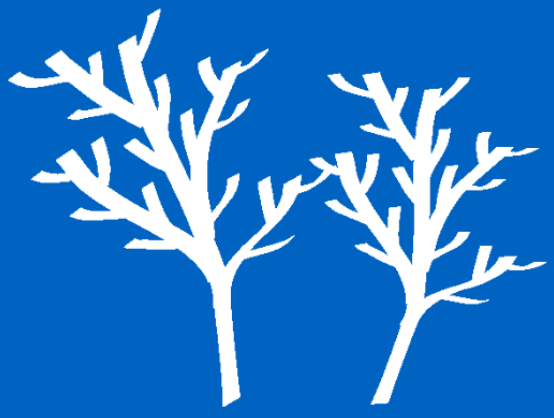
INTERNATIONAL FOSSIL CORAL AND REEF SOCIETY

IFCRS

EARLY CAREER RESEARCHER SYMPOSIUM 2021

ABSTRACT BOOKLET



CONTENTS

INTERNATIONAL FOSSIL CORAL AND REEF SOCIETY

CODE OF CONDUCT

The International Fossil Coral and Reef Society (IFCRS) was created to connect individuals interested in fossil corals, sponges and reef ecosystems in the broadest sense. Researchers and students are the core of our Society, but general enthusiasts are also warmly encouraged to join our growing community. **We strive to foster a safe, inclusive, and respectful community that values the diverse perspectives and experiences of all members. Harassment or disrespectful behaviour of any kind is not tolerated.** By participating in IFCRS activities, you agree to adhere to the following code of conduct at all times. The IFCRS council will enforce this code as necessary to ensure that all participants feel welcome, and we reserve the right to remove those who are found to be negatively contributing to the society and its activities. The IFCRS is committed to diversity, inclusion, and accessibility for all, and expects members of the society to uphold these values, and treat all equally.

Members of the IFCRS and participants in its activities are expected to treat one another with respect and dignity regardless of gender, gender identity and expression, sexual orientation, marital or parental status, age, immigration status, disability, physical appearance, body size, race, ethnicity, nationality, religion (or lack thereof), socioeconomic background, educational background, career stage, career trajectory, or scientific opinions.

We believe all members of our society and participants in activities have:

- The right to be safe from harassment or discrimination in all its forms
- The right to fully engage in all the activities on offer
- The right to have any complaints or concerns investigated, regardless of career position

We ask everyone to help us maintain an inclusive and safe Society for all by agreeing to the common principles of our code of conduct:

- being courteous, respectful and professional towards others
- valuing the diversity of participants, their views and opinions

If you are being harassed, notice that someone else is being harassed, or have any other concerns, please contact the IFCRS council via fossilcoralreef@gmail.com

Ultimately, please remember why we are here: to network, diversify our knowledge, meet new people, and above all, to enjoy science!

DIGITAL IMAGES AND SOCIAL MEDIA POLICY

During the symposium, do not photograph or record a talk without the author's express permission. While the default assumption is to allow open discussion of presentations on social media, attendees are expected to respect any request by an author to not disseminate the contents of their talk.

We request that authors indicate at the start of their talk whether they are happy for the presentation to be shared on social media or not. We also recommend the use of an image similar to that adjacent to express that you do not give permission for your presentation to be shared on social media or recorded in any way.

Throughout the symposium, we will use the hashtag **#IFCRS2021** to share updates about the symposium and presentations. You may also tweet us using our twitter handle: **@fossil_reef**.

JOINING THE SYMPOSIUM

The symposium will be conducted fully online. Within due course, you will receive an email with a link to join the symposium. Please note, this link will be sent to the email address you registered for the symposium with. For the symposium, we will make use of the platform Zoom. If you are unfamiliar with Zoom, you may familiarise yourself via the following link: https://zoom.us.

A LETTER FROM THE IFCRS PRESIDENT AND SECRETARY

Dear delegates,

It is our great pleasure to welcome you in the name of the International Fossil Coral and Reef Society (IFCRS). We are delighted that the increasing contribution of early career scientists in our society has led to the organization of this first IFCRS Early Career Researcher Symposium. It closes the gap between the society's symposia organized every four years, and offers a new exciting and interesting forum for young scientists interested in all kinds of research topics related near or far to fossil corals, reefs and associated organisms.

