# Pressure-temperature relationship of CO2 species in the H2O-CO2 system

# Hiroaki Kaneda[1]

[1] Dept. of Geosystem Eng., School of Eng., Univ. of Tokyo

Fluid inclusions are classified morphologically into 4 categories; liquid inclusion, gaseous inclusion, polyphase inclusion and CO2-bearing inclusion. Liquid CO2 phase is visible on the microscope at room temperature in the case of high-CO2 fluid inclusions. Liquid CO2 phase occurs surrounding a gas bubble in a fluid inclusion. The liquid CO2 converts to CO2 hydrate with decreasing tempearures. The transition tempearures from gas CO2 to liquid CO2, and form liquid CO2 to CO2 hydrate vary between 9.8 and 28.3 degree C, and 2.2 and 10.4 degree C, respectively. The NaCl consentration in fluid inclusions vary from 4 to 6 wt% approximately. A CO2 concentration in a fluid inclusion can be estimated from a volume of liquid CO2 in a fluid inclusion. By relationg the NaCl and CO2 contents to gas-liquid CO2 transition and liquid-hydrate CO2 transition temperatures, the almost all transition tempeartures are identified to be closely associated to NaCl concentration.