

J-DESC

Japan Drilling Earth Science Consortium

NEWS

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3rd term activities of IODP Section and future policies



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The IODP (Integrated Ocean Drilling Program) Section of J-DESC (Japan Drilling Earth Science Consortium) was established to engage in earth drilling science, with the emphasis on subjects such as IODP related scientific planning and study of research foundations for earth drilling science, submission of proposals to related organizations, organic collaboration between IODP related scientific research in earth drilling science and educating the public about scientific ocean drilling, and in April 2007 embarked on its 3rd term of activities. The Section's main objectives and agenda were already described in J-DESC NEWS Vol. 1. I would therefore like to use this opportunity to sum up its objectives and policies from the 3rd term of activities onward.

To keep our members updated at all times, news will be e-mailed as it arises and also posted on the J-DESC website (<http://www.j-desc.org>).

In appointing the members of the executive committee who assumed office in the 3rd term, we tried to cover IODP International committees, all Japanese universities and scientific fields. The policies applied are listed below.

(1) Taking a bottom-up and swift approach to the promotion of drilling science [As the J-DESC, IODP Section's new administrative system came into force in April 2007, we prepared a summary of all recommendations and requirements expressed to us. Based on this document, we will continue to address issues such as bottom-up promotion of science, as well as quick decision making and action taking.] (2) Expansion of member organizations [We are currently trying to increase the number of regular members and supporters in order to broaden the scientific drilling base.] (3) Distributing information to our members [As mentioned earlier, we are trying to keep our members as well informed as possible by sending them e-mail news updates such as the J-DESC Update.] (4)

Expansion and establishment of systematic support of IODP expeditions [From 2007, several new features have been added to the current support, including (a) meetings before the individual expedition such as strategy meeting, onboard instrument training or field excursions (what we call Pre-Cruise Training) and (b) business trips to collect basic data during the moratorium period (what we call After-Cruise Work). With that we have reached the stage where we can now support the entire series of activities consisting of pre-cruise training → expedition participation in post-cruise meetings → after-cruise work. In addition, we will be able to pay the travel expenses of persons having to participate in the helicopter underwater escape training (HUET) in order to board the deep-sea drilling vessel, Chikyu.] (5) Establishment of the J-DESC Universal Help Desk [To be able to respond to the wide variety of questions addressed to us, a HELP DESK was set up on the J-DESC website. You will be able to obtain answers to any questions relating to J-DESC, including how to complete the formalities for a business trip and how to compose a drilling proposal.] (6) J-DESC core analysis school (Note 1) [To systematically promote students, graduate students and young researchers in drilling science, various specific practical trainings were set up and have gone into operation. J-DESC also provides financial support to the core analysis school. Undergraduate and graduate students of member organizations will receive a uniform contribution of 8,000 yen (10,000 yen in 2008) toward their travel expenses.] (7) Preparation of guidelines [We have prepared manuals for onboard scientists and co-chiefs. These are available in separate versions for Japan's Chikyu, the JR of the US and the European MSP. We would like to thank the people who spent time on board for helping us with drawing up these guidelines. Regular revisions are planned. Another guideline we prepared deals with AESTO

paperwork relating to routines such as the general meeting.] (8) Sharing with member organizations [(a) We provide financial assistance to students (limited to those from member organizations) participating in the above core analysis school, and (b) J-DESC is making preparations for an information exchange meeting such as IODP-ICDP joint Town Hall Meetings in AGU and EGU (focusing on those affiliated with member organizations) scheduled during the Japan Geoscience Union Meeting.] (9) Collaboration with ICDP [On December 20, 2007, the J-DESC, IODP Section and the Continental drilling Section got together for a social gathering. What concrete form this collaboration will take in the future is currently under debate (persons affiliated with IODP can already participate in the ICDP Training Course).] (10) Activities in 2008 [Discussions are ongoing to formulate a strategy for IODP activities. The topics include finding and developing proposals, strategic obtainment of samples, results reports, and structural reform of the J-DESC, IODP Section. Discussions centered on expeditions in January, 2008, on international relations (Japan-Korea, Japan-Germany) in February, and we hope to keep the decision making process short to swiftly move on to implementation. Your cooperation and understanding would be most appreciated.

Note 1: J-DESC core analysis school (Up to recently, core analysis school for drilling science had to rely on volunteer work by member organizations, but to systematically promote drilling earth science, it was decided to open J-DESC core analysis school. (a) Core analysis expert course for onboard scientists, (b) Basic core analysis course, (c) isotope analysis course, (d) microfossil course, (e) non-destructive analysis TATSCAN course, (f) paleomagnetism course, and (g) Basic logging course)

Brief summary of “NanTroSEIZE Mega-Splay Riser Pilot” IODP Expedition 315



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Expedition 315 onboard scientists

The Nankai Trough Seismogenic Zone Experiment (NanTroSEIZE) is conducted to examine the plate boundary fault forming the rupture zone of the 1944 Tonankai earthquake and the seismic slip of megasplay faults extending from there. The expedition is a multistage project targeting the accretionary prism, splay faults, forearc basin and the Shikoku basin off Kumano. Exp. 315, carried out between November 16 and December 18, 2007, was the second expedition of Stage 1.

