

Geodynamic Modeling of Rift Systems

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Stokes Equation – Deformation (nonlinear rheology)

Heat Equation – Temperature

Darcy's Law – Melt transport

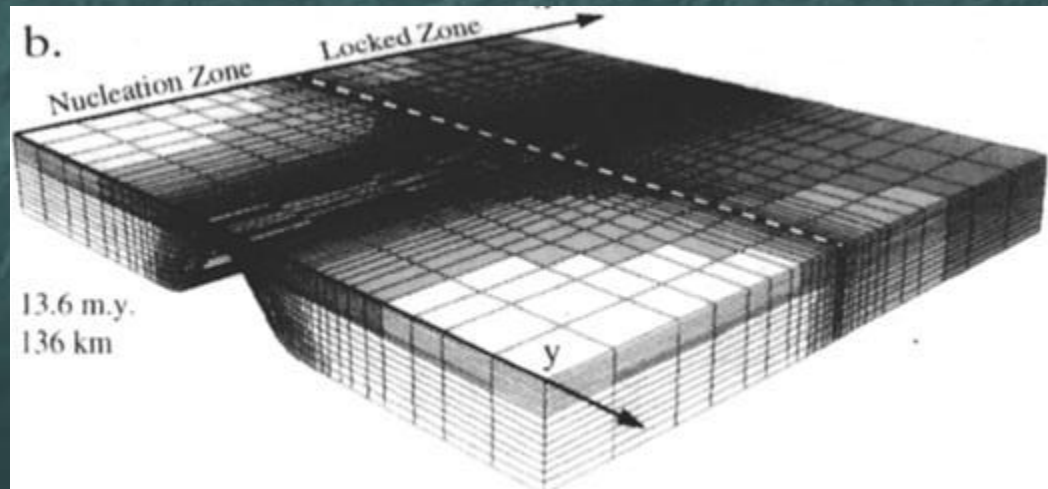
Petrology – Melting/Freezing (P, T dependent)

New to Deal, C/C++ (Fortran is my native language) - I vi, but I'm trying to quit!

Expanding from STRCH (2-D, me)
& GALE (2D, 3D; Computational
Infrastructure for Geodynamics)

Launching from step-31

Addressing demand for new
community code for
Geodynamic modeling of rifting



New Developments (current rift-modeling codes all stokes):
melting/melt transport/freezing
erosion, sediment transport, deposition

New Strategy:

community of developers rather than “infrastructure” of
dedicated developers/assistants

Why Deal.II?

Easy to change model => questions/physics evolve

Easy to test solvers, pre-conditioners, etc.

Easy to jump from 2D to 3D

Attract geodynamics community – we can be
geodynamicists, not C++ or Math experts

Alternative to CIG approach of coding staff using Linux
development model

What I Need Help With (this week)

A few newbie C++ questions

Scope!

Templates! (not so bad)

Basic project management - *.h vs. *.cc files

Setting up BC's:

Dirichlet & Neuman BC's on different boundaries

A given boundary may have multiple sub-boundaries

Time stepping deformation

Implementation

Decide on a wise approach

Not Aspect?