It may be a coincidence, but the first IFCRS Early Career Researcher Symposium is organized in the year of the 50th anniversary of the society, and its first symposium held in Nowosibirsk. Despite the difficulties, such as scarce funding for our field of research, the society has always strived to be alive and to renew itself, even during this terrible pandemic. The IFCRS Early Career Researcher Symposium testifies to this effort. It is another way and opportunity for exchanges and collaboration between scientists from all over the world, which is a core directive of the society's activities.

As we all know, fossil corals and reefs are fascinating research objects. They are extremely valuable archives to understand the response of the biosphere to environmental perturbations on short, and long temporal scales. We study them on very different spatial scales... from the microscopic view, up to entire oceans. Reefs are often called the rainforests of the marine realm, and they are very vulnerable. Investigating their evolution in deep time and in the fossil record is crucial to place the observed changes in modern reefs, and corals into a long-term context.

The diversified program of this symposium does not only show us all these exciting sides of research related to fossil corals and reefs, but also the attractivity of these research topics for our young brilliant researchers. They bring in many new ideas, techniques and methods, from which also older established researchers can learn a lot.

We hope you enjoy the symposium and have interesting and valuable exchanges with many different participants. We would like to see that many of the young scientists will continue in academia and our research field, so let us be optimistic and see this symposium as one contribution to it.

Last but not least, please allow us to thank the two enthusiastic organizers, Angelina Ivkic and Lewis Jones, not only in the name of the society, but in your names as well.

Francesca Bosellini (IFCRS President)
Markus Aretz (IFCRS Secretary)

A NOTE FROM THE ORGANISERS

Welcome to the first IFCRS Early Career Researcher (ECR) symposium!

Thank you all for signing up to our event, we are very excited to have you here! We would also like to extend a huge thank you to all our invited speakers for accepting our invitations! This symposium would simply not have been possible without your efforts.

Some of you may be thinking, "what is this IFCRS ECR symposium, and why haven't I heard about it until now?". The IFCRS has quite a long and rich history, with its first ever meeting taking place in Novosibirsk, Russia in 1971. Since this first meeting, the IFCRS has hosted an in-person conference every four years. However, as many PhD projects only run for three to four years, this previous four-year symposia cycle has resulted in ECRs not necessarily having the opportunity to present their exciting research at society meetings. We wanted to change this. Therefore, we decided to introduce the new ECR symposium between the main society meetings, which will be entirely tailored towards ECRs. This is not to say that only early career researchers are welcome at these events, but we do want to give them the stage to present their research, and the opportunity to discuss it with colleagues. We feel that it is especially crucial at the early career stage to ask many questions, receive input from other researchers, have the opportunity to present your work, and network with other scientists working in similar fields. In order to enhance networking and discussion between all career stages, we warmly encourage all those interested in fossil coral and reef research to participate in our symposia. As a special event of this year's symposium, we have organized a 'Meet the Labs' session at the end of the invited talks. We hope this will lead to exchanges between ECRs and senior scientists, whether you are looking for new ideas, projects, or collaboration opportunities. It is very important to us that these exchanges are positive and conducted in a respectful manner. Therefore, we ask you to please be mindful of others, be kind and enjoy the event! Thank you again for attending our symposium.

With the warmest regards,

Angelina Ivkic & Lewis A. Jones

P.S. Sorry for all the acronyms, but the International Fossil Coral and Reef Society Early Career Research Symposium is a bit of a mouthful!

SCHEDULE

Friday 15th October 2021 (Time zone: UTC + 01:00)

See time chart on next page for time zone guidance

10:00–10:30 Welcome address

Plenary talk
10:30–11:15 Rachel Wood
The origin of metazoan reefs

11:15–11:30 Tea and Coffee break

Invited talks session 1
11:30–11:45 Nicholas Hammerman
Variable response of Red Sea coral communities to recent disturbance events along a latitudinal gradient

11:45–12:00 Juwan Jeon
Recent advances in Ordovician stromatoporoids: insights into their initial diversification and faunal transition

12:00–12:15 Kilian Eichenseer
The role of taphonomy and ecology in the rise of the staghorn coral Acropora

12:15–13:30 Lunch break

Invited talks session 2
13:30–13:45 Ana Samperiz Vizcaino
Small but mighty: the potential of stylasterid corals as paleotemperature archives

13:45–14:00 Tanja Unger
A walk through a Givetian biostrome

14:00–14:15 Nussaïbah Raja Schoob
The driving force behind reef booms

14:15–14:30 Amanda Godbold
The calm before the storm: A detailed look into the community membership of Late Triassic patch-reefs occuring before the end-Triassic Mass Extinction

