In 1995, ODP conducted the first scientific ocean drilling of active mud volcanoes, which are dome-shaped seafloor highs composed of clay-rich mud (Robertson et al., 1996). Mud volcanoes occur almost everywhere on Earth, but are commonly associated with compressional tectonics at convergent margins (Higgins and Saunders, 1974). ODP Leg 160 drilled two mud volcanoes, the Milano and Napoli domes, at the backstop of the mud-dominated Mediterranean Ridge accretionary complex. This complex was created by subduction of the African plate beneath the Eurasian plate to the north. Only by drilling could the age, subsurface structure, and processes of mud volcanism be determined.

The main results were, surprisingly, that both mud volcanoes were periodically active for more than one million years and that they are dominated by multiple debris flows composed of fragments of claystone, sandstone and limestone in a muddy matrix. The most probable origin of the mud is that it was derived from overpressured fluid-rich sediment located beneath the

Mud Volcanoes in the Eastern Mediterranean

Milano mud volcano
Mediterranean Ridge accretionary prism

Figure 1. (above)
Schematic cross section through Milano mud volcano.
Figure 2. (right)
Mud breccia core from Hole 970A.