

## The carbonates at KUROSHIMA Knoll -the relation between methane hydrate and the formation process of the carbonates-

# Lika Takeuchi[1], Hideaki Machiyama[2], Ryo Matsumoto[3], Mutsuo Hattori[4]

[1] Earth and Planetary Sci., Tokyo Univ, [2] Deep Sea Res. Dept., JAMSTEC, [3] Geol.Inst., Univ. of Tokyo, [4] JAMSTEC

Chemosynthetic communities & dolomite chimneys densely develop on the top of the KUROSHIMA Knoll, 40km south of the Ishigaki Island. These are thought to be related with methane seep. Dives were conducted by Dolphin 3K & Shinkai 2000 of JAMSTEC. Samples were analyzed for mineralogical and isotopic compositions. Carbon isotope ratio of dolomite shows anomalously light value about -40 permil, suggesting that dolomite carbon was originated from bacteriogenic methane. Light-carbon methane was oxidized by sulfate in sediments to increase  $[\text{HCO}_3^-]$  and pH, causing precipitation of carbonates. Oxygen isotope ratio range between +2 and +6 permil, implying that the water was about +2 permil heavier than the present seawater. Heavy oxygen water was presumably derived from dissociation of hydrate.