 MLF Experimental Report	提出日 Date of Report 2010.6.12
課題番号 Project No. 2009B0051 実験課題名 Title of experiment Studies on Jomon Pottery (Cord Impressed Ware from B.C.13000) 実験責任者名 Name of principal investigator T. Kamiyama 所属 Affiliation KEK	装置責任者 Name of responsible person T. Kamiyama 装置名 Name of Instrument/(BL No.) BL20 実施日 Date of Experiment 2010.5.30

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.
Standard samples of Rocks and Jomon Potteries

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.
The standard sample of rocks and small pieces of Jomon potteries (ancient cord impressed ware) with about 0.5 cm thickness were placed at the sample positions without using sample exchange robots. Diffraction data were measured for about 2 hours for each specimen. The double-frame mode with 12.5 Hz was chosen to extend wavelength range up to 11 Angstrom.

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

A typical diffraction pattern of a Jomon pottery (file00923) measured with the backward detector bank of iMATERIA is shown in Fig.1, together with that (Sirius2271) measured with the Sirius diffractometer at KENS in Fig. 2. With the shorter flight path and the choice of 12.5Hz mode in iMATERIA, several strong Bragg reflections at $5.5 \text{ \AA} > d > 2.8 \text{ \AA}$ were successfully detected. The enlarged figures in Fig. 1 and 2 indicate the profile shape is more symmetrical in iMATERIA.

From the measurements of standard samples of rocks, we found diffraction patterns of Jomon potteries resemble granite (Fig.3) and river sediment. Based on these information, we now start analyzing data with the Rietveld method.

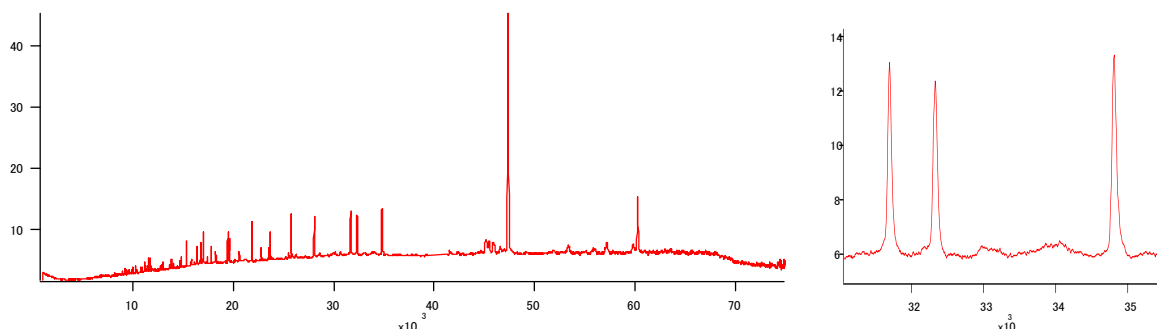


Figure 1. Jomon pottery (file 00923) measured with iMATERIA in the 12.5 Hz mode. (right)A part is enlarged.

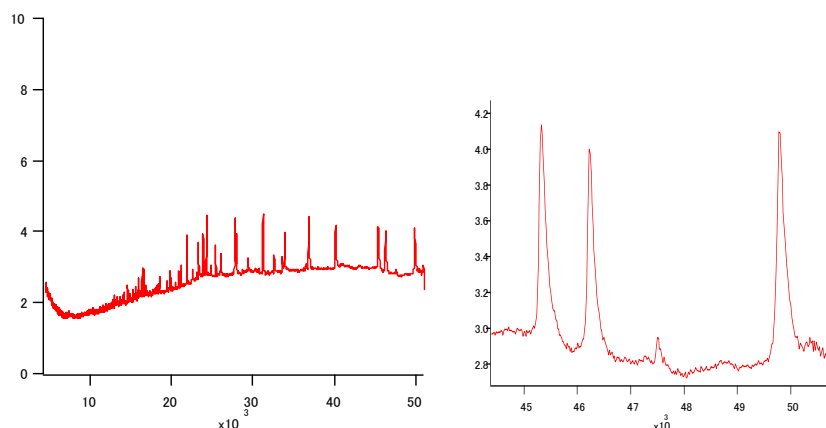


Figure 2. Jomon pottery (Sirius2271) measured with the old KEK diffractometer Sirius in the 12.5 Hz mode. (right) a part is enlarged.

