

Abstract

The DONET (Dense Ocean-floor Network system for Earthquakes and Tsunamis) is a submarine cabled real-time seafloor observation infrastructure which is designed to realize the precise monitoring of earthquakes and tsunamis on seafloor for long period. The observation target of DONET is Nankai trough where the one of the highest concern region of mega-thrust earthquake outbreak at this moment. The development of subsea system was started in 2006 and successfully deployed twenty set of state-of-arts observatories in 2011. An unprecedented revolutionary subsea construction technologies using ROV (Remotely Operated Vehicle) was established as a part of DONET project and carried out to make this complex observation system come true. This paper summarized the designing approach and key components of submarine cabled seafloor network system, construction method and engineering tools for ROV operation, and evaluation of the performance of observatory and network refers to some observation results.