

Analytical support for IODP core sample study by researchers from abroad

Introduction

Kochi Core Center (KCC) is a nationwide joint-use research facility open to all researchers in Japan. Recently, part of this analytical facility was opened to the researchers from abroad for analyzing the IODP/Legacy cores stored in the KCC. The equipment accessible to foreign researchers are :

1. XCT scanner (GE)
2. XRF core logger (TATSCAN)
3. MSCL (Geotek)
4. MSCL-color (Geotek)
5. Core imager

Requests for analyzing samples using these equipment are evaluated by a committee in the KCC, and if the committee approves the request, samples may be analyzed by researchers or their representatives using these equipment. KCC staff will not conduct sample and data analysis, but will assist in setting up the equipment and samples for analysis.

Usage Fee

At present there is no equipment usage fee as this service is being offered on experimental basis. However, users may be asked to bring certain consumables required for sample analysis, depending upon the number of samples to be analyzed.

An example of consumable is a plastic film that is required to cover the core sections before the XRF scanning: Prolene mit 4.0 um, width 76 mm, length 91.4 meter (Article No. CH416)

Application procedure

As a first step, prospective users are advised to contact curator (curator@jamstec.go.jp) to check machine time availability at least 3 months before their visit to the KCC. Approximate number of samples and analytical parameters should be mentioned in this initial communication, so that machine time estimation can be made. Please understand that the KCC is a nationwide joint use research facility, and therefore, equipment may have already been reserved by a researcher in Japan. Researchers based in Japan must apply through the [Nationwide Joint Use System of Kochi University](#) to avail the analytical facility.

If machine time is available, user is required to submit a sample request in the IODP sample request database (<http://web.iodp.tamu.edu/sdrm/>) for analyzing/sampling the IODP/Legacy cores stored in the KCC. It should be clearly mentioned in the request that the analytical facility (name the equipment) of the KCC will be utilized if the request is approved. After submission of the request, curator will contact the user to confirm the research and analysis plan, and then forward the request to a committee in the KCC that approves the requests for analytical usage. If there are any questions from the committee, the curator will forward the same to the user.

After approval of the request by the committee, IODP/Legacy core samples may be analyzed in the KCC by the user or his/her representative. KCC staff will not conduct sample and data analyses, but will assist in setting up the equipment and samples for analysis.

Notes

The XCT scanning of cores provides image resolution in milli-meter range. Therefore, particle size studies focusing on clay or silt content may not be feasible.

The XRF scanner gives only "relative" concentrations of elements / oxides. If you are looking for accurate concentrations of the elements / oxides, then you should

perform chemical analysis of discrete samples by using ICP, etc.

The XRF scanner in the KCC takes about 150 - 200 seconds time to analyze various elements and oxides at a point, therefore, depending upon the number of measurements in a core section, it may be possible to analyze one or two core sections per day at the most.