

## Tsunami and seasonal variation records of Sendai Bay sediments revealed by rock magnetic properties and geochemical anal

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The large amount of terrigenous substances is carried to coastal areas by natural disasters, which are Tsunamis and seasonal floods. Therefore coastal marine sediments along island arcs are possible to have information of past Tsunami and seasonal floods. In order to reconstruct those past events from the coastal marine sediments, we need to distinguish between Tsunami events and seasonal variations. Thus this study is aimed to sort both past events based on rock magnetic properties and geochemical analysis. Sediment samples were collected at five stations in Sendai Bay at every season during 2002-2011. For measurements of carbon, nitrogen and sulfur amounts in the sediments, CHNS analyses were conducted. Rock magnetic properties of the sediments were also measured. Results indicated that the amounts of those elements decrease toward offshore stations. The samples taken during spring and autumn show high values in those elements at all stations, suggesting the sediment supply increases in those seasons. These values are diffused at the near-shore stations, while the value ranges are narrow at the offshore stations under the Oyashio current. The sediment particle size is larger at the offshore stations. It suggests that fine sediment particles are transported by the Oyashio current. For discriminations between Tsunami events and seasonal variations, we focused on the samples taken in June 2008 and 2011. The amounts of carbon and sulfur are large in the 2011 samples after the Tsunami event. Thermo-magnetometric results indicate the presence of magnetite and iron sulfide in all samples. Especially, the 2011 samples at the offshore stations under the Oyashio current are found to contain iron sulfide as a dominant magnetic mineral. It may be implied that iron combines sulfur after deposition and that are prevented from the transportation of the Oyashio current.

Keywords: Tsunami sediments, geochemical analysis