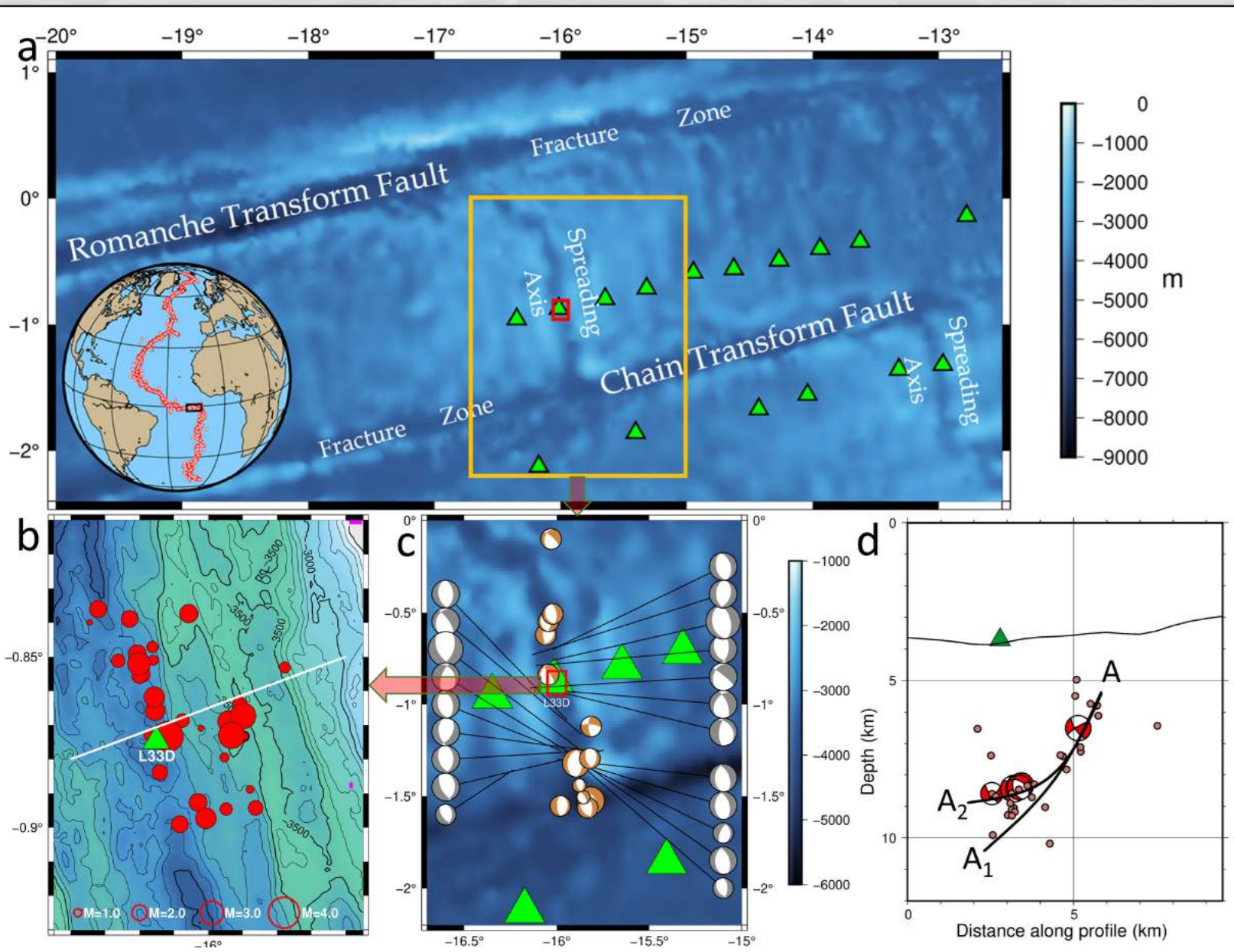
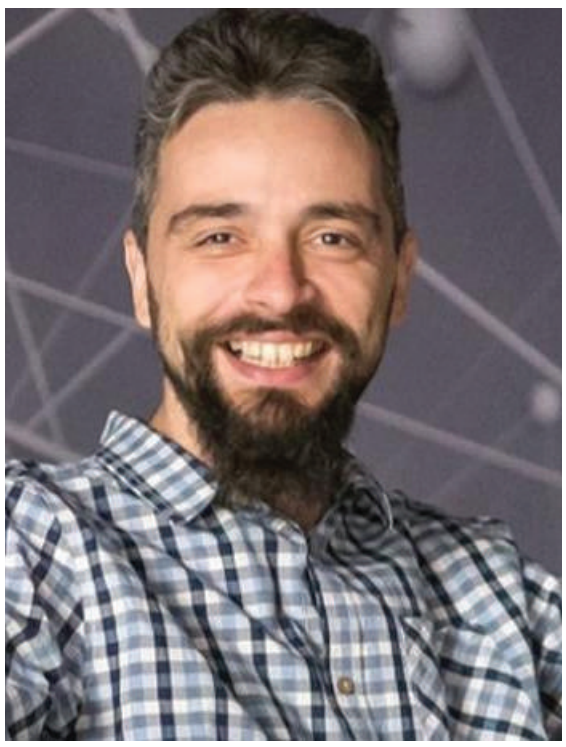
SOLID EARTH SEMINARS

MID-ATLANTIC RIDGE MICROSEISMICITY TRIGGERING AT LOW TIDES, INFERRED FROM THE PI-LAB EXPERIMENT





ZOOM

WHAT'S THIS ABOUT?

The gravitational pulls from the moon and the sun result in periodical tidal stresses which influence both Earth's solid and water mass. Although theoretically plausible, tidal triggering of earthquakes is controversial and has been only occasionally observed. We present a microseismicity dataset (4,719 events) within a small volume at the equatorial Mid-Atlantic Ridge, recorded by an ocean bottom seismometer. We find a statistically significant correlation between seismic potential and tidal forces, with most events occurring during or towards low tides, i.e., during maximized extensional stress and maximized extensional stress rate. We show that very high seismicity rates exclusively occur during low tides. There is also evidence that a larger proportion of stronger events occur during or just before low tides. The results are interpreted in terms of stress changes, considering faulting properties and the potential existence of a magma chamber beneath the study area, as suggested by previous seismic imaging results.

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November 10
Wednesday: 13:00

PASS: 2021_RG234

https://videoconf-colibri.zoom.us/j/89018419156

2020

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