ReC23-01 Report

Junichiro Kuroda (University of Tokyo)

The first project of the Repository Core ReDiscovery (ReCoRD) Program, ReC23-01 "Tracing Intermediate Water Current Changes and Sea Ice Expansion in the Indian Ocean" was conducted for 10 days from August 27 to September 5, 2023. One of the main objectives of this project is to reconstruct the ocean circulation in the Indian Ocean since the Middle Miocene, with a particular focus on changes in the origin of intermediate water and its relationship to the Neogene-Quaternary history of global climate change. To achieve the scientific objectives, we reanalyze sediment cores from Site 752 (Broken Ridge, southern Indian Ocean) drilled by ODP Leg 121, Site 707 (western equatorial Indian Ocean) drilled by ODP Leg 115, and Site 266 (southern high latitude), drilled by DSDP Leg 28. Scan images and X-ray CT images of these cores were obtained in advance, and then the archive halves were redescribed, smear slides were observed, and individual samples were sampled from the working halves at Kochi Core Center (KCC). In addition, element mapping of some selected core sections was performed in advance at Bruker Japan using the M6 JETSTREAM XRF micro analyzer. Of particular importance in this project was the ability of X-ray CT images to accurately estimate the amount, size and stratigraphic location of ice-rafted debris (IRD) in the sediment cores, without taking subsamples. Such analysis was not possible during the DSDP era when X-ray CT scanning was not available. XRF mapping has also proved to be very useful in capturing lithologic changes. Individual studies will be carried out on the collected samples after the samples are delivered to each participant.

Schedule

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| Sun. 27th Aug. | Welcome meeting, orientation, and self-introductions by participants |
| Mon. 28th Aug. | Description and sampling of cores from Site 266, and seminars by data requesters |
| Tue. 29th Aug. | Description and sampling of cores from Site 266 |
| Wed. 30th Aug. | Description and sampling of cores from Site 266 |
| Thu. 31st Aug. | Description and sampling of cores from Sites 266 and 707, and science seminars |
| Fri. 1st Sept. | Description and sampling of cores from Site 707 |
| Sat. 2nd Sept. | Ggeological excursion to Geisei and Akaoka areas, guided by Prof. Y. Hashimoto |
| Sun. 3rd Sept. | Description and sampling of cores from Sites 707 and 752 |
| Mon. 4th Sept. | Description and sampling of cores from Site 752 |
| Tue. 5th Sept. | Description and sampling of cores from Site 752 and entire wrap-up meeting |

Participants (*PhD. Students)

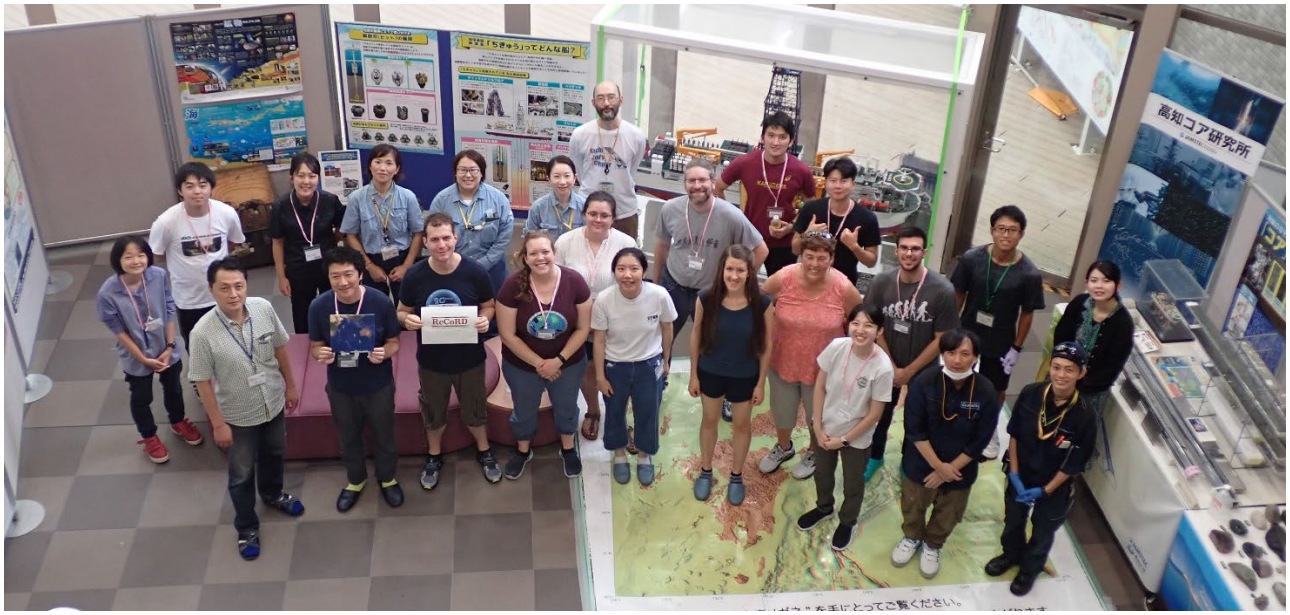
Junichiro Kuroda (University of Tokyo), Gerald Auer (University of Graz), Or Bialik (University of Münster), Anna Joy Drury (University College London), Beth Christensen (Rowan University), Minoru Ikehara (Kochi University), An-Sheng Lee (Taiwan National University), Hiroki Matsui (Akita University), Theresa Nohl (University of Vienna), Arisa Seki (Shinshu University), Tamara Hechemer* (University of

