Investigating the sedimentary DNA of palaeotsunami deposits in Thailand.

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PROJECT HIGHLIGHTS

- The primary way to extend the tsunami database beyond relatively short instrumental and historical records is to analyze palaeotsunami deposits.

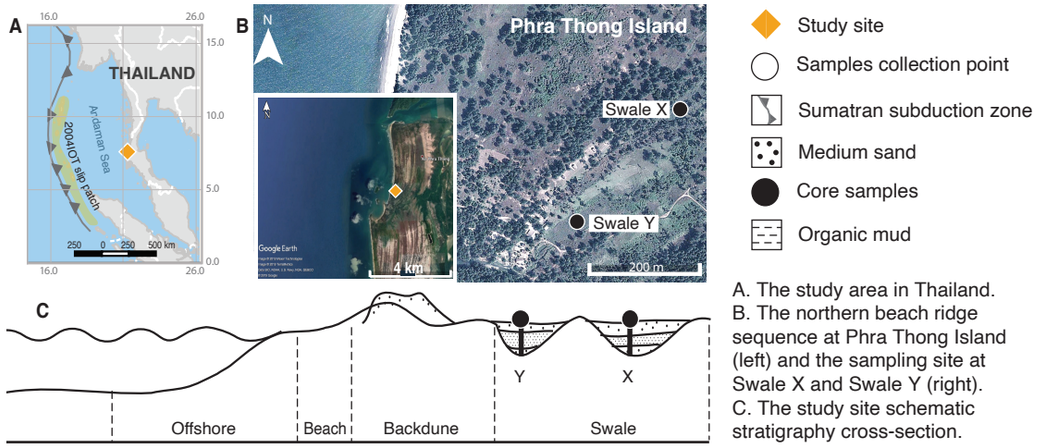
- Unfortunately most available proxies to study palaeotsunami deposits can be modified or removed with time.

- Our result shows that sedimentary DNA can discriminate palaeotsunami deposits from intercalating mud layers.

- We found two taxa that are exclusive in the Indian Ocean Tsunami (IOT) deposits and subsequent palaeotsunami deposits up to ~2800-years-old.

- Sedimentary DNA is a new and promising tool to investigate historical and pre-historical tsunami record.

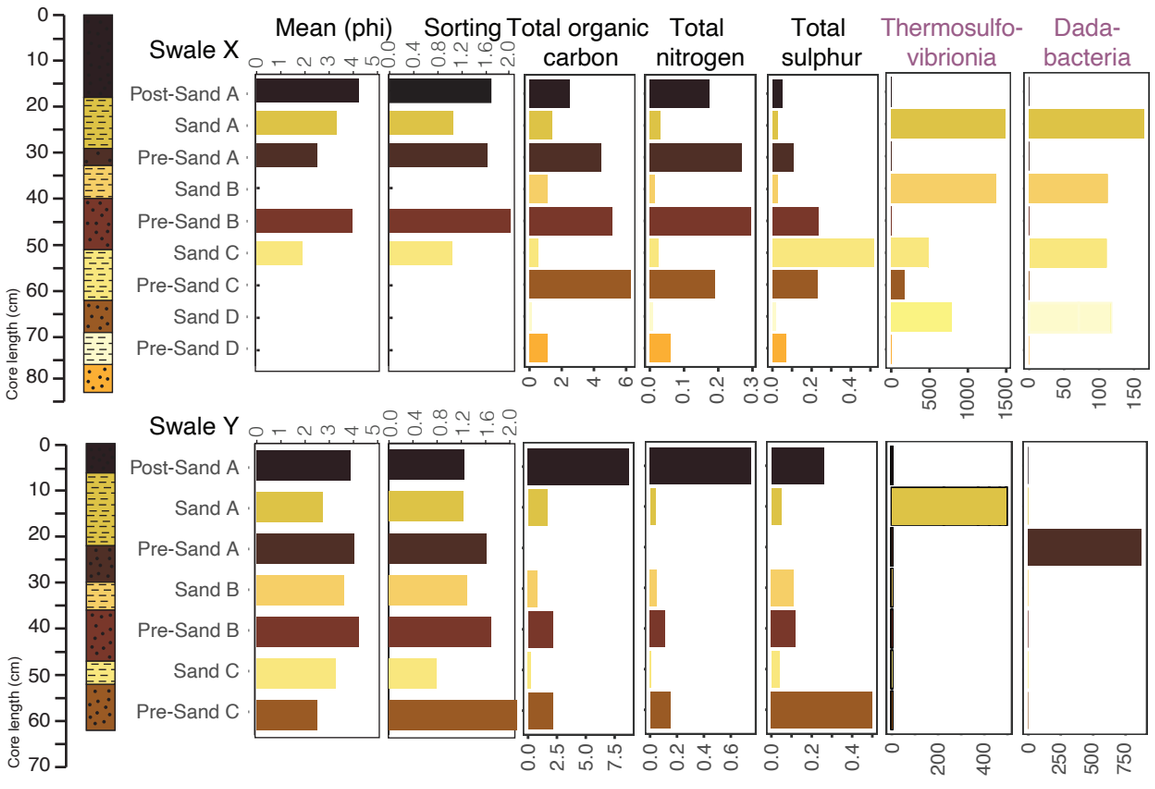
1. Study site: Phra Thong Island, a IOT well studied site with a series of palaeotsunami deposits



A. The study area in Thailand.
B. The northern beach ridge sequence at Phra Thong Island (left) and the sampling site at Swale X and Swale Y (right).
C. The study site schematic stratigraphy cross-section.

2. Distinct sedimentary stratigraphy and geochemical differences

Thermosulfovibrio and Dadabacteria are exclusive in IOT and palaeotsunami



3. Distance-based Redundancy Analysis (db-RDA) on Bray-Curtis matrix can differentiate tsunami sands and mud layers

