From slow slip to mega-earthquakes

What is the state of the science?
Most major convergent margins are currently monitored by dense onshore arrays
Refining models (on all scales) of the subducting plate interface
Links between slow and fast slip
  - Are precursors confined to only larger events? How does slow slip correlate with smaller magnitude seismicity?
Reconciling models of fault geometry, pore pressure, and locking/creeping behavior
  - Is elevated pore pressure a viable triggering mechanism?
Linking stress state, fault strength, and slip mode
Role of sedimentary structures in plate coupling
Expanding the framework that we use to examine slow slip
  - Is slow slip a phenomenon confined to subducting margins? What other analogues are there?

Where does it need to go?
Work across disciplines to tie our models to realistic boundary conditions
Develop infrastructure to support dense offshore networks
  - Need to communicate across communities in order to broaden the footprint
Integrate results of laboratory frictional studies in order to address scaling issues and examine the effects of heterogeneities on systems
Establish multidisciplinary collaborative week-plus long workshop environments for early career scientists to address relevant problems

Lay et al. 2012
How much of this do we actually know?
How much of this model applies to all subduction zones?