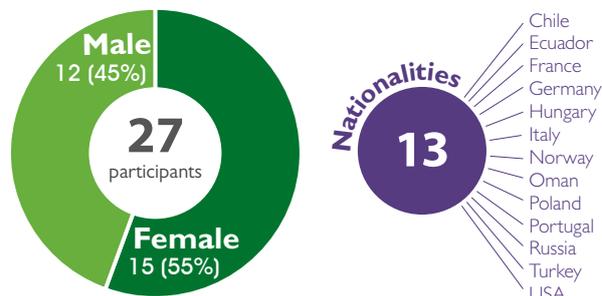


Subduction Zone Processes: Magma, Volcanoes, Ore Deposits, Geohazards

On the afternoon of Sunday 15 September, 25 young scientists (Master / PhD students and Postdocs) from 13 different countries arrived in Bremen. They came together to learn about the numerous processes relating sub-seafloor fluid transport and gas hydrate dynamics during the thirteen^s ECORD Summer School, which took place at the MARUM – Center for Marine Environmental Sciences and the IODP Bremen Core Repository (BCR) at the University of Bremen in Germany.

The school combined lectures with practicals and laboratory exercises on state-of-the-art IODP-style shipboard methodologies.



By the “virtual ship experience” at MARUM, the participants gained insights into how the samples and measurements in publications or use for own research are actually acquired. Moreover, the participants had the opportunity of presenting their own research projects to exchange their most recent findings and ideas regarding sub-seafloor fluid transport and gas hydrate dynamics.

The lectures addressed “Subduction Zone Processes: Magma, Volcanoes, Ore Deposits, Geohazards”, the general topics of the summer school, from various disciplines. Topics ranged from volcanic hazards and arc magmatic and hydrothermal systems to

rock geochemistry and element cycling as well as evolution from oceanic crust to continental crust, and fluid flow and seafloor fluxes to hazards in convergent margins and deep life.

Certainly, the participants got to know about IODP in general, its organizational structure and world of acronyms, application processes, importance and procedures of outreach, proposal writing, current planning and future trends that all might pave the way toward involvement in future IODP expeditions.

The Bremen Core Repository reefer and labs tour and MARUM workshop was crucial part in the beginning (*photo on the left*). Many aspects of a typical core workflow during an IODP expedition were addressed in practicals: the fun of recognizing composition and structures in a core section, thin section or a smear slide, the measurement of physical properties or considerations of temperature and heat flow for example. Coffee, tea, and lunch breaks as well as socializing “after shift” in the evenings or the organized weekend tours provided numerous opportunities for discussions and networking with a number of new colleagues and potential future collaborators.



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View from an ECORD Summer School participant

During the morning of 16th of September, 27 early-career scientists from 13 countries met at MARUM - Center of Marine Environmental Sciences of the University of Bremen, Bremen, Germany, to participate in the ECORD Summer School 2019 on Subduction Zone Processes.

For two weeks the participants had the opportunity to attend interactive lectures from distinguished and highly qualified scientists in the field of subduction zone processes, at this occasion lecturers and participants actively discussed the presented themes.



Photo credits: V. Diekamp, MARUM/University of Bremen

Another aim of this summer school was to encourage the participants to engage in IODP. For that matter, the first day was dedicated to the history and the aims of this programme followed by a guided tour of the IODP Bremen Core Repository reefer as well as MARUM laboratories and facilities. Also, the afternoons of the following days were filled with practical and laboratory exercises of the so-called Virtual Ship to acquaint the group of masters and PhD students as well as Postdoc researchers into the IODP-style shipboard methodologies and prepare them for future IODP expeditions. These activities included for example physical properties measurements on IODP cores and samples; the observation of thin section of tuffs, lapilli, andesitic and boninitic samples in polarized light microscopy; preparation of smear slides, core description at selected cores from subduction zones; processing and interpretation of geochemistry data of pore fluid samples; temperature and heat flow measurements; and downhole logging measurements and data interpretation.



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During the first week lectures were focused on volcanic events and hazards at volcanic arcs; subduction processes and related tectonics; elemental mobility and melt differentiation; oceanic and continental crusts and mantle alteration; metamorphic reactions; hydrothermal systems on magmatic arcs, and also the implication of all these mechanisms on the geochemical cycles in subduction zones.

The lectures of the second week approached topics, such as fluid flows, mud volcanos and landslides, the importance of geophysical methods to study and characterize the seafloor, as well as the deep-sea life and related geochemical processes.

In addition to all the learning experience through the two weeks period, the participants also had the opportunity to share their individual research projects in short oral presentations, which deepened the discussion between attendees with different backgrounds and various expertise fields.

During the last two days the participants were taught how to reach the public on scientific matters, and how to write an IODP proposal in groups of five to seven participants, where they should consider, among others, the costs of an IODP expedition, the importance of studying the proposed region and the related impact on the local and non-scientific community.

This summer school had a strong social component enhanced with events like the icebreaker party, the guided tour and lunch in the city centre and the farewell dinner, amplified with the Virtual Ship and the IODP proposal activities that promoted dialogue and encouraged teamwork spirit.

I want to thank for the entire group of Dierk Hebbeln, Wolfgang Bach, Achim Kopf, Ursula Röhl, and Sinah Teumer for the organization of this summer school, for the amazing opportunity to attend lectures and activities led by internationally renowned scientists, and for having the chance to meet and work with such amazing group of early-career scientists.

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