ECORD

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Newsletter

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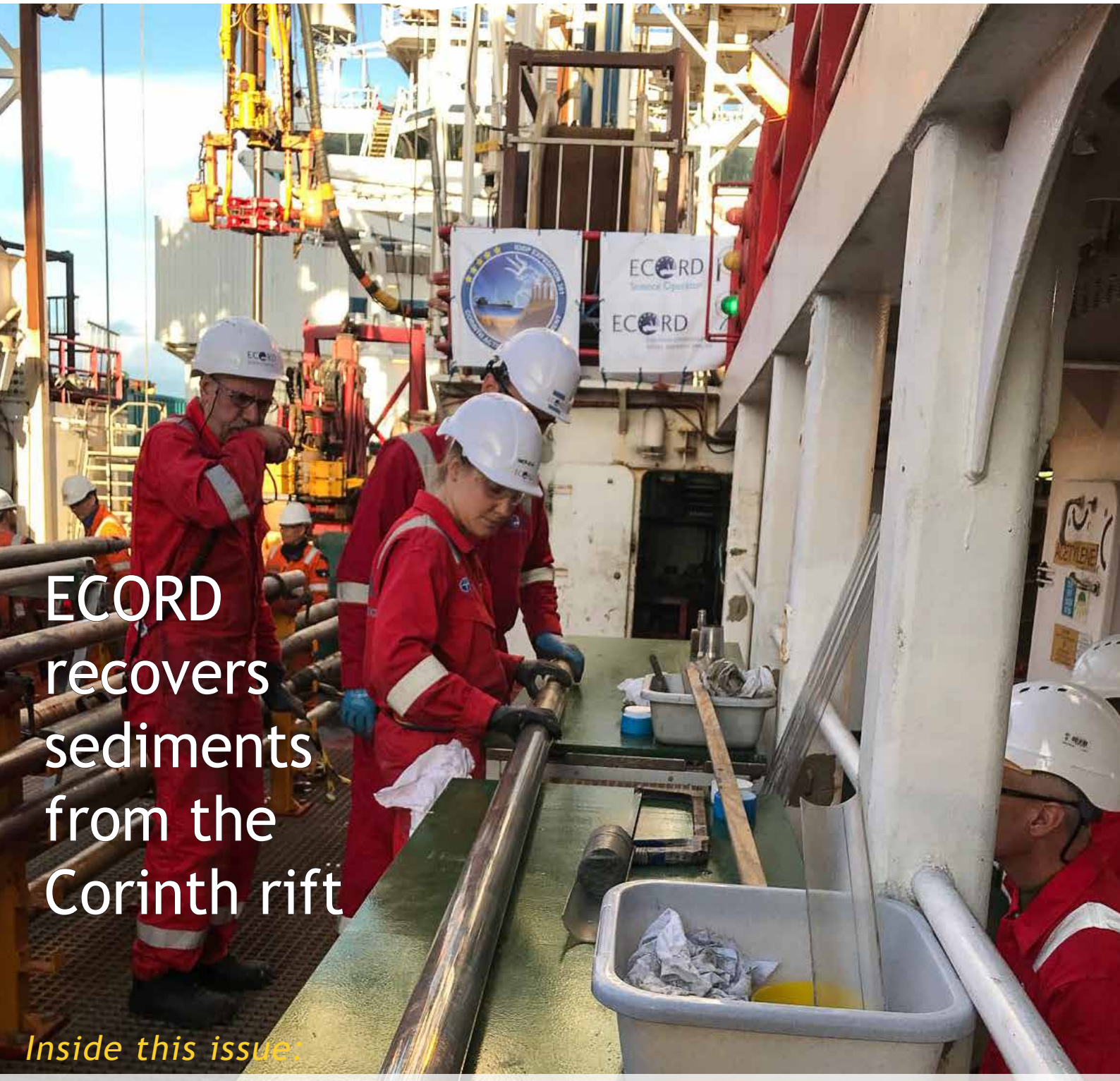

ECORD recovers sediments from the Corinth rift

Inside this issue:

IODP
INTERNATIONAL OCEAN DISCOVERY PROGRAM

Contents

The International Ocean Discovery Program (IODP) - **http://ww.iodp.org** - is an international research programme dedicated to advancing the scientific understanding of the Earth through drilling, coring, and monitoring the sub-seafloor. The **European Consortium for Ocean Research Drilling (ECORD)** supports the participation of European and Canadian scientific communities in IODP and provides funding for the implementation of mission-specific platform expeditions. ECORD is funded by 15 countries: Austria, Canada, Denmark, Finland, France, Germany, Ireland, Italy, the Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

IODP is funded by the US National Science Foundation (NSF), Japan's Ministry of Education, Culture, Sports, Science, and Technology (MEXT); ECORD; the Australia-New Zealand IODP Consortium (ANZIC); India's Ministry of Earth Sciences; China's Ministry of Science and Technology; the Korea Institute of Geoscience and Mineral Resources (KIGAM); and Brazil's Ministry of Education (CAPES).

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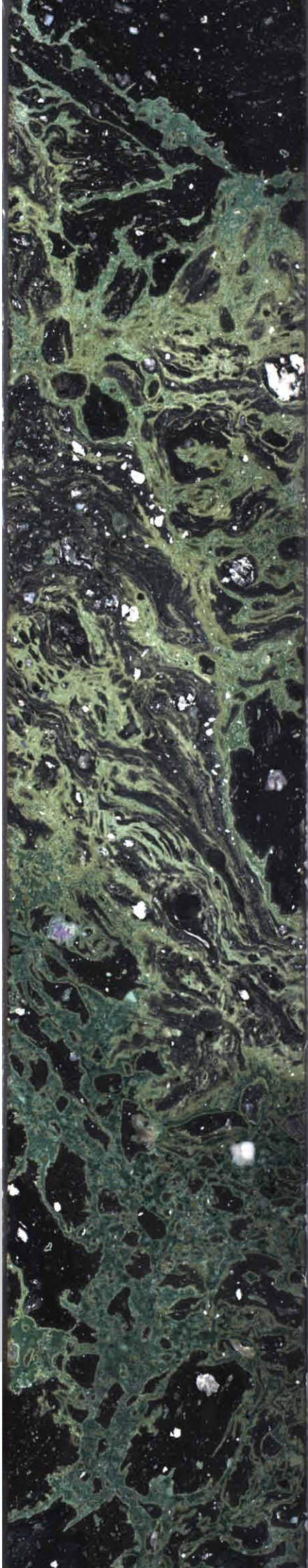
Thanks to all authors who contributed to this issue.

Cover: *Expedition 381 Corinth Active Rift Development: first cores arrive onboard drillship Fugro Synergy (D. Smith, ECORD/IODP).*
Back cover: *Expedition 381 Corinth Active Rift Development: Co-chiefs L. McNeill and D. Shillington stood beneath the banner of the expedition (S. Green, ECORD/IODP).*
Right*: Impact-melt rock swirled together in a schlieren texture (green: carbonate rich, black: siliceous rich), 736.51 - 737.31 mbsf (87-2) Expedition 364 Chicxulub K-Pg Impact Crater (© ECORD/IODP).*




Gilbert Camoin

ECORD News


Michael Webb

Mission-specific platform expeditions

While writing this, the ECORD Science Operator (ESO) is operating **Expedition 381 Corinth Active Rift Development**, which started on 22 October 2017, with Lisa McNeill (ECORD-UK) and Donna Shillington (USA) as Co-chief Scientists *(see ESO, pages 6-7)*. The Science Party of this expedition largely reflects the International Ocean Discovery Program (IODP) membership, with the involvement of scientists from five ECORD countries, and the USA, Australia, India, China and Brazil. Four Greek scientists are also part of this expedition in compensation for the in-kind contribution provided by their country and as an incentive for a potential future Greek ECORD membership. The Corinth Expedition is the third full expedition implemented by ECORD for IODP since 2013 after the successful completion of expeditions 357 Atlantis Massif Serpentinization and Life in 2015 and 364 Chicxulub K-Pg Impact Crater in 2016, which were reviewed in 2016 and 2017 respectively *(see EFB page 5)*.

The expected Russian in-kind contribution related to additional ice breaking capability, which was essential for the implementation of **Expedition 377 Arctic Paleoceanography (ArcOP)**, has not materialised. As a consequence, this expedition scheduled for August to October 2018 has been cancelled by the ECORD Science Operator (ESO). A potential rescheduling of Expedition 377 will be considered in the near future as part of the MSP 2019-2023 operational plan that the ECORD Facility Board (EFB) will have to define based on both the scientific excellence of drilling/coring proposals and, importantly, the available annual budget for expeditions. ECORD anticipates that the implementation of complex and costly multi-platform expeditions, such as Expedition 377, will require significant levels of in-kind contribution and/or external co-funding from IODP and non-IODP members. ECORD will actively seek in-kind contributions and also encourage the community to help ECORD in seeking these opportunities. A higher MSP proposal pressure including different science themes and involving various potential drilling/coring systems in diverse environments would be desirable to provide additional scientific, operational and funding opportunities in the near future.

ECORD mid-term renewal

Since January 2017, ECORD has entered a three-step process that should lead the ECORD member countries to commit to the second phase (2019-2023) of IODP. The success of the ECORD mid-term renewal primarily relies on ECORD's scientific and operational excellence in the international research landscape during the first phase of IODP (2013-2018), as well as the operational plans defined for MSPs, the *JR* and the *Chikyu* in the second phase of IODP (2019-2023).

- **The first step** of this process was an ECORD evaluation that was conducted from January to June 2017 by an ECORD External Evaluation Committee (EEC) during a meeting held on 6-8 June 2017, in Bremen, Germany *(photo below)* The report, which was delivered soon after this meeting covers all aspects of ECORD activities (science, technology, management, education and outreach) and especially highlights the excellent ECORD scientific achievements within IODP, the need to sustain this unique and global research structure, and the need for ECORD to maintain its strengths in being able to finance and implement high-profile MSP expeditions. This report also included a series of recommendations concerning various fields (science, education, outreach) that the ECORD Council considered at its spring meeting on 29 June 2017 in Amsterdam, the Netherlands. Among these recommendations, the ECORD Council has decided that the ECORD Managing Agency (EMA) and ESO will be administered by the Centre National de la Recherche Scientifique (CNRS) and the British Geological Survey (BGS) respectively until the end of the current programme in 2023.

- **The second step** of this process is a revision of the ECORD Memorandum of Understanding (MoU), based on an internal reappraisal of ECORD functioning during the first phase of IODP (2013-2018), as well as recommendations made by the EEC. The different ECORD entities have started to revise their Terms of Reference and a first draft of the new ECORD MoU should be completed soon after the ECORD Council-ESSAC meeting held in Southampton, UK, on 24-25 October 2017. The 2019-2023 ECORD MoU should be finalised before the end of the year and distributed to the ECORD Funding Agencies for approval and signature in 2018.

- **The third step** of the ECORD mid-term renewal consists of a revision of the MoU between ECORD and the US National Science Foundation (NSF) defining the financial and operational agreement regarding the ECORD's membership in the *JR* Consortium and, in reciprocity, the access to MSP expeditions for our partners' scientists. Preliminary discussions between ECORD and NSF started in late 2016 and continued throughout 2017, leading to a draft formal agreement between ECORD and NSF that will be finalised soon. There will be no significant change in ECORD scientists' participation in the *JR* expeditions during the second phase of the current programme when the *JR* is expected to


photo Voelker Diekamp

operate up to 10 months a year in the Eastern Pacific and then in the Atlantic Ocean, the Mediterranean, Caribbean, and the Gulf of Mexico, depending on the proposal pressure concerning these regions.

No revision will be considered for the MoU linking ECORD and the Japan Agency for Marine-Earth Science and Technology (JAMSTEC) as this MoU was signed in 2013 for the whole duration of IODP. The scheduling of an engineering riserless expedition (380 NanTroSEIZE Frontal Thrust Long-Term Borehole Monitoring System) in early 2018 and of a riser drilling expedition (358 NanTroSEIZE Riser Hole at C0002) in late 2018-early 2019 respectively *(page 15)*, will ensure a continuity in *Chikyu* operations throughout the renewal time window.

While going through this step-process, ECORD will continue to develop significant efforts towards former ECORD member countries (*e.g.* Belgium, Israel) and other countries (*e.g.* Turkey and Greece) to increase ECORD's membership. Early 2018, shortly after the offshore phase of the Expedition 381 Corinth Active Rift Development has been completed, an "ECORD-IODP Day" is planned in Athens, Greece, to provide an overview of the ECORD activities to Greek scientists and stakeholders, in view of a potential ECORD membership in the near future.

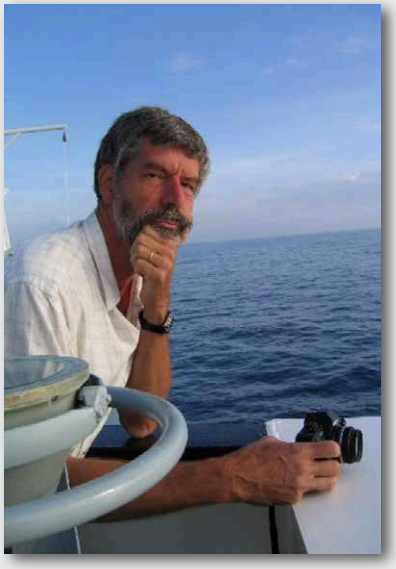
ECORD is a unique European distributed research infrastructure, which connects research facilities at multiple sites across Europe that are engaged in multidisciplinary aspects of the sub-surface scientific research, and that has a long-standing culture of cooperation on scientific, technological and educational grounds. Based on the well-established operation of the ECORD infrastructure, its successful implementation, its competitiveness in the international research landscape and maximum return from the investment, ECORD is confident about its future.