The initial plan was to core and set casings in the hanging wall of the megasplay fault to 1 km below seafloor. The ultimate objective at this site during Stage 2 was to perform riser drilling across splay faults to 3.5 km below seafloor. For this reason, the present expedition was named Megasplay Riser Pilot. The objectives of Exp. 315, to mention a few, were to acquire data on materials and formation temperature for future deep riser drilling, estimating the activity of splay faults, shedding light on the growth process of accretionary prisms and restoration of paleostress fields. At site C0001, we drilled into the early Quaternary to late Pliocene muddy layer of the slope sedimentary basin and the basal sand layer and cored accretionary prism samples consisting of late Pliocene to late Miocene mudstone (Figures 1 and 2). Although this was the first time the Rotary Core Barrel (RCB) coring system was used on the Chikyu, we managed to take good quality samples. But we had to give up drilling at 458 m below seafloor because of deteriorating conditions in the borehole. Faced with strong Kuroshio current, casing work had to be postponed as well. In view of this situation, the latter part of the expedition was spent coring at site C0002 (riser drilling to

6 km below seafloor in Stage 3) (Figures 1 and 2). The site being located at the southern margin of the forearc basin, it is possible to estimate the formation period and activity of splay faults by determining the age of the sedimentary basin and accretionary prism. The expedition drilled through the alternate layers of Quaternary fine-grained sandstone and mudstone of the forearc basin, then through the basal Pliocene mudstone layer and down to the late Miocene accretionary prism at 1057 m below seafloor.

At both sites, numerous small faults are developed. We were able to estimate their paleostress fields based on structural geologic measurements and directional restoration using paleomagnetism. The preliminary results for site C0001 indicate that normal faults have developed in the shallow region and predominantly reverse faults in the deep region, with the principal axes of maximum horizontal stress in both cases extending from northwest to southeast. At site C0002, on the other hand, reverse faults due to NW-SE compression, normal faults due to NE-SW extension, and normal faults due to N-S extension were interpreted to be sequentially formed. The stress fields showing the newest faults are consistent with the findings obtained by logging while drilling (LWD) during Exp. 314.

On this expedition, we used an X-ray CT scanner to examine the quality of the many whole round core (WRC) samples taken. WRCs for investigating pore fluids and microorganisms should preferably be processed quickly onboard, but coring in locations of structural geologic importance should be avoided. Moreover, samples for rock physics and mechanical testing should be free of cracks and disturbances. On this

expedition, we set a precedent by subjecting the pore fluid WRCs to X-ray CT scanner imaging and extracting the pore fluid after structural examination. Based on the entire collection of CT images, we subsequently selected the locations for coring WRCs for microbial, physical property and mechanical testing.

A significant result of this expedition was that we were able to collect accretionary prism material from both sites. This provides us with clues as to what materials are present down to the target depth of future riser drillings. Another outcome was that by matching the high-quality downhole temperature measurements carried out with thermometers (APCT3) and the thermal conductivity of the cores, we were able to calculate the thermal structure near the up-dip limit of the seismogenic zone with much greater accuracy than before. The estimated temperatures will also be useful for future technological developments for various long-term downhole measurements.

Finally, in an effort to standardize our analytical and recording methods, we introduced a system for NanTroSEIZE, according to which about half of onboard scientists will be replaced between expeditions. This resulted in some areas being understaffed, but we managed to get the onboard work done by contacting some of the researchers slated for the next exhibition. Following Stage 2, drilling at the same site will continue for several months. We are sure that, besides acquiring data on formation strength and temperatures, this expedition will also make a significant contribution to future riser drilling expeditions with the new methods established for core processing and the new systems introduced for rotation of scientists and distribution of materials.

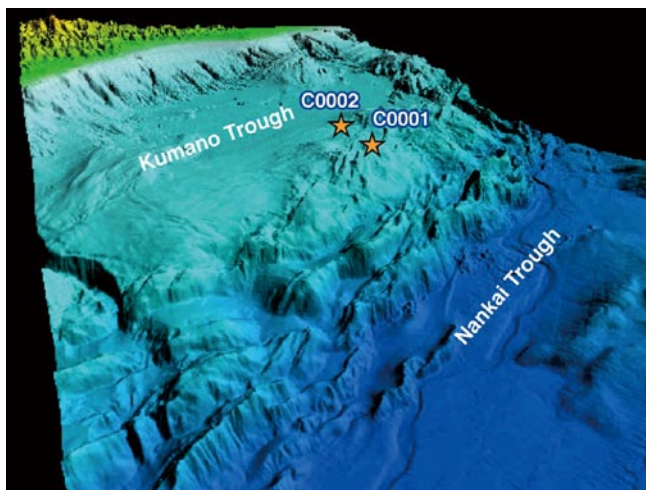


Figure 1 Seafloor topography of the Kumano Trough and location of drilling sites

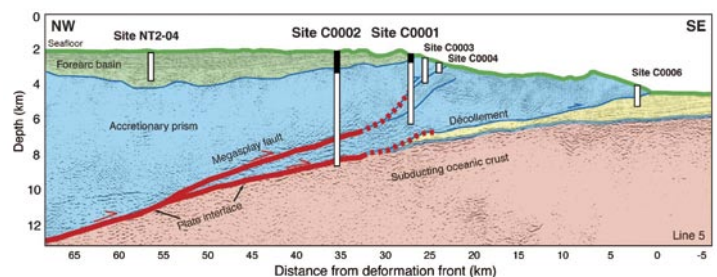


Figure 2 Seismic reflection profile of drilling sites. The drilling depth is shown in black. Seismic profile by Park et al. (2002).

