Press Releases

November 24, 2017
JAMSTEC

International Ocean Discovery Program Expedition 372 to Start
- Hikurangi subduction margin and slow slip events -

The International Ocean Discovery Program (IODP[*1]) will begin Expedition 372, "Creeping Gas Hydrate Slides and LWD for Hikurangi Subduction Margin: coring and logging while drilling to unravel the mechanisms of creeping landslides and subduction slow slip events at the Hikurangi subduction margin, New Zealand"aboard the *JOIDES Resolution*[*2] on November 26, 2017.

This expedition addresses two research topics in the Hikurangi margin, a subduction zone extending off the east coast of New Zealand's North Island: 1) actively deforming gas hydrate[*3]–bearing landslides; and 2) slow slip events[*4] on subduction faults.

For 1), it will collect logging while drilling (LWD) data and core samples at three sites in the Tuaheni landslide complex. It aims to investigate how behavior and stability of gas hydrates affect submarine slides.

And for 2), LWD will be performed at three sites targeting the upper plate, the frontal thrust and the subducting section in the trench. These data will also be used during the subsequent Expedition 375, scheduled for March 2018, which will perform coring at these same sites, add an additional coring site at a seamount on the subducting plate, and deploy a borehole observatory.

The shipboard researchers include 29 members, including Drs. Hung Yu Wu from JAMSTEC, Hiroaki Koge from the University of Tokyo, and Satoko Owari from Chiba University, and scientists from the U.S., Europe, New Zealand, Australia, China, South Korea and India.

*1 International Ocean Discovery Program (IODP)
The International Ocean Discovery Program (IODP) is a multinational cooperative project that started in October 2013. The scientific drilling vessel D/V *Chikyu*, operated by Japan, and the *JOIDES Resolution*, operated by the U.S., are utilized for expeditions. There is also an option to charter mission-specific platforms by European countries. The mission of the IODP is to shed light on global environmental changes, the earth's mantle and crustal dynamics and tectonics, and the biosphere beneath the seafloor. It took over the Integrated Ocean Drilling Program carried out from October 2003 to 2013.

*2 The *JOIDES Resolution* is the U.S. drilling vessel that participates in the IODP. Compared to the deep-sea scientific drilling vessel, the *Chikyu* by JAMSTEC, the *JOIDES Resolution* is used more often for drilling in shallow waters.

JOIDES Resolution ©IODP

*3 Gas hydrate
Gas hydrate is a solid ice-like form of water that contains gas molecules, most often methane or ethane, and carbon dioxide, in its molecular cavities. Gas hydrate is stable at low temperature and high pressure.

*4 Slow slip events
Slow slip events occur along faults. These movements are much slower than those of normal earthquakes, typically evolving over days to weeks. They provide clues to understanding earthquakes and fault movements at plate boundaries.

For more information, please refer to:
IODP 372 Expedition website
http://iodp.tamu.edu/scienceops/expeditions/hikurangi_gas_hydrate_slides.html
Scientific Prospectus
http://publications.iodp.org/scientific_prospectus/372/index.html

