

## Identifying mass transport deposits using magnetic fabric analysis: An example from Nankai Trough

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Submarine landslides are a potential hazard to coastal areas all over the world. Studies of mass transport deposit (MTD) contribute to understanding the nature and process of the submarine landslides. Scientific drilling provides material containing a historical record of the seafloor environment, however, there is not always enough sediment to recognize MTDs by visual information.

We applied magnetic fabric analysis to the drilled cores to examine the potential of magnetic fabrics in identifying MTDs. Among the sites drilled in the framework of the Nankai Trough Seismogenic Zone Experiment (NanTroSEIZE) of the Integrated Ocean Drilling Program, multiple occurrences of MTDs were observed in the recovered cores. We focused on Sites C0008 and C0018 of the slope sediments in the footwall of the megasplay faults. Magnetic fabric analysis was performed with the recovered cores in the MTDs. The shape parameter (T) and the orientation of the axes of magnetic ellipsoids, distinctively scattered in MTDs, suggest mobilization

and/or resedimentation during the formation process. Downward increments in the parameter L near the bottom of MTDs may result from the shear localization near the basal sliding plane. By contrast, the results from the sediments described as a mass transport complex at Site C0008 showed the opposite trend, suggesting a different dynamic process during transportation. Our results show the magnetic fabric analysis is potent in describing MTDs and their internal structures. This may extend the methodology in describing MTDs and the discussion on their dynamic process.

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