## P041-P010

## Phase relation of MgSO4-H2O system and internal structure of giant icy objects

# RYO S.Nakamura[1], Eiji Ohtani[2], Tadashi Kondo[3]

[1] Institute of Mineralogy, Petrology, and Economic Geology, TOHOKU Uni., [2] Institute of Mineralogy, Petrology, and Economic Geology, Tohoku University, [3] Sci., Tohoku Univ.

http://rance.ganko.tohoku.ac.jp

The internal structure of giant icy objects has been discussed base on the sulfates-water system. It has been suggested that the major volatles components are MgSO4 (Fredriksson et al. 1988) because C1 chondrites contain MgSO4, which is composed of 73wt.% of sulfates. It has been suggested that the asteroids or Galilean satellites are composed of a mixture of H2O and C1 chondrites(Kargel 1991). To discuss the internal structure of icy objects, the MgSO4-Na2SO4-H2O ternary system was studied in the conditions less than 300K and 0.4GPa by the previous authors. It is necessary to clarify the phase relation at higher pressures.

In this study, we investigated the sulfate MgSO4-H2O binary system as a function of pressure, temperature, and composition ranging from 0 to 30 wt.% for MgSO4.

We used diamond anvil cell for the high pressure experiments, and the external heating units the high temperature generation(less than 600K). The laser raman spectrometer and X-ray diffractometer were used for the identifications of the phases.

We observed that the hydrate phase is only MgSO4-7H2O at high pressure, from which is different phase at the pressure 0.1MPa. Thus, if the mantle of icy objects is in about 300K, the volatile-rich ocean may exist with, the MgSO4-7H2O solid layer in the bottom.