



MAP CODE: P4a

Gas Hydrate Samples

Reference: Harrison, W.E., and Curiale, J.A., 1982, Gas hydrates in sediments of holes 497 and 498A, Deep Sea Drilling Project leg 67: Initial Reports, Deep Sea Drilling Project, v. 67. P. 591-594.

Geographic/Geologic Location:

Pacific Ocean

Middle America Trench, an active convergent margin

Offshore from Guatemala, continental slope

DSDP Leg 67, Site 497, 498

Core/Sample Count:

Site 497, 1 sample

Site 498, 1 sample

Latitude/Longitude:

Site 497, 12°59.2'N/90°49.7'W

Site 498, 12°42.7'N/90°54.9'W

Water Depth:

Site 497, 2347 m

Site 498, 5478 m

Sediment Depth:

Site 497, 368 meters below sea floor (mbsf)

Site 498, 307 mbsf

Description of Gas Hydrate: "Gas hydrate recovered during Leg 67 were invariably associated with stratigraphic sequences containing high-porosity sediments. Material recovered from a core catcher at Hole 497 (Core 39) was an icelike substance that contained no sediment at all. The particle was approximately 2 cm in length and..., if encountered in lithified sediment, would be described as vuggy. At Hole 498A (Core 15), icelike material cemented relatively coarse vitric sands to the extent that the core sediment was well-indurated and competent."

Analytical Results: Gas liberated from the core-catcher sample (Hole 479, Core 39), as the gas hydrate dissociated, generated 18.4 psi in a sealed vessel with a volume of 232 cm³; the methane content was about 90% and the ethane was 501 ppm (v/v). A gas sample from Core 39, taken through the core liner, contained 80% methane and 194 ppm (v/v) ethane. Thus the shipboard data showed higher levels



of ethane concentrations for gases liberated from gas hydrates. Core 15 from Hole 498A was comprised of ice-cemented vitric sands and contained gas that had 83% methane and nearly 2000 ppm (v/v) ethane.

Inferred Evidence for Gas Hydrate: Although bottom-simulating reflectors (BSRs) are expected where gas hydrate is present, there was an absence of conspicuous BSRs in the seismic records for Leg 67 sites. Cores from both Hole 497 and 498A developed pressures, upon recovery, great enough to eject sediment from the plastic liners onto the deck, suggesting the results of gas-hydrate dissociation.