

Submarine Landslides

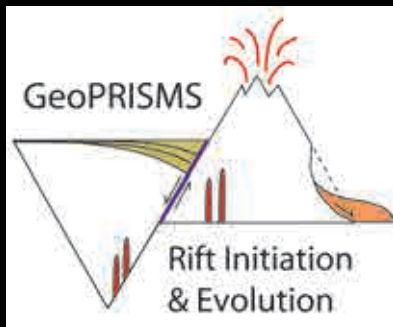
Rapid Response Opportunities

(Best data would be pre-, during-, post-failure but...)

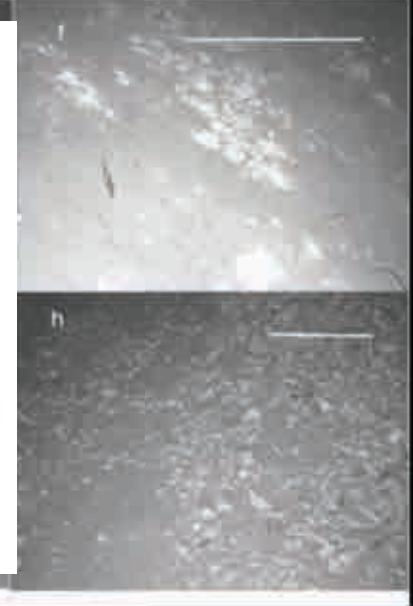
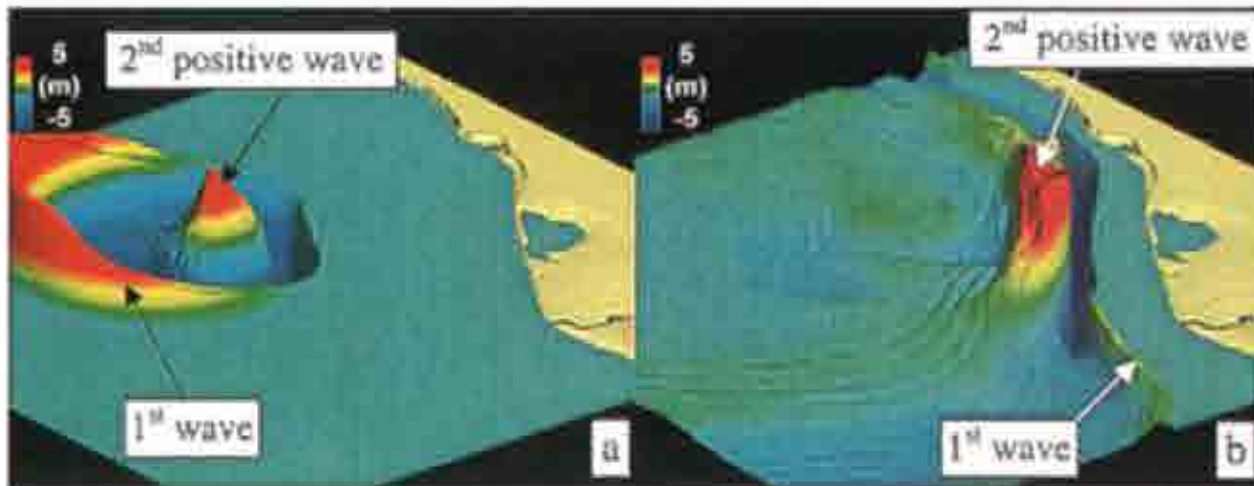
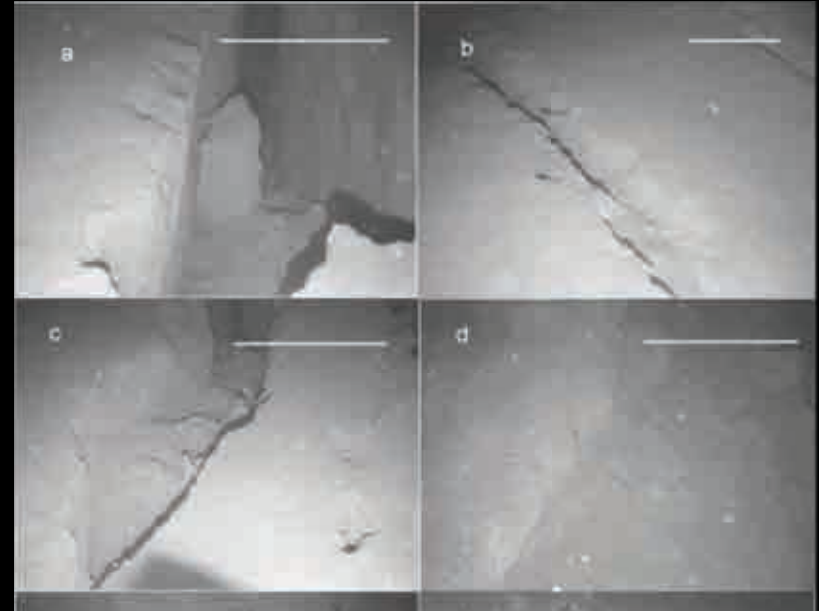
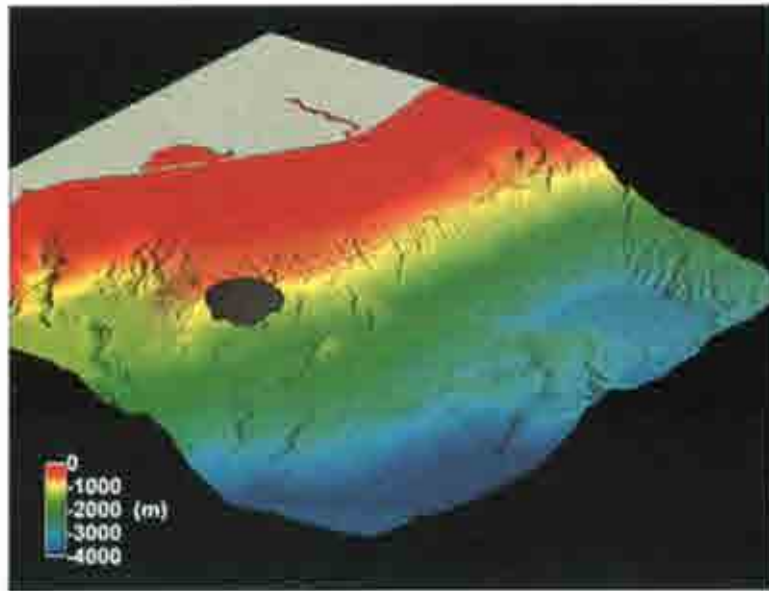
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R. Harris (Oregon State University)