Climate change in the Arctic Ocean: scientific results of the IODP Expedition 302 (ACEX)

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Until the recent when the Integrated Ocean Drilling Program (IODP) Expedition 302, Arctic Coring Expedition (ACEX) has conducted a deep sea drilling at the central Arctic Ocean, the past Arctic-ice history has been a mystery of the Cenozoic icehouse Earth system. The IODP- ACEX has successfully recovered over 428 m sediment records (about 0 to 55 Ma) on the Lomonosov Ridge in 2004 (Fig. 1) (Moran et al., 2006). Here, the recent scientific results of Japanese participants are reported.

Sea-ice history over 2 Million years: expansion of ice-sheet since marine isotope stage 6:

Sediment cores (30 m, ~2000ka) from the central Arctic Ocean obtained by IODP expedition 302 (ACEX) were analyzed in high-resolution by non-destructive spectroscopic and XRF imaging scanner and X-ray radiography with mineralogy, grain size, and biomarker analyses for selected discrete samples (Sugisaki et al., 2007; Sakamoto et al., 2006). Ice-rafted debris (IRD) shows characteristic changes of (a) increasing in a peak between 1400 and 1550ka, (b) abundant since ~ 1000 ka, and (c) increasing obviously since MIS 6, corresponding a prelude of early development of the Laurentide ice sheet, starting of ice-berg rafting after Mid-Pleistocene evolution, and strong ice-berg rafting concerning with the northwestern Laurentide ice sheets.

Biomarkers in late Pleistocene sediments collected from Hole M0004C were investigated (Yamamoto et al., submitted). High organic carbon content was present in the IRD-rich dark grey layer deposited during marine isotope stage (MIS) 6. The layer contained a significant amount of branched glycerol dialkyl glycerol tetraethers (branched GDGTs), suggesting ice erosion of organic-rich continental soil followed by transportation to the central Arctic by drifting ice. The labile refractory index (i.e., the ratio of the abundance of long chain n-alkan-1-ols to the sum of those of n-alkanes and n-alkan-1-ols) decreased above the dark grey layer, indicating that the OM became more refractory. This change suggests that the content of fresh OM in soil from the source region decreased because of extensive glacial erosion during MIS-6.

Anoxic Arctic Ocean during the middle Eocene:

The early middle Eocene samples include the abundant silicoflagellates and ebridians (Onodera et al., 2007). These assemblages in the ACEX samples are usually endemic, which represents the existence of characteristic surface water mass in the early middle Eocene Arctic Ocean (Fig. 2). The co-occurrences of freshwater and brackish water microfossils are caused by the significant halocline formation in the upper water column. The abundant down-core occurrence of ebridians may indicate that low oxygen concentrations prevailed in the lower euphotic layer, on the basis of the ecology of the modern ebridian *Hermesinun adriaticum*. Based on the basin-to-basin fractionation model, the early middle Eocene Arctic Ocean corresponds to an estuarine circulation type such as the modern-day Black Sea.

Analyses of biogenic opal, organic carbon, sulfur, and sulfur isotopic composition indicated highly biological productive and euxinic environments of the middle Eocene Arctic Ocean (Ogawa et al., 2008). Although low salinity microfossils occurred abundantly, the high sulfur contents suggested that sea water existed in the deep layer of the basin. The low sulfur isotopic values support the continuous sea water existence since they can only be generated under the conditions in which sulfate bearing sea water never have been exhausted. The sulfur contents were higher than that of the Black Sea, a modern euxinic marginal sea, suggesting geochemically unique environment. Moreover, it is possible that the 10 m.y. long continuous pyrite burial in the Arctic Ocean contributed to the observed isotopic increase of sea water sulfate in the early to middle Eocene Atlantic Ocean.

The well preserved fossil diatoms are from biosiliceous Unit 2 in Holes 2A and 4A of middle Eocene age from the Lomonosov Ridge in the central Arctic Ocean. In the lower part of Unit 2, resting spores occurred abundantly with other fossil diatoms. 25 diatom resting spore taxa and five allied vegetative cell taxa are described in this study of ACEX samples. Moreover their biostratigraphic ranges are also indicated. 21 of 25 (84%) resting spore taxa became extinct during the middle Eocene to early Oligocene. Most resting spore taxa such as *Pterotheca* and

Pseudopyxilla do not belong to *Chaetoceros* resting spores and became extinct before Oligocene, and *Chaetoceros* did not flourish in the middle Eocene in the Arctic Ocean. Since some *Chaetoceros* resting spore taxa are reported in this study, most coastal regions experienced regular seasonal environmental change, which benefitted genera such as *Pterotheca*, *Pseudopyxilla* and *Odontotropis*, but also there might have been some patchy coastal upwelling regions with nutrient depletion and sporadic supplies where *Chaetoceros* may have survived.