Gilbert Camoin, Director of the ECORD Managing Agency - camoin@cerege.fr - and Michael Webb, Chair of the ECORD Council - mweb@nerc.ac.uk

In Memoriam Jean-Pierre Henriet (1945-2017)

Professor Jean-Pierre Henriet, former Belgian ECORD Council Member, was born on 28 June 1945 in Ghent, Belgium, where he spent most of his career as a distinguished marine geologist. Jean-Pierre was still Honorary Professor of Ghent University and member of the Royal Flemish Academy of Belgium for Sciences and Arts when he passed away on 22 April 2017.

Jean-Pierre Henriet was actively involved in the initiation of a European effort to become an active player in scientific ocean drilling. After his move to Ifremer (1990-1995) where he was appointed as Director of the Marine Geosciences Department, and his subsequent return to the Renard Centre of Marine Geology (RCMG) at Ghent University, Jean-Pierre Henriet initiated "CORSAIRES" (Coring Stable and Instable Realms in European Seas), which was the first European Concerted Action on that matter. The CORSAIRES project was set up in 1996 by the European Commission under the MAST programme. This seminal concerted action aimed at contributing to the development of a wide spectrum of activities for scientific teams, and a coordinated access to specific drilling vessels to projects and programmes. With this project, Jean-Pierre Henriet was one of the first European geoscientists to strengthen the need for consistent pan- European scientific research drilling programmes, emphasising the use of offshore coring and drilling to ground truth seismic surveys and to contribute to a broad spectrum of ocean scientific investigations. One important achievement was the development of new equipment such as the EU-funded Hammer Corer and the development of the BRIDGE drill as part of the NERC BRIDGE programme, which led to the improvement of the BGS Rockdrill.



(© Renard Centre of Marine Geology (UGent-RCMG), CC)

During his career, Jean-Pierre Henriet drove forward important initiatives for the Belgian scientific community and took part in the creation of the Renard Centre of Marine Geology (RCMG) at Ghent University. Jean-Pierre Henriet initiated IODP Proposal 573, which formed the basis of IODP Expedition 307 Modern Carbonate Mounds: Porcupine Drilling.

As member of the European Committee on Ocean and Polar Sciences (ECOPS) and of the European Science Foundation (ESF), Jean-Pierre Henriet provided a synthesis of the major milestones relating to the Grand Challenges associated with climate variability and climate change, in 2015. Jean-Pierre organised the ECORD Facility Board meeting in Brussels in June 2016. One of his last actions was to provide an insight into the near future and a discussion on human resources and infrastructure for European ocean and polar sciences to the European Scientific Community.

Many geoscientists lost a very active and bright scientist and also a friend.

Gilles Lericolais, Chair of the ECORD Facility Board,
Gilbert Camoin, Director of the ECORD Managing Agency.

Gilles Lericolais

News from the ECORD Facility Board

Since its last meeting held on 8-9 March 2016 in Hannover, the ECORD Facility Board (EFB) has organised the operational review of the Expedition 364 Chicxulub K-Pg Impact Crater. The meeting was held in June in Lisbon, a few months after the completion of the expedition and back to back to the meeting of the Science Evaluation Panel (SEP). The Review Committee, which was composed of two external reviewers (Ken Miller and Agnes Kontny) and of three EFB members (Gabriele Uenzelmann-Neben, Fumio Inagaki and Gilles Lericolais), acknowledges the huge effort undertaken by the expedition team on pre-expedition activity for a long time prior to obtaining permissions and scheduling allowed Expedition 364 to be achieved as a very successful MSP expedition. The Review Committee expressed its congratulations to ECORD, the Co-chief Scientists and the Science Party of Expedition 364. Although it was the first IODP drilling expedition targeting an impact crater, the almost perfect recovery of high-quality cores down to about 1.3 km below the ocean floor was indeed impressive, including successful wireline-logging data and CT-scan images. The deformation structures of the recovered cores were gorgeous and amazing, showing beautiful records of the geophysical impact, mineralogical alterations, tsunami and hydrothermal processes and, perhaps, recovery of life and ecosystems after the impact. The first scientific outcome was published in November 2016 in *Science*, and our scientific community can expect many more high-impact papers released from Expedition 364. The review committee proposed nine recommendations, to improve such expeditions. Those recommendations will also improve the MSP expedition guidelines, produced by the EFB.

The main change in the ECORD long-term scheduling strategy *(below)* is the cancellation of Expedition 377 Arctic Ocean Paleogeography (ArcOP) scheduled for 2018 *(pages 7-8)*. This cancellation is due to the inability to mobilise a Russian icebreaker as initially proposed as an in-kind contribution, which is essential for the implementation of Expedition 377 within the budget available. Therefore, at the next EFB meeting, new decisions and planning have to take into account the large spread of expedition costs, which primarily depend on the required type of drilling platform and the budget limits on average annual expedition costs.

At present, Expedition 381 Corinth Active Rift Development is underway *(pages 6-7)*. Expedition 373 Antarctic Cenozoic Paleoclimate initially scheduled for early 2018 is postponed to winter 2020-2021 and different scenarios will be explored to reschedule Expedition 377.

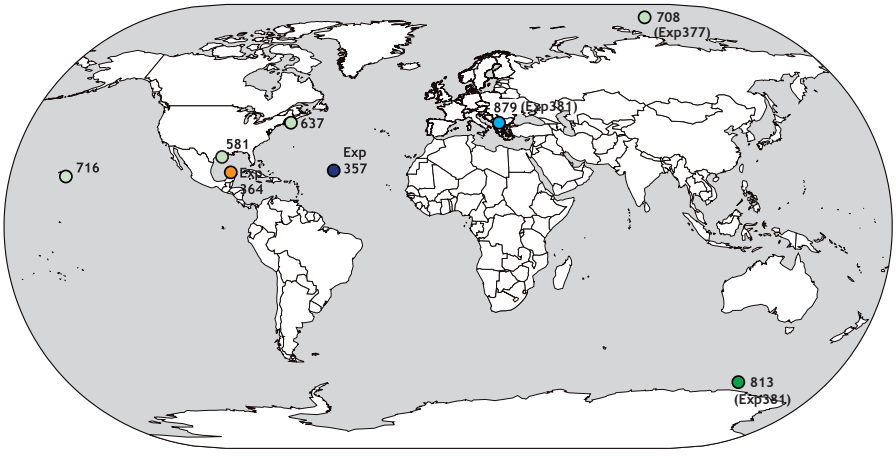
The next EFB meeting is scheduled for 6-7 March 2018 in Venice, Italy.

Gilles Lericolais, Chair of the ECORD Facility Board - gilles.lericolais@ifremer.fr

http://www.ecord.org/about-ecord/management-structure/efb/

2013-14	2015	2016	2017	2018	2019	2020	2021	2022	2023
Exp 347 Baltic	**357 Atlantis**	**364 Chicxulub**	**381 Corinth**	**N.N.**	**N.N.**	**Exp 373 Antarctic**	**N.N.**	**N.N.**	**N.N.**
Drillship	*Seabed drills RD2-MeBo*	*Liftboat*	*Drillship*			*Seabed drill RD2*		*Seabed drill MeBo*	
	L.C.	M.C.	M.C.	M.C.	M.C.	M.C.	L.C.	L.C.	M.C.- H.C.
reviewed Nov 2014	**reviewed Oct 2016**	**reviewed June 2017**	**Oct-Dec 2017**			**Jan-Feb 2021**			

LC: low-cost (<8M USD),
MC: mid-cost (8-15M USD),
HC: high-cost (>15M USD)
RD2: RockDrill2 (seabed drilling system)



- 2015 MSP expedition
- 2016 MSP expedition
- 2017 on-going MSP expeditions
- Scheduled MSP proposals
- MSP proposals in the EFB holding bin


David McInroy


Sarah Davies

ECORD Science Operator
News and Views


Ursula Röhl


Dave Smith

In the previous ECORD Newsletter (#28, April 2017) we reported on the planning and preparations for our exciting upcoming expeditions: Expedition 381 Corinth Active Rift Development and Expedition 377 Arctic Ocean Paleoceanography (ArcOP). In addition, Co-chief Scientists Lisa McNeill and Donna Shillington summarised the scientific focus of Expedition 381. The expedition is now underway, with ESO staff, drilling contractors and the Science Party working to recover the first deep cores ever obtained from beneath the Gulf of Corinth *(front and back covers)*, to better understand the relationship between rift development and faulting, and how the landscape responds to those forcing factors.


(C. Cotterill, ECORD/IODP)

Expedition 381 set sail from Corinth, Greece

Co-chief Scientists: Lisa McNeill and Donna Shillington

Throughout the summer and autumn of 2017, ESO continued detailed planning and preparations for Expedition 381. An important milestone was the signing of the drilling contract on 19 May. ESO is pleased to announce that the drilling contractor for Expedition 381 is Fugro Geoservices Ltd., and the mission-specific platform is their flagship *Fugro Synergy*.

The *Fugro Synergy* *(above)* is a purpose-designed geotechnical drilling and well intervention vessel, with the capacity to perform a wide range of tasks including continuous coring for scientific research.

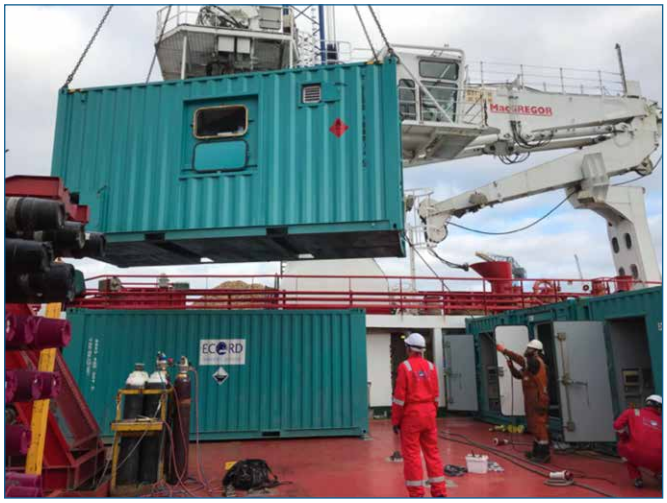
In contrast to previous MSP expeditions, which have used geotechnical vessels equipped with temporary drilling rigs, Expedition 381 will take advantage of the *Fugro Synergy's* permanent drilling rig, which has been an integral part of the vessel since it was built in 2009. An additional advantage comes in the form of Fugro's Seadevil geotechnical sampling tool *(right)*. The Seadevil is a hybrid system that combines the power of rig-based drilling with the control and sensitivity of seafloor-based drilling. The seabed-based Seadevil provides a vertical control system for accurate control of penetration independent of vessel heave, providing improved control of the weight applied to the drill bit. Such a system is ideal for coring in highly variable formations like those expected in the Gulf of Corinth.


(D. Smith, ECORD/IODP)

At nearly 104 m in length, the *Fugro Synergy* has ample berth space to accommodate the Science Party and ESO staff, as well as deck space on which to install our suite of containerised laboratories and offices. The *Fugro Synergy* was mobilised for the expedition between 4-7 October in Falmouth, UK, when the ESO laboratories, offices and equipment were installed on the working deck *(page 7)*.

Following nine days of transit to the Gulf of Corinth, final mobilisation took place between 16 and 22 October in Corinth. During this time the offshore members of the Science Party gathered in Corinth *(page 7)* to take part in various preparation activities. A media day was held on 19 October, which included a media conference, press release, vessel media visits and interviews with participants *(pages 7 and 11)*.

The expedition set sail from Corinth on 22 October, and will remain at the three proposed coring sites for a



ESO containierised lababoratories and offices are installed onboard Fugro Synergy (photo D. Smith, ECORD/IODP).

Interview with Co-chief Donna Shillington on the bridge of Fugro Synergy (photo D. Smith, ECORD/IODP).

maximum of 56 days. At the time of writing, the expedition had reached over 310 mbsf at the first site with excellent recovery. During the offshore phase of the Expedition, ESO will provide the appropriate scientific coring oversight, science, database and outreach support, and will provide downhole logging services through the University of Montpellier, a member of the European Petrophysics Consortium (EPC).

Offshore Scientists team meet in Corinth port - from left to right, Logging engineer Laurent, Marcie Phillips, Sophie Green, Gareth Carter, Lisa Mc Neill, Donna Shillington, Robert Gawthorpe, Simone Sauer, Paula Diz Ferreiro, Abah Omale, Clint Miller, Spyros Sergiou (photo C. Cotterill, ECORD/IODP).

The Onshore Science Party will start on 31 January 2018 at the IODP Bremen Core Repository and the MARUM, with further analytical laboratories accessed through the Department of Geosciences, University of Bremen, Germany.

Expedition 377 Arctic Ocean Paleoceanography

Co-chief Scientists: Rüdiger Stein and Kristen St John

During the latter half of 2017, preparations continued for the ambitious return to the Lomonosov Ridge in the central Arctic Ocean with Expedition 377, which included the running of an open tender exercise for the drilling platform and services. Platform bids were received by ESO on 28 June 2017, were evaluated in July and August.

The greatest challenge in planning for this expedition is to secure a significant level of in-kind contributions from IODP and non-IODP countries, which are essential to be able to implement this complex and costly multi-platform expedition to the central Arctic Ocean. Although some contributions were offered, they were not at the level required to implement the expedition in 2018 within the budget available. ECORD and ESO greatly appreciate the in-kind contribution of a support icebreaker offered by the Alfred Wegener Institute for Polar and Marine Research, Germany.

