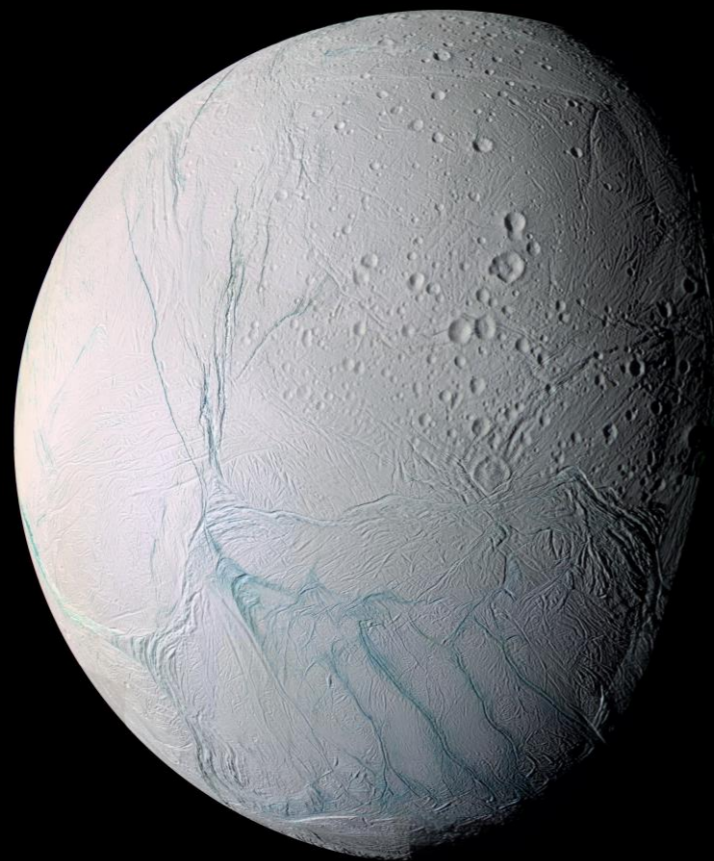


Modelling of the faults on Enceladus and Europa

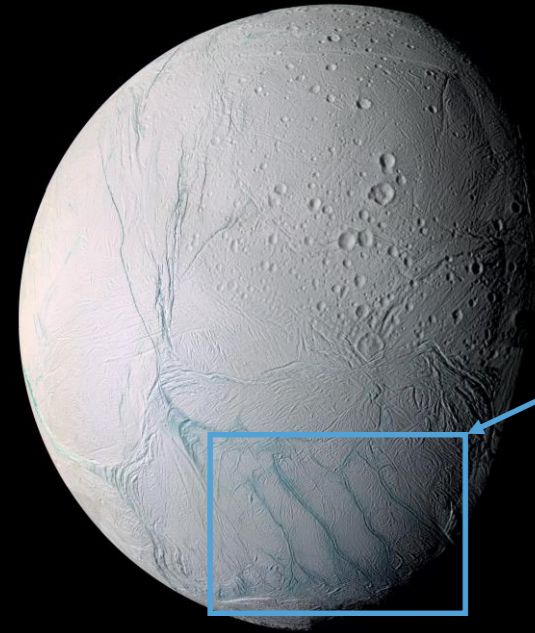


Kateřina Sládková, Ondřej Souček

kackasladvkova@gmail.com
Department of Geophysics,
Charles University, Prague

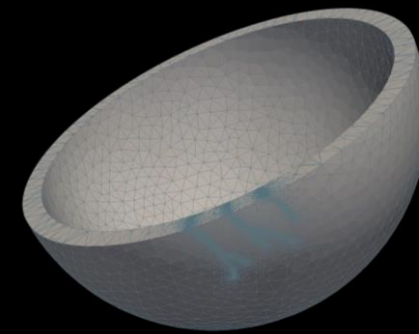
soucek@karel.troja.mff.cuni.cz
Mathematical Institute,
Charles University, Prague

