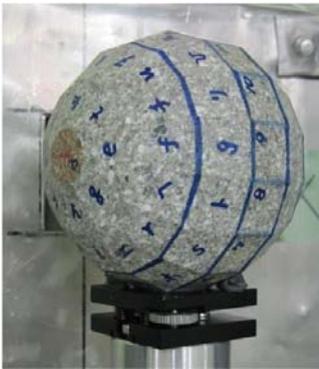


(※本報告書は英語で記述してください。ただし、産業利用課題として採択されている方は日本語で記述していただいても結構です。)

 MLF Experimental Report	提出日 Date of Report
課題番号 Project No. 2012A0119 実験課題名 Title of experiment Strain Measurements of various Rock samples under uniaxial compression 実験責任者名 Name of principal investigator Jun ABE 所属 Affiliation JAEA	装置責任者 Name of responsible person Kazuya Aizawa 装置名 Name of Instrument/(BL No.) BL-19 実施日 Date of Experiment 2012/5/20-2012/5/23

試料、実験方法、利用の結果得られた主なデータ、考察、結論等を、記述して下さい。(適宜、図表添付のこと)
 Please report your samples, experimental method and results, discussion and conclusions. Please add figures and tables for better explanation.

1. 試料 Name of sample(s) and chemical formula, or compositions including physical form.	
Borehole rock specimen: SiO ₂ , Al ₂ O ₃	

2. 実験方法及び結果 (実験がうまくいかなかった場合、その理由を記述してください。)
Experimental method and results. If you failed to conduct experiment as planned, please describe reasons.
<p>The borehole sample is a geological material which was taken from underground (600 m). This sample might have residual strain depending on stress condition of deep crust. In order to measure residual strain distribution in the rock specimen, firstly, we adjusted sample position and set aperture size of beam incident slit. In residual strain measurements, diffraction pattern of stress-free powder sample which was prepared by grinding a sample was typically measured. But the borehole sample is very precious, therefore we could not prepare powder sample. So we measured distribution of lattice parameter. Figure 1 shows neutron diffraction pattern of the borehole rock sample. The peaks attributed to quartz are obtained.</p>

2. 実験方法及び結果(つづき) Experimental method and results (continued)

Fig. 2 shows relationship between lattice constant of quartz grains and distance from center of spherical sample. The value of lattice constant shifted to lower value with increasing distance. This indicates that quartz grains remain tensile residual strain. If residual strain in borehole rock samples became clear, stress condition of deep underground would be estimated.

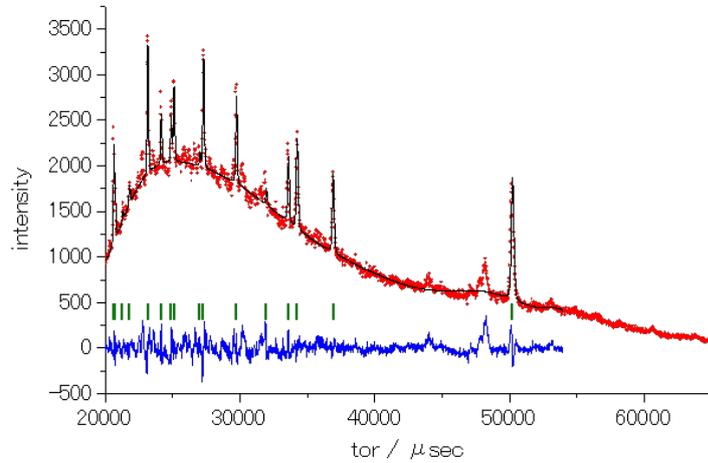


Fig. 1 Neutron diffraction pattern of Borehole specimen

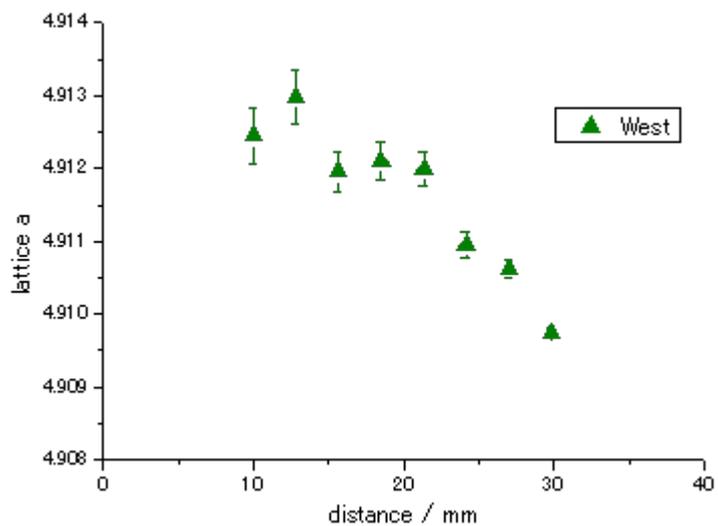


Fig. 2 Relationship of lattice constant vs. distance from center of circle.