An existing ocean observatory (CYCOFOS - Cyprus Coastal Ocean Forecasting and Observing System) located 100 km south of Cyprus has been expanded into a prototype tsunami detection array (TWERC – Tsunami Warning and Early Response system of Cyprus). CYCOFOS comprised a satellite telemetry buoy moored to the seafloor at 2500 meter depth by an optical fiber and power cable to support a suite of oceanographic sensors.

A commercial telecommunication cable lay vessel was employed to install seafloor cable over an area of approximately 20,000 km to interconnect four nodes placed approximately 50 km apart. The nodes are arranged in an orthogonal array to facilitate directionality. At each node, an ocean bottom seismometer (OBS) has been buried into the seafloor and a Paroscientific\textsuperscript{TM} equipped bottom pressure recorder has been deployed.

The resulting system provides continuous, real-time, high bandwidth data to shore and also provides uninterrupted 2 kW of power as well as command and control to the seafloor sensors from shore.

In this region, the seismic source is close to the populated coastline and so represents a “near field tsunami” situation, which to date is not well understood in terms of early detection.

The continuous power and communications afforded by this system, coupled with the combination OBS and PBR at each of several adjacent sites provide an ideal testbed to study the near field tsunami problem. The underlying infrastructure can also support a nascent offshore energy enterprise in the region to help defray costs of geophysical and oceanographic research costs.