Keep up with Expedition 381 using the following links:

Blog: https://esoexp381corinthactiveriftdevelopment.wordpress.com/

Twitter: @ESO_Outreach and @ECORD_Outreach

Facebook: ESO outreach and Essac Ecord

Website: http://www.ecord.org/expedition381/

ESO therefore regrettably announce the cancellation of Expedition 377, scheduled for August to October 2018, and the current staffing exercise for the expedition has been halted.

ESO has been directed by ECORD to continue planning for Expedition 377 in August to September 2019. The final decision on whether to proceed will be taken by ECORD in spring 2018, and will depend on the level of in-kind contributions secured by that time. Further announcements regarding a new Call for Scientists will be made via IODP-related channels in due course. **http://www.ecord.org/expedition377/**

Other ESO news

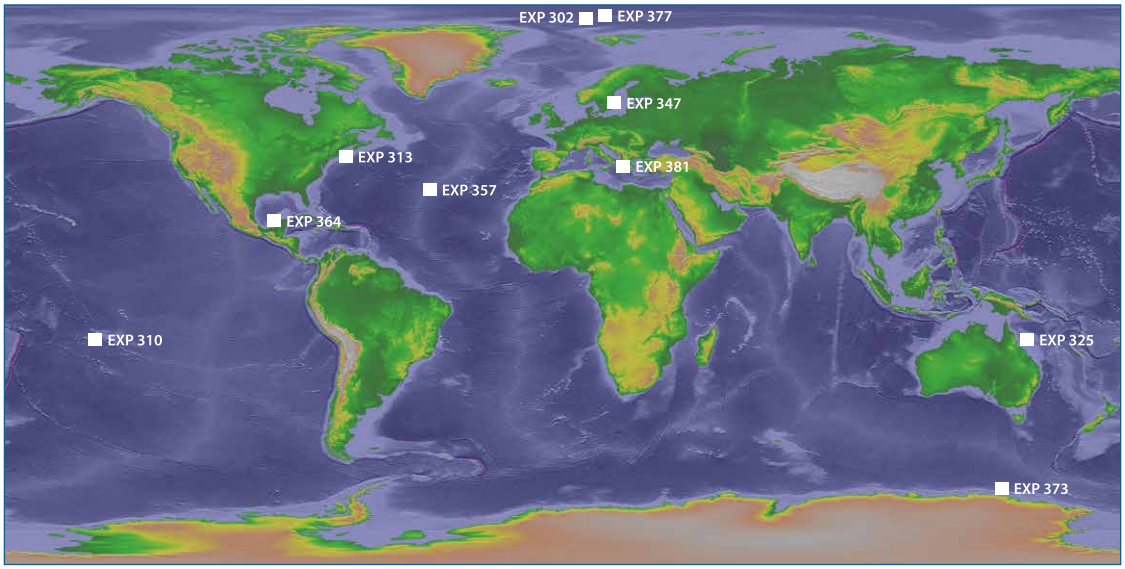
The Science Party and collaborators of **Expedition 357 Atlantis Massif Serpentinisation and Life** are continuing their post-expedition research, with papers from this expedition expected to be submitted to peer-reviewed journals around October 2018. The 2nd Post-Cruise Meeting was held in Liguria, Italy, between 4-7 September, and was an opportunity for the Expedition Scientists to meet and discuss their latest results and how to coordinate their publication in the coming year *(page 9)*.

As reported in the previous ECORD Newsletter, media interest in **Expedition 364 Chicxulub K-Pg Impact Crater** was very high, with interest from both large and small outlets worldwide. Media interest was particularly high in Canada, USA, UK, Japan, the Netherlands, Austria, Spain and Mexico. Since the expedition ended, numerous items have appeared on radio, in print and online, including features by *Science*, *Nature* and the BBC. Throughout the project, ESO facilitated access to the expedition for production company Barcroft Productions Ltd. to gather material for a documentary. This TV documentary was financially supported by the BBC and PBS Nova, with the BBC version aired in the UK on 15 May. Other versions were aired in Australia, France, and Japan, with the US version to be aired on 27 December. While the Science Party continue with their post-expedition research, ESO staff are working with the Co-chief Scientists and Science Party to organise the 2nd Post-Cruise Meeting for this expedition in Mexico in summer 2018.

In August, the new **Distributed European Drilling Infrastructure (DEDI)** EC H2020 Proposal was unsuccessful in winning funds. DEDI was proposed to further enhance scientific investigation of the sub-surface through provision of transnational access to cutting edge technologies and proven scientific services to the European Earth and environmental scientific communities. The consortium sought to promote the development and use of innovative technologies for specialist sub-surface sampling, measurement and monitoring, and aimed to achieve this through collaboration with the infrastructure partners, industry and other academic institutions. The proponents will maintain their partnership to be ready to apply for future funding opportunities.

David McInroy, ESO Science Manager, Sarah Davies, EPC Manager, Ursula Röhl, ESO Curation and Laboratory Manager, and Dave Smith, ESO Operations Manager
http://www.ecord.org/about-ecord/management-structure/eso

IODP MSP Expeditions operated by ECORD



Expedition	Drillship	Dates	Co-chief Scientists
381 Corinth Active Rift Development	*Fugro Synergy*	22 Oct - mid Dec 2017	L. McNeill - D. Shillington
377 Arctic Ocean Paleoceanography - ArcOP	*drillship + icebreakers*	cancelled	R. Stein - K. St. John
373 Antarctic Cenozoic Paleoclimate	*icebreaker* + RD2	Jan - Feb 2021	C. Escutia - T. Williams

RD2: RockDrill2. ECORD Co-chief Scientists are marked in blue.

http://www.ecord.org/expeditions/msp/2013-2023/

Expedition 357 Post-Cruise Meeting
4-6 September 2017, Sestri Levante, Italy

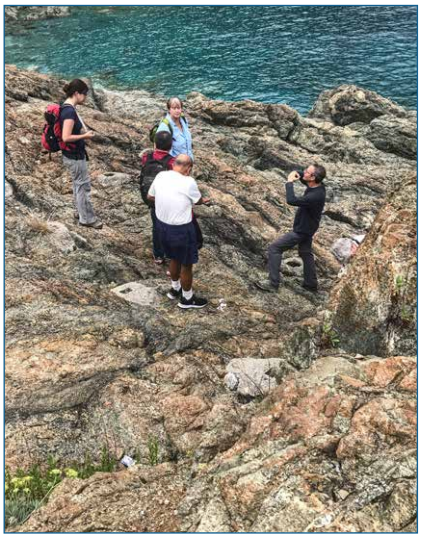
Carol Cotterill*

Between 4 and 6 September, IODP-Italia and Chiara Boschi hosted the second Post-Cruise Meeting for IODP Expedition 357 Atlantis Massif Serpentinization and Life. Held in the spectacular setting of Sestri Levante *(right)*, the first two days consisted of a number of sessions, each presenting the ongoing work and initial findings of many of the science party and onshore collaborators. Sessions included petrology and alteration, structure and microtextures, rock and mineral geochemistry, physical properties, carbon cycling and microbiology, representing the diversity of this expedition and the Atlantis Massif location. With time scheduled in for posters and breakout working group discussions, it was a busy but very enlightening and inspiring two days.

On 6 September, most of the group head out into the field, under the expert guidance of Riccardo Tribuzio (Università di Pavia). A number of quarry locations were visited, showcasing clinopyroxene-rich gabbros with pegmatoid lenses, gabbros with high temperature ductile shear zones crosscut by hornblende veins, serpentinised peridotites of mantle origin and mantle exposure at seafloor. It was also found that some superb examples of the local lithologies could be found as local garden furniture!

ECORD, ESO and all the scientists involved would like to extend their thanks to Chiara Boschi and IODP-Italia for the organisation and logistics surround the meeting, and for the financial support that allowed the meeting to happen. With good food, an amazing location and the presentation of some fascinating findings, this was a superb post-cruise meeting.

* EPM Expedition 357, BGS, Edinburgh, UK - cjcott@bgs.ac.uk



(all photos S. Green, ECORD/IODP)


Ulrike Prange


Carol Cotterill

ECORD Outreach & Education

News and Activities


Hanno Kinkel

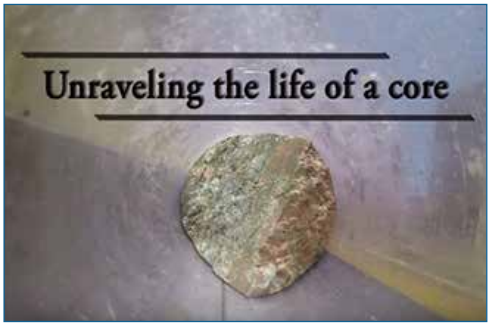

Patricia Maruéjol

Since April 2017, the ECORD Outreach & Education Task Force (E-OETF) has promoted ECORD and IODP at EGU 2017 in collaboration with ICDP, produced various resources, and supported educational activities and public events. Following the recommendations of the ECORD Evaluation Committee and the decisions of the ECORD Council in June 2017 *(see ECORD News, page 3)*, the E-OETF started discussions on how to broaden outreach activities to the general public. On 17-18 October 2017, the E-OETF met in Potsdam, Germany, to coordinate ECORDs outreach and educational activities programme with ICDP and IODP colleagues. The meeting was hosted by Thomas Wiersberg (ICDP) at the GFZ, ICDP's home in Potsdam.

Activities

A joint booth presenting "ICDP and IODP Scientific Drilling" was organised at **EGU 2017** (23-28 April) in Vienna, Austria *(right)*. With almost 15,000 participants, EGU is a focal place to present IODP recent achievements to the science community. IODP educational activities and resources were presented by ECORD Education Officers, Alessia Cicconi (Italy), Agnès Pointu and Jean-Luc Bérenguer (France) and Helder Pereira (Portugal). Teachers of the GIFT/EGU workshop were convened in the booth at lunch breaks *(photo above)* where they learnt about IODP educational activities and resources. IODP booths were also organised by IODP France at the IMS 2017 and by IODP Italia at the SGI and PAIS conferences *(pages 12 and 14)*. ECORD sponsored a workshop at Goldschmidt 2017, to train young scientists on how to communicate science. Michelle Darieu, (Outreach/Education Officer on Expedition 359 Maldives Monsoon), is organising the 2017 ECORD School of Rock, in Brussels, to address French teachers based in North European countries. ECORD sponsored the IESO 2017, a high-school student competition *(page 13)*. A number of other outreach events addressing scientists, students and general public received a support from ECORD in France, Italy, Germany and Portugal *(pages 13 and 14)*.

(photo J.L. Bérenguer)



Regarding ongoing expeditions, a media day event took place in Greece before Expedition 381 set sail *(page 11)*. ECORD outreach specialist, Vivien Cumming, sails as Education Officer onboard the *JOIDES Resolution*. Martin Böttcher will take part in Expedition 381 *(page 11)* as Onshore MSP Outreach Officer.

Resources

ECORD/IODP information materials (Annual Report 2016, Newsletter, flyers, etc.) were distributed to the ECORD community including participants of the ECORD Summer School *(page 18)*. ODP-IODP core replicas were loaned to support teaching and public outreach *(pages 12-14)*. New video resources arising from Expedition 364 Chicxulub K-Pg Impact Crater include a TV documentary by Barcroft aired on the BBC (UK), NHK (Japan) and France Televison, and a new video "Unraveling the Life of a core" *(below)* by Lara Jacobi, student at MARUM, University of Bremen - http://www.ecord.org/resources/gallery/ecord-tv/

ECORD online

The ECORD website has an average of 2800 users/month with peaks of 3500 and 4400 when calls for expeditions 381 and 377 were released. The top five countries using the website are the UK, USA, France, Germany and Italy, and Greece (in February). We also noticed that information posted on our social networks (twitter and facebook) not only helps guide users to specific ECORD webpages but also encourages return visits to the website. A blog for Expedition 381 was set up and is regularly fed by the outreach team of the expedition - https://esoexp381corinthactiveriftdevelopment.wordpress.com/

Upcoming events / activities

ECORD/ICDP exhibition booths will be organised at **AGU 2017**, 11-15 December, in New Orleans, USA, in collaboration with JAMSTEC, USSSP, and at **EGU 2018** - 8-13 April, Vienna, Austria, in conjunction with IODP-ICDP sessions. Plans for exhibit booths at ISC 2018 in Québec and AGU 2018 (Washington, DC) are being discussed.

Patricia Maruéjol, EMA, Carol Cotterill and Ulrike Prange, ESO, and Hanno Kinkel, ESSAC - http://www.ecord.org/outreach/ and http://www.ecord.org/education/

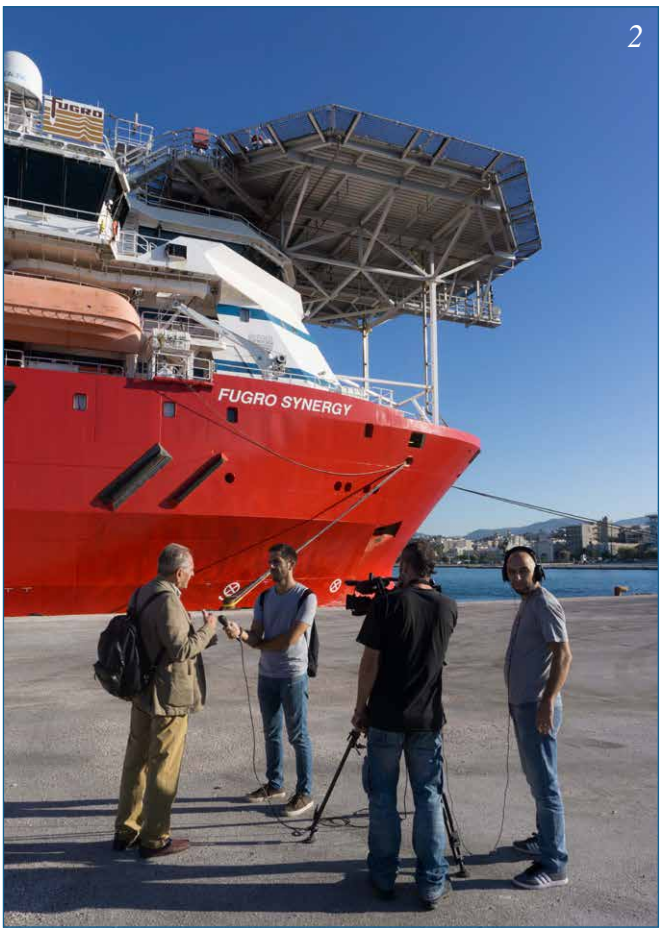
A Media Day in Corinth

A media day for MSP Expedition 381 Corinth Active Rift Development was organised on 19 October in Corinth, a few days before the expedition set sail from the port of Corinth *(page 6)*. It is important for ECORD that we let everyone know what we are doing, and the science we are researching, with every mission-specific platform expedition we run, especially in the local area where drilling occurs. The first thing we do is draft a press release in collaboration with our Co-chiefs Lisa McNeill and Donna Shillington. On the day of the press conference *(right)* this is released to the media offices of all the institutions linked to any of the science party, as well as national and international press agencies. The press conference is a chance for ESO and the Co-chiefs to set the scene for the expedition, and answer any questions that the press may have. After that it is down to the vessel for more interviews and a look round the science containers and the drill floor *(below)*.

