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Baltic observatory for oceanographic monitoring (BOOM) - a versatile test bed based on deep-sea standards

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The BOOM network represents a shallow water cabled observatory with near real-time data transfer to the world wide web. The overall goal is to bring continuous, oceanographic data to an investigator's desk, enabling environmental monitoring at a new scale. The BOOM design is able to host stationary sensors as well as moving vehicles with scientific packages. This requires high-power, high-bandwidth and flexibility for integration of the different applications and devices. The field station is located at a well studied area of the Eckernförde Bay (Baltic Sea). In addition to scientific work, the location functions as a test site for planned deep-sea deployments. The technical design meets the guidelines defined by major programs like NEPTUNE and ESONET. The observatory is designed for optimum Internet operability. Sensors, experiments, vehicles, and cameras have power and data cable connections. The supply voltage is 48 VDC. The crawlers each carry a switch for their scientific payloads, which simultaneously provides four online, independent usable ports. The data is transferred via 10/100 TBase Ethernet. All sensor interfaces are modified for the TCP/IP protocol. Three different moving crawlers with various scientific applications are available. CTD and methane sensors are deployed at a permanent node. A weather station records wind-speed, -direction, water- and air-temperatures.