Hypocenter of Earthquakes Measured by the JMA Seismic Observation Network on Land.

1. Japan is located on the edge of plate boundaries, frequently hit by earthquakes and sometimes it create associated TSUNAMI hazards.

2. Seismogenic zones are located near plate boundaries, in which are many case underwater.

3. Seismic or any geophysical underwater observation is very important to study generation mechanism of earthquakes and improve the measurement precision around Japan.

Plate Boundaries and Cable Connected Ocean Bottom Observatories around Japan.

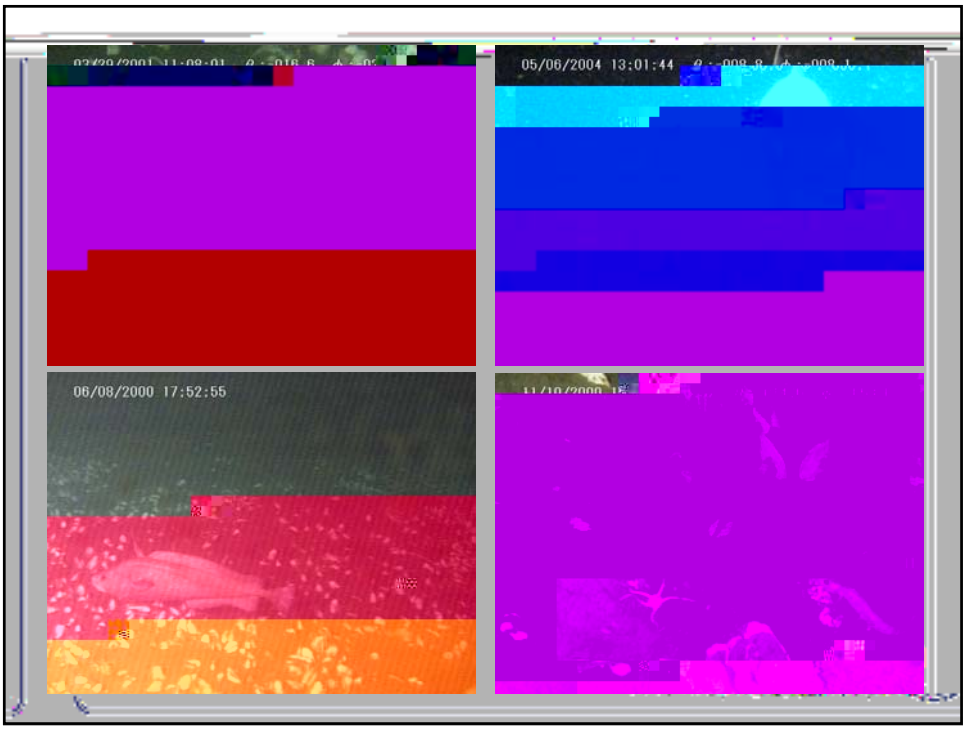
a) JMA Omaezaki System (1978)
b) JMA Off-Boso System (1985)
c) ERI Off-Ito City System (1994)
d) NIED Hiratsuka System (1995)
e) ERI Off Sanriku Seismic Network (1995)

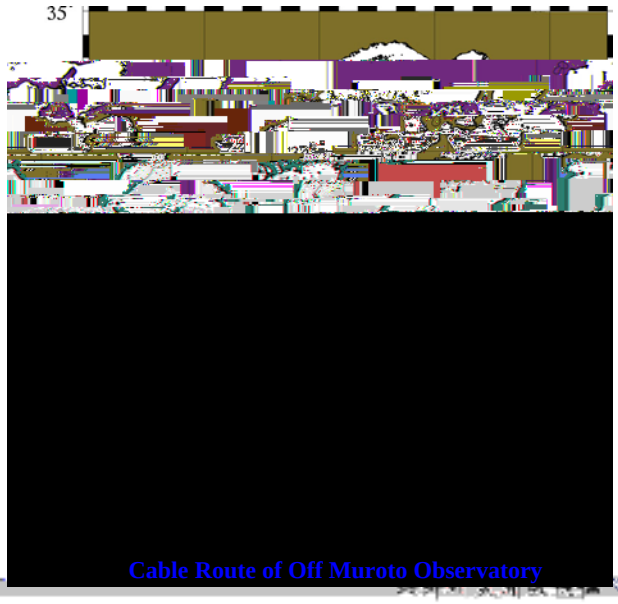
A) Real Time Deep Sea Floor Observatory Off Hatsushima Island in Sagami Bay (1993)