(C. Cotterill, ECORD/IODP).

Carol Cotterill, ESO Outreach Manager - cjcott@bgs.ac.uk - and Ulrike Prange, ESO Media Relations - uprange@marum.de

http://www.ecord.org/outreach/corinth-media-pack/

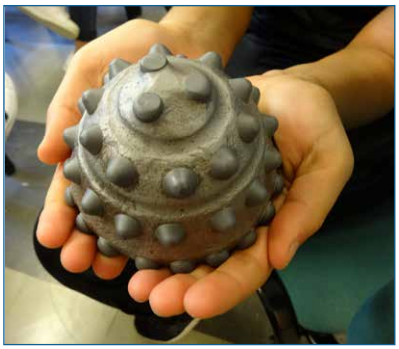


1. Co-chief Lisa McNeill is interviewed down by the science containers; 2. Interviews on the quayside (photos C. Cotterill, ECORD/IODP); 3. Some of your trusty outreach team on-board alongside Educator Martin Böttcher (photo D. Smith, ECORD/IODP).

More information on the expedition blog
https://esoexp381corinthactiveriftdevelopment.wordpress.com/

Outreach and Education in ECORD Countries

The following reports give an overview of how ECORD members countries and IODP national offices promoted IODP and ECORD to scientists, classrooms and the general public from April to October 2017. All these intiatives have been supported by the ECORD-OETF.



(photo Isabelle Champion UJM)

Education and outreach with IODP-Italia

Last September, IODP-Italia organised two exhibition booths, at the joint conference AIV-SGI-SIMP-SOGEI (Geosciences: a tool in a changing world, 3-6 September 2017, Pisa; http://www.geosciences.it/pisa2017/) and at Past Antarctic Ice Sheet Dynamics (PAIS) Conference 2017 (10-15 September 2017, Trieste; http://pais-conference-2017.inogs.it/) *(below left)*. The booths were managed by Annalisa Iadanza, Alessandra Civica and Angelo Domesi (CNR, Dept. of Earth System Science and Environmental Technology), shipboard scientists Karen Gariboldi (Univ. of Pisa), Claudia Lupi (Univ. of Pavia), and Jacopo Boaga (Univ. of Padova). Posters, ODP/IODP core replicas and videos were introduced to booth visitors, as well as IODP-Italia and ECORD flyers, reports, leaflets, and materials with ECORD and IODP-Italia logos.

The IODP-Italia team also took part in the education and outreach events coordinated by Laura De Santis (OGS; Alternate Council member) in the frame of the PAIS Conference. School pupils were introduced to rocks and marine geology through the K/Pg boundary core replica and Alessia Cicconi's video "A lezione di geologia a bordo di una nave" (https://www.youtube.com/watch?v=ky87iKfLUOs) and finally assembled the paper models of IODP drillships. Annalisa Iadanza presented "50 years of scientific deep sea drilling: the International Ocean Discovery Program (IODP)" to high-school students attending the educational event "Sea floor scientific drilling, polar ice sheet history and global sea level change" at Teatro Miela in Trieste *(below right)*. After the seminar, a live broadcast connection was established with the *JOIDES Resolution* sailing across the Tasman Sea, where Claudia Agnini (Univ. of Padova; micropaleontologist on Expedition 371) illustrated the *JR* floating laboratories with short interviews to the specialists onboard. Jacopo Boaga and Alessia Cicconi (Liceo Stabili-Trebbiani, Ascoli Piceno) finally shared their experience on the *JR* during Expedition 367 with the students.

Annalisa Iadanza, IODP-Italia Scientific Coordinator - annalisa.iadanza@iamc.cnr.it, iodp-italia@cnr.it

From left to right, Angelo Domesi (CNR), Annalisa Iadanza (CNR) and Laura De Santis (OGS) in the IODP-Italia booth at PAIS Conference 2017 in Trieste.

Annalisa Iadanza presents "50 years of scientific deep sea drilling: the International Ocean Discovery Program (IODP)" to high school students at Teatro Miela in Trieste.

IODP outreach in the Algarve

The University of Algarve has been promoting two weekly summer schools for the last couple of years targeting teenagers (12-18 yrs) as future undergraduates. This summer, the youngest groups (12-15 years) had the opportunity to spend their afternoons with researchers from different research areas. One of these was dedicated to marine geology and thus an excellent opportunity to introduce ECORD-IODP programmes. Accordingly, on 17 and 24 July, Cristina Veiga-Pires led three hours of hands-on activities linked to the importance of studying sediments and the opportunities that ECORD-IODP projects can give for such studies. The cerca 48 teens observed sediments from several origins and ages, recognising their components (lithogenic vs biogenic) and trying to interpret their "history". They discovered the *JOIDES Resolution* and *Chikyu* oceanographic vessels, thanks to both the paper constructions *(above)*, and a 1:700 scale model of the *Chikyu*, and they learnt about the ships' specificities and their use in relation to the ocean floor characteristics. Several examples of successful stories revealed by the study of sediment cores retrieved during ECORD-IODP expeditions were also presented and discussed.

One of the examples was of course Expedition 364 Chicxulub K-Pg Impact Crater since the local science museum, Centro Ciênica Viva do Algarve in Faro, had at the same time a temporary exhibition on dinosaurs *(left)* in which the results of the previous Chicxulub Crater Expedition were presented to explain the end of the dinosaurs on Earth.

Cristiana Veiga-Pires, ESSAC Alternate, University of Algarve - cvpires@ualg.pt

ECORD sponsors the IESO 2017

ECORD supported the 11th International Earth Science Olympiad (IESO), which took place from 21 to 30 August in Sophia Antipolis (France) *(right)*. Under the umbrella of the University of the Côte d'Azur and the French Ministry of Education, the IESO welcomed 117 participants from 29 national teams among which were 15 IODP countries (8 ECORD - 7 IODP).

The IESO is an annual international competition, which welcomes the top high-school students from the participating countries. Each country selects a national delegation comprised of four candidates and two mentors. The students are faced with written tests including problems, which measure the participants' knowledge and understanding of Earth science areas. Practical exercises consist of tasks, which are designed to assess participants' abilities to carry out scientific investigations in earth science enquiries. The IESO Coordinator, Jean-Luc Bérenguer, (Education Officer on IODP Expedition 345), presented the core replica of the Superfast oceanic crust (Expedition 312) as part of the practical exercises.

univ-cotedazur.fr/ieso2017 and http://www.ieso-info.org/

IODP at the Fête de la Science

The 2017 edition of the **Fête de la Science** at the Laboratoire Magmas et Volcans - Université Jean Monnet Saint-Etienne (France) was dedicated to explaining the role of seafloor drilling in understanding the main geological processes of the Earth. Adélie Delacour *(right)* and her colleagues organised 30-minute sessions introducing ECORD/IODP, drillships and coring tools and how IODP advances our understanding of geodynamics and geohazards. For this exhibition, three core replicas (Superfast oceanic crust IODP Expedition 312, K-Pg boundary ODP Leg 171B and Tohoku fault zone ODP Expedition 343) and a 1:700 model of the *Chikyu* drillship, loaned by ECORD, were on show to interested middle-school groups and Earth Science students.

Adélie Delacour, Assistant Professor Université Jean Monnet-Saint-Etienne
https://www.univ-st-etienne.fr/fr/lmv-ltl.html

Adélie Delacour (University Jean Monnet Saint Etienne, presents IODP during the Fête de la Science (photo Isabelle Champion UJM).

https://www.univ-st-etienne.fr/fr/recherche/a-la-une/annee-2016-2017-1/fete-de-la-science-2017.html

IODP-France at the ISC 2017

IODP-France organised an exhibit booth *(below)* at the International Meeting of Sedimentology (IMS 2017) in Toulouse (France) from 10 to 12 October 2017. With about 1000 scientists from all over the world, the conference was a great opportunity to introduce IODP and ECORD to sedimentologists, especially with three core replicas, PETM ODP Leg 208, Arctic sediments IODP Expedition 302 and corals off Tahiti IODP Expedition 310. The booth was visited by the partipants, including young scientists willing to board on a future expedition.

The IODP France office, from left to right, Georges Ceuleneer, President and ESSAC Delegate, Stéphanie Cuven, Science Coordinator, and Anne-Marie Cousin, Graphic Designer.

Year of Science 2016-2017

The core replica of the K-Pg boundary, ODP Leg 171B, was displayed in the MARUM booth at the exhibition "Sea of Knowledge" organised by the BMBF (Federal Ministry of Education and Research) in the Paul-Löbe-Haus of the German Bundestag in Berlin, from 27 April to 19 May 2017 - http://www.deutsche-meeresforschung.de/news-detail/aid/351

ODP/IODP core replicas are availble on:
http://www.ecord.org/resources/core-replicas/

Jan Behrmann

ESSAC News

Hanno Kinkel

The ESSAC Office at GEOMAR, Kiel had a busy summer in 2017, with plenty of expeditions to be staffed. Although it appeared to us as if the office had just moved to the Kiel Fjord, activities in the Kiel ESSAC Office are planned to be terminated at the end of the year. The office will then move on to another beautiful European location at the Plymouth Sound, where Antony Morris will serve as the new ESSAC Chair for the coming two years and host the ESSAC Office at Plymouth University.

Seven IODP expeditions are being conducted in 2017, six of them used the *JOIDES Resolution (JR)*. As part of ECORD's mission-specific platform (MSP) programme, Expedition 381 Corinth Active Rift Development is currently drilling in the Gulf of Corinth using the *Fugro Synergy* *(pages 6-7)*. For this expedition, the incoming reports look very promising - **http://www.ecord.org/expedition381/**. In 2017, a total of **59 scientists**, including **three Co-chiefs** from ECORD member countries participated in IODP expeditions. The three ECORD Co-chief Scientists 2017 are Hans Christian Larsen (Denmark), Richard Hobbs and Lisa McNeill (both UK). Four scientists were chosen following special calls for participation. In September-November 2017, the *JR* is sailing offshore Australia (Expedition 369) and will drill the Hikurangi subduction interface during the last expedition of the year (Expedition 372). During Expedition 369 an Education Officer (Vivian Cumming, UK) is onboard, providing pictures, posts and blogs from the expedition. The outreach and teaching activities for Expedition 381 will follow a communications plan developed by Carol Cotterill and Ulrike Prange from ESO together with the Co-chief Scientists and Martin Böttcher (Germany), who has participated in the port call in Corinth *(page 11)* and who will develop educational activities during the Onshore Science Party in Bremen in early 2018. Martin Böttcher also sailed as in his role as Education Officer on Expedition 366 Mariana Convergent Margin, as did Alessia Cicconi (Italy) on Expedition 367 South China Sea Rifted Margin.

The selection of ECORD scientists to participate in upcoming expeditions operated by the *JR*, the *Chikyu* and MSPs in 2018,

IODP Expedition Drilling Schedule

Expedition	Exp #	Drillship	Dates	Co-chief Scientists
Australia Cretaceous Climate and tectonics	369	*JR*	26 Sept - 26 Nov *2017*	B. Huber - R. Hobbs
Corinth Active Rift Dvelopment	381	MSP	22 Oct - mid Dec *2017*	L. McNeill - D. Shillington
Creeping Gas Hydrate Slides & Hikurangi LWD	372	*JR*	26 Nov 2017 - 4 Jan 2018	I. Pecher - P. Barnes
Ross Sea West Antarctic Ice Sheet History	374	*JR*	4 Jan - 8 March 2018	R. McKay - L. De Santis
NanTroSEIZE Frontal Thrust LTBMS	380	*Chikyu*	12 Jan - 24 Feb 2018	M. Kinoshita - K. Becker
Hikurangi Subduction Margin Observatory	375	*JR*	8 March - 5 May 2018	D. Saffer - L. Wallace
Brothers Arc Flux	376	*JR*	5 May - 5 July 2018	C. de Ronde - S. Humphris
Arctic Ocean Paleoceanography	377	MSP	*cancelled*	R. Stein - K. St John
South Pacific Paleogene Climate	378	*JR*	14 Oct - 14 Dec 2018	D. Thomas - U. Röhl
NanTroSEIZE Plate Boundary Deep Riser 4	358	*Chikyu*	7 Oct 2018 - 21 March 2019	*tbd*
Amundsen Sea West Antarctic Ice Sheet History	379	*JR*	18 Jan - 20 March 2019	K. Gohl - J. Wellner
Iceberg Alley Paleoceanography & S Falkland Slope Drift	382	*JR*	20 March-20 May 2019	M. Weber - *tbd*
Dynamics of Pacific Antarctic Circumpolar Current	383	*JR*	*May-July 2019*	*tbd*
Panama Basin Crustal Architecture (504B) & Eng. Testing	384	*JR*	*July-September 2019*	*tbd*
Guaymas Basin Tectonics and Biosphere	385	*JR*	*September-November 2019*	*tbd*
Gulf of Mexico Methane Hydrate	386	*JR*	*January-March 2020*	*tbd*
Antarctic Cenozoic Paleoclimate	373	*MSP*	*winter 2020-2021*	C. Escutia - T. Williams

JR: JOIDES Resolution, MSP: mission-specific platform, LTBMS: long-term borehole monitoring system
ECORD Co-chief Scientists are marked in blue.

http://www.iodp.org/expeditions/expeditions-schedule

has either been completed or is ongoing. We are pleased to be able to provide many students and early-career researchers with the opportunity to participate in IODP expeditions. Young scientists continue to make up approximately 50% of the ECORD participants at sea. More information about the scientific objectives and dates of all expeditions can be found in the table page 15 and on the IODP website at **http://www.iodp.org/expeditions**.

