Long-term tectonics: from nanometer to global scale

Operating Principles:

1. First, data, then models
2. Must consider temporal evolution

Some problems:

1. Coupled lithosphere/asthenosphere evolution with melts
2. Topography, erosion, and climate influence
3. Plate reconstruction and the evolution of geology -> connection to geodynamics models
4. Phase equilibria, fluids, and geochemical cycles
5. LT group would like a regional version of the CIG-I workflow (with addition of things like fabrics generation to predict anisotropy).

Example problem: Geodynamics of the western US

- Where are the fluids?
- What's the evolution of the wedge?
- Fabric generation and origins of anisotropy
- Melt generation, transport and evolution
- Cratonic evolution
- Origins of xenoliths, P-T-t paths