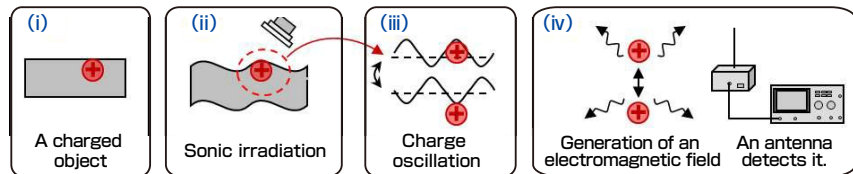


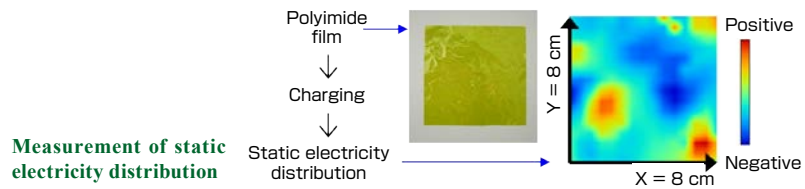
Technology for measuring static electricity using sound waves

Visualization of static electricity distribution on flat surfaces by scanning focused sound waves

We have developed a novel technology for detecting static electricity by using sound waves and an electromagnetic field. The electromagnetic field is generated by vibrating a charged object with sonic irradiation. Static electricity is measured with an antenna that detects the changes in the electromagnetic field. This technology can detect the induced electric field omnidirectionally from the object vibrated by sound waves, and it can be installed flexibly in various environments with simple device configuration. The non-contact static electricity measuring technology is expected to be applied flexibly at production sites with spatial restrictions. In addition, the technology allows flat-surface static electricity distributions to be visualized by utilizing the scanning of focused sound waves on the objects. This is a promising technology that has a possibility of visualizing static electricity in moving objects at production sites, such as persons and products, within short periods of time.



Schematic illustrations of the developed technology



Measurement of static electricity distribution

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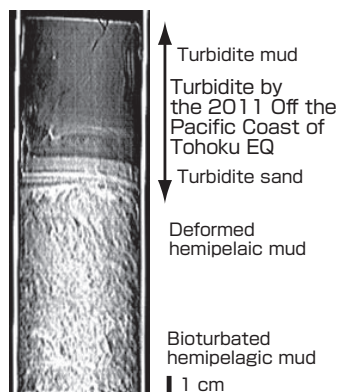
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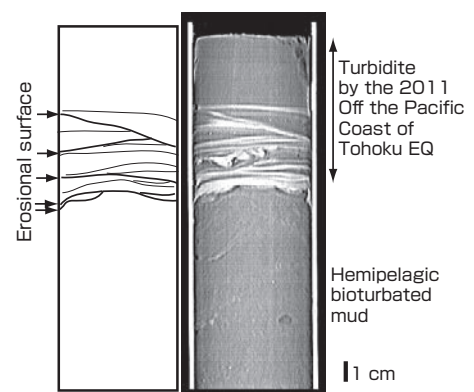
Influence of 2011 Off the Pacific Coast of Tohoku Earthquake on sea floor environments

Wide distribution of sea floor disturbance around the earthquake source area

We collected 13 surface sediment samples from off Sanriku area, and found wide distribution of turbidite deposition around the source area of the 2011 Off the Pacific Coast of Tohoku Earthquake. Multiple erosion was recognized in some sediment samples, suggesting multiple occurrences of turbidity current and submarine slope failure. Another characteristic evidence of the earthquake was sediment deformation. Vertically oriented deformation structures were found in mud just below the turbidite at the outer shelf in the Sendai Bay. Strong ground shaking by the earthquake deformed the sea bed. Wide distribution of turbidites and sediment deformation suggests that the sea floor was largely influenced by the earthquake and the tsunami.



X-radiograph of sediment core collected from off Sendai



X-radiograph of sediment core collected near the epicenter of the earthquake

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