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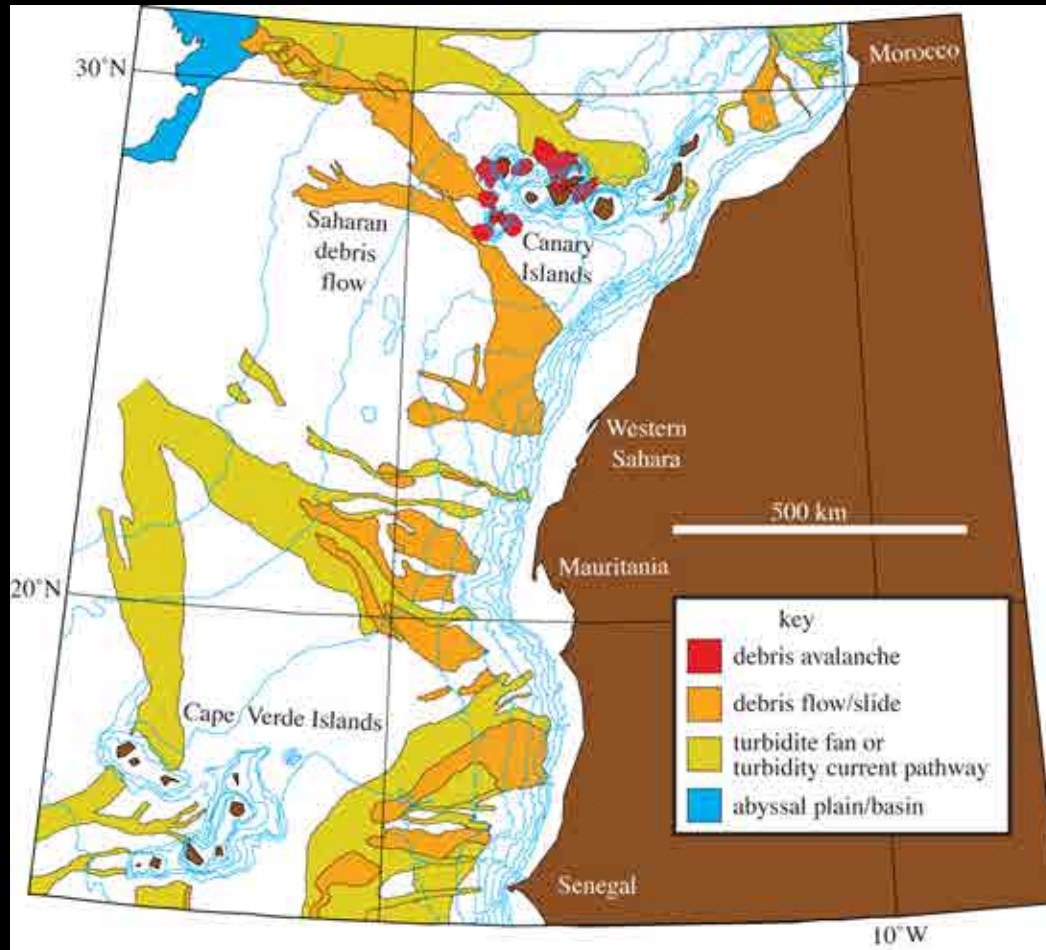
17 July 1998 Papua New Guinea Tsunami



