

# Deep sea environmental phenomena associated with the Tokachi-oki Earthquake in 2003 and its impact on seafloor observatory

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Some significant phenomena on the deep seafloor, such as strong benthic water current up to about 1.5 m/s expected to be caused by the seafloor land slide, were observed by JAMSTEC's 'Long-Term Deep Sea Floor Observatory off Kushiro-Tokachi in the Kuril Trench' associated with the Tokachi-oki Earthquake in 2003 occurred at Kuril Trench on September 26th 2003 (Mikada et al., 2004). The epicenter of main shock (Mj 8.0) is located about 25km west-northwest of the cable end station comprised of multi-disciplinary sensors whose water depth is 2610m. In spite of the blackout that occurred in the shore station area just after the main shock, thanks to UPS, the observatory continued to work except a part of sensors. However, the earthquake and associated phenomena made some impacts on the observatory. The alignment of the cable end station was changed about 13 degrees clockwise by the strong motion caused by the main shock and ADCP (Acoustic Doppler Current Profiler) was inclined temporarily by the strong benthic water current. Thermometers which were installed inside the pressure case of in-line OBS of the submarine cable showed fluctuations that might suggest the change of deployment state such as burial depth beneath the seafloor.

Through the analysis of these phenomena, some problems on the data quality on observed value and precision of time stamp on the environmental data of the observatory became apparent. By correcting those, some results were obtained such that faster westward benthic water current than usual continued for more than ten days after the main shock (Iwase and Mitsuzawa, 2004). We will report those events detected by the observatory, data quality and methods of correction of the environmental data which are the important information on understanding of deep sea phenomena.