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PING: Pressure sensors in Intelligent Networks for Geohazard detection

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Earthquakes, often succeeded by landslides and tsunamis, are the biggest societal threat to coastal areas, where about half of the world's population lives. The monitoring of their precursor phenomena is hence the most efficient way for timely warnings. In cooperation between geoscientific research institutions, informatics, and industry, we propose to develop a state-of-the-art intelligent pressure sensor to be used in plug'n'work networks and warning systems on- and offshore. Pressure measurement on and below the ground focuses on earthquake precursors, but is easily adapted to slope stability monitoring or tsunami warning systems. A crucial objective is to implement a spatial data infrastructure (SDI) based on current OGC standards that provides the basic interoperability and services, the plug'n'work features including the intelligent sensors. This includes the implementation of a sensor registry, networking with the PANGAEA data archive and data warehouse - used for near real-time evaluation in particular of larger and/or more complex data sets -, the embedding of semantics including the construction of ontologies, and finally collection and processing of data from the two test beds FINO and ANTARES. In addition, selected proprietary sensors will be made compatible by wrappers and integrated into the network.