14:30–14:45 Closing address

15:00–16:00 Meet the Labs

TIME ZONE CONVERTER

Below we provide a time zone converter for your ease. Active time zone refers to the time zone that will be active during the time of the symposium (15th October 2021). Local start time refers to the start time of the symposium in the local time zone. If you have any queries about your specific time zone, please do let us know. The following is also a very useful resource: [Time Zone Converter – Time Difference Calculator]

Location	Active time zone	Local start time
Australia Central (Adelaide)	UTC + 10:30	19:30
Australia East (Brisbane)	UTC + 10:00	19:00
Australia West (Perth)	UTC + 08:00	17:00
Austria	UTC + 02:00	11:00
Belgium	UTC + 02:00	11:00
China	UTC + 08:00	17:00
Denmark	UTC + 02:00	11:00
Egypt	UTC + 02:00	11:00
France	UTC + 02:00	11:00
Germany	UTC + 02:00	11:00
Ireland	UTC + 01:00	10:00
Israel	UTC + 03:00	12:00
Italy	UTC + 02:00	11:00
Jamaica	UTC - 05:00	04:00
Malaysia	UTC + 08:00	17:00
Moldova	UTC + 03:00	12:00
Morocco	UTC + 01:00	10:00
Pakistan	UTC + 05:00	14:00
Poland	UTC + 02:00	11:00
Singapore	UTC + 08:00	17:00
South Korea	UTC + 09:00	18:00
Spain	UTC + 02:00	11:00
Turkey	UTC + 03:00	12:00
United Kingdom	UTC + 01:00	10:00
United States of America (Dallas)	UTC - 05:00	04:00
United States of America (Denver)	UTC - 06:00	03:00
United States of America (Las Vegas)	UTC - 07:00	02:00
United States of America (New York)	UTC - 04:00	05:00

ABSTRACTS

Plenary Talk

The origin of metazoan reefs

Rachel Wood[1]
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The appearance of metazoan reefs is closely associated with the onset of calcareous biomineralisation and the onset of the Cambrian Radiation, in the late Ediacaran 550 million years ago. Here, I will explore the palaeoecology of Ediacaran reefs and biomineralisation of metazoan reef-builders. The Ediacaran world was probably one of lower oxygen levels than today, differing seawater chemistry, and with little evidence for predation – hence presenting strikingly non-uniformitarian environments compared to much of the Phanerozoic.

Variable response of Red Sea coral communities to recent disturbance events along a latitudinal gradient

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Coral reefs are experiencing a dramatic loss of hard coral abundance and associated habitat structure from a myriad of local and global factors. Here, utilizing U-Th radiometric age-dating of coral death assemblages, we investigated patterns of coral mortality from the eastern margin of the Red Sea along a latitudinal gradient (Yanbu, 24° N; Thuwal, 22° N; Al-Lith, 19° N; Farasan Banks, 18° N) in 2018 and 2019. In all four regions, radiometric ages of *in situ* dead *Acropora* and *Pocillopora* colonies were largely confined to the late 20th and early 21st century. During the early 21st century, coral mortality was found to be synchronous with previously documented bleaching events in 2010 and 2015 and, at one site (Farasan Banks), an outbreak of crown-of-thorns starfish (COTS) in 2009. The most northern site, Yanbu, had the highest relative percentage of live coral (42 ± 4%) and of living *Acropora*, and may represent a recovering region, lending support to the potential for the northern Red Sea to serve as a refugium under climate warming scenarios. For the three southern regions (Thuwal, Al-Lith, Farasan Banks) benthic structure was mostly comprised of dead corals. The southernmost survey site, Farasan Banks, underwent a dramatic change in coral benthic structure associated with a COTS outbreak in 2009 and a bleaching event in 2015, and had the lowest relative percentage of live coral (6 ± 2%), comprised mostly of massive *Porites,* with no live *Acropora* or *Pocillopora*. Our results highlight the asynchronous impact of disturbance events on eastern Red Sea coral reefs and emphasize regional differences in recovery and ecosystem state.

