

## **Lessons Learned from Five Years of Sustained Cabled Ocean Observing System Operation**

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Lighthouse R & D Enterprises, Inc. has operated a cabled marine observatory off the coast of Oman since 2005. In 2007, the observatory was expanded to include a seismic tsunami early warning system (STEWS). In early 2010, an additional cabled ocean observatory was deployed in 3000 meters of water. Installation and operation of a highly reliable, real-time, fiber-optic system in a dynamic marine environment presented several challenges. We will highlight our mitigation methods and lessons learned including: (1) the importance of location selection, particularly in the case of the STEWS (or any seismic network); (2) production and delivery of real-time, time-series data to the host country or international community over an extended period of time requires regularly scheduled maintenance; (3) training of host country technicians and scientists to maintain the system and process, interpret and utilize the data to eventually take on full responsibility; (4) delivery of data in a format that is both acceptable to the host country and that meets international standards.

The benefits of tsunami warning systems or seismic networks clearly transcend political boundaries to multiple countries or even entire regions of the world. However, costs are typically borne out by a single host country (and often a single ministry within that country) or from their portion of funds from an international agency. To improve the chances of installation funding, there must be additional pressure on international agencies to provide support for regional networks. An increase in scientific collaboration and information sharing across borders will also facilitate network- and cost-sharing agreements. In addition to the initial investment, long-term investment in the education of host-country technicians and scientists must be recognized by stakeholders as a critical factor in the ultimate success of the network or system.

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