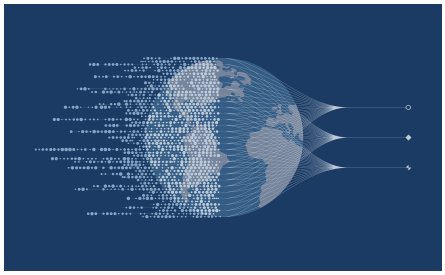

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the oceans and Earth with submarine cables: SMART

The ocean is key to understanding climate change, sea level rise, tsunamis, and earthquakes. The ocean is difficult and costly to monitor. Over the last decades, dedicated submarine cable systems have been supporting science and early warning, as well as monitoring for nuclear test explosions.

The Science Monitoring And Reliable Telecommunications (SMART) Cables Initiative is working to integrate sensors into commercial telecom cables. These sensors will share the power and communications global infrastructure of undersea cables at modest incremental cost. The UN ITU/WMO/UNESCO-IOC Joint Task Force (JTF) is facilitating the adoption and implementation.

Sensors include temperature, pressure, and seismic motion. Data will improve ocean heat content and circulation and sea level rise estimates, global tsunami and earthquake warning networks, and geophysical understanding of the earth. They can help protect the cable from natural and anthropogenic hazards.

We describe the SMART initiative with more detail on two systems, Tamtam connecting Vanuatu and New Caledonia, and Atlantic CAM connecting Lisbon (the Continent), Azores and Madeira in a 3700 km ring with SMART nodes along the cable, both to be installed in 2026. Opportunities for further developments to improve both ocean observing as well as cable protection and security will be discussed.

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