VEIN STRUCTURES AND FAULTS IN CORE SAMPLES FROM NanttroSeize EXPEDITION 315, SITES C0001 AND C0002
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The Nankai Trough, Japan, is a region of the Pacific Ocean that is located to the southeast of the Kii Peninsula and is part of a subduction zone where the Philippine Sea plate is subducting beneath the Eurasian Plate. This region is known for its high seismic activity and is a focus of ongoing research to understand the causes of earthquakes and tsunamis.

The Nankai Trough is a subduction zone where the Pacific plate is sliding beneath the Philippine Sea plate. This process is responsible for the generation of earthquakes and tsunamis in the region.

Why & How it was Drilled
Site C0001 and C0002 were drilled as part of the Integrated Ocean Drilling Program (IODP) Expedition 315, which targeted the Nankai Trough off the Kii Peninsula, Japan. The drilling was conducted to recover deep-sea sediment from the accretionary prism, which is a landward extension of the subduction zone.

Types of Deformation Features Seen
The cores retrieved from Sites C0001 and C0002 during IODP Expedition 315 offshore SW Japan provide an excellent opportunity to examine deformation processes occurring in the Nankai Trough. The accretionary prism is a region where the subducting plate is accreting to the overriding plate, forming a complex geological setting.

Acknowledgements:
I would like to acknowledge IODP JO275, the Ocean Drilling of Japan, and the University of Pennsylvania for providing the opportunity to pursue this research project. Additionally, I would like to thank the Office of Naval Research (ONR) for their support of this research.

Implications:
Methane venting as a mechanism for vein structure formation?

Site C0001 Core Sections Background & Findings

At site C0001, there is a sequence of methane gas that extends from 3000 m below sea floor. This methane release causes small-scale faults to form, leading to the development of veined structures.

Site C0002 Core Section Background & Findings

Nearly all samples from C0002 lie below the 250m below sea floor line. The vein structures are strongest below this zone. If methane was present at or near this level at Site C0001, then the vein structures may have been the result of methane release into the basal sea floor breccia zone, as the result of seismic activity.

Further Research
The core sections will be geochemically reoriented by paleo-magnetic data. The kinematic data of the faults will be recorded.

References:

Methane venting as mechanism for vein structure formation?

The Faults in Site C0002 could record the extension and compression of the Kumano Basin.

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Site C0001 Core Sections Background & Findings

At site C0001, there is a sequence of methane gas that extends from 3000 m below sea floor. This methane release causes small-scale faults to form, leading to the development of veined structures.

Site C0002 Core Section Background & Findings

Nearly all samples from C0002 lie below the 250m below sea floor line. The vein structures are strongest below this zone. If methane was present at or near this level at Site C0001, then the vein structures may have been the result of methane release into the basal sea floor breccia zone, as the result of seismic activity.

Further Research
The core sections will be geochemically reoriented by paleo-magnetic data. The kinematic data of the faults will be recorded.

References:

Methane venting as mechanism for vein structure formation?

The Faults in Site C0002 could record the extension and compression of the Kumano Basin.