Recent advances in Ordovician stromatoporoids: insights into their initial diversification and faunal transition

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The Ordovician System records the origins and early evolutionary developments of Palaeozoic stromatoporoids. Early stromatoporoid groups, that developed in the Ordovician (i.e., labechiids, clathrodictyids, actinostromatids and stromatoporellids), occupy a high proportion of the entire Palaeozoic stromatoporoid diversity. They also became one of the major reef-builders during the transition from the microbial-dominant to the skeletal-dominant reefs of the early Palaeozoic, highlighting the significance of their early development. However, our knowledge of the Ordovician stromatoporoids has hitherto been poor, and accurate taxonomic studies are required in particular for further addressing questions on palaeobiogeography and palaeoecology. Recent investigations reveal that their diversity in peri-Gondwana terranes, particularly North China and South China, has been underestimated. The appearance and initial diversification of stromatoporoids with laminated-skeletal structures (e.g., clathrodictyids, actinostromatids and stromatoporellids) during the Late Ordovician accentuated the Great Ordovician Biodiversification Events and further stromatoporoid faunal turnover, presumably due to their inherent flexible growth behaviors. Later, stromatoporoids severely experienced the Late Ordovician Mass Extinctions (LOMEs), which caused dramatic declines in both the diversity and geographical distribution of stromatoporoids like other fossil groups. The post-extinction stromatoporoids were characterized by clathrodictyid-dominated fauna which is strikingly different from the pre-Hirnantian labechiid-dominated fauna. Recent studies revealed that clathrodictyid-dominated assemblages had arisen in the Late Ordovician of peri-Gondwanan terranes. This is interpreted to indicate that the faunal transition began earlier than previously thought, and the LOMEs may have accelerated the development of clathrodictyid-dominated faunal assemblage beyond the Ordovician. Thereafter the clathrodictyid-dominated assemblage appears to have pioneered the post-extinction recovery, and became predominant in Silurian. Our integrative understanding of Ordovician stromatoporoids, representing the early history of Palaeozoic stromatoporoids, and their faunal pattern of the ecosystem provides new information on the initial development of reef community biology.

The role of taphonomy and ecology in the rise of the staghorn coral *Acropora*

Kilian Eichenseer[1] & Wolfgang Kiessling[1]
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Staghorn corals of the genera *Acropora* and *Isopora* are the most diverse and among the most abundant reef building corals today. Despite their appearance in the fossil record in the Palaeocene, staghorn corals became dominant reef builders only in the Pleistocene. The rapid growth rates and the ability to propagate via broken branches have been suggested to favour *Acropora* during Pleistocene sea level oscillations. However, the perception of a geologically recent rise of *Acropora* could also stem from the selective, taphonomic loss of staghorn corals in older strata. We tested this hypothesis using the Cenozoic coral fossil record and dissolution experiments with dead coral material. Among the twelve investigated genera, *Acropora* lost the least skeletal material when exposed to acidic water, and its prevalence in Holocene fossil reefs and in the older, last interglacial reefs is comparable. Notably, the fire coral *Millepora* dissolved relatively quickly and its fossil abundance is likely underestimated. We conclude that the Pleistocene rise of *Acropora* is a biological signal, and was probably facilitated by late Cenozoic sea level changes and coral extinctions in the Late Pliocene – Early Pleistocene.

Small but mighty: the potential of stylasterid corals as paleotemperature archives

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Stylasterids are a ubiquitous deep-sea coral taxon that build their skeletons from either calcite, aragonite, or both. Yet, their potential as paleoceanographic archives is largely unexplored and robust geochemical proxy data collected from modern specimens is very limited. We tested their potential use as paleotemperature archives. Stable oxygen and carbon isotopic composition ($\delta^{18}O$ and $\delta^{13}C$) were measured from 95 modern stylasterids, spanning a wide range of depths (63 to 2894 m) and ambient seawater temperatures (0 to 17°C). The isotope data show non-equilibrium precipitation from seawater for both $\delta^{18}O$ and $\delta^{13}C$, with different skeletal parts yielding different isotopic values. Overall, the calcitic corals showed lower isotope values for $\delta^{18}O$ and $\delta^{13}C$ than aragonitic specimens. Within the aragonite corals, we present a $\delta^{18}O$:temperature calibration that exhibits a significant linear relationship with the equation $\delta^{18}O_{coral-seawater} = -0.22(\pm0.01)\times T(°C) + 3.33(\pm0.06)$ across a temperature range of 0 to 30 °C, using samples from this study and published data. This work highlights that hydrographic conditions are effectively recorded by stylasterid corals and opens the potential application of stylasterid coral geochemical data to reconstruct paleo seawater temperature.