During the late Eocene to the early Oligocene, 1) continental ice sheets first developed in East Antarctica (Oi-1 Event), 2) the Tasmanian Gateway opened, possibly leading to development of the Antarctic Circumpolar Current, 3) high latitudes cooled gradually, 4) thermohaline circulation intensified possibly leading to enhanced nutrient supply to surface waters and increased phytoplankton production. The abundant dinoflagellate cysts preserved in middle Eocene ACEX cores also provide evidence of stable conditions before the Eocene/Oligocene boundary. The causes which upwelling system and areas changed might be the changes of thermohaline circulation after the development of continental ice sheets in East Antarctica. The conditions in the Arctic Ocean might change from stable with a constant (annual) nutrient supply provided by upwelling in winter in the Eocene, to unstable with a sporadic supply of nutrients by increased vertical mixing in the Oligocene. The survival strategy of *Chaetoceros* to form resting spores under unstable and unfavorable conditions may give this genus an ecological advantage over other diatoms (e.g. *Pterotheca* and *Pseudopyxilla*) and phytoplankton groups (e.g. dinoflagellates), which may have led to an early Oligocene explosive increase in both species richness and abundance.

Reference:
Lisiecki et al., 2005, *Paleoceanography*, 20, PA1003
Moran K. et al. 2006. *Nature*, 441, p. 601-605,
Ogawa Y. et al., 2008, *Mem. Fac. Sci., Kyusyu Univ., Ser. D, Earth & Planet. Sci., Vol. XXXII, No. 1*, pp. 31-48.
Onodera, J. et al., 2008, *Paleoceanography*, 23, PA1515
Sakamoto T. et al., *Eos Trans. AGU, Fall Meet. Suppl.*, 87(52), U33A-0023
Sugisaki S. et al., *Geophysical Research Abstracts*, 9
Suto, I. et al., 2008a, in press, *Diatom Research*.
Suto, I. et al., 2008b in press, *Micropaleontology*.
Suto, I. et al., 2008 submitted, *Diatom Research*.
Yamamoto, M. et al., 2008 submitted, *Organic Geochemistry*.

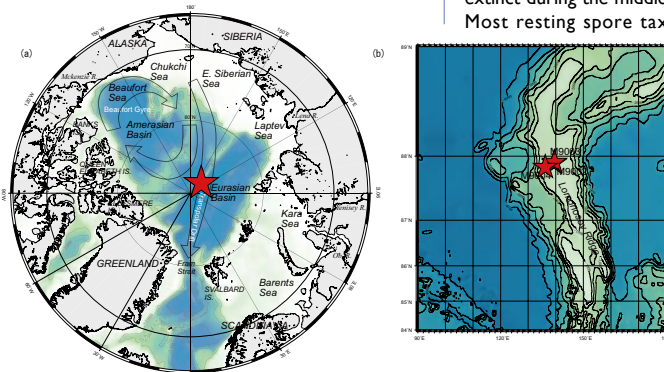


Fig. 1. Location map of drill sites of the Arctic Coring Expedition (ACEX, IODP Expedition 302).

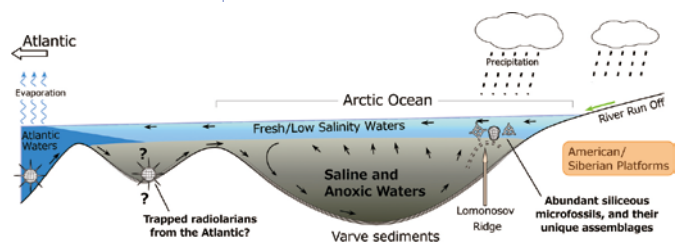


Fig. 2. A schematic interpretation of the circulation pattern in the early middle Eocene Arctic Ocean. Gray shading in the basin represents the relatively dense saline and anoxic waters. The arrows represent the hypothetical direction and movement of the water bodies.

Report on the First International Workshop on the Coral-Reef Front (COREF) Project



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The main objective of the COREF Project is to investigate the responses to Quaternary climatic changes of coral reef ecosystems in the Ryukyu Islands, located at the northern limit of coral reef distribution in the northwest Pacific Ocean (Iryu et al., 2006, Island Arc, 15, 393-406). To achieve the scientific objectives of this project, ocean drilling under IODP and continental drilling under ICDP are absolutely essential to core Quaternary coral reef complex deposits and related offshore deposits. So far, a full proposal (615-Full) for implementation of IODP ocean drilling was submitted to the IODP SAS in October 2004, and in August 2005, a site survey was conducted using the JAMSTEC research vessel Natsushima. Preparations for continental drilling started in 2004, and in January 2006, a workshop proposal (<http://www.dges.tohoku.ac.jp/igps/iryu/COREF/proposal.html>) was submitted to the ICDP SAG, which was accepted. This was the occasion for holding the First International Workshop on the COREF Project (January 14 – 19, 2007, at Okinawa-jima). The main objectives of the workshop were to detail the scientific goals of the COREF Project and to work out the drilling program.