Applicants for these IODP expeditions have greatly benefited from information provided by online, interactive "webinars", organised by both ESO and the *JOIDES Resolution* Science Operator (JRSO). Webinars have now become an integral part of the application process for all IODP expeditions.

On the IODP Advisory Panels, ECORD has **nine members in the science sub-group** and **five members in the site sub-group of the Science Evaluation Panel (SEP)** *(table page 17)*. SEP is responsible for the evaluation of all IODP proposals.

The **2017 ECORD Distinguished Lecturer Programme (DLP)** has been successfully implemented with four lecturers covering the major themes defined in the IODP Science Plan. Currently 26 lectures are scheduled or planned with the lecturers visiting eight ECORD countries. Further information is available on page 22.

ESSAC continued to support initiatives to train the next generation of ocean-drilling scientists through the ECORD Summer Schools. In 2017, **124 young scientists** participated in **three summer schools** sponsored by ECORD and related to marine science research and ocean drilling:

- **ECORD Summer School on Petrophysics**, Leicester, UK, 2-7 July 2017 - http://www2.le.ac.uk/departments/geology/research/gbrg/projects/iodp/summerschool17 *(pages 18-19)*,
- **Urbino Summer School in Paleoclimatology (USSP)** on Past Global Change Reconstruction and Modelling Techniques, University of Urbino, Italy, 12-28 July 2017 - http://www.urbinossp.it *(a report will be published in the Newsletter dated April 2018),*
- **ECORD Bremen Summer School 2017** on Current-Controlled Sea Floor Archives: Coral Mounds and Contourites, MARUM, University of Bremen, Germany, 21 August - 1 September 2017 - https://www.marum.de/en/ECORD_Summer_School_2017.html *(a report will be published in the Newsletter dated April 2018).*

As in previous years, ESSAC awarded **fourteen ECORD Scholarships** to young scientists to attend the summer schools. The ESSAC Office has received 43 applications for a scholarship, showing the great interest from young scientists in the programme.

The **ECORD Research Grants** *(report from 2016 Research Grants on page 21)* call in 2017 led to 16 applications to support outstanding young scientists in IODP-related research. Six of these short-term, merit-based awards were awarded for travel and laboratory expenses, and are particularly intended to support studies that promote new collaborations and/or the acquisition of new scientific expertise.

Jan Behrmann, ESSAC Chair, and Hanno Kinkel, ESSAC Science Coordinator - essac@geomar.de
http://www.ecord.org/about-ecord/management-structure/essac/

http://www.ecord.org/science/get-involved/
http://www.ecord.org/education/

Submit your abstract at IODP sessions in 2018

EGU 2018
8-13 April, Vienna, Austria

EOS18 - ECORD IODP Outreach: Past, Present and Future
http://meetingorganizer.copernicus.org/EGU2018/session/27379

US4 - Fifty years of International Ocean Drilling
http://meetingorganizer.copernicus.org/EGU2018/session/29068

SSP1.2. - Achievements and perspectives in scientific ocean and continental drilling
http://meetingorganizer.copernicus.org/EGU2018/session/26776tinental drilling

Deadline:11 January 2018

AOGS 2018
3-8 June 2018, Honolulu, Hawaii

SE11 - NanTroSEIZE toward the final challenge
https://www.meetmatt-svr3.net/aogs/aogs2018/mars2/confSessionView.asp?sID=19

Deadline:19 January 2018

ISC 2018
13-17 August 2018, Québec, Canada

7.2 - Exploring the Earth through scientific drilling: contributions from IODP and ICDP
http://www.isc2018.org/sessions

Deadline: 19 March 2018

ECORD Representatives in IODP advisory panels

Science Evaluation Panel (SEP)					
Science sub-group			**Site sub-group**		
Steve Bohaty	UK	s.bohaty@noc.soton.ac.uk	Rebecca Bell	UK	rebecca.bell@imperial.ac.uk
Marguerite Godard	France	marguerite.godard@um2.fr	Calvin Campbell	Canada	calvin.campbell@rncan.gc.ca
Marc-André Gutscher	France	gutscher@univ-brest.f	Louis Géli	France	geli@ifremer.fr
Samuel Jaccard	Switzerland	samuel.jaccard@geo.unibe.ch	Michael Riedel	Germany	mriedel@geomar.de
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Kevin Pickering	UK	ucfbktp@ucl.ac.uk			
Werner Piller	Austria	werner.piller@uni-graz.at			
Henirich Villinger	Germany	vill@uni-bremen.de			
Environmental Protection and Safety Panel (EPSP)					
Martin Hovland	Norway	martin.hovland@ambio.no	David Long	UK	davelongmarinegeology@gmail.com
Philippe Lapointe	France	philippe.lapointe@total.com	Dieter Strack	Germany	ddhstrack@aol.com

http://www.iodp.org/program-organization/science-evaluation-panel
http://www.iodp.org/program-organization/environmental-protection-and-safety-panel

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http://www.ecord.org/about-ecord/management-structure/essac/

ECORD Summer Schools 2017

The following report is written by participants who received an ECORD scholarship to attend the summer school - http://www.ecord.org/education/scholarship.

Petrophysics Summer School, 2-7 July 2017

Christoph Böttner[1], Sandra de Castro[2], Emma Gregory[3], Bettina Schramm[1] and Daniel Tentori[4]

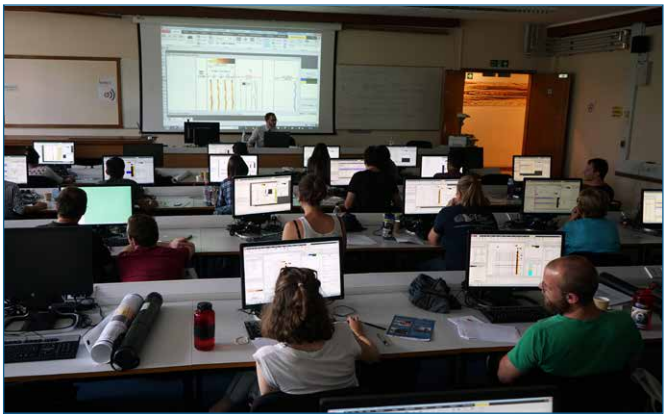
From 2 to 7 July 2017, the second ECORD Summer School on Petrophysics was held at the University of Leicester with 30 participants from 17 different countries. During our first two days in Leicester we were introduced to the basics of petrophysics and drilling, including the amazing operations on the *JOIDES Resolution* and *Chikyu* vessels. Dr. Pete Fitch (Imperial College London) and Dr. Sam Matthews (BP) started us from scratch and taught the terminology and key concepts in petrophysics, including rock and fluid properties, and how to analyse all the different types of data and tools used during sub-surface logging. Several practical exercises trained us in how to manage different data types, unit of measurements, and scales, and how to ensure a reliable tool calibration. Sam presented an industry case study where we calculated in-place hydrocarbon values, extracting data from log profiles and calculating different parameters using standard equations. Importantly, we learned some of the potential caveats and uncertainties that come up when using petrophysical data and understood the importance of collaboration between geologists, geophysicists and engineers during hydrocarbon exploration and recovery.

Several computer sessions from Rudi Mathers introduced us to Schlumberger's Techlog programme *(page 20)*, and we learned the basics of importing, correcting and viewing well log data and making simple analyses, all using real IODP logging data from Expedition 346 Asian Monsoon prepared by Laurence Phillpot (University of Leicester) *(below left)*. We then got to put our (still shaky) new Techlog skills to the test on different problems with example logging datasets. Core-log-seismic integration with Dr. Angela Slagle (Lamont-Doherty Earth Observatory (LDEO)) found us processing borehole velocity data to ground-truth whole seismic reflection lines. Dr. Gilles Guerin (LDEO) talked us through processing a sonic log from raw data to a final velocity log, and how to correct and interpret borehole imaging (FMS) logs. Finally, we addressed an industry problem with Dr. Jenny Inwood (University of Leicester), using core data to derive relationships between downhole logs and calculate gas-in-place.

During the summer school we had the chance to take a sneak peek into various past, ongoing and future IODP drilling campaigns. Dr. Johanna Lofi introduced Expedition 346 Asian Monsoon, which visited seven sites in the Japan Sea/East Sea and one site in the northern East China Sea. During her session, we conducted a mini-project to follow the scientific workflow with core and logging data. In doing so, we learned how to combine findings of several boreholes with Schlumberger's Techlog software and obtained insights into monsoon variability and subsequent implications for global weather and climate, all from logging data.

Dr. Erwan Le Ber (University of Leicester) introduced us to exciting ongoing research from Expedition 364 Chicxulub K-Pg Impact Crater. He used the project as a case study to teach us how to design our own logging plan. Furthermore, he showed us how cluster and neural network analyses might help to untangle the sheer volume of data from wireline logging tools.

Dr. Rebecca Bell (Imperial College London) gave an optional lecture about upcoming IODP Expeditions 372 Creeping Gas Hydrate Slides and Hikurangi LWD and 375 Hikurangi Subduction Margin that will be exploring the Hikurangi subduction margin. This gave us an overview of the necessary preparations and prior scientific work involved in an IODP proposal. The optional talk was packed and gave us the fantastic



(photos E. Le Ber)

1 GEOMAR Helmholtz-Zentrum für Ozeanforschung Kiel, Germany
2 Dept. Earth Sciences Royal Holloway University of London, UK
3 Dept. of Earth Sciences, Durham University, UK
4 Sapienza University of Rome, Italy

opportunity to appreciate the scientific research on the Hikurangi subduction zone, slow-slip events, mass transport deposits and planned integration of IODP drilling data into a 3D reflection and refraction seismic survey. An evening lecture from Prof. Mike Lovell (University of Leicester) showed us how applicable basic petrophysics is to our daily lives- even our food!

We had the opportunity to visit Weatherford (Reeves Wireline Technologies) in East Leake *(below)*. After an intense introduction to petrophysics earlier in the week, it was an incredible experience to see how important downhole-logging activities are, including the development, testing, calibration and deployment of downhole logging tools. The fieldtrip was wrapped up with a visit to the Core Store at the National Geoscience Data Centre at the British Geological Survey *(page18 and above)*, where we had the chance to tie wireline log responses to the corresponding cores from terrestrial, into shallow-marine and through to deep-water environments.

(photo C. Boettner)

In addition to the lectures and fieldtrip, each Petrophysics Summer School attendee brought a poster detailing their current research. Throughout the week's coffee breaks we discussed each other's research interests and goals, and cherished the chance to meet and network with other scientists, supporting future collaborations.

Attending the Petrophysics Summer School was a brilliant way to acquire an overview of petrophysics and how to integrate it with our own research. The chance to meet scientists of different nationalities and the friendly atmosphere that was created by the hosts, instructors and participants were the key final ingredients for such an enjoyable summer school. Our closing remarks have to be thank-yous to UK IODP and the Geology Department of the University of Leicester for ensuring a successful summer school through their flawless organisation, as well as to ECORD for sponsoring our attendance.

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(photo S. Davies)

http://www.ecord.org/education/summer-schools/

A new IODP training dataset and its first use during the Petrophysics Summer School 2017

Jenny Inwood*

The second ECORD Summer School on Petrophysics was hosted at the University of Leicester from 2 July to 7 July 2017, with a description of the week provided by course participant Böttner et al. *(pages 18-19)*. This summer school had two significant and positive changes from the very successful inaugural summer school in the previous year:

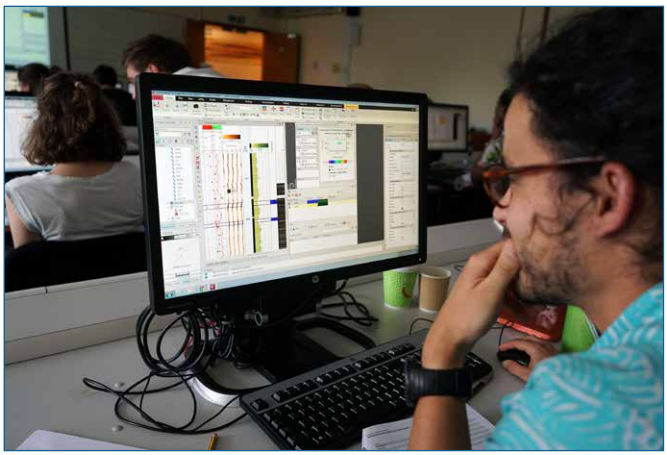
(1) Continued Professional Development (CPD) accreditation: this accreditation recognises the fact that the learning reaches the standard required for professionals to develop their skills, and is widely recognised across industry and academic sectors.