A walk through a Givetian biostrome

Tanja Unger[1]
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The Middle and Late Devonian saw the development of the largest reef systems of the Phanerozoic formed by corals and stromatoporoid sponges. The Klutert Cave, located in the town of Ennepetal, Germany, offers along c. 6 km of paths a spectacular three-dimensional view into a c. 12 m thick biostrome formed in Givetian times. Recently cleaned cave walls provide access to c. 26,000 m 2 of solid rock, comprising an extraordinary well-preserved reefal biota. Besides different species of the main reef builders, the stromatoporoids, rugose and tabulate corals, an associated fauna consisting of crinoids, brachiopods, cephalopods and gastropods is preserved. Within the biostrome, different faunal assemblages build up facies that are arranged in a patchy internal structure. The main reef builders show interactions such as incrustations and symbiosis. Observations indicate that the reef formed in a highly sediment-impacted environment. Further analysis and discussions will show how the environmental factors affected the reefal growth and how the inhabitants reacted and possibly adapted to changes.

The driving force behind reef booms

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The drivers of the ongoing coral reef crisis are known and yet, there are limited options for reef survival during anthropogenic climate change. Similarly, it is known that ancient reef crises were typically driven by hyperthermal events, but knowledge is lacking on the formation of globally successful reef factories. Reef booms observed in the geological record were nearly as rapid as reef decline in the past. The reef boom over the last ~23 million years is just one of six major reef booms which occurred during the last 540 million years, lasting longer than previous reef expansions. To evaluate potential reef recovery or re-assembly after a global crash, the underlying cause of reef booms should be investigated. As reef proliferation is not correlated with earth system parameters such as temperature or ocean chemistry, we focus on taxonomic associations. Previous hypotheses for successful reef building were focused on the development of photosymbiosis and the biodiversity of potential reef builders. None of these hypotheses can successfully explain the Phanerozoic reef booms. Here we test the "co-occurrence hypothesis" (COH) which posits that reefs thrive when fast-growing hypercalcifiers align with encrusting organisms such as calcifying microbes or coralline algae to construct hydrodynamically stable structures, in which gross carbonate production is greater than carbonate loss through erosion or dissolution. We show that positive co-occurrence patterns are significantly more common in reefal as compared to non-reefal communities, suggesting that biological interactions are more relevant in reefs. Supporting COH, we also show that co-occurrence between erect builders and encrusters is more common during reef booms than times of limited reef growth. Provided that neither reef corals nor coralline algae go extinct in the near future, this offers a positive outlook for modern coral reefs given the removal of acute climate stressors.

The calm before the storm: A detailed look into the community membership of Late Triassic patch-reefs occuring before the end-Triassic Mass Extinction

Amanda Godbold[1], Niklas Hohmann[2], Emilia Jarochowska[2], Wolfgang Kiessling[2], and David Bottjer[1]
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[2]Friedrich-Alexander University Erlangen-Nuremberg
agodbold@usc.edu

Reef frequency and biotic diversity increased during the Late Triassic with the development of extended attached or isolated carbonate platforms (Bernecker 2005). The Northern Calcareous Alps are known for their large-scale carbonate platform deposits that bordered the northwestern Tethys margin during the Late Triassic (Flügel 1981). The exceptional diversity and abundance of reefs found along these platforms has made this region a classic site to study reef paleoecology. This study targets patch-reefs located at Gosaukamm and Feisterscharte which belong to the Dachstein platform of the Northern Calcareous Alps within Austria. Reef and associated limestones found at Feisterscharte represent the earliest onset of reef growth along the Dachstein platform during the early Norian, while similar material found at Gosuakamm captures the remaining growth stages of the Dachstein platform until its termination in the Rhaetian (Krystyn et al. 2009). The aim of this study is to quantitatively compare the spatio-temporal difference in taxonomic composition amongst patch-reefs throughout the development of the Dachstein platform. Additionally, a semi-quantitative microfacies analysis was completed to identify differences in depositional environments between patch-reefs. Three quadrats (10x10m) were constructed at Feisterscharte and five were constructed at Gosuakamm. Samples were collected every two meters within each quadrat resulting in a total of 200 samples, which were made into 7x7cm thin-sections and photographed. Taxonomic composition was determined using Adobe Illustrator to complete an equal area quadrat count on each thin-section. Abundances of corals, sponges, bryozoans, microproblematica, algae, foraminifera, echinoderms, and shelly fauna were recorded. In order to determine the spatio-temporal differences in taxonomic composition, Bray-Curtis dissimilarities were analyzed using ANOSIM (analysis of similarities). Cluster and factor analyses were used to evaluate spatio-temporal differences in microfacies. Norian-Rhaetian reefs of the Dachstein platform represent a time of optimal reef growth and the dataset generated from this study allows us to establish a baseline of reef functionality that can be compared with reefs deposited during times of environmental stress.