Participants in the workshop were 8 scientists from overseas (2 from the US, 1 from Germany, 1 from Austria, 2 from Korea, 1 from French Polynesia and 1 from Taiwan) and 16 from Japan. On January 13, the day before the workshop, an icebreaker was arranged to get to know each other while enjoying Okinawan food. Field trips were made on the 14th to the Neogene Shimajiri Group, Neogene to lower Quaternary Chinen formation, and Quaternary Ryukyu Groups (coral reef complex deposits) distributed along the southern part of Okinawa-jima, and on the 15th, along the northern Motobu peninsula of that island. The overseas scientists posed many questions concerning issues such as dating of the coral reef complex deposits (calcareous nannofossil biostratigraphy), and comparison between reef limestones and their coeval fore-reef to shelf deposits. During the three days from January 16, existing datasets were reviewed at the JAMSTEC Global Oceanographic Data Center in Nago. Discussions also addressed the scientific aspects of the COREF Project, deciding the location of ICDP drilling sites and review of planned IODP drilling sites. Discussions were extremely lively and heated up in particular over determining the drilling

sites. One of the things the overseas scientists pointed out during the review of existing data was that they were unable to access important data because most of the papers dealing with the geological features of the Ryukyus are written in Japanese, and they expressed the hope that Japanese scientists would find a solution to this problem in the future. On the evening of the 18th, a banquet was held to relax from the hardships of the field trips and hard discussions, and everybody pledged to collaborate for implementation of coral reef drilling in the Ryukyus.

We would like to add that the expenditures toward holding this workshop were covered for the most part by financial assistance from ICDP. The Japan Drilling Earth Science Consortium also rendered valuable support. Our warmest thanks go to both organizations.

PS.: For a summary of the main topics discussed at the workshop please refer to Scientific Drilling, Vol. 5, published in September 2007 (Iryu et al., 2007, Scientific Drilling, No. 5, 58-60). A tentative full proposal was submitted in January 2008.



The participants in the First International Workshop on the COREF Project. Photographed at the Nakijinjusuku World Heritage Site in Okinawa Prefecture.



Poster for the First International Workshop on the COREF Project.

Report on

ICDP Workshop on Borehole Monitoring at the Nankai Subduction Zone:
Building a Land-Ocean Borehole Network to Study the Seismogenic Zone



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The above workshop was held from August 20 to 23, 2007, at the Noyori Materials Science Laboratory of Nagoya University.

A proposal for this drilling program aimed at monitoring the activity near the boundary of the Philippine Sea Plate subducting at the Nankai Trough off the Kii peninsula has been submitted. This region is known for experiencing great earthquakes like the 1944 Tonankai earthquake and the 1854 Ansei Tokai earthquake roughly every 100 years. In recent years, however, intermittent deep low-frequency tremors and slow slip events have been observed in the down-dip of the seismogenic zone of great earthquakes, and a thorough investigation of these phenomena is hoped to yield important clues that will shed light on the diverse physical processes taking place at the plate boundary.

Although there were some cancellations on the part of overseas participants, the workshop was attended by 35 scientists from four countries, mainly from Japan (including 4 overseas participants and 4 postgraduate students) and kindled lively discussions. Following greetings by the sponsor, a total of 18 papers were presented by the afternoon of the second day of the workshop, and announcements and Q&A sessions dealt with a large variety of subjects including seismic activity in the Nankai Trough, the geoscientific background of the Kii peninsula, the trend of projects currently in progress, the most recent observation techniques and similar research projects being undertaken overseas. In addition to IODP drilling having been started in the surroundings of the Kii peninsula in the fall of 2007, an undersea cable network for earthquake and tsunami monitoring and a monitoring facility for observing earthquake related changes in groundwater/strain are under



Field trip to the integrated borehole groundwater observatory of AIST.

construction. There was unanimous agreement regarding the importance of planning organic linkage and collaboration between these various projects. Much time was allotted to discussing the importance of measuring the pore fluid pressure and other technical subjects. There were also seven poster presentations, including some by students, which in the evening were the subject of intense discussions. On the afternoon of the second day and the morning of the third day, we had discussions in preparation for drawing up the final proposal version. We reached agreement that the concrete objective of drilling and monitoring was to elucidate the complex activities near the lower end of the plate boundary and discussed who would be in charge of the various sections of the proposal, which researchers should join the group and similar issues. In particular participants

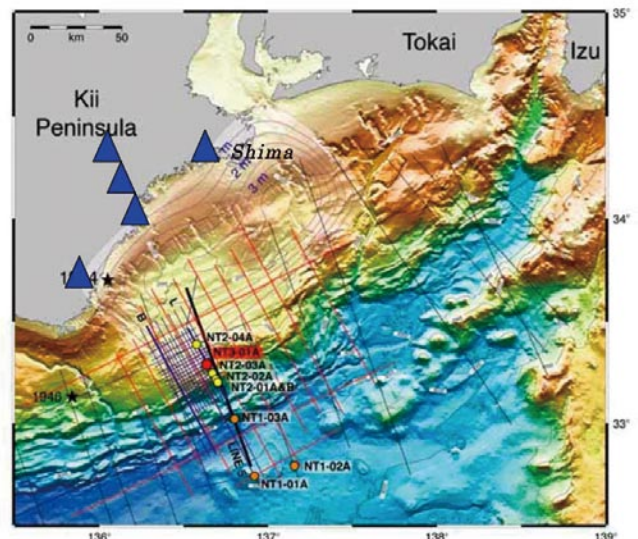
all realized the importance of seismic observation in order to shed light on low-frequency tremors, which are as yet not clarified in detail.