(2) An IODP specific training dataset to use for the hands-on training in the second half of the week: the 2016 Petrophysics Summer School utilised hands-on training around key components of the Schlumberger Techlog Fundamentals Course. This year, for the first time, all material and examples were focussed on IODP training datasets, rather than the hydrocarbon-based exercises generally offered.

Feedback from both 2016 and 2017 participants has been generally excellent, with 100 % of 2017 participants saying they would recommend the summer school to friends/colleagues.

The development of an IODP training dataset was driven by the wide variety of scientific data acquired during IODP expeditions, where geological formations are typically non-commercial and the scientific questions to be interrogated are consequentially different and not necessarily suitable to be analysed in the same way as appropriate for industry data. Schlumberger's Techlog is industry software for the analysis of downhole logging data: the standard Techlog training dataset benefits from years of development in its use to introduce learners to the basics, but is understandably very hydrocarbon-focussed. Therefore, basing the training on the Schlumberger course structure whilst using IODP data enables course participants to experience an optimal but also IODP-focussed training course *(above)*.

IODP Expedition 346 Asian Monsoon - http://publications.iodp.org/proceedings/346/346title.htm - was selected due to its comprehensive coverage of downhole logging data in addition to interesting scientific elements that were able to be effectively adapted to Techlog practicals. An initial lecture on the expedition's background and science was given by the Logging Staff Scientist, Johanna Lofi. The Expedition 346 downhole logging and corresponding physical properties datasets were carefully collated in-house and adapted to ensure that all Techlog exercises could be smoothly done.



(photo E. LeBer)

Any scientist interested in using this dataset for training should contact the IODP group epc@le.ac.uk at the University of Leicester directly. All IODP data is open access. For distribution of material in the format used for the course, please submit a request via email to epc@le.ac.uk. Alternatively, in the future the course summary, course files and accompanying notes pertaining to the basic course are intended to be submitted as an IODP Data Report (referenced from IODP Expedition 346 Proceedings).

Acknowledgements

The Petrophysics Summer School 2017 was organised by Sally Morgan in her capacity as UK IODP Knowledge Exchange Fellow. The material for the IODP-focussed Techlog practical component was prepared and organised by Laurence Phillpot. Support for the Expedition 346 data was provided by the Logging Staff Scientist, Johanna Lofi, and additional specialised exercises on seismic and sonic data from IODP Expeditions were prepared and contributed by Angela Slagle and Gilles Guerin (Lamont-Doherty Earth Observatory). With thanks to Rudi Mathers of Schlumberger for his considerable expertise and helpfulness throughout.

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Report of ECORD Research Grants 2016

Late Pliocene/early Pleistocene threshold behaviour in the North Atlantic (IODP site U1313)

Kim Alix Jakob*

Introduction. Millennial-scale climate fluctuations are a prominent intermittent feature during glacials of the last ~1 Myr. High-amplitude suborbital ice-rafting and climate fluctuations occur when a specific benthic oxygen-isotope (δ^{18}Ob) threshold value (4.14‰) or sea level (45 m below present) is passed. It is suggested that these high-amplitude changes were introduced as the climate system entered the Mid-Pleistocene Transition at ~1.3–0.7 Ma (McManus et al, 1999; Schulz et al, 1999). Several studies suggest, however, that above-mentioned thresholds were passed ~1.5 Myr before the Mid-Pleistocene Transition during the intensification of Northern Hemisphere Glaciation (iNHG; ~2.5–2.9 Ma) (Bintanja & van de Wal, 2008; Bolton et al, 2010; Jakob et al, in prep.). Whether the proposed threshold values are also valid for triggering climate amplification during iNHG, however, yet remained uncertain (Bartoli et al, 2006 vs. Friedrich et al, 2013, Jakob et al, 2017).

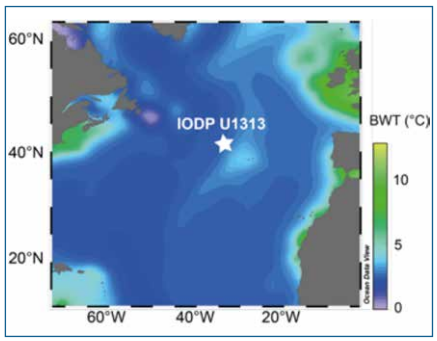

Fig 1. Location map of North-Atlantic IODP Site U1313. Modern annual bottom-water temperatures after World Ocean Data Atlas (Locarnini et al, 2013).

Material and methods. With financial support from an ECORD Research Grant, we have generated new high-resolution (~775–1550 yr) benthic foraminiferal Mg/Ca and δ^{18}Ob records for North-Atlantic IODP Site U1313 (Fig 1) to quantify bottom-water-temperature and sea-level change, and thus to investigate the possibility of threshold-crossing behaviour in millennial-scale climate variability. Our target interval (~2.75–2.4 Ma) includes the first three large-amplitude glacial-interglacial cycles (Marine Isotope Stages [MIS] 100-96) that represent the culmination of iNHG (Fig 2a, Lisiecki & Raymo, 2005). The preparation of 189 samples and their δ^{18}O analysis was conducted at the Institute of Geosciences, Heidelberg University (Germany); Mg/Ca measurements were carried out at the National Oceanography Centre Southampton (UK).

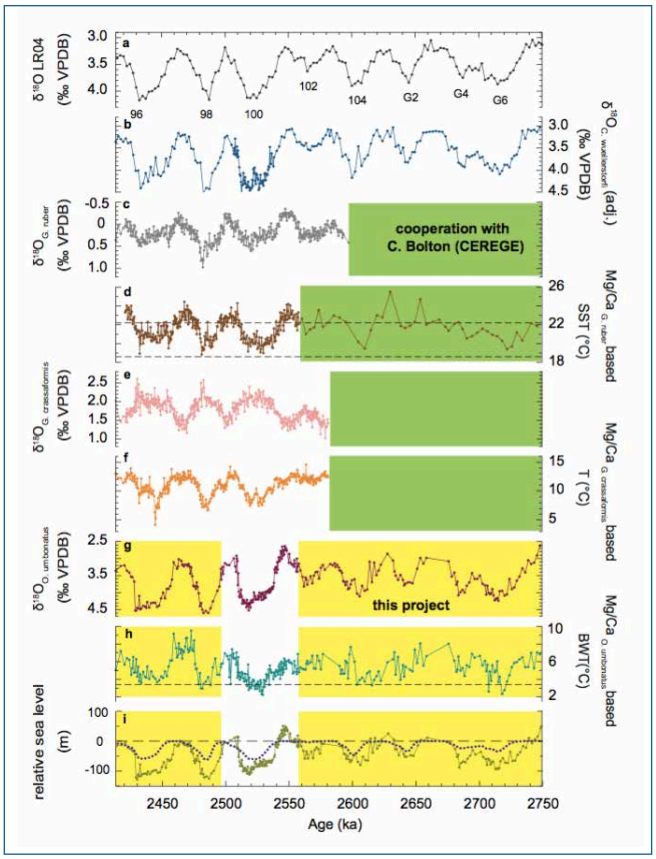

Fig 2. High-resolution proxy records from IODP Site U1313 for MIS G6 to 95, tuned to the LR04 stack. Yellow boxes: This study. Green boxes: Records provided by C. Bolton. (a) LR04 stack[12]. (b) δ^{18}OC. wuellerstorfi[5],[8]. (c) δ^{18}OG.ruber[5]. (d) G. ruber Mg/Ca-based SST estimates[9]; upper line: Modern mean summer SST; lower line: Modern mean annual SST[25]. (e) δ^{18}OG.crassaformis[29]. (f) G. crassaformis Mg/Ca-based thermocline temperature estimates[29]. (g) δ^{18}OO.umbonatus ([8] and this study). (h) O. umbonatus Mg/Ca-based BWT estimates ([8] and this study); black line: Modern mean annual BWT[25]. (i) Sea-level estimates relative to present ([8] and this study); blue dotted line: Modelled global sea-level relative to present[4]; black dashed line: Modern sea-level.

Results. Glacials MIS 100, 98 and 96 reach the thresholds (as proposed for the late Pleistocene) of either a benthic δ^{18}O value of 4.14 ‰ (Fig 2g, this study) or a sea-level drop to ~45 m below present (Fig 2i, this study). Bottom-water (Fig 2h, this study), sea surface, and thermocline temperatures (Fig 2d,f) from Site U1313, however, show no evidence for amplification during these glacials. This observation supports data of former studies (*e.g.* Friedrich et al, 2013; Jakob et al, 2017) that question the existence of such a

Continued on page 22

The full report is available on **http://www.ecord.org/education/research-grant/**

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Continued from page 21

threshold. Possibly the proposed thresholds were only barely reached (as opposed to not clearly surpassed) for a time interval too short to trigger the amplification of millennial-scale climate fluctuations. Alternative explanations could be (1) that a lower sea-level threshold than proposed might be required to amplify millennial-scale climate fluctuations during iNHG or (2) that factors other than ice volume/sea level might exist that triggered higher amplitudes of millennial-scale climate fluctuations.

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ECORD Distinguished Lecturer Programme 2016-2017

http://www.ecord.org/education/dlp/

Calendar of Workshops and Conferences

2017

21-23 November
MagellanPlus workshop: Santorini-Kolumbo volcanic system
Athens, Greece
www.ecord.org/science/magellanplus/

11 - 15 December
AGU 2017
New Orleans, LA, USA
meetings.agu.org

2018

8 - 13 April
EGU 2018
Vienna, Austria
www.egu.eu

20 - 24 May
JpGU 2018
Chiba, Austria
www.jpgu.org/meeting_e2018/

3 - 8 June
AOGS 2018
Honolulu, Hawaii, USA
www.asiaoceania.org/society/index.asp

11 - 17 August
Goldschmidt 2018
Boston, USA
goldschmidt.info/2018/

13 - 18 August
ISC 2018
Québec, Canada
www.isc2018.org/

4 - 7 November
GSA 2018
Indianapolis, IN, USA
www.geosociety.org/meetings/2018/

10 - 14 December
AGU 2018
Washington DC, USA
meetings.agu.org

2019

7 - 12 April
EGU 2019
Vienna, Austria
www.egu.eu

18 July - 2 August
AOGS 2019
Singapore
www.asiaoceania.org/society/index.asp

9 - 13 December
AGU 2019
San Franciscp, CA, USA
meetings.agu.org

2020

2-8 March
IGC #36
Delhi, India
36igc.org/

3-8 May
EGU 2020
Vienna, Austria
www.egu2020.eu/

Calendar of ECORD & IODP Meetings

SEP
9-11 January 2018
La Jolla, CA, USA

ECORD Facility Board
6 - 7 March 2018
Venice, Italy

***Chikyu* IODP Board**
19 - 20 March 2018
Kobe, Japan

***JOIDES Resolution* Facility Board**
15-16 May 2018
Alexandria, VA, USA

ESSAC #10
May 2018
Toulouse, France

SEP
26-28 June 2018
Postdam, Germany

IODP Forum
September 2018
Goa, India

EPSP
September 2018
College Station, TX, USA

ESSAC-ECORD Council #6
6-8 November 2018
Den Haag, The Netherlands

http://www.ecord.org/about-ecord/events-calendar/

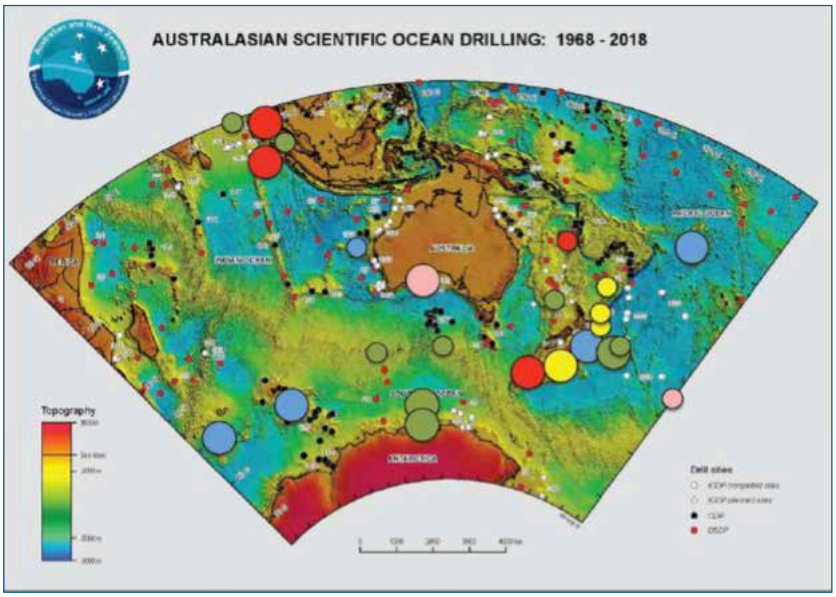
Reports of MagellanPlus Workshop Series

Australasian IODP Regional Planning Workshop: Developing community-based scientific priorities and new IODP proposals - 13-16 June 2017, Sydney (Australia)

The Australasian IODP Regional Planning Workshop was introduced with a plenary session of invited speakers outlining the broad IODP science plans and capabilities, as well as more detailed keynote presentations reviewing each of the four themes in the 2013-2023 IODP Science Plan in the regional context. This was followed by overview talks of relevant regional research, including recent and upcoming expeditions in the region. The second day consisted of breakout sessions with 10-minute presentations from the workshop participants who had submitted abstracts outlining potential ideas for future drilling. In light of the abstracts received for the workshop, and with the ambition of promoting cross-disciplinary projects, the breakouts were divided into two groups focusing on:

(1) Climate and Oceans/Biosphere Frontiers, chaired by Tina van de Flierdt, Tim Naish, Verena Heuer and Yuki Morono,

(2) Earth Connections, chaired by Mike Coffin, Marguerite Godard, Laura Wallace and Shuichi Kodaira.



