The JTF SMART Subsea Cable Initiative
Science Monitoring And Reliable Telecommunications
Climate Monitoring and Disaster Mitigation

SMART Cables Overview

Who we are and our Mission

The Joint Task Force (JTF) SMART Cables Initiative is a United Nations effort uniting science with the telecom industry to monitor climate change including ocean heat content, circulation and sea level rise, provide early warning for earthquakes and tsunamis, and monitor seismic activity for earth structure and related hazards. All relate to disaster risk reduction (DRR) and the informed sustainable development of coastal and offshore infrastructure, including the cables themselves and their mission of global connectivity.

The JTF facilitates and coordinates the adoption and integration of environmental sensing into subsea telecommunications cables to become the world standard, leading to a global network for sustained ocean observation, geophysical study of earthquakes, and earthquake and tsunami warning in a world with rising sea levels.

The JTF is sponsored by three UN agencies: the International Telecommunications Union, the World Meteorological Organization and the UNESCO Intergovernmental Oceanographic Commission, ITU/WMO/UNESCO-IOC. It has over 300 members from the science community, the subsea telecom industry (owners, suppliers, operators, logistics), and governments (regulatory, legal, security) with committees: science and society, engineering, business development, legal, data management, and publicity, awareness, and marketing.

JTF SMART Cables and sponsor agencies coordination

The JTF is part of the IOC Tsunami Programme and the IOC/WMO Global Ocean Observing System (GOOS) for coordination and the establishment of recommendations for tsunami and ocean activities. SMART Cables is an Emerging Ocean Observing Network of GOOS.

ITU Climate and DRR Resolutions and other documents include sections on SMART Cables. At the request of ITU Member States, a Study Group G.SMART has completed a Recommendations document that will serve as general requirements for SMART Cables. All these UN agencies have Member State Focal Points providing working level international coordination.

SMART capability

A SMART cable combines the functionality of a telecommunication cable with environmental sensing, with 3 ocean bottom sensors observing the environment:

- Temperature: for climate change with improved estimates of ocean heat content and the component of sea level rise related to thermal expansion of water;

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- Bottom pressure: for ocean circulation (water flows from high to low pressure), sea level rise due to melting land ice, and directly measuring tsunamis for early warning;
- Seismic motion: for early warning of earthquakes and tsunamis, as well as better understanding of risks to coastal areas.

SMART Cables provide realtime, reliable data on global scales at low lifetime cost, leveraging the experience and expertise of the nearly two century-old submarine cable industry.

The information obtained will help governments to sustainably develop and manage the oceans and coastal and offshore infrastructure, including helping the subsea telecommunication industry with warnings of external hazards to cables and improved cable system routing.

Major Milestones

2020	Alcatel Submarine Networks (ASN) states their intent to offer SMART capability.
	Portugal announces their intent to replace the old cable ring system between Lisbon, Azores, and Maderia with a new system with SMART capability
2021	US NSF proposes a SMART cable from New Zealand to McMurdo/ Base/Antarctica; science workshop endorses; $4M invested to date for tech/science planning.
2023	Portugal issues RFP for Atlantic CAM SMART system.
	EU DG Connect issues RFPs for international cable connectivity, including environmental sensing, e.g., SMART cables.
	NSF has a feasibility study for a SMART cable from New Zealand to McMurdo/ Base/Antarctica.
	INGV INSea SMART Wet demo installed off Sicily.
2024	Contracts with ASN signed for Atlantic CAM (EU support €40M), and the Tamtam Vanuatu-New Caledonia SMART system (with French support), both to be ready for service in 2026.
	SMART Cables designated Emerging Observing Network of the Global Ocean Observing System (GOOS)
	Chile Antarctica Cable request for tender for a feasibility study for a SMART cable.