B) Long-Term Deep Sea Floor Observatory Off Muroto Peninsula (1997)

C) Long-Term Deep Sea Floor Observatory Off Kushiro-Tokachi (1999)

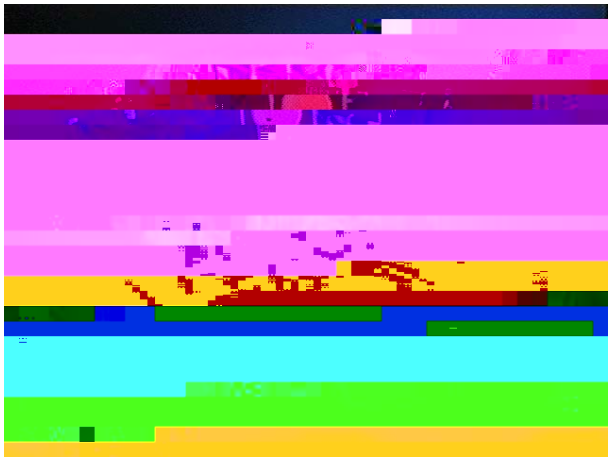
A Picture of seafloor observatory sitting on the 1174m depth of clam colony





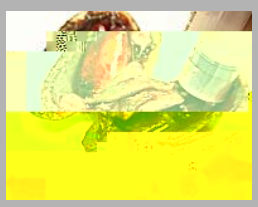
Cable Route of Off Muroto Observatory

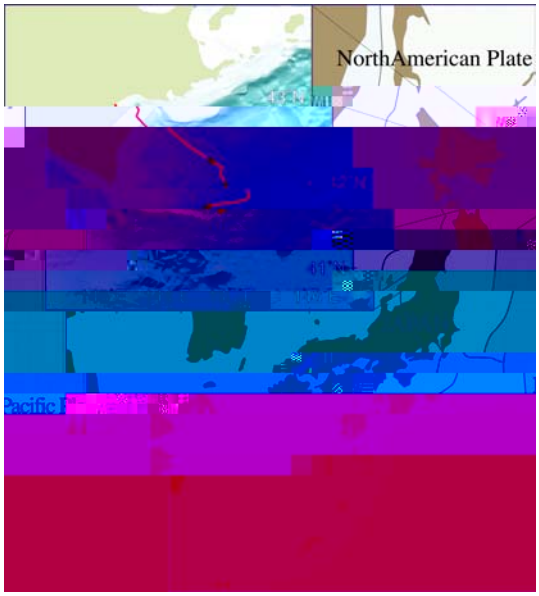
Cable In-line OBS on the 1277m depth of seafloor

