The Nankai and the Tokai regions are common areas for cold seeps, where seepage of hydrogen sulfide and methane rich fluid occurs. These various substances encourage the growth of *Calyptogena* colonies to flourish at these sites. Naturally, cold seeps occur at tectonically active continental margins and are mostly ephemeral. This suggests that the activity of cold seeps are possibly influenced by the tectonic activity during the plate divergence. In 1997, Shinkai 2000 discovered an unusually large *Calyptogena* colony ranging approximately 200 m$^2$ off Daini Tenryu Knoll during the Dive 1377 (Kuramoto, 2001). Majority of the shells were fossilized with few live shells remaining. It is assumed that past tectonic events may have caused a high flux of methane fluid or gas to be released, making it possible to support such a vast scale colony to survive until their eventual death.

A video analysis from the Dive 1377 revealed several lineament structures and a possible fault leading up to the massive colony site. Methane hydrates are the likely source for supplying the methane as its presence has been identified from previous seismic surveys of the area (Kuramoto, 2001). Other features revealed bedding plane erosions at several sites, a manganese coating layer and several soft corals. Within the large shell colony area, at least two distinct differences in shell colour were observed. This may suggest that the shells are from two different ages, suggesting for that the large colony was a result of several past events. Areas of random sediment patches were also observed within the colony and shells were not present. A detailed mapping of the shell colony will be constructed with geological features recorded to analyze for any potential pattern that may aid to understand the relationship between shell colony and the geological activity of the area.

Misawa (2005) previously attempted to reconstruct the cold seep activity history through amino acid racemisation dating, yet further data is required to show any significant relationship. In order to further study the possible relationship between the cold seep activity and past major earthquakes, radioactive $^{14}$C dating method will be adopted to measure the age of the *Calyptogena* spp shells. Preliminary results of radiocarbon dating indicate distinct age gap of several hundred years between the living and the fossil shells. The $^{14}$C age will also be cross-referenced with video data from the Shinkai 2000 and seismic data of the area to observe for any pattern.

Reference