

Abstract

Between 2010 and 2012, we developed a free-fall/pop-up ocean-bottom pressure gauge (OBPG) system that is able to measure pressure signals at high-sampling rates (up to 100 Hz) and with pressure resolution finer than that of existing OBPGs. Pressure measurement with this new OBPG makes us possible to extract information of pressure signals across a wide frequency range in which tsunami (\sim one thousand to a few thousands seconds), acoustic water reverberations (\sim a few seconds to more than ten seconds), and seismic wave (tens to hundreds of milliseconds) can be observed simultaneously. In 2013, a one-week trial observation was carried out on the seafloor at a depth of approximately 1100 m, at a location approximately 60 km southwest of Omaezaki Peninsula, Tokai region, central Japan, a site within several tens of meters from an existing Japan Meteorological Agency (JMA) cabled pressure gauge. Comparisons of observations made with the new OBPG and the existing JMA cabled pressure gauge indicate that the new OBPG functioned well and detected short-period pressure signals despite the existing JMA cabled pressure gauge could not detect those.