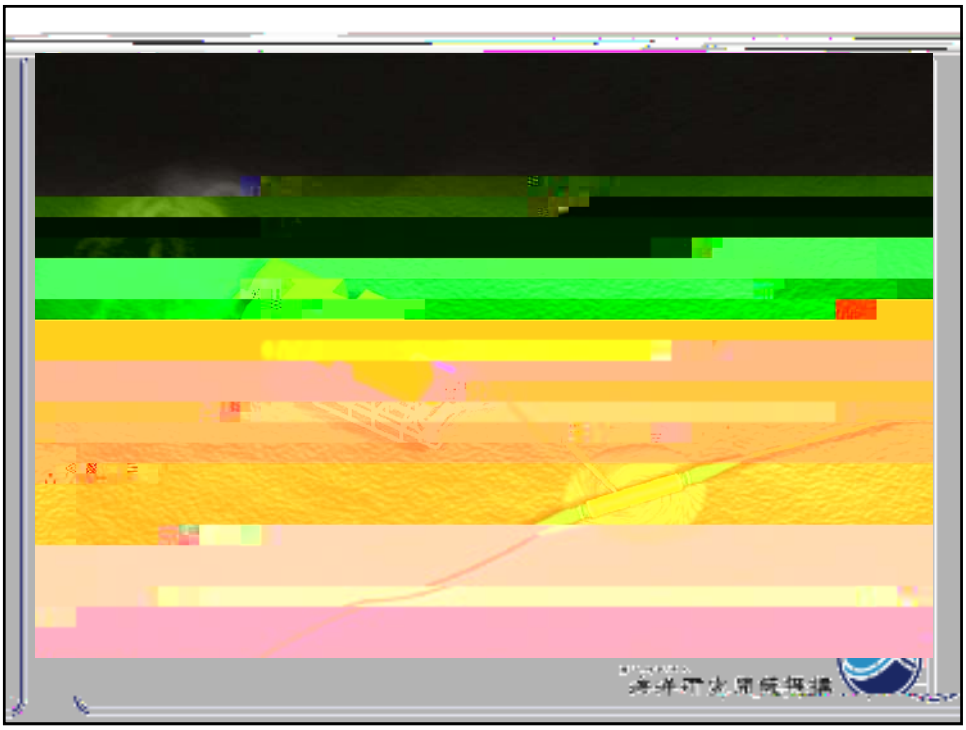


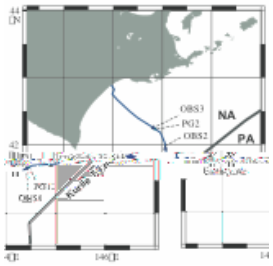
Cable End Multi-sensor Station

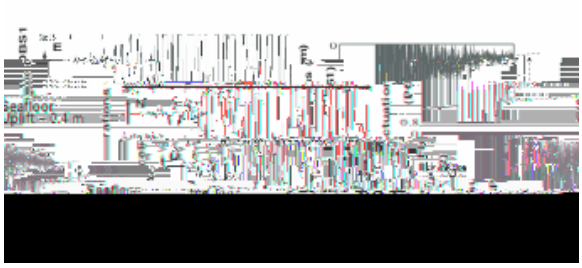




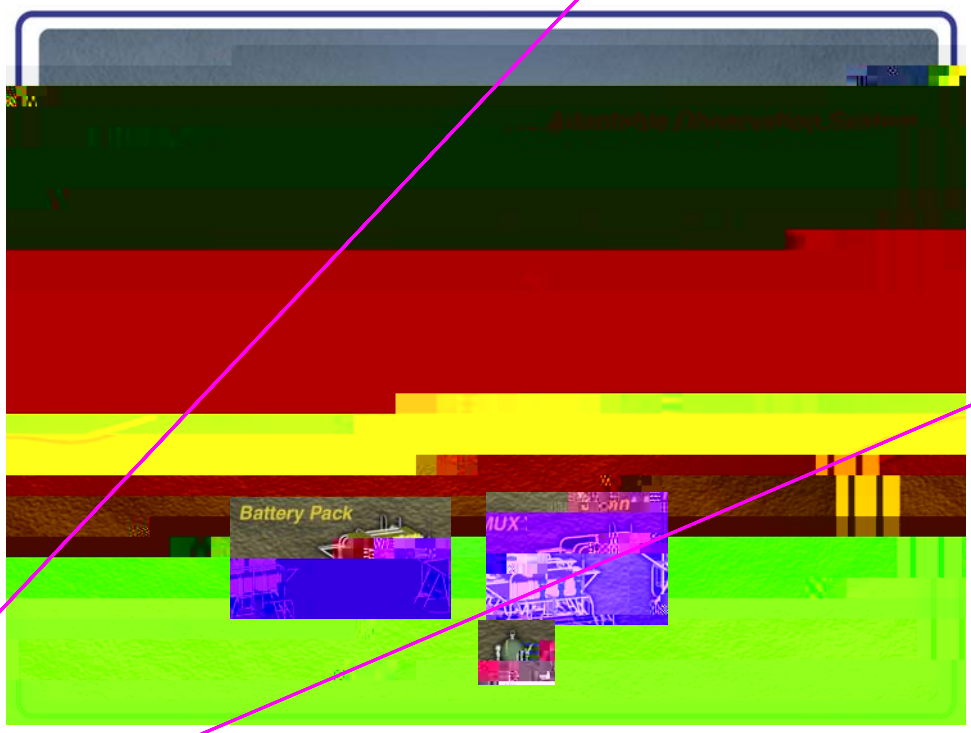


NorthAmerican Plate

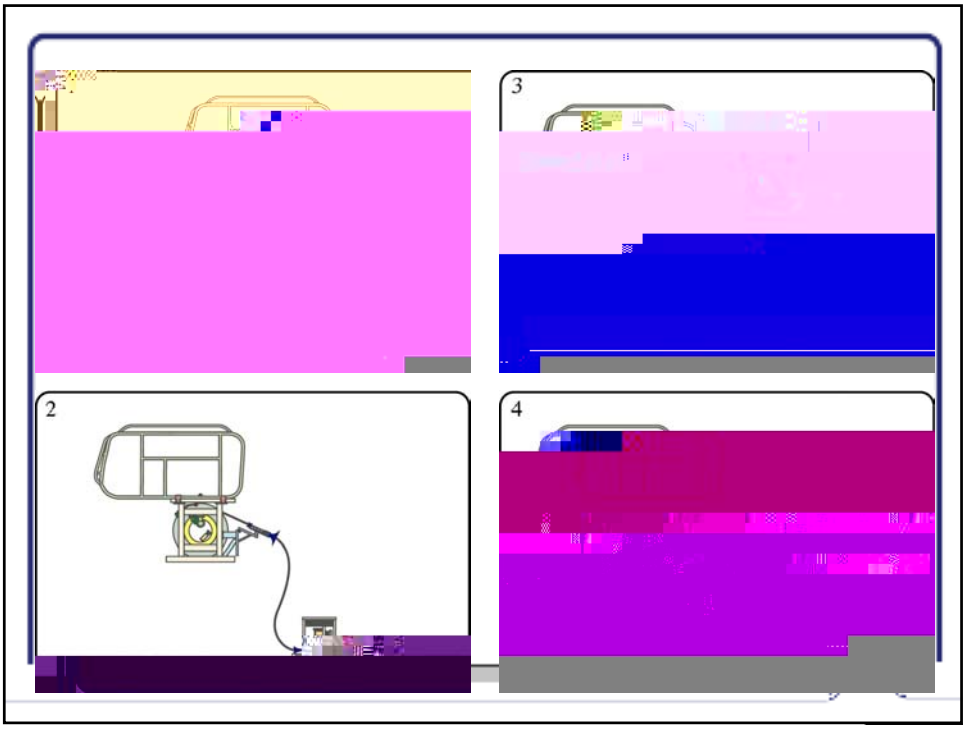


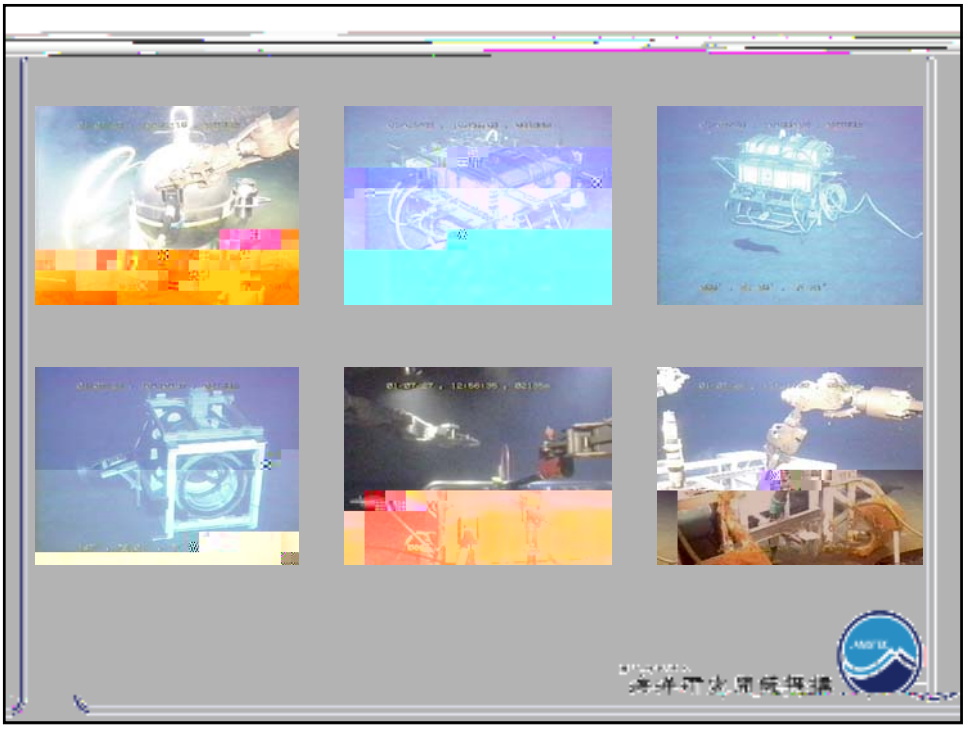


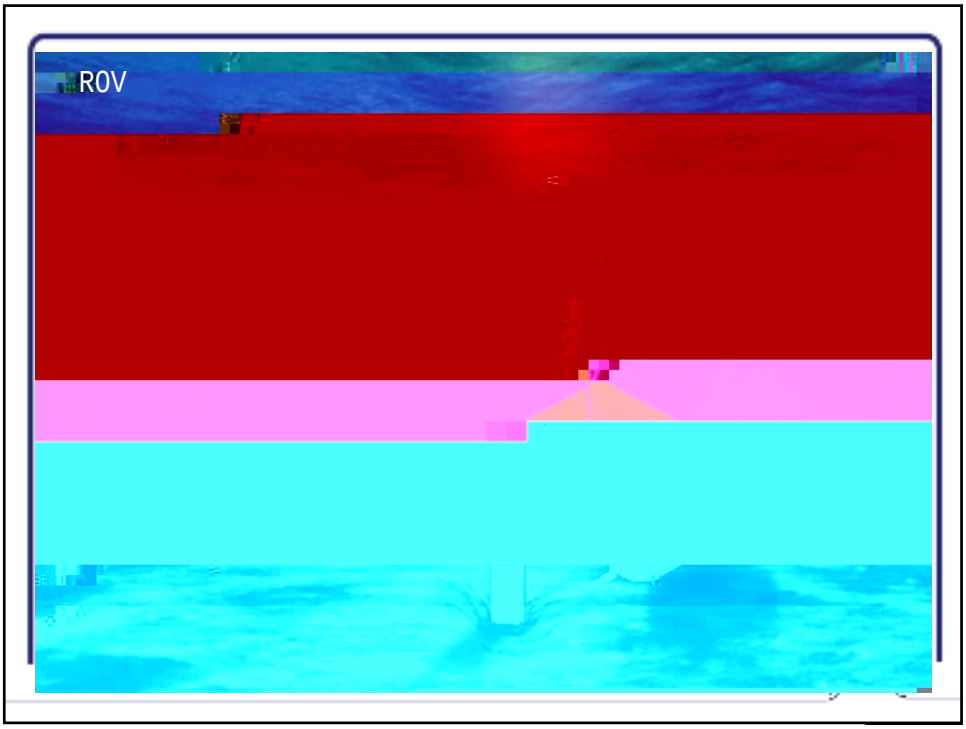


The 2003 Tokachi-oki earthquake was recorded by full seismic and pressure gauge data by the JAMSTEC's real-time cabled observatory system, which was deployed in 1999. The system is equipped with three broadband tri-component seismometers and two high-precision pressure gauges. The sensors are located on the other side of any other land seismic stations at the earthquake s focal region. The system has provided invaluable seismic and tsunami data on the earthquake. The closest seismometer, OBS1, is located above the focal region about 28.6 km from the epicenter. This is the first time that such near field data have been recorded for a major M 8 megathrust earthquake at a subduction zone



