



## **A new concept for an ocean bottom pressure meter capable of precision long-term monitoring in marine geodesy and oceanography**

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Long-term vertical seafloor displacements and geostrophic changes in the water column height could be easily monitored if pressure meters were less susceptible to drift. Currently, these signals, which have typical amplitudes from decimeters to less than 1 mm/yr, cannot be differentiated from instrumental drift. In this paper, we introduce and outline a new constructional concept for an ocean bottom pressure meter that aims for unequivocal detection and monitoring of long-term trends. The concept is based on a differential pressure sensor that measures the pressure difference between the environment and a reference pressure within a sealed volume. This sealed volume conserves the instantaneous pressure at the moment of its closure at the monitoring location in a temperature-compensated manner. Furthermore, the approach enables easy in situ calibration of the differential pressure gauge by simply opening the reference pressure chamber to the environment and checking the zero point offset.