Distributed sensing of earthquakes and ocean-solid Earth interactions analysis using fiber optic telecom seafloor cables

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Résumé

Two thirds of the surface of our planet are covered by water and are poorly instrumented, which has prevented the earth science community from addressing key scientific questions. The potential to leverage existing fiber optic telecom cables that criss-cross the oceans, by turning them into dense arrays of seismo-acoustic sensors, remains to be evaluated. We report Distributed-Acoustic-Sensing measurements on two telecom cables deployed offshore Toulon and Methony, Grece. Our observations demonstrate the capability to monitor with great details the ocean-solid earth interactions. DAS also offers high sensitivity to seismic waves whose signal characteristics are comparable to those of seismic stations.

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