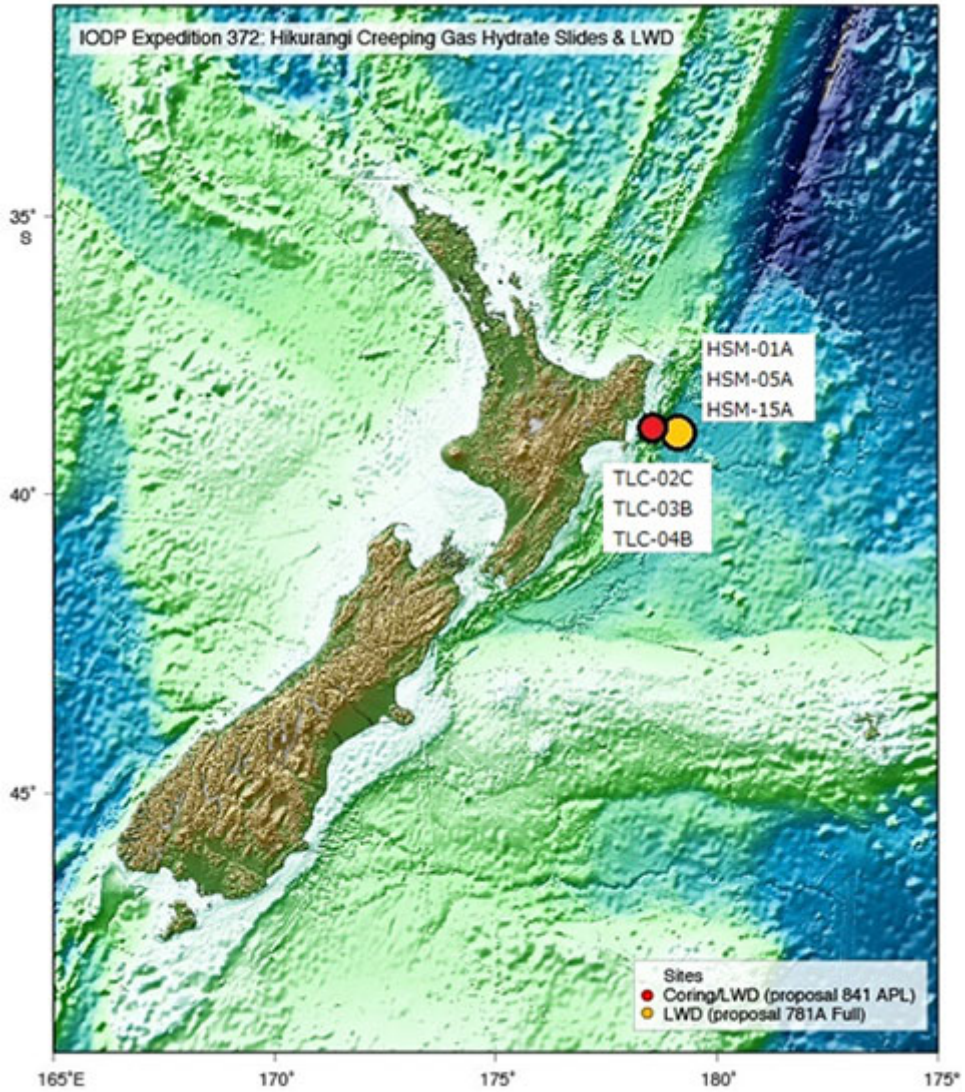

Figure 1: Planned drilling sites in this expedition 372 (©IODP)
The red circles indicate drilling sites for Tuaheni landslide complex (TLC: Fig. 2) and the yellow Hikurangi subduction margin sites (HSM: Fig.3) .

