SIOG239-20 Worksheet

Date of class: 12/1

Group number and members:

Title of paper: Excitation of San Andreas tremors by thermal instabilities below the seismogenic zone

Before getting started on this paper – What did you know about tremors? How are they different from 'regular' earthquakes? What did you know about slow-slip events? Where do they occur? What do you know about the SAF? What do you know about Parkfield? Why would Parkfield be the authors focus (they actually never really say that)?

Abstract (1 – 4 bullet points or sentences) In a nutshell, what is the paper about?

Intro:
Where do slow-slip events occur, geographically and within an EQ fault plane?

What are possible mechanisms to generate slow-slip events?

What are the time scales of slow-slip events at Parkfield?

What are some of the basic lab parameters and setups (may also want to mention some numbers from later in the paper, e.g. wet solidus and liquidus of which rock)?

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Constitutive framework:
What is the basic setup/describe the three equations involved.

In a nutshell/one sentence, what does this constitutive framework describe?

What are the basic in their spring-slider assembly? What are the 6 states?

Describe the coupled evolution of slip, stress, and temperature during the seismic cycle (Fig. 4).

What is the 'ground-truth dataset' they obtain from the numerical simulations?

What is the implication of shear heating in their modeling, in the context of the solidus and liquidus of wet granite?

Discussion:
What are some of the main take-home messages?

Any further comments?