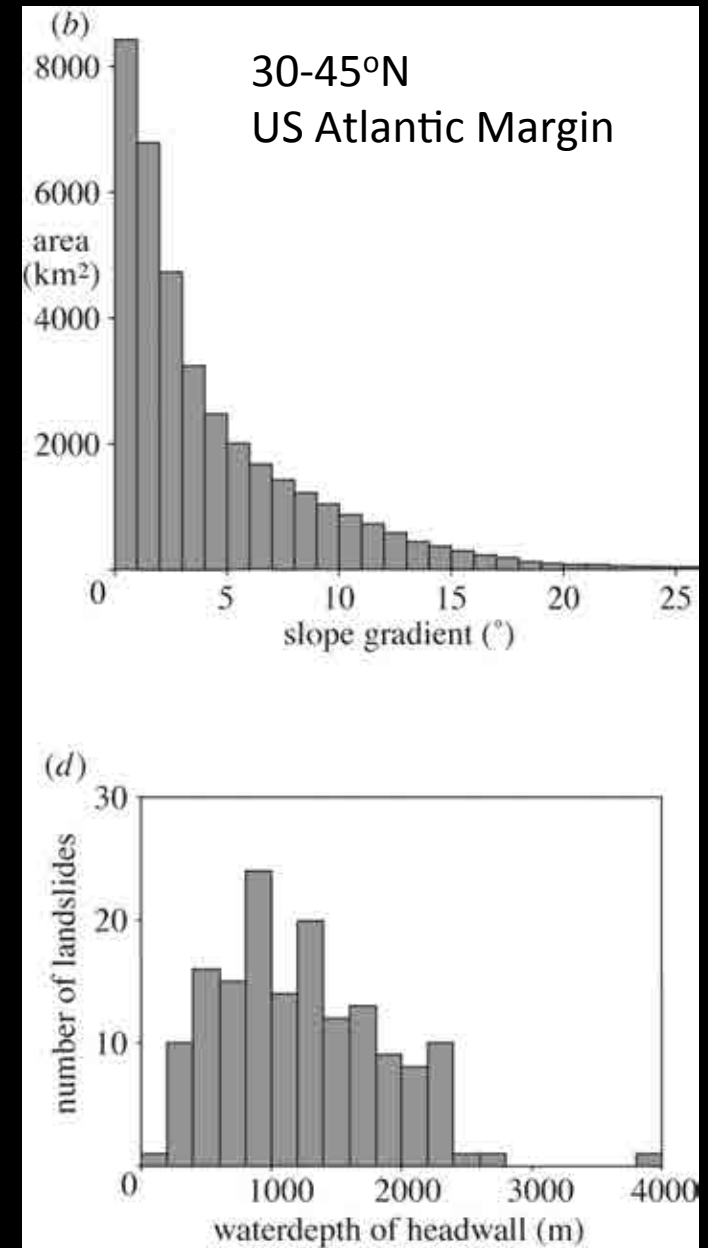
Heinrich et al., 2000

Tappin et al., 2002

Single Events, Margin-Scale