Location map of potential proposals discussed in the workshop, with color coded dots denoting the main theme for each proposal. Larger colored dots indicate proposals that appeared to be mature enough to develop pre-proposals. Smaller colored dots require site survey proposals to be developed – or await the results of upcoming drilling in the region to refine hypotheses (e.g. Hikurangi Subduction Zone and Lord Howe Rise regions).

Following these breakouts, strong research overlaps were clear between the Climate and Earth Connections themes which did not necessarily relate to a distinct geographical region. Consequently, day three was divided up into breakout sessions to further nurture cross-disciplinary proposals, and these focused on distinct tectonic settings and their associated paleoenvironmental history or biology. The main breakout sessions included:

- Large Igneous Provinces and associated paleoceanography,
- Subduction zones and associated paleoceanography,
- Conjugate margin studies and associated paleoceanography.

Participants interested in multiple topics/settings were encouraged to move between sessions to provide input. Short duration (~1 hour) sub-groups met if additional ideas didn't relate to the above tectonic settings. These included:

- A Hikurangi subduction sub-group breakout to developing ideas building on the upcoming phase of drilling in this region,
- A Zealandia sub-group breakout to investigate possible targets on the Lord Howe Rise, building on the upcoming phase of drilling in this region,
- A Biosphere Frontiers sub-group meeting to discuss ideas that didn't relate to the above tectonic settings.

The approach of the workshop was to combine local expertise with international experts, as well as to encourage early-career researchers to become actively involved in developing proposals. A total of 97 participants included 10 students, 16 post-docs, 53 professional research scientists in a variety of roles (including university academics), 10 researchers/science managers with government institutions, and several IODP, ECORD and ANZIC scientists in programme management roles. ANZIC was represented by scientists from 17 institutions across Australia and New Zealand and the Office of the Chief Scientist of Australia. Participants represented 11 different countries, namely Australia, New Zealand, Japan, India, Germany, United Kingdom, France, Denmark, Sweden, USA, and Canada. A total of 24 proposal ideas were discussed, with 12 of these deemed to be mature enough for active proposal development to begin, with an aim of submission in late 2017 or 2018 *(above)*. These are proposals with either sufficient existing site-survey data or site-survey cruises planned. Of the remaining 12 proposals, key regions were identified where key hypotheses are testable by drilling. However, these require either site-survey proposals to be developed, or further scientific development of the hypotheses. These refinements are anticipated to be made through integration of upcoming IODP drilling in the region during 2017 and 2018, or through analysis of recently collected (or soon to be collected) site-survey data.

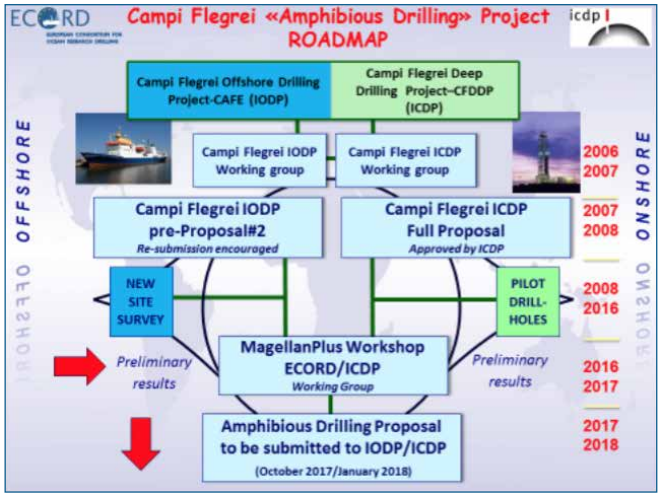
http://iodp.org.au/event/final-report-australasian-iodp-regional-planning-workshop/

Caldera Drilling - Campi Flegrei – 25-28 February 2017, Naples (Italy)

Convenors: Volkhard Spiess, Marco Sacchi, Guiseppe De Natale, Lena Steinmann

Active calderas are major volcanic features of the Earth's crust associated with large shallow magma reservoirs, high geothermal gradients, and geodynamic unrest often documented through historical time. Explosive caldera-forming eruptions are among the most catastrophic geologic events that may affect the surface of our planet within the interaction zone among lithosphere, hydrosphere, biosphere and atmosphere. During the MagellanPlus workshop held in Naples on 25-28 February, 2017, 35 participants from four European countries, USA, and Japan, gathered to discuss the key scientific issues for a coordinated IODP-ICDP proposal dedicated to the drilling of the Campi Flegrei Caldera, built upon previous research and networking activities conducted by the proponents from 2006 to 2016.

This initiative was intended to bring together experts, young researchers and other representatives from the academia and industry involved in both marine and continental research drilling. The aim of the workshop was to strengthen a large community dedicated to develop new ideas for the understanding of (1) caldera-forming volcanism and unrest off continental margins; (2) the dynamics of shallow water hydrothermal systems, and (3) the seafloor morphological and structural changes induced by frequent uplift/subsidence phases and active degassing processes. Participants were asked to contribute to scientific debate on volcanism and associated hazards over coastal areas and identify problems that can be addressed by coordinated marine and continental drilling, with reference to the Campi Flegrei Caldera, as a case history. The workshop programme addressed data integration, and the building of a scientific rationale for drilling strategies and scientific partnering through a multidisciplinary approach, by linking geology, geophysics and geotechnology. The event has been among the first efforts to assess scientific themes directly related to volcanic hazard in highly populated coastal areas within the context of fully integrated ICDP-IODP drilling research.



The outcomes of the workshop provided a conceptual frame to support the preparation of a full-proposal for the drilling of the Campi Flegrei Caldera to be jointly submitted to IODP and ICDP programmes according to the IODP Guidelines for joint review of "**Amphibious Drilling Proposals (ADPs)**". The Campi Flegrei ADP shall address complementary research topics, into a general view based on the analysis of collapse - resurgent calderas that develop over continental margins. Coastal offshore settings in fact provide a unique opportunity to reconstruct the chronostratigraphy and kinematic evolution of individual structures and components and understand the interaction between magmatic and hydrothermal processes that characterises the hinge zone between marine and continental areas.

Contact: **Marco Sacchi** - *marco.sacchi@iamc.cnr.it*

Calls for MagellanPlus Workshop Proposals 2018

Call for a 2- or 3-day workshop directed at the **Development of IODP, ICDP and/or Amphibious Drilling Proposals**

Special Call for a 2- or 3-day workshop directed at **Demystifying the IODP Proposal Process for Early-Career Scientists**

Special Call for a 2- or 3-day preparatory workshop directed at **Initiating Concepts for a Future Scientific Ocean Drilling Programme to be developed beyond 2023**

Deadline: 15 January 2018

http://www.ecord.org/science/magellanplus

Tyrrhenian Magmatism & Mantle Exhumation (TIME) – 5-7 June 2017, Bologna (Italy)

Convenors: Nevio Zitellini, Cesar Ranero, Valenti Sallares, Ingo Grevemeyer

The Institute of Marine Science (ISMAR) of the National Council of the Italian Research (CNR) of Bologna held a MagellanPlus Workshop "TyrrhenIan Magmatism & Mantle Exhumation" (TIME) on 5-7 June 2017, gathering 36 scientists from 7 countries.

The workshop was the follow up of a SEP recommendation to the Pre-Proposal TIME 899-Pre submitted to IODP in March 2016 to study the process of continental lithospheric rifting and formation of the continent-ocean transition (COT), including magmatism and mantle exhumation occurred in the Tyrrhenian basin.

Since the discovery by drilling that the COT of the West Iberia Margin is characterised by large exposures of exhumed mantle peridotite forming the basement next to the continental crust, the model has been applied to interpret many other continental margins in the absence of sampling of the crystalline crust. However the processes that govern peridotite exhumation without significant magmatism are not well understood. To explain it, two main hypotheses have been proposed: **(1)** Slow extension rates, so that the asthenosphere cools during ascent and no melting occurs, and **(2)** the mantle was originally too depleted to significantly further melt.

Recent geophysical surveys carried out in the Tyrrhenian basin combining wide-angle seismic (WAS), gravity and multichannel seismic (MCS) reflection data challenge this conceptual model, which assumes the presence of a classical-type continental margin with thinned continental crust in the margin juxtaposed to oceanic crust in the deep central basins. Conversely, the new data support the presence of oceanic-type magmatic rocks where crust was previously assumed to be continental, and of partially serpentinised peridotites where crust was previously inferred to be oceanic crust. The exhumed mantle occupies the center of the basin, and was later intruded by renewed basaltic fissural magmatism. This interpretation is consistent with early drilling results, but an appropriate conceptual model that explains the early magmatic phase and the later amagmatic mantle exhumation, apparently at fast opening rates, is at odds with current conventional wisdom.

Drilling the Tyrrhenian is a unique opportunity to assess the validity of current end-member models. The basin is young and covered by a relatively thin sediment layer, which facilitates reaching basement in multiple locations. The database available to design the drilling project is possibly one of the best from any rifted basin. The basement here has been dredged at highs and drilled in several campaigns, and the stratigraphy is reasonably well known from three drilling expeditions, DSDP Leg 13, DSPD Leg 42 and the ODP Leg 107. In addition, a full-coverage high-resolution multibeam bathymetry helps the 3D interpretation of a large data set of vintage and modern 2D MCS reflection profiles and seven regional wide-angle seismic transects of the basin.

The workshop gathered an interdisciplinary group of scientists including experts in the Tyrrhenian Basin, on continental rifting, basalt and mantle petrology and geochemistry, and researchers with broad experience studying mantle exhumation processes at both margins and mid ocean ridges, and experts in Alpine-type ophiolites, potentially analogous to some of the western Mediterranean basins.

The first part of the workshop was organised in a series of scientific oral sessions to illustrate the data set available and the geodynamics of the region accompanied by posters and data. It followed a series of talks given by leading specialists on mantle exhumation processes occurring in various geodynamic settings. Then it opened the discussion to identify and agree on the key scientific questions, resulting in strong support and consensus to proceed toward a submission of a revised version of Proposal 899-Pre. The final part of the workshop was organised as breakout group discussion based on scientific goals to define the drilling, sampling and logging strategy and subsequent presentations and consensus.

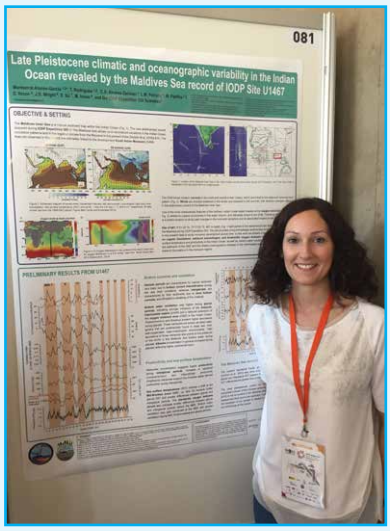
Contact: **Nevio Zittellini** - *nevio.zitellini@bo.ismar.cnr.it*

Full reports of MagellanPlus workshops are posted on:
http://www.ecord.org/science/magellanplus/

News from ECORD Member Countries

Portugal

ECORD/IODP meetings. In April 2017, Sofia Cordeiro, the Coordinator of FCT's Oceans Programme, became the new ECORD Council Alternate. Sofia attended the Council spring meeting in late June, together with Luis Menezes Pinheiro, ECORD Council Delegate. ESSAC Delegate Antje Voelker hosted two ECORD/IODP meetings in Lisbon in June: the meeting of the Expedition 364 Operational Review Committee took place on 20 June at the Tivoli Hotel Oriente, followed by the IODP Science Evaluation Panel (SEP) meeting from 21 to 23 June) at Ciência Viva's Pavilion of Knowledge in the Parque das Nações.



Post-doc Montserrat Alonso-Garcia (IPMA) presents first results from Exp 359 at the PAGES meeting.

Education & outreach. During the summer, various outreach activities at the Ciência Viva center in Faro and the University of Algarve highlighted the scientific platforms, knowhow and achievements of IODP, in particular related to sediment-core retrieval and analysis and to Expedition 364 Chixculub K-Pg Impact Crater *(page 13)*.

IODP science. A group of mostly young researchers presented their results from the ongoing studies of sediments recovered during Expeditions 339 Mediterranean Outflow, 346 Asian monsoon and 359 Maldives Monsoon at the PAGES Open Science Meeting in Zaragoza (Spain) in May *(left)*.

Antje Voelker, ESSAC Delegate - antje.voelker@ipma.pt, Cristina Veiga-Pires (ESSAC Alternate) and Luis Menezes Pinheiro, Council Delegate - lmp@geo.ua.pt

Canada

Canadian-based researchers and students remain very active in IODP: requesting samples, publishing/ presenting IODP results, applying for expeditions, workshops, and research grants, and as proponents on drilling proposals. The Canadium Consortium for Ocean Drilling (CCOD) has been active in various directions to secure funding to allow sustained participation of Canada in IODP.

John Jamieson (Memorial University) joined the CCOD executive committee, and attended the ECORD Council - ESSAC Meeting in Southampton, UK, in October. John has also been officially invited to participate in Expedition 376 Brothers Arc Flux.

Laura Bilenker (University of British Columbia) attended the post-cruise meeting for Expedition 357 Atlantis Massif Serpentization and Life in Italy *(page 9)*, and presented a talk and a poster (first Fe isotope systematics to study alteration processes on the seafloor and radiogenic isotopes to characterise the sources and paths of fluid casts), with **Dominique Weis** (University of British Columbia).

Uli Wortmann (University of Toronto) submitted IODP Proposal 926-Pre Reflux Brines: Linking Continental Shelf Hydrogeology to Subseafloor Microbiology.

