



MAP CODE: P2a

Gas Hydrate Samples

Reference: Kvenvolden, K.A., and McDonald, T.J., 1985, Gas hydrates of the Middle America Trench, Deep Sea Drilling Project Leg 84: Initial Reports, Deep Sea Drilling Project, v. 84, p. 667-682.

Geographic/Geologic Location:

Pacific Ocean

Middle America Trench, an active convergent margin

Offshore from Costa Rica, continental slope

DSDP Leg 84, Site 565

Core/Sample Count: 2 samples

Latitude/Longitude: 09°43.7'N/86°05.4'W

Water Depth: 3099 m

Sediment Depth: 285 and 319 meters below sea floor (mbsf)

Description of Gas Hydrate: “The gas hydrate was first observed [within a core obtained] at 285 m through the core liner as pieces of white, icelike substances. The core catcher of Core 33 (319 m) expelled gas-releasing muddy sandstone that probably contained gas hydrate. At the top of the core catcher, a piece of white, icelike gas hydrate was found....”

Analytical Results: Decomposition of the core-catcher sample produced about 133 volumes of methane per volume of pore fluid, which had a chlorinity of 0.51‰. The methane/ethane ratio of the released gas was about 2000; gas expelled from the core at 320 m sub-bottom had a methane/ethane ratio of 2500.

Inferred Evidence for Gas Hydrate: Although bottom-simulating reflectors (BSRs) might be expected where there is gas hydrate, no BSRs were observed at this site. Chlorinity of pore waters squeezed from the sediments decreased as the depth of the sediment increased. This chlorinity profile suggests that gas hydrate may be present though much of the cored section, whereas, samples of gas hydrate were recovered only in the lower sections of the core hole.