Impacts



Masson et al., 2006

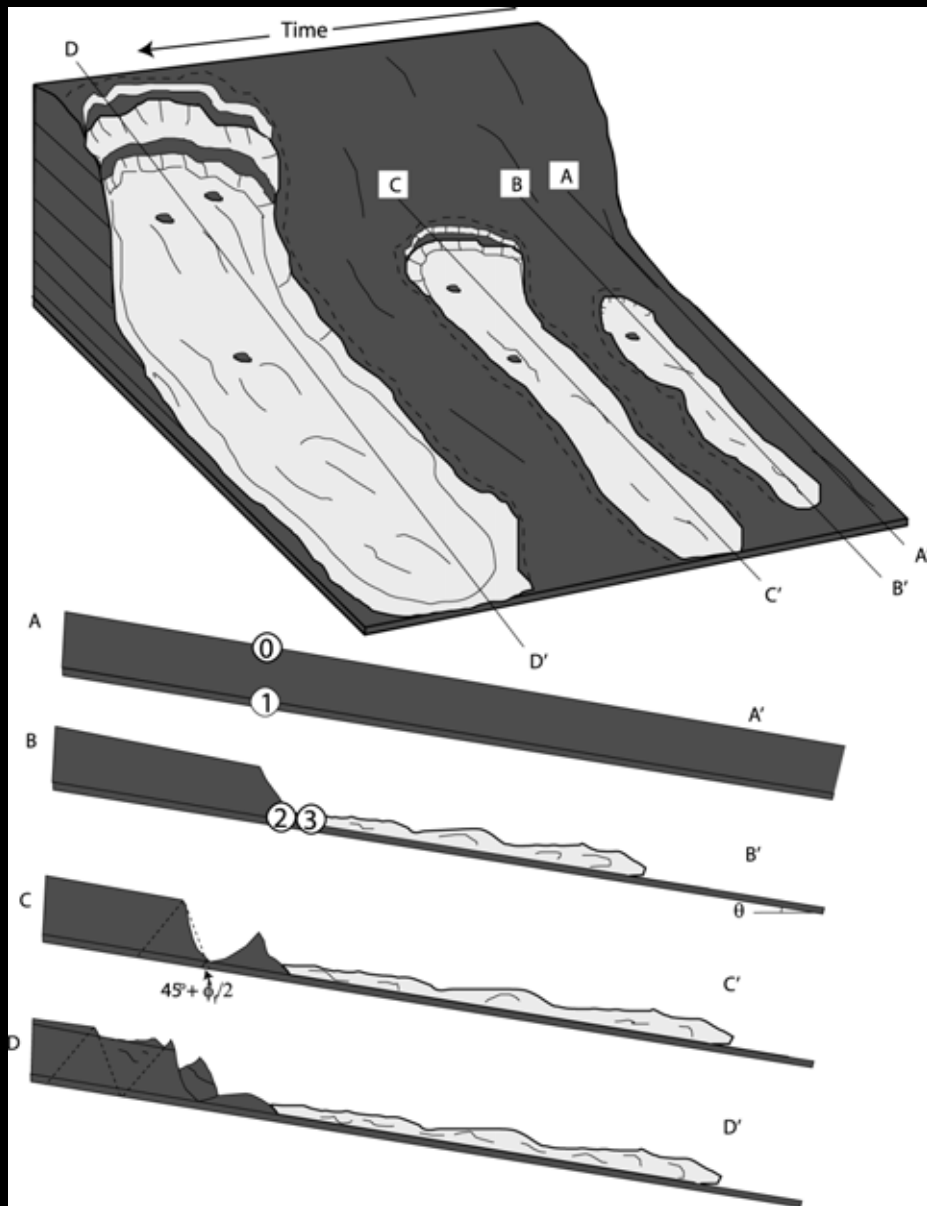


Why submarine landslides?

