Science goals: 3-5 years from now

1. Plate dynamics
2. Causes and consequences of seismic anisotropy
3. Deep mantle dynamics
4. Magma generation & Earth’s long term differentiation
5. Mantle – core interaction
What do we need from CIG-II/CIG++?

• More flexible meshing in convection codes
  – Resolution in boundary layers to AMR

• More flexible interaction with PDEs
  – Constitutive equations, EoS

• Particle tracing
  – History, chemistry
(Workflow) Interdisciplinary example

Plate dynamics

Seismological structure

Magnetic field

X, t-

X, t+

(mineral physics)

X

(core dynamics)

X, t+

Plate reconstructions