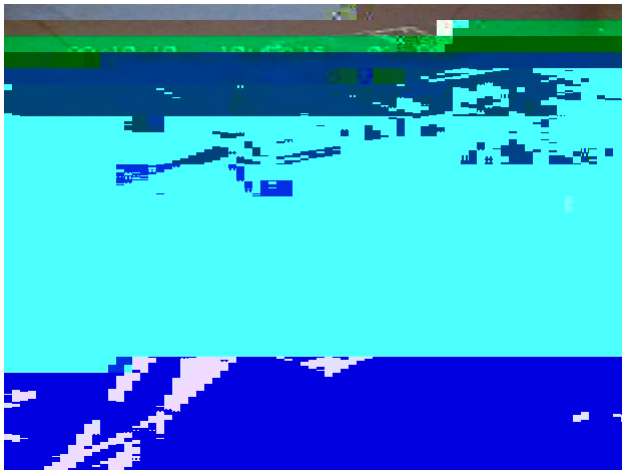

3
2
4

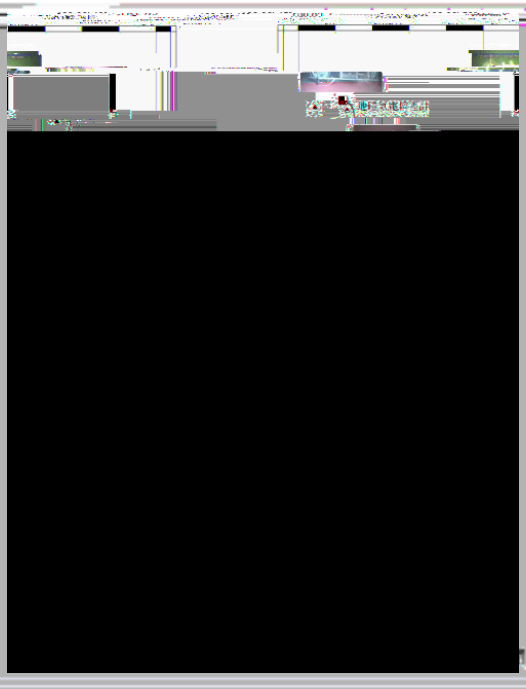


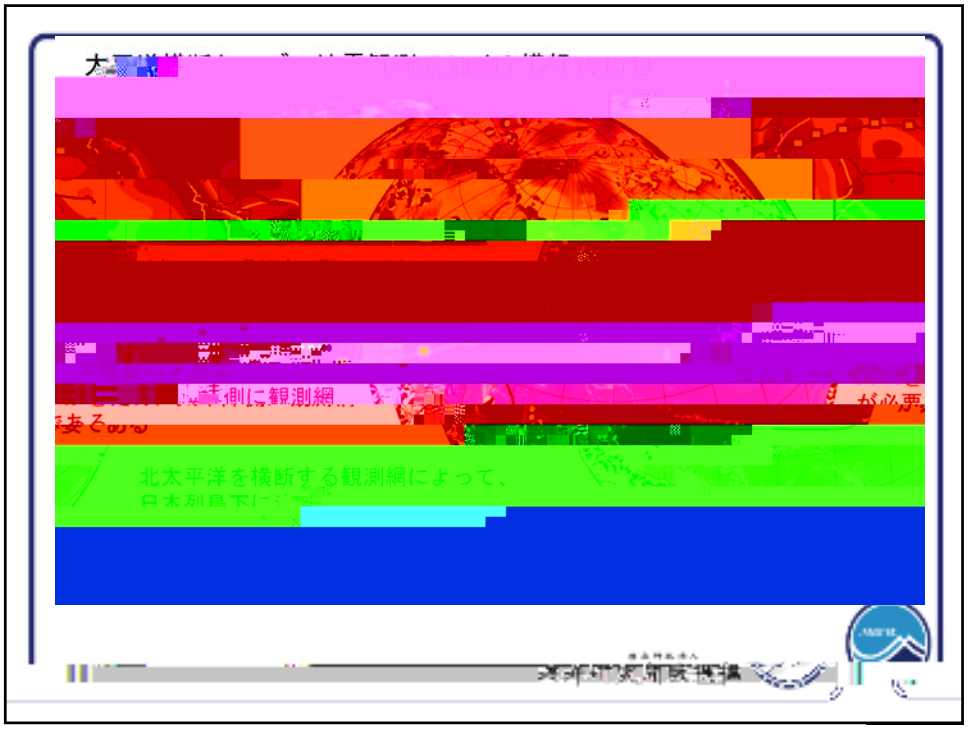


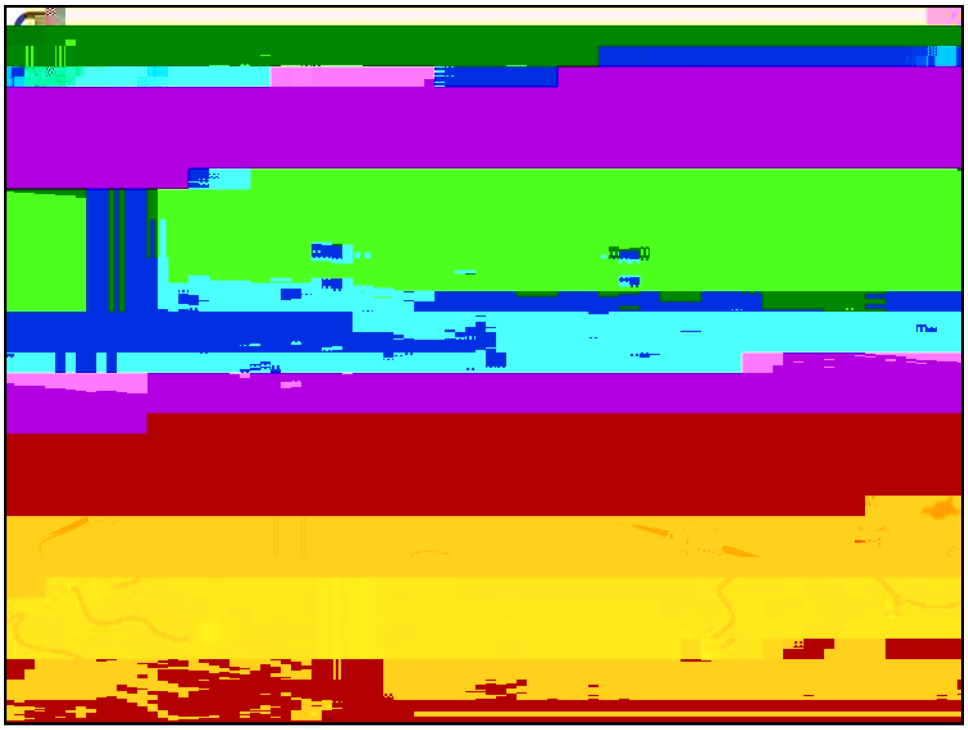
Scientific Reutilization of Decomissioned Submarine Cable

- Reuse of decomissioned submarine cables has been discussed for long time since 1980s. Some of the decomissioned submarine cable system was donated from international telegram and telephone company in Japan (KDD(I)) to University of Tokyo for scientific re-utilization.






北太平洋を横断する観測網によって、



A concept of future science cable network around Japan

Cable length: 16,000 km

20-50km observatory interval is expected (320 observation point) on this cable route.

Scientists and engineers in Japan started feasibility study for this science cable network project.