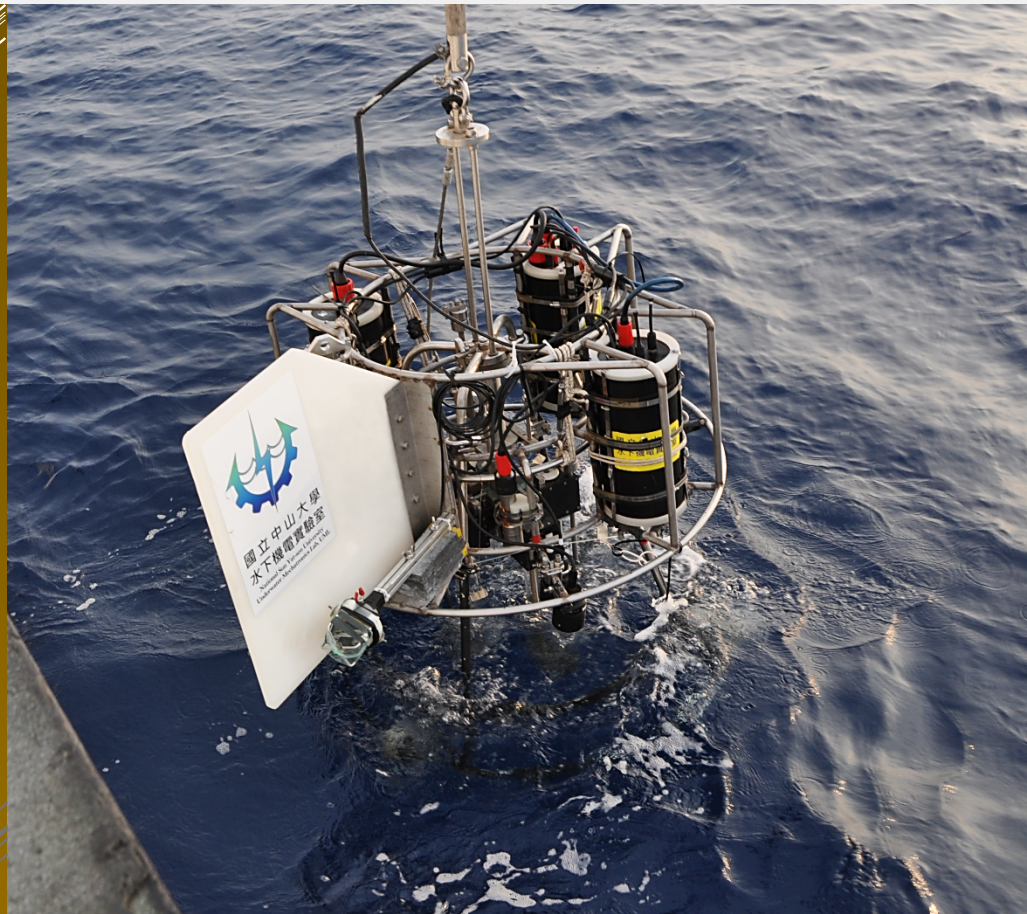


V-Corer

Video-guided
Multi-corer



V-corer (Video guided multi-corer), as opposed to conventional blind corers, is developed to provide visual information of the experimental sites to the scientists such that a prompt and accurate decision can be made for collecting coring samples during surveys. V-corer, equipped with a real-time HD camera and lightings, uplinks the live images to the surface vessel. This function improves the efficacy of sediment collection significantly because the operators can avoid hard seafloor which is highly risky for the coring device. The coring device preserves 40-cm worth of sediment beneath the seafloor and several centimeters of supernatant water in the tube. The in-situ images of the coring sites gives important cues for the whereabouts of the coring contents. V-corer successfully collect multiple undisturbed sediment samples near the gas plume zone of the methane hydrate reservoirs off south-western Taiwan.



TECHNICAL SPECIFICATIONS

Physical Characteristics	
Depth rating	3000 m
Total system weight	300 kg in air, 250 kg in water
Dimension	1670 mm (L) X 1240 mm (W) X 1950 mm (H)
Viewing Systems	
Lights	4 LED Lights, 8500 lm in total
Video camera	Full HD Network IP Camera, 1920 x 1080 resolution @30 fps
Power/Communication	
Tether	Twisted-pair or coaxial cable up to 8000 m
Power source	8 Rechargeable lithium ion batteries, 53 Ah@14.4 VDC
Communication	SHDSL, 3 Mbps data rates at a distance up to 8 km
Sensors	
Altimeter/Depth sensor	Valeport VA500 with intelligent pressure sensor
USBL Transponder	iXBlue GAPS USBL system
Multi-corer	
R/V OR3 Marine Instru. Center	4 corers, I.D. 58.5 mm, length 400 m

In 2014 and 2015, the V-Corer had made 31 dives and successfully collected sediment and water samples at 20 sites. The V-Corer was used to collect bottom seawater and surface sediments at hydrocarbon vent sites in the northern South China Sea (NSCS) for investigating if these hydrocarbon vent sites release dissolved organic carbon (DOC). By the use of the V-Corer, it was found that the benthic DOC fluxes from mud volcano and gassy sediments in the NSCS were approximately one order of magnitude higher than the background level from other sediments in the NSCS and higher than the global average flux from continental margin sediments. This research has been published in the journal Scientific Reports. Please see the link: <http://www.nature.com/articles/srep29597>

