How Continent breaks up into Ocean: Scientific Drilling in the South China Sea

Prof. Chun-Feng Li

Institute of Marine Geology and Resources, Ocean College, Zhejiang University

Continental margins are places prone to rifting and subsequent seafloor spreading due to active land-ocean interactions. The lifetime of a marginal basin is normally very short, thus producing a relatively small basin with almost a full history of the Wilson cycle. Such an example is the South China Sea (SCS), which has witnessed surging interests in recent years in extensive geophysical surveys and International Ocean Discovery Program (IODP) expeditions. The first IODP expedition on continental margin rifting and evolution of marginal basin (IODP Expedition 349, 2014) targeted the continent-ocean transition zone and the oceanic crust of the SCS, successful coring through thick sedimentary cover to the basaltic basement. Two more IODP expeditions (# 367 and 368) have already been scheduled for the year 2017, focusing exclusively on the continent-ocean transition zone. These studies will help address fundamental problems of continental breakup, oceanic lithosphere evolution, and terminal processes of seafloor spreading. Unlike large open seas, the SCS received thick sediments that have well recorded regional tectonic events and provenance changes. This talk will reveal how the SCS evolved within, and responded to, a complex context of active continental margin deformation, based primarily on recent IODP expeditions and extensive geophysical surveys.

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Enquires: 3943 9624 essc@cuhk.edu.hk