From the afternoon of the 22nd, we moved the venue to the Kii peninsula, where we took a look at the Kumano tuffs and other geological structures, toured the groundwater monitoring facility built by AIST (Advanced Industrial Science and Technology), and completed the day with a visit to Kata in Owase, Mie Prefecture, where the highest points of the 1944 and 1854 tsunamis are recorded, and an on-site discussion.

Looking back at the workshop as a whole, I believe that it was an extremely meaningful event on the way to drawing up the proposal. In closing, we would like to thank ICDP and J-DESC for their financial backing of this workshop.



Workshop setting.



Location map of the Nankai Trough and boreholes in Kii Peninsula. Circles denote drilling sites in the NanTroSEIZE project. Triangles on land denote IST boreholes.

Kochi Core Center and IODP/ICDP



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Masafumi Murayama
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The Kochi Core Center (KCC) is a research institute jointly run by Kochi University and Japan Agency for Marine-Earth Science and Technology (JAMSTEC). Organizationally it features a unique setup, in as much as the Center for Advanced Marine Core Research (Kochi Univ.), a national open facility, and the Kochi Institute for Core Sample Research (JAMSTEC) set up for promotion of IODP research, are housed under one roof. The Center has the latest analytical equipment and large cooling repositories for analyses and storage of drilled core samples, and is the only facility of its kind in Japan, where comprehensive analyses of core samples for basic and applied research can take place. The KCC aims to become the main laboratory for scientific drilling project in Japan and promote research into drilling earth science.

The KCC is one of the three IODP core repositories in the world, the other repositories being located at Texas A&M University in USA and Bremen University in Germany. It stores and manages the core samples collected by drilling vessels such as the Chikyu in the western Pacific Ocean and the Indian Ocean, and runs a curation service to fill sample requests from researchers. On February 14, 2008, cores collected by the Chikyu on the Nankai Trough Seismogenic Zone

Experiment (NanTroSEIZE) expedition were brought in as the first IODP core samples in KCC. Core storage and curation will not be limited to the cores that IODP will collect from now on, but also include the cores, equivalent to a total of 84 km length, collected in the same ocean regions by DSDP/ODP over the past dozens of years. The transfer of DSDP/ODP cores from USA and Germany started in September 2007, and the KCC curation service has also been launched. From the 2008 fiscal year onward, storage/curation of core samples will not only be performed for DSDP/ODP/IODP core samples, but also extend to those collected by the JAMSTEC R/V (Mirai, Kaimei, etc.).

Some of the analytical instruments installed at KCC (multi-sensor core logger, etc.) are equivalent to those installed on the Chikyu. This mirroring of the equipment installed on the Chikyu allows us to train researchers on shore before they board a vessel. Moreover, KCC offers facilities not only for sampling parties, but also for holding various pre- and post-cruise meetings. Taking advantage of these functions, pre-cruise training for NanTroSEIZE and related meetings were carried out at KCC in October 2007. Meetings and workshops dealing with preparation of IODP/ICDP proposals have also been held here. To support IODP onboard

researchers and ICDP participating researchers, preparations are now underway to create the conditions for researchers to engage in core research using analytical instruments in KCC.

The KCC has its own unique research functions, while collaborating with scientific drilling researchers from Japan and other countries. KCC currently has more than 20 affiliated researchers engaged in fields such as geochronology, global climate change, seismic faults, isotope geochemistry and sub-surface microbiology. KCC researchers have been active within the framework of the ICDP Taiwan Chelungpu-fault Drilling Project, carrying out non-destructive measurements, friction and permeability experiments, paleomagnetic measurements, and chemical and isotope analyses, etc. and, in cooperation with scientists in Japan and other countries, clarified the fault rupture and propagation mechanisms of the 1999 Chi-Chi earthquake in Taiwan. Research in connection with NanTroSEIZE into rupture propagation mechanism and sub-surface microbiology is also ongoing.

The KCC also is the venue for the "Introductory core analysis course" and "Isotope analysis course", which is offered by the J-DESC Core School targeting primarily postgraduate students from universities throughout Japan. Human resources development through graduate schools is another of the center's activities. Involving this young talent and researchers from Japan and abroad in joint research, supporting onboard researchers and engineers, developing human resources and helping to broaden the base of scientific drilling are also important aspects of our mission.

For details concerning the KCC's facilities, equipment, core curation, research activities, etc., please check out our website (<http://www.kochi-core.jp/>).



The core repository at the Kochi Core Center. Stored in this rack are DSDP/ODP cores.

