

## Operation and Construction of Dense Oceanfloor Network System for Earthquakes and Tsunamis (DONET/DONET2)

KANEDA, Yoshiyuki<sup>1\*</sup>, Katsuyoshi Kawaguchi<sup>1</sup>, Eiichiro Araki<sup>1</sup>, Hiroyuki Matsumoto<sup>1</sup>, Takashi Yokobiki<sup>1</sup>, Shuhei Nishida<sup>1</sup>, Jin-Kyu Choi<sup>1</sup>, Masayuki Hoshino<sup>1</sup>, Masaru Nakano<sup>1</sup>, Takeshi Nakamura<sup>1</sup>, Keisuke Ariyoshi<sup>1</sup>, Narumi Takahashi<sup>1</sup>, Shin-ichiro Kamiya<sup>1</sup>, Toshitaka Baba<sup>1</sup>

<sup>1</sup>JAMSTEC

DONET (Dense Oceanfloor Network System for Earthquakes and Tsunamis) is a real time monitoring system conducting long-term and extremely precision observation in the seafloor. Broad-band seismograph, strong motion seismograph, hydrophone, differential pressure gauge, quartz pressure gauge, and precision thermometer, are installed in multiple seafloor observation points. They are connected with landing station by submarine cable so that observed data is acquired in real time. It was completed to establish all of the 20 observation point was planned as DONET1 in August 2011, and currently going well in operation of real-time observation in the sea depth of a range from 1,900m to 4,300m, in Kumano-nada off Kii Peninsula. The data is used in research and analysis that will contribute to the sophistication of an early earthquake and tsunami warnings and to understand the Nankai trough seismogenic zone via physical phenomena around the shallow plate boundary such as slow slip and low frequency events.

On the other hand, it is insufficient just maintenance of observation network in the Kumano-nada which is the source region of the Tonankai earthquake, to capture the process of a series from the Tonankai earthquake to the Nankai earthquake. Especially when the Tonankai earthquake occurred ahead of the Nankai earthquake, it is essential to extension of the observation network to the west for evaluation of the time lag between the Tonankai and the Nankai earthquakes. Accordingly in JAMSTEC, a subsequent project has started to construct a new earthquake and tsunami observation system from west off the Kii peninsula to off Muroto coastal area since 2010 (DONET2). DONET2 has 350km backbone cable length and 7 nodes and 30 observation points is a larger system than the current DONET, DONET2 of 10KV high voltage enable to deploy a wider observation network. Currently, we decided outline of the cable route of DONET2 and then bathymetric survey, the seafloor visual inspection are ongoing even as design of the landing stations.

We will introduce the operation of DONET and progress of DONET2.

Keywords: DONET, DONET2, real time monitoring system, Tsunami, Nankai trough, Nankai earthquake