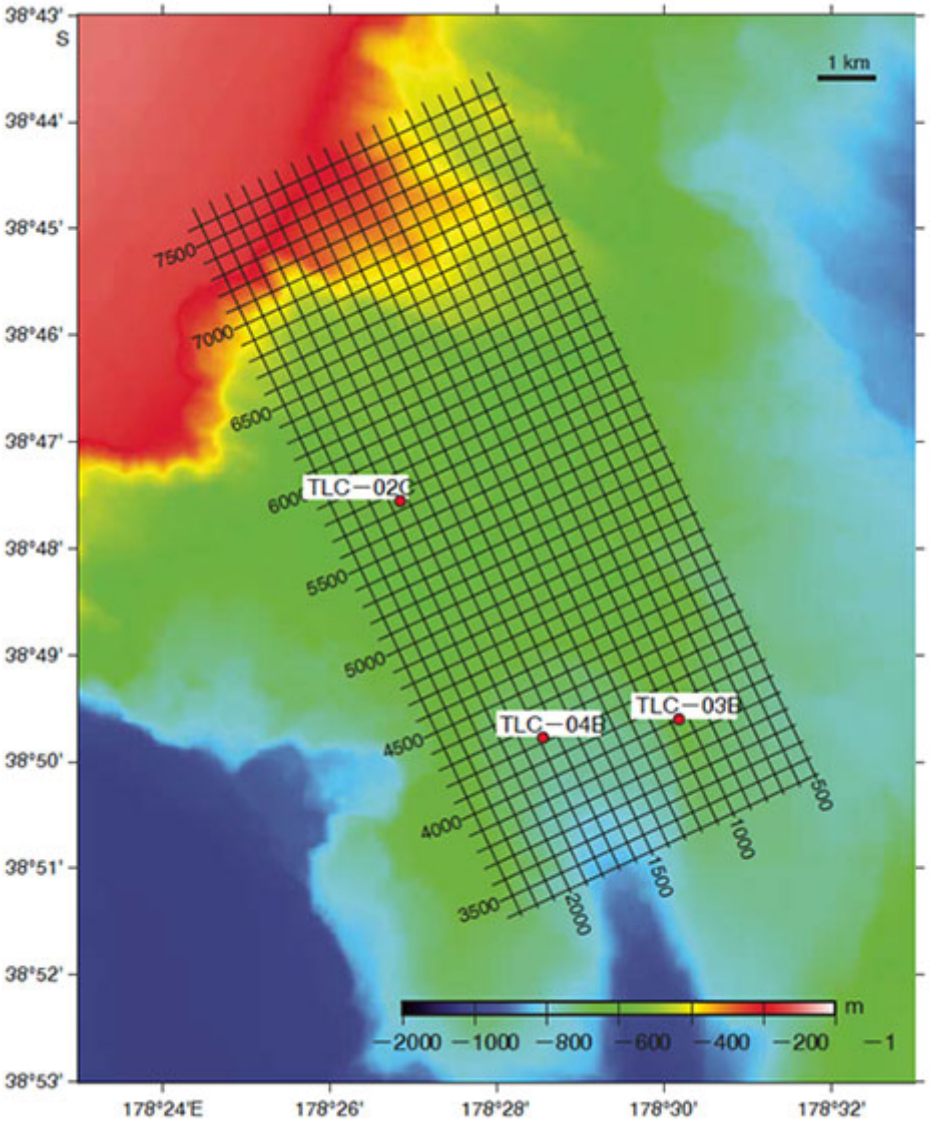

Figure 2: TLC sites (©IODP)

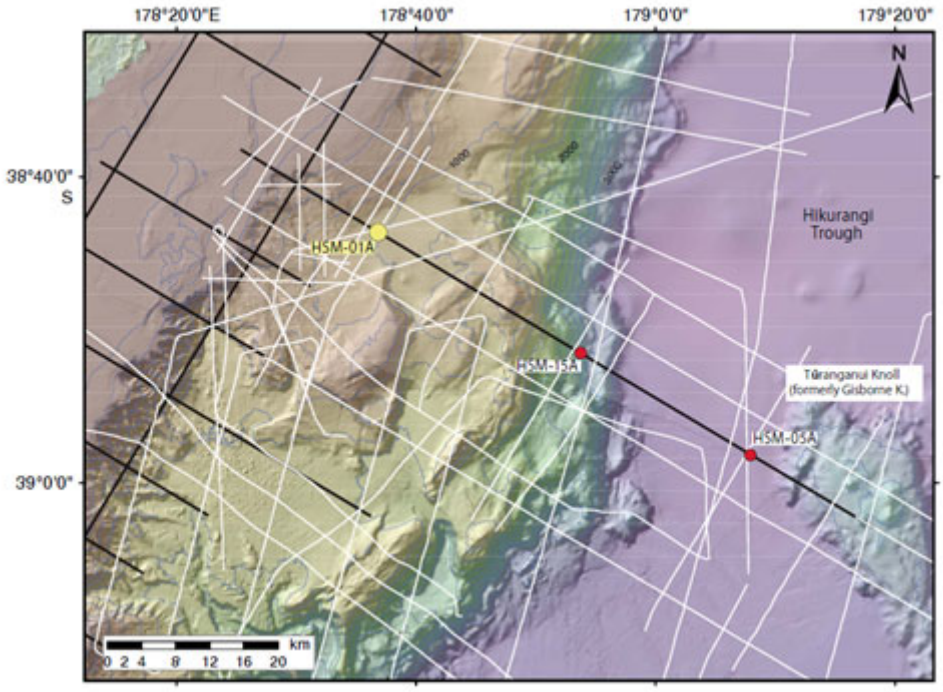

Figure 3: HSM sites (©IODP)

Table 1: Overview of Drilling Sites (order of drilling)

Site	Water depth (m)	Depth of penetration (m)	Estimated working days at site (days)
TLC-04B	731	205	4.4
HSM-15A	2,735	600	2.1
HSM-01A	1,005	650	1.8
TLC-02C	575	135	1.1
TLC-03B	691	165	1.1
HSM-05A	3,549	1,200	4.9

*These drilling sites are subject to change depending on cruise prepartion, climate conditions and research progress.

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