(photo Earl Davis)

Earl Davis (Geological Survey of Canada) built two CORK data loggers *(above)* to be used to document deformation associated with slow slip on the subduction thrust during Expedition 375 Hikurangi Subduction Margin.

Benjamin Tutolo (University of Calgary) participated in the IODP "Drilling into Young Oceanic Crust for Subseafloor Observations at Axial Seamount" workshop at the Lamont-Doherty Earth Observatory.

Kimberly Low, CCOD Scientific Coordinator (acting)
iodpcanada@gmail.com
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France

Post-cruise meeting for Expedition 354 Bengal Fan. The meeting took place early May 2017 near Pokhara and Pewa lake in Nepal at the front of the sources of eroded sediments of the Bengal Fan. 25 participants of the Science Party met for three days to present, exchange and discuss results in progress on the architecture of the fan, nature and origin of sediments and, stratigraphic constraints. Following, a 5-day fieldtrip brought the participants along a full Himalayan section. It started North of the Annapurna at 4000 m in Mukthinath and crossed the range along the Kali Gandaki river *(right)* down to 200 m at Lumbini in the floodplain.

International Meeting of Sedimentology 2017. From 10 to 12 October, IODP-France sponsored an exhibition booth at the International Meeting of Sedimentology in Toulouse (France) to present ECORD and IODP to sedimentologists *(page 14)*.

Funding IODP post-docs. Thanks to a joint effort of CNRS-INSU and IODP-France, three young scientists involved in IODP will benefit a post-cruise contract in 2018 for a few months to one year. They are part of the Science Parties of Expeditions 375 Hikurangi Subduction Margin and 381 Corinth Active Rift Development.

(photo CFL)

Stéphanie Cuven, IODP-France, and Georges Ceuleneer, ESSAC Delegate iodp-france@get.obs-mip.fr http://www.iodp-france.org

Switzerland

On 13 September, the third **SwissDrilling Day** was held in Bern. This year's meeting brought together about 50 scientists from all Swiss academic institutions to share their experiences and future plans in ocean and continental drilling *(right)*. A total of 18 oral contributions covered on-going drilling related research, future drilling projects and perspectives for new drilling proposals. The presentations covered a broad range of topics from paleoclimate, over evolutionary biology to earth dynamics and hazards.

The Swiss scientific drilling community was pleased to have keynote contributions from Ulrich Harms (Head of Operational Support Group, International Continental Scientific Drilling Program) and Michael Strasser (University of Innsbruck, recipient of the 2017 Taira Prize) and special talks about the latest ice-core drilling activities and drilling for disposal of radioactive waste in Switzerland. Thanks to all the high quality contributions, the annual meeting can be again considered a great success.

We are pleased that **Anders Mc Carthy** from the University of Lausanne was invited to join an IODP expedition in 2017. Anders participated as a petrologist in Exp 367-368 aboard the *JOIDES Resolution* which aimed to understand the mechanisms of lithosphere extension during continental breakup at the South China Sea rifted margin.

Mareike Trauerstein, SwissDrilling Coordination Office, and Gretchen Früh-Green, Swiss ESSAC Delegate http://www.swissdrilling.ch

Austria

Austrian scientists at sea. Walter Kurz (University of Graz) sailed on Exp 366 Mariana Convergent Margin and South Chamorro Seamount as igneous petrologist/metamorphic petrologist. Erik Wolfgring (University of Vienna) is currently participating in Exp 369 Australia Cretaceous Climate and Tectonics as micropalaeontologist. Michael (Michi) Strasser (University of Innsbruck) is the Lead Proponent of IODP Proposal 866Full2 Japan Trench Paleoseismology.

IODP fellowships and awards. Gerald Auer (University of Graz) who sailed on Exp 356 Indonesian Throughflow, has been awarded a Post-doctoral research fellowship from JAMSTEC (Department of Biogeochemistry) to work on the expedition related project "Indonesian Throughflow variability during the Pliocene and Pleistocene and its impact on Indian Ocean circulation and global climate". As a particular highlight, Michi Strasser (University of Innsbruck) has been awarded the 2017 Asahiko Taira International Scientific Ocean Drilling Research Prize for "outstanding transdisciplinary research accomplishment in ocean drilling". The award ceremony and lecture are scheduled for the AGU Fall Meeting in December in New Orleans, USA.

On 8 November 2017, the **Austrian Core Facility for scientific core analyses** *(right)* was inaugurated at the University of Innsbruck. This is the first research facility in Austria that provides state-of-the-art laboratory infrastructure for logging and scanning of cores obtained by drilling and coring and will enable training and research opportunities for the Austrian IODP and ICDP community.

IODP representatives. The SEP membership (Science sub-group, *page 20*) of Werner Piller (University of Graz) has been extended to May 2019 and Werner continues as a member of the MagellanPlus Steering Committee.

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Sweden

The Swedish research community continues to actively participate in IODP through post-cruise research and high-impact publications. The Board for Research infrastructures has decided that the Swedish Research Council will continue its IODP-ECORD membership until 2023.

The **Swedish Scientific Drilling Program (SSDP)** supports Swedish interests in continental and ocean scientific drilling with an emphasis on the Swedish memberships in IODP-ECORD and the International Scientific Drilling Program (ICDP). We have recently updated the SSDP web page, with the relevant contact persons who can provide support to researchers and information about/links to on-going scientific drilling projects. We encourage the Swedish research community to sign up for the SSDP mailing list on **https://www.ssdp.se/** as well as subscribe to the ECORD newsletter on http://www.ecord.org/ in order to stay informed on international drilling infrastructures and opportunities to participate in upcoming IODP expeditions.

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Italy

Workshops and Meetings. Two MagellanPlus workshops were held in Italy in 2017: "Caldera Drilling-Campi Flegrei" was hosted by Marco Sacchi (CNR) in Naples and "Tyrrhenian Magmatism & Mantle Exhumation -TIME" was led by Nevio Zitellini (CNR) in Bologna *(pages 25 and-26)*. Chiara Boschi (CNR) organised the post-cruise meeting of Expedition 357 Atlantis Massif Serpentinization and Life in Sestri Levante *(page 9)* and led a fieldtrip focused on the Ligurian ophiolite sequence with Riccardo Tribuzio (Univ. of Pavia).

IODP expeditions. Alessia Cicconi, Education Officer, and scientists

The Italian team of the IODP Expeditions 367/368. From left to right, Claudia Lupi, Alessia Cicconi and Jacopo Boaga

Claudia Lupi (Univ. of Pavia), Jacopo Boaga (Univ. of Padova), and Sara Satolli (Univ. of Chieti-Pescara) formed an active IODP-Italia team onboard IODP Expeditions 367/368 South China Sea Rifted Margin *(above)*. Sara Satolli also took part in the editorial meeting and sampling party of Exp 368 in College Station, TX. Claudia Agnini (Univ. of Padova) recently participated in Exp 371 Tasman Frontier Subduction Initiation and Paleogene Climate as nannofossil specialist, while Maria Rose Petrizzo (Univ. of Milan) is currently sailing on Exp 369 Australia Cretaceous Climate and Tectonics Expedition as a planktonic foraminifer micropaleontologist.

Education and Outreach. In September 2017, IODP-Italia organised two exhibition booths, at the joint conference AIV-SGI-SIMP-SOGEI (Geosciences: a tool in a changing world), in Pisa and at Past Antarctic Ice Sheet Dynamics (PAIS) Conference 2017, in Trieste, and participated in education and outreach side conference events *(page 12)*.

Italian IODP representatives. Since March 2017, Michele Rebesco (OGS) is a 3-year member of the Site sub-group of the IODP Science Evaluation Panel (SEP) *(page 20)*.

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Norway

Norway in the Corinth Active Rift Development Expedition. Three Norwegian scientists will participate in the upcoming IODP Expedition 381 Corinth Active Rift Development *(pages 6-7)*. Professor Robert "Rob" Gawthorpe will be part of the offshore team, whilst research scientists Dr. Casey Nixon and Dr. Sofia Pechlivanidou will join the Onshore Science Party. All three are members of the Basin and Reservoir Studies group at Department of Earth Science at the University of Bergen (UiB).

The Corinth Rift is one of the fastest extending regions on Earth and has a unique geological and geophysical dataset. The combination of fast extension and sedimentation rates in the active part of the rift mean it may be possible to obtain information on normal fault network and rift evolution at unprecedented resolution in both space and time. The cores collected during Expedition 381 are critical to this because they will, for the first time, provide detailed chronology of the sedimentary record. Using this unique record, the three UiB scientists will work on unravelling the structural evolution, and how the land- and sea-scape of the rift evolved in relationship to both tectonic and climatic change.

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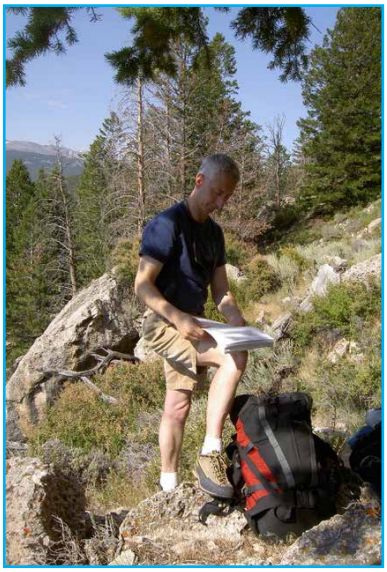

For the first time, Prof Rob Gawthorpe will set sail onboard an IODP expedition to unravel sedimentology and tectonics (photo RG).

Netherlands

For the months August and September 2017, I was part of the Scientce Party of Expedition 371 Tasman Frontier Subduction and Paleogene Climate onboard the *JOIDES Resolution (right)*. The drillship set out from Townsville, Australia, with the aim of drilling into the lost continent of Zealandia. The main objective was to find out when the subduction occurred that drowned most of the present-day continent.

Sailing on behalf of IODP-NL as both organic geochemist and palynologist, my work was never boring - or over. Sediments from several of the sites yielded palynomorphs of excellent preservation; a welcome sight to any palynologist. Among others, these included remains of nearshore-dwelling plankton and also pollen and spores from land plants. Together with other fossil groups such as benthic foraminifera and ostracoda, these findings were crucial in constraining that Zealandia was much less submerged in the past.

Next to these tectonic reconstructions, the Southwest Pacific ocean is highly important for paleoclimate reconstructions. For past warm climates such as the Eocene (56-34 million years ago), a mismatch exists between sea-surface temperatures reconstructed from state-of-the-art climate models versus proxies. During Expedition 371, we recovered plenty of sediment that will be valuable for reconstructing long-term Tasman Sea paleoclimate throughout the entire Cenozoic (past 65 million years). I'm looking forward to analysing the five boxes of sediment

samples that have just arrived at my office!

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United Kingdom

The UK-IODP co-sponsored a week-long **Petrophysics Summer School** at the University of Leicester during July, and supported two UK-based early-career researchers to attend. This summer school is co-funded by ECORD *(pages 18-19)* and utilises IODP datasets and scientists to teach young researchers about the workflow on a drilling vessel, how core is captured and what downhole-logging operations entail. Also taught are the applications for this data. Alongside this imparting of knowledge, the young researchers presented their own work in poster sessions and were able to network and discuss their research and interests. Thirty scientists, with 17 nationalities, attended this summer school, providing a true representation of the international environment that IODP thrives in.

Cherry Newsam (Paleontologist, University College London) takes samples in the core laboratory during Exp 371 (Tim Fulton, IODP JRSO)

The **UK IODP project** continues to successfully support UK-based scientists in their academic development and research. This support comprises funding for travel, subsistence and medical checks for offshore and onshore research, post-cruise meetings, and funds scientists attending various international conferences. In the past few years, (January 2014 - now), UK IODP has supported 51 UK-based scientists *(left)* in over 17 world-wide expeditions. These scientists are affiliated with 25 difference academic institutes. Our next annual meeting is planned for November at the Royal Geographical Society, London. This will showcase scientific outcomes of recent expeditions, as well as a number of posters from students who work with IODP data and have participated in IODP expeditions.

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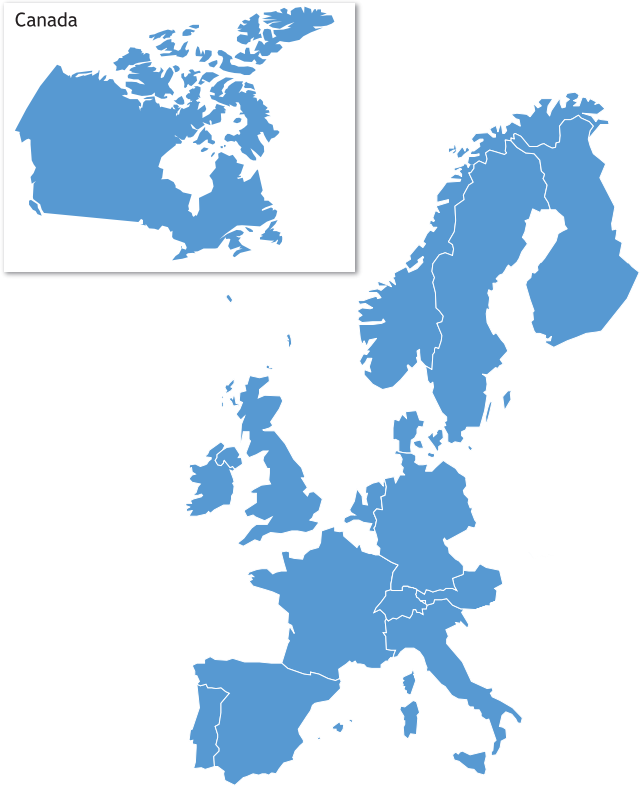

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