J-DESC Activities

■ Outreach Activities

In 2007, J-DESC conducted four IODP University & Science Museum Campaigns and two Post-expedition Lectures. The IODP University & Science Museum Campaigns at Sapporo and Kyoto were staged in conjunction with the IODP-sponsored lecture program, DRILLS (Distinguished Researcher & International Leadership Lecture Series). The invited speaker was Professor Theodore Moore, Jr. (University of Michigan), who delivered DRILLS lectures to students, postgraduate students and the general public.

At the fourth Post-expedition Lectures held in 2007, a brief rundown was given on the research achievements of Expeditions 301 to 312.

For details on the IODP University & Science Museum Campaigns and IODP Post-expedition Lectures, please check out the J-DESC website.

● IODP University & Science Museum Campaigns

- No. 15 July 20 (Fr) and 21 (Sa) at Chiba
(Chiba University, Natural History Museum and Institute, Chiba)
- No. 16 October 27 (Sa) and 28 (Su) at Kagoshima
(Kagoshima University, Kagoshima Prefectural Museum)
- No. 17 March 1 (Sa) and 2 (Su) at Sapporo
(Hokkaido University Museum, Gakujutsu Koryu Kaikan)
- No. 18 March 9 (Su) and 10 (Mo) at Kyoto
(Kyoto University Clock Tower Centennial Hall)

● IODP Post-expedition Lectures

- No. 3 May 25 (Fr) at the Ocean Research Institute of the University of Tokyo
- No. 4 September 10 (Mo) at the Center for Research and Development in Higher Education, Hokkaido University

■ J-DESC Core Analysis School

The Japan Drilling Earth Science Consortium (J-DESC) opened the J-DESC Core School in 2007 to pursue a number of objectives such as supporting onboard researchers and engineers, developing human resources, expanding scientific drilling and providing opportunities for member organizations to interact. The J-DESC Core School offers a variety of courses ranging from introductory courses teaching the basic skills required for core analysis to more specialized courses teaching applied skills.

- Basic Core Analysis Course
- Isotopic Analysis Course
- VCD Expert Course
- Non-destructive Analysis TATSCAN Course
- Micropaleontology Course
- Paleomagnetism Course
- Basic Logging Course
- ICDP Training course organized by ICDP



Information on the courses offered will be sent to those on the IODP/ICDP mailing list and is also available from the J-DESC website. Please note that participating students and postgraduate students from J-DESC member organizations will receive a contribution toward their travel expenses. Holding of the J-DESC Core School is made possible by the dedicated commitment of each member organization and lecturer.

Information on IODP SAS Panel Members (Jan. 2007 to Mar. 2008)

■ Retiring IODP SAS Panel members

For current panel members refer to the J-DESC website.

SASEC (~ 2007/7) : Yoshiyuki Tatsumi (JAMSTEC) : Toshiyasu Nagao (Tokai Univ.)	SSEP (~ 2007/5) : Tetsuro Hirono (Osaka Univ.) : Makoto Itoh (Chiba Univ.) (~ 2007/1) : Ken Takai (JAMSTEC) : Ryuji Tada (Univ. of Tokyo)	STP (~ 2007/8) : Makoto Okada (Ibaraki Univ.) : Naokazu Ahagon (Hokkaido Univ.) (~ 2008/2) : Noritoshi Suzuki (Tohoku Univ.)
SPC (~ 2007/3) : Ritsuo Nomura (Shimane Univ.) : Hiroshi Kitazato (JAMSTEC) (~ 2007/8) : Hiroyuki Yamamoto (JAMSTEC) (~ 2008/3) : Harue Masuda (Osaka City Univ.)	SSP (~ 2007/2) : Jin-Oh Park (Univ. of Tokyo) (~ 2008/2) : Yoshikazu Yaguchi (MOECO) : Akiko Tanaka (AIST)	EDP (~ 2007/7) : Kazuhiko Tezuka (JAPEX) : Mitsugu Takemura (JAPEX) (~ 2008/1) : Haruya Nakata (GERD)

■ Alternate members

SASEC : Hidekazu Tokuyama (Univ. of Tokyo)
SPC : Won Soh (JAMSTEC), Hodaka Kawahata (Univ. of Tokyo), Hiroshi Kitazato (JAMSTEC), Hiroyuki Yamamoto (JAMSTEC)
SSEP : Akira Ishiwatari (Tohoku Univ.), Hidenori Kumagai (JAMSTEC)
SSP : Ryota Hino (Tohoku Univ.)
EPSP : Yoshifumi Nogi (Res. Org. Information and Systems), Philippe Gaillot (JAMSTEC)
STP : Masao Iwai (Kochi Univ.), Hirokuni Oda (AIST), Saneatsu Saito (JAMSTEC), Fumio Inagaki (JAMSTEC), Jun'ichiro Ishibashi (Kushu Univ.)
EDP : Yusei Arai (JAPEX), Yoshiyasu Watanabe (Tokai Univ.)
IIS-PPG : Osamu Takano (JAPEX)

■ Annual Schedule (Jan.-Dec. 2008)

