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# MORB-H2O reaction at high temperature and high pressure

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Estimating the distribution of the mantle is very important for understanding of earth's structure and evolution. The phase relations of MORB(Mid Ocean Ridge Basalt) have been studied to the lower most mantle conditions in dry system. However, sufficient experimental data has not been available for wet system.
Therefore we investigated water-saturated MORB systems using LH DAC(Laser-heated Diamond Anvil Cell) up to 50 GPa. In-situ X-ray diffraction study was performed by angle despersive method with an imaging plate at KEK:AR-NE1,Tsukuba,Japan. Compositions of the starting material are SiO2-50.39%, TiO2-0.57%, Al2O3-16.08%, FeO-7.68%, MgO-10.49%, CaO-13.05%, Na2O-1.87%.
Pressure were measured using a EOS of Au and IceVII. Most intensive diffraction lines were explained by the phase assemblage observed in the dry system. However, some minor lines were not identified, which were originated from hydrous phases or new phase, we will present the detail of X-ray diffraction study and also analysis of the quenched sample.

Keywords: LHDAC, MORB, high pressure, high temperature, KEK