Graz), Jing Lyu* (University of Münster), Xabier Puentes-Jorge* (University of Graz) and Jumpei Yoshioka* (University of Tokyo)

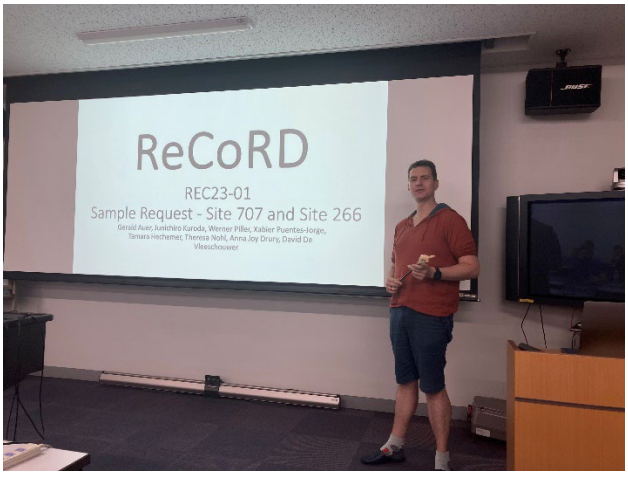
Student assistants
Hikaru Ono (Akita University), Misaki Hata and Rumina Onishi (Hiroshima University),

JAMSTEC Curator, Liaison
Yusuke Kubo (IODP Core Curator) and Natsumi Okutsu (JAMSTEC Liaison)

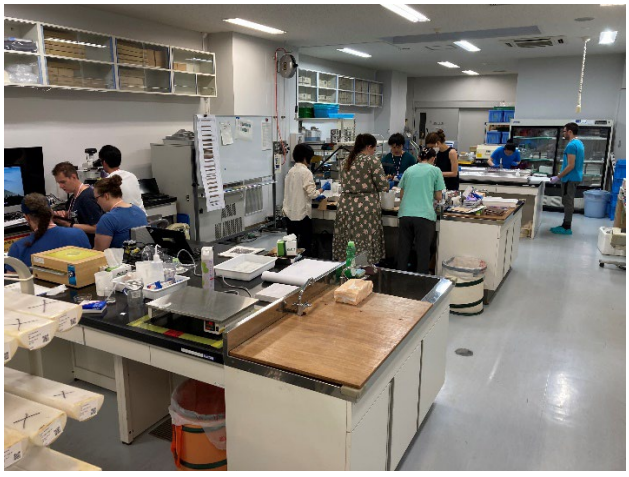
On-line participants
Werner Piller (University of Graz) and David De Vleeschouwer (University of Münster)




Group photo of the science party of ReC23-01




Presentation by Dr. Gerald Auer (Univ. Graz)



Sampling and description of cores at KCC

Acknowledgments

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