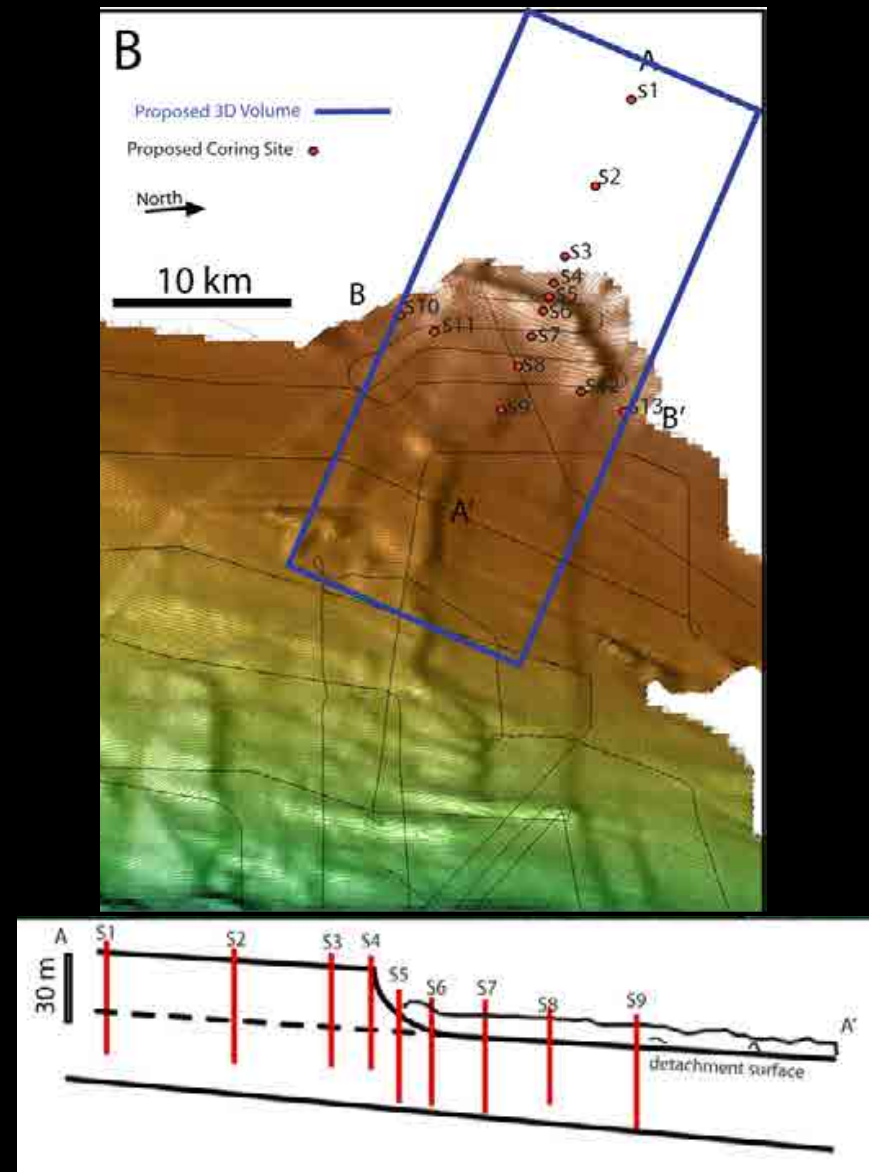
- 1) Widespread, large-scale margin evolution
- 2) Rapid, m-km but affect overall margin shape
- 3) Geohazard potential (process and society)
- 4) Integrates surface processes and feedbacks
- 5) Multi-disciplinary
 - geology, geophysics, geotechnics, fluids...

Key Data/Observations – Slide and Adjacent

- 1) Morphology and distribution
- 2) In situ pressure, temperature, and strength
- 3) Tilt and strain data
- 4) Multiple (4d) images or measurements



Sawyer et al., 2009



Hornbach et al. White Paper

GeoPRISMS-Addressable Questions

What dictates size, runout, and recurrence?
- margin shape and evolution

What drives failure along different margins?

What controls hazard potential?

Is the failure evolving or stopping? Why?

How are different failures recorded in the strata?