

SIT039-P14

会場:コンベンションホール

時間:5月24日 14:00-16:30

応力場での高圧相転移実験と深発地震への応用

High-pressure transformation with shear stress component and its application to the deep earthquake

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Observations of the depth distribution of seismicity suggest that the mechanism of deep earthquake is greatly influenced by property of the minerals of subducting slab. Especially, phase transformation, induces stress generation or strength of mineral, is considered to play an important role for the occurrence of deep earthquakes. Almost high-pressure transformational experiments have done under hydrostatic pressure condition. To study phase transformation in subducting oceanic plate with slightly stress condition, we used thin plates of single crystal of olivine (San Carlos) and pyrope garnet (Czech) as starting materials. Two single crystals were attached directly on one flat surface with pressure medium of sodium chloride in a Re gasket hole. The set of plates slightly tilt in the sample chamber, which generate small shear stress at the boundary of the sample surface. We performed high-pressure high-temperature experiment using laser heated DAC (LHDAC) up to 30GPa, and observed recovered samples using SEM (scanning electron microscope). Especially at boundary of samples, change of grain-size or deformation caused by phase transformation has been confirmed. These observations suggest that the phase boundary may be different under hydrostatic pressure condition or pressure gradient condition. We will report the detail of the experimental method and results of analysis including how to relate to deep earthquakes.

キーワード: 深発地震, 相転移, せん断応力, レーザー加熱ダイヤモンドアンビルセル

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