Tiger stripes

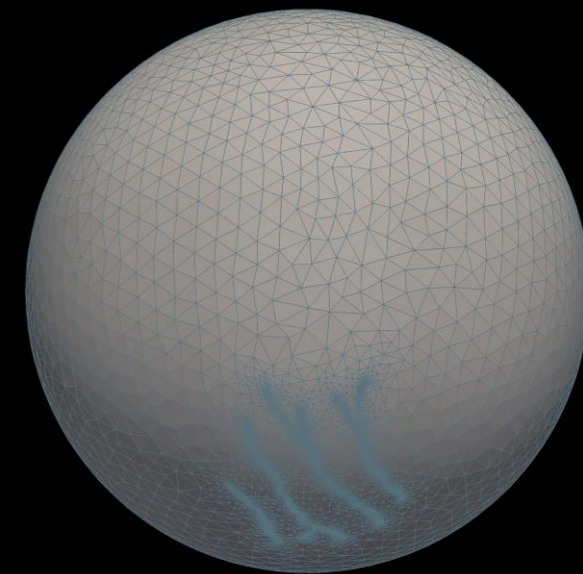


- water emanating fractures situated in the south pole of Enceladus

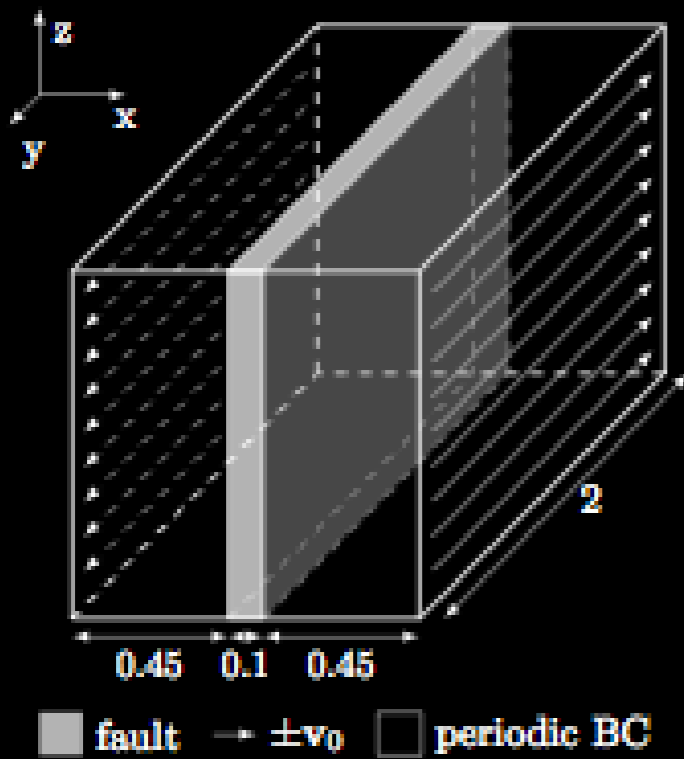
- Souček et al. 2016: 3D model



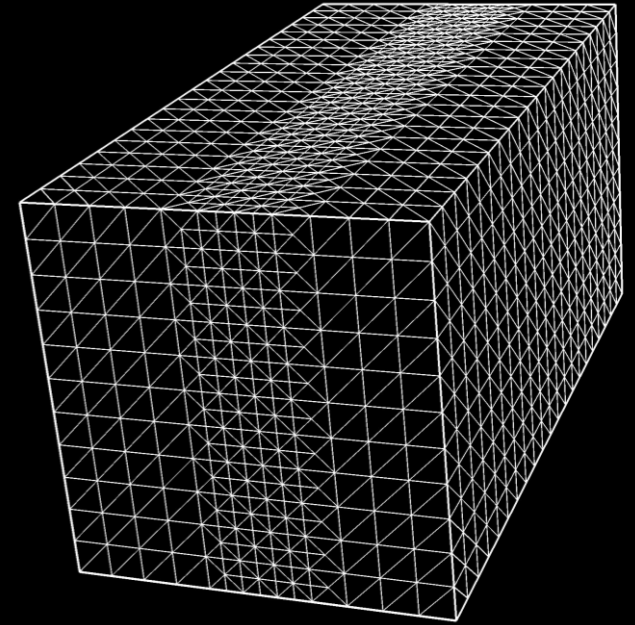
- tiger stripes = narrow zones with reduced elastic moduli



- influence on tidal deformation and thermal evolution
- aim: to improve description of tiger stripes with **rate and state friction model** (seismology)

