Goal & Scientific Objective
The objectives of the CCSD project were as follows: (1) to obtain multi-parameter profiles of a 5158 m deep borehole in the Sulu Terrane, (2) to reconstruct the composition and structure of a deep continental orogenic root, (3) to reveal subduction and exhumation processes of UHP metamorphic terranes, (4) to search deep life in the borehole and constrain fluid–rock interaction, and (5) to establish a long-term, natural laboratory for the study of crustal dynamics and the evolution of deep continental crust using the CCSD-MH.

Operational Achievements
Three prepilot holes (CCSD-PP1, -PP2, -PP3) were drilled earlier in time. The main hole CCSD-MH was drilled in two phases and reached a depth of 5158 m. An intense downhole logging and testing program was carried out during and after the active drilling phase. Aside logging by service companies, OSG logging did also partake.

Web & Media Resources
http://www.ccsd.org.cn/English/index.htm
http://donghai.icdp-online.org/

Timeline
1998 ICDP proposal submission
2001 – 2005 drilling operations

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Data & Sample Access
China Geological Survey, Cores and Samples Center of Land & Resources
Scientific Findings

Evidence of deep subduction of huge amount of supracrustal materials.
Apatite fission track analysis indicates an average uplift rate of ~ 35m/Ma during 89–30 Ma.
Crustal structure and pressure-temperature-time-deformation paths of the core samples and outcrop rocks indicate a dome-shaped nappe structure and syn-collisional exhumation of the HP and UHP slices in the Sulu Terrane.
About 20 species of bacteria and 4–5 species of archaea were identified of the CCSD-MH. Microbes show a great diversity, but the diversity decreases with depth. The deepest bacteria occur at 4406.49 m, which gives the bottom boundary for life under extreme conditions in a deep borehole.

Key Publications