

## Tectonics of the Northern South China Sea Basin

## SHU-KUN HSU, YI-CHING YEH, CHIA-YEN KU, WEN-BIN DOO Institute of Geophysics, National Central University, Taiwan

The northern South China Sea (SCS) is bounded by the Eurasian continental margin, the Taiwan mountain belt and the Manila Trench. New magnetic data acquired in the northernmost SCS has obviously shown the existence of oceanic-crust-related E-W trending magnetic polarity reversal patterns. Based on marine magnetic anomaly, the age of the SCS seafloor has been identified as old as 37 Ma (magnetic anomaly C17; late Eocene). The northern SCS oceanic crust is limited in the west by the presence of a relatively low magnetization zone, corresponding to outermost thinned portion of the continental crust. The northward extension of the oldest SCS oceanic crust is found to be terminated by a NW-SE trending transform fault, called the Luzon-Ryukyu Transform Plate Boundary (LRTPB). The LRTPB is supposed to be a former left-lateral transform fault connecting the former southeast-dipping Manila Trench in the south and the northwest-dipping Ryukyu Trench in the north. We have examined several reflection seismic profiles in the northern SCS region. The seismic profiles agree with the existence of the oldest SCS oceanic crust in our study area. However, the seismic profiles also reveal two compressive events in the northern SCS basin. We interpret that the two compressive events possible happened after the formation of the northern SCS oceanic crust and could be related to the formation of the northern Luzon arc. On the other hand, the upper crust portion of the northern SCS has been subducting eastward beneath the Luzon arc. On the basis of reflection seismic profiles, we could observe the bending of the SCS basin close to the Manila Trench. As a benchmark, the hemipelagic sediment layer has not only been bent, but also has been faulted. Some faults in the southern portion of the study area have been buried by trench-filled sediments when they were close to the trench and became blind thrusts; while in the northern portion the trench-filled sediments have been uplifted due to the initial mountain building collision process in southern Taiwan.