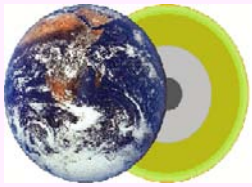
Geodynamics Seminar

第320回ジオダイナミクスセミナー

Thermal condition(s) of upper mantle in early Mars

Dr. Kyoko Matsukage
(Global COE Associate Professor, GRC)

主催：愛媛大学地球深部ダイナミクス研究センター
日時：2/24（金）午後 4時30分～
場所：総合研究棟 4F 会議室



EHIME UNIVERSITY GRC GEODYNAMICS RESEARCH CENTER

Abstract

To investigate the chemical composition of possible primitive melts of the Martian mantle, and to estimate potential upper mantle temperature in early Mars, we performed melting experiments of a model Martian mantle derived by Dreibus and Wanke at pressures from 1.0-4.5 GPa. By using the contour lines of degree of melting and chemical trends of partial melts obtained by these experiments, we found that two shergottites, QUE94201 (olivine-free shergottite) and NWA5990 (olivine-bearing shergottite) resemble the composition of the DWM partial melts in major-element chemistry. Their melting condition(s) are between 1355 ℃ at 1.0 GPa and 1440 ℃ at 2.0 GPa. These melting conditions are close to the multiple saturation points of Gusev basalt compositions obtained by the Spirit Rover on Mars. From these results, the potential upper mantle temperature in early Mars is estimated about 1320-1440 ℃ at 1-2 GPa.

詳細は当センターホームページ: http://www.ehime-u.ac.jp/~grc/をご覧ください
問い合わせ先：桑山 靖弘（TEL:089-927-8408,e-mail:kuwayama@sci.ehime-u.ac.jp）