Research infrastructures at Kochi Institute for Core Sample Research JAMSTEC: How do we live with our Toys.

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1. Kochi Institute for Core Sample Research JAMSTEC

Kochi institute for Core Sample Research JAMSTEC houses a unique combination of laboratories and research infrastructures for conducting leading-edge earth, planetary and microbiological researches. We provide a wide range of analytical capabilities applied to science questions, combining technical expertise with scientific vision. Since an installation of NanoSIMS 50L ion microprobe at November of 2011 funded by the JSPS Strategic Fund for Strengthening Leading-edge Research and Development, our research infrastructures especially for microanalysis kept maintain and gradually grown up. Currently we own three SIMS instruments (IMF-6F, IMF-1280HR and NanoSIMS 50L), TEM (JEOL ARM 200F attached with EDS and EELS detectors, cryo-holder), and two FIB instruments (Hitachi High-Technologies, single FIB SMI4050 attached with SE (secondary electron) and SI (secondary ion) image detectors, a charge neutralizer and cryo-stage; real-time 3D analytical FIB-SEM SMJ4000L attached with EDS, EBSD and cryo-holder). These state-of-the-art instruments open up new window for variety of sciences; cosmochemistry (e.g., Ito et al., 2014; Chan et al., 2018), geochemistry (Shimizu et al., 2016; Hamada et al., 2017), mineralogy (e.g., Tomioka et al., 2016; Tomioka and Okuchi, 2017), and micro-biology (e.g., Inagaki et al., 2015).

The problems on the research infrastructures not only in Kochi institute for Core Sample Research JAMSTEC but also other institute and universities are (1) to have a service contract with vendor, (2) to keep laboratory technicians, (3) to support to the scientific communities, (4) to upgrade to the next-generation instrument and/or detectors, and (5) funding from agencies (institute, university, MEXT, JSPS etc.).

In this talk we summaries laboratory capabilities together with recent researches, lessons learned on installations and operations, and funding situation and more.

Keywords: Development of next-generation scientific instrument, Sustainability and Effectiveness of Research Infrastructure, Collaboration of industry-academia-government system

