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ocean monitoring through the expansion of the global seismographic network on the seafloor

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There is rapidly expanding interest in the application of seismological tools for exploring the structure and dynamics of the seafloor from the inner core to the nature of the ubiquitous sediments which cover most of the seafloor. New technologies are making access to the oceans less expensive, while recently acoustic telemetry has supported the continuous transfer of data from broadband systems at the seafloor to autonomous vehicles and thence to satellites and laboratories with latencies of 2-3 minutes. The growing availability of Low Earth Orbit (LEO) communications satellites will reduce latency while increasing bandwidth.

New seafloor sensors have reduced noise levels comparable to those of the best stations on land. New batteries and compact electronics have extended seafloor lifetimes to 1-3 years. There are few barriers to growth of capabilities at rates that are comparable to consumer electronics with technological turnovers of no more than three years. Of course, this requires a continuous evolution of the seafloor technologies at a similar pace. Novel ocean technologies have the potential of enhancing the monitoring of the ocean environment and complement the CTBTO's hydrophone network of moored hydrophones. Surveillance systems that serve ocean data will become ubiquitous and less expensive than present systems. Overall, improved data rates and enhanced knowledge of the complex structure of the seafloor can contribute to a wide range of scientific initiatives linked to the United Nations sustainable development goals and hazard mitigation.

Promotional text

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