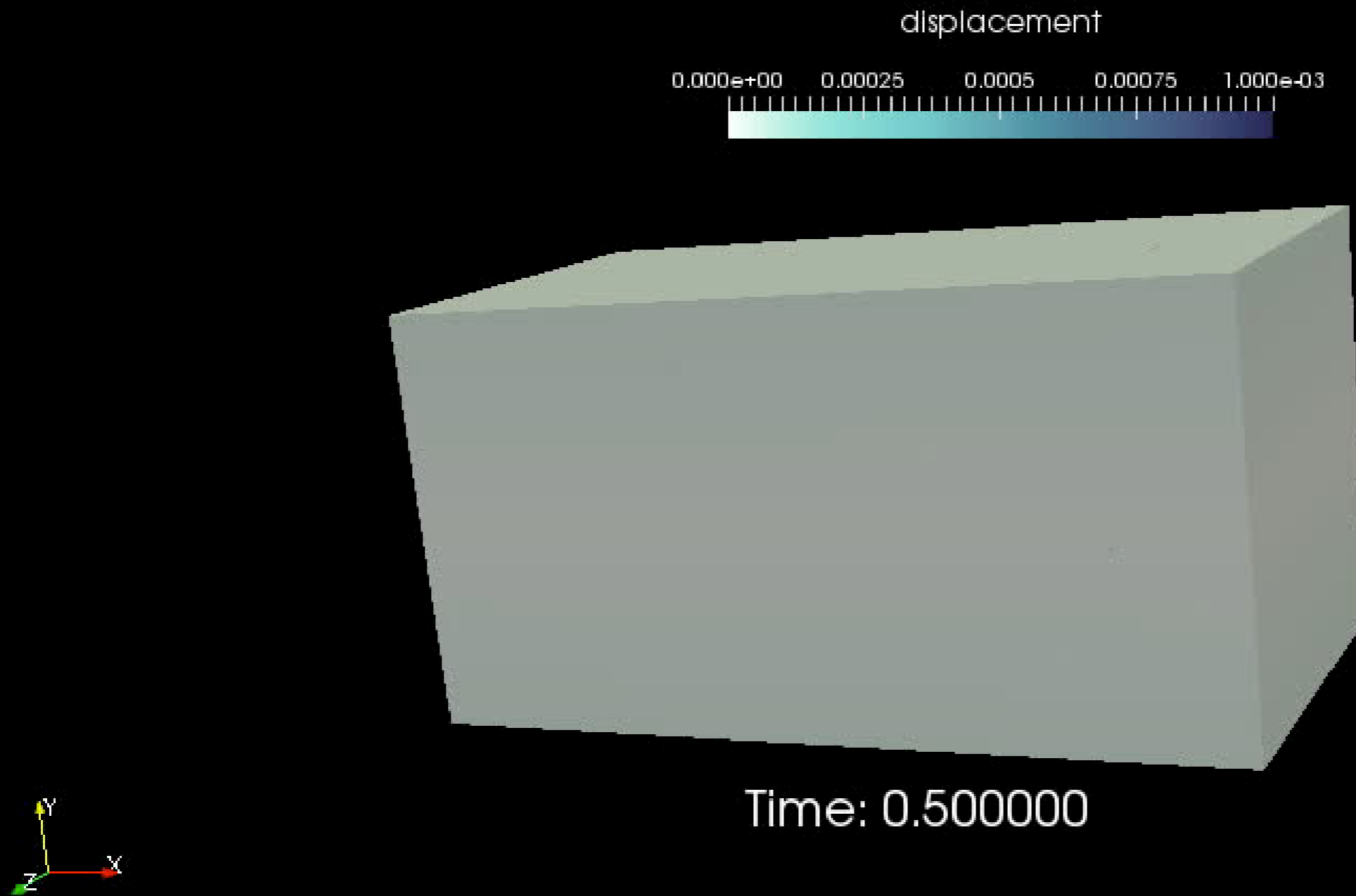


Model



- bulk viscoelastic analogy to rate and state friction model
- numerical method: finite elements (FEniCS project)
- only rate-dependence included for now

Ice: velocity-weakening regime



Thank you for your
attention.

Enceladus image: Courtesy NASA/JPL-Caltech.