SIOG239-20 Worksheet

Date of class: 11/03

Group number and members:

Title of paper: Seamount Subduction and Earthquakes

Before getting started on this paper – What did you know about seamounts? What do you know about seamount chains? What is the difference between a seamount and a guyot?

Abstract (1 – 4 bullet points or sentences) What happens when a seamount approaches a subduction zone? What is its significance in terms of geohazards?

Intro:
What is the typical height of a seamount? What are some of the things observed at seamounts that approach a subduction trench?

What happens when they move down into the trench?

When a seamount subducts, what are the suggested end-member cases with respect to friction and earthquake propagation?

Shape and structure of seamonts near trenches:
What is the typical slope of a seamount flank?

What is the topographical and seismic structure of a seamount after it entered the trench (Fig 1)?

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Forearcs and buried seamounts:
Where does the acretionary wedge come from, how does it form? Other than seismic structure, what other geophysical observations do we have of seamounts?

How would swath bathmetry data document the subduction of seamounts?

How does a subducting seamount affect the forearc?

The mechanics of seamount subduction:
What is the relationship between a sheared-off seamount and sediments in the forearc?

What is the principal difference when a subducting seamount rests on a strong vs a weak plate?

Seamounts and the rupture histories of large subduction zone earthquakes:
Describe the different for EQs in strongly coupled vs weakly coupled subduction zones. Provide examples for each.

What are some of the observations that seem to coincide with the lack of large EQs?

So, if seamounts become asperities in the subduction zone, how do they control the occurrence and progress of large EQs?

Conclusions and future work:
And are three big take-home messages?

Any further comments?