Month	J-DESC	IODP	ICDP	Others
Jan.		<ul style="list-style-type: none"> #6 EDP (1/9-11 Nice, France) #5 SASEC (1/15-16 Santa Cruz, USA) #9 SSP (1/23-25 Tokyo, Japan) #4 IIS-PPG (1/28-29 Pau, France) 	<ul style="list-style-type: none"> Proposal Deadline (1/15) 	
Feb.		<ul style="list-style-type: none"> #6 STP (2/18-20 Sendai, Japan) 		
Mar.	<ul style="list-style-type: none"> IODP University & Science Museum Campaign (17th 3/1-2 Sapporo, 18th 3/9-10 Kyoto) Core Analysis School/Basic Core Analysis Course (3/15-18 KCC) Core Analysis School/Isotopic Analysis Course (3/19-21 KCC) Core Analysis School/VCD Expert Course (3/19-21 KCC) 	<ul style="list-style-type: none"> OTF (3/2 Barcelona, Spain) #11 SPC (3/3-6 Barcelona, Spain) PMO meeting (3/7 Barcelona, Spain) IODP DRILLS (3/1-2 Sapporo, 3/4-5 Fukuoka, 3/6-7 Tokyo, 3/9-10 Kyoto) IODP Japan Science Planning Committee (3/18) 	<ul style="list-style-type: none"> ICDP Japan Implementation Committee (3/21) SAG (3/29-4/2 Capetown, South Africa) 	
Apr.	<ul style="list-style-type: none"> 6th J-DESC General Meeting (4/6 JAMSTEC Tokyo Office) 19th IODP University & Science Museum Campaign (4/18-19 Mito) 	<ul style="list-style-type: none"> Proposal Deadline (4/1) ED Proposal Deadline (4/15) 	<ul style="list-style-type: none"> EC (5/1-3 Washington, USA) 	<ul style="list-style-type: none"> EGU (4/13-18 Vienna, Austria)/IODP-ICDP Euro FORUM (4/17)
May	<ul style="list-style-type: none"> 1st J-DESC IODP/ICDP Town Hall Meeting (5/27 Makuhari) 	<ul style="list-style-type: none"> #10 SSEP (5/19-22 Busan, Korea) 		<ul style="list-style-type: none"> Japan Geoscience Union Meeting (5/25-30 Makuhari)/Drilling Earth Science Session (5/27)
Jun.		<ul style="list-style-type: none"> #9 EPSP (6/16-18 Hanover, Gernamiy) #6 SASEC (6/22-28 Beijing, China) 		<ul style="list-style-type: none"> AOGS (6/16-20 Busan, Korea)
Jul.		<ul style="list-style-type: none"> #7 EDP (7/16-18 Salt Lake City, USA) #5 IIS-PPG Huston, USA) #10 SSP (Busan, Korea) IODP Japan Science Planning Committee 	<ul style="list-style-type: none"> AOG ICDP Japan Implementation Committee 	
Aug.		<ul style="list-style-type: none"> #12 SPC (8/25-28 Sapporo, Japan) #7 STP (Europe) 		<ul style="list-style-type: none"> IGC(8/6-14 Oslo, Norway)
Sep.		<ul style="list-style-type: none"> Japan-Korea Joint Symposium on Ocean Drilling (9/21 Akita) 		<ul style="list-style-type: none"> Geological Society of Japan Annual Meeting (9/20-22 Akita)
Oct.		<ul style="list-style-type: none"> Proposal Deadline (10/1) 		
Nov.		<ul style="list-style-type: none"> #11 SSEP (USA) 		
Dec.			<ul style="list-style-type: none"> ICDP Japan Implementation Committee 	<ul style="list-style-type: none"> AGU (12/15-19 San Francisco, USA)

■ IODP SASEC: SAS Exective Committee, SPC: Science Planning Committee, SSEP: Science Steering & Evaluation Panel, SSP: Site Sueuey Panel, EPSP: Environment Safy Panel, STP: Science Technology Panel, EDP:Engineering Development Panel, IIS-PPG: Industry-IODP Science Program Planning Group, OTF:Operations Task Force

■ ICDP SAG: Science Advisory Group, EC: Executive Committee, AOG: Assembly of Governors

*Please see J-DESC website for latest schedule (<http://www.j-desc.org/>)

■ J-DESC Supporting Members (as of Apr. 2008)

	Geophysical Survey Co., Ltd.		Koken Boring Machine Co., Ltd.
	SK Engineering Co., Ltd.		Toa-Tone Boring Co., Ltd.
	Schlumberger Ltd.		K. Maikai Co., Ltd.
	Teiseki Drilling Co., Ltd.		Nittetsu Mining Consultants Co., Ltd.
	Nikko Exploration & Development Co., Ltd.		Telnite Co., Ltd.
	Sumiko Consultants Co., Ltd.		NLC Co., Ltd.
	JPHYTEC Co., Ltd.		Geothermal Energy Reserch & Development Co., Ltd.
	Hulliburton Overseas Ltd.		Marine Works Japan Ltd.
	Japan Atomic Energy Agency Tono Geoscience Center		Global Ocean Development Inc.
	Mitsubishi Material Techno Co. Ltd.		

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J-DESC Newsletter

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