Precision maping and towcam aided study over geochemical anomalies of the Goodweather Ridge, Southwestern Taiwan

SAULWOOD LIN[1*], C.-W. HSU[1], I-JY HSIEH[1], HSIU-HUI CHANG[1] AND GERHARD BOHRMANN[2]

[1]Institute of Oceanograpny, National Taiwan University, Taipei, Taiwan (*correpondence: swlin@ntu.edu.tw)
[2]MARUM/ Center for Marine Environmental Sciences University Bremen, Germany

Very fine scale and detail bathymetric map could reveal a great deal of processes that may occur near the sea floor. This study used a MARUM SEAL 5000 AUV (Autonomous Underwater Vehicle) to obtain high-resolution depth variations on the sea floor and towcam aided piston coring to facilitate a better resolution of sea floor biogeochemical processes relate to methane gas venting.

Fine scale, high-resolution seafloor structures were obtained on the west of Good Weather Ridge by AUV mapping. A fault scarp previously draw based on seismic data at ridge slope is clearly visible from the AUV map, about 1-3 m deep and extending from south to the north about 4 km long. A series of micro-faulting branch structures appeared away from the ridge slope toward north. Another set of pockmarks, up to 7 m deep, 70 m in diameter, appeared on the surface indicating faulting extended from deep to sea floor. Large scale of authigentic carbonate buildups, and shallow SMI were observed. This study demonstrated that fine-scale mapping and towcam-aided sediment sampling could provide unprecedented details of sea floor features in corresponding to geochemical variations as a result of deep fluid venting.

Two Neo-Tethyan magmatic suites of distinctive geochemical features in Burma and southern Tibet: Zircon U-Pb and Hf constraints with regional tectonic implications

LIN, T.-H.[1], CHUNG, S.-L.[1], MITCHELL, A.H.G.[2], THURA OO[3], TANG, R.-T.[1] AND WU, F.-Y.[4]

[1] Institute of Geosicences, National Taiwan University, Tapei, Taiwan, tehsienlin@ntu.edu.tw
[2] Consulting Geologist, 20, Dale Close, Oxford OX1 1TU, UK
[3] University of Yangon, Kamayut Township, Yangon, Myanmar
[4] Institute of Geology and Geophysics, Chinese Academy of Sciences, Beijing, China

The Neo-Tethyan subduction that operated before the India-Asia collision resulted in an Andean-type convergent margin in South Asia (Yin and Harrison, 2000; Chung *et al*.., 2005; Kapp *et al*.., 2005; Mo *et al*.., 2005), inducted arc magmatism distributing more than ~2,500 km that formed the Transhimalayan batholiths in the Lhasa terrane. Based on the age distribution and geochemical characteristics, the MMB may correlated northward to the Danxi Batholith, western Yunnan (Yang *et al*.., 2006; Liang *et al*.., 2008; Xu *et al*.., 2012), westward to the Bomi-Chayu Batholith (Chiu *et al*.., 2009; Lin *et al*.., 2012) and the Central Lhasa plutonic belt, which is a northern Transhimalayan plutonic suite typically has low and negative $\varepsilon_{Hf}(T)$ values suggesting involvement of old continental crust in the petrogenesis (Chu *et al*.., 2006, 2011; Chiu *et al*.., 2009; Zhu *et al*.., 2011); Comparatively, the Wuntho-Mokapalin arc in West Burma, characterized by high and positive $\varepsilon_{Hf}(T)$ values, with similar age and isotopic characteristics as the Lohit Batholith in the Eastern Himalayan Syntaxis, was proposed as the southward extension of the Gangdese Batholith, in general, has long been regarded as the main arc component produced by northward subduction of the Neo-Tethyan oceanic slab under the Lhasa terrane.

www.minersoc.org
DOI:10.1180/minmag.2013.077.5.12