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The detection of tsunami sediments caused by the 2024 Noto Peninsula Earthquake using by magnetic analysis.

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On 1 January 2024, an earthquake of magnitude 7.6 struck the Noto Peninsula, north-central Japan. The tsunami was observed after the earthquake at Nagahashi station where is in the peninsula. The station had been monitored the tidal and tsunami, the gauges were broken by the earthquake, therefore the detail was unknown. In order to estimate tsunami current speed and particle transfer on the seafloor, we took sediment samples from three stations where sediments were collected in 2008 by the Geological Survey of Japan, off Nagahashi. Results of grain size analysis, the distributions of sedimentary grains were changed at two sites after the tsunami. Especially, the grain size was increased from fine sand to granule at a site. There is no main river which can drive pebble size grains, therefore the drastic train size changes are seemed to be caused by the tsunami. Previous studies reported that magnetic susceptibility (MS) is used for the detection of tsunami sediments (e.g., Abe et al., 2022), therefore we also measured MS of the marine sediments. A sample of MS indicates maximum value, suggesting the tsunami sediments. Results of thermomagnetometry indicates that magnetite accounted for the principal magnetic carrier of the sediment samples. Results of the isothermal remanent magnetization (IRM) curves of the sediment samples have some magnetic components, and the components are characterized per the sampling sites. We also collected a new bathymetric data using multibeam echo sounder in January and February 2024, and compared it with previous bathymetric data collected in 2010. Based on the geographic results, tsunami sediments are found at the site in a basin caused by fault. We think that when the tsunami occurred and drive the pebble size grains, and that the grains have been deposited at the site.