MEET THE LABS

As part of the symposium, we will be running a 'Meet the Labs' session. This will take place at the end of the symposium, with different labs having the opportunity to introduce themselves, and their research. After introductions, breakout rooms will be formed, in which each lab will host one room, and attendees can drop by to network and share a virtual tea or coffee. With this new initiative, we hope to foster future collaborations between researchers.

Breakout room 1
Lab: MAPAS Lab, Universidade de Vigo, Spain
Presented by: Lewis A. Jones & Sofía Galván
Contact: LewisAlan.Jones@uvigo.es
Theme: Macroecology and macroevolution (terrestrial and marine)
Website: https://paleobiogeography.org

Breakout room 2
Lab: Paleobiology and Paleoenvironments of Cenozoic Marine Tropical Ecosystems, University of Modena and Reggio Emilia, Italy
Presented by: Francesca Bosellini
Contact: francesca.bosellini@unimore.it
Theme: Coral evolution, biodiversity, coral reef paleoecology, biomineralization, paleoecology of larger foraminifera
Website:
https://www.dscg.unimore.it/site/en/home/research/research-in-geology/paleontology-and-paleoecology.html

Breakout room 3
Lab: Géosciences Environnement Toulouse, Université Paul Sabatier Toulouse, France
Presented by: Markus Aretz
Contact: markus.aretz@get.omp.eu
Theme: Spatial and temporal dynamics and evolution of palaeoenvironments, palaeooceans and palaeobiosphere. Palaeozoic reefs.
Website: https://labo.obs-mip.fr/loa/accueil/themes-de-recherche/paleos/

Breakout room 4
Lab: Biostructures and Biomineralization Working Group, Institute of Paleobiology, Polish Academy of Sciences, Poland
Presented by: Jarosław Stolarski
Contact: stolacy@twarda.pan.pl
Theme: Biomineralization (diverse taxonomic groups but with special focus on scleractinian corals)

Breakout room 5
Lab: Global Change Paleobiology, FAU Erlangen, Germany
Presented by: Wolfgang Kiessling
Contact: wolfgang.kiessling@fau.de
Theme: Phanerozoic Reef Systems, coral biodiversity dynamics, traits of reef builders and their link to extinction, causes of reef crises
Website: https://www.gzn.nat.fau.de/palaeontologie/team/

Breakout room 6
Lab: Upper Paleozoic paleontology and sedimentology, Universidad Complutense de Madrid, Spain
Presented by: Sergio Rodríguez
Contact: sergrodr@ucm.es
Theme: Corals, foraminifers, algae, conodonts, brachiopods, reefs, sedimentology, stratigraphy

Breakout room 7
Lab: Marine genomics lab, Benha University, Egypt
Presented by: Mohamed Rashad Ahmed
Contact: mohamed.rashad16@fsc.bu.edu.eg
Theme: Coral Reef spawning, coral reef genetics

Breakout room 8
Lab: Ali Reza Ashouri's Lab, Abbas Ghaderi's Lab, Ferdowsi University of Mashhad, Iran
Presented by: Mahdi Badpa
Contact: mahdibadpaa@gmail.com
Theme: Study of Carboniferous and Permian Corals in Iran
Website: https://www.researchgate.net/lab/Abbas-Ghaderi-Lab-4

Breakout room 9
Lab: Geobiology and marine bioconstruction, University of Milano-Bicocca, Italia
Presented by: Daniela Basso
Contact: daniela.basso@unimib.it
Theme: Mediterranean deep algal reefs, Holocene, living and fossil rhodolith beds
Website: https://cresciblureef.unimib.it/

Breakout room 10
Lab: Leipzig Lab, Institute of Geophysics and Geology, University of Leipzig, Germany
Presented by: Philipp Spreter
Contact: philipp.spreter@uni-leipzig.de
Theme: Scleractinian corals, oxygen and carbon stable isotopes, X-ray densitometry, calcification, paleoenvironmental reconstruction, from Eocene to present

Breakout room 11
Lab: Conservation Paleobiology and Historical Ecology, University of Vienna, Austria
Presented by: Martin Zuschin
Contact: martin.zuschin@univie.ac.at
Theme: Conservation Paleobiology and Historical Ecology
Website: https://conspal.univie.ac.at

Breakout room 12
Lab: Nanjing Institute of Geology and Palaeontology (NIGP), Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences, China
Presented by: Le Yao
Contact: lyao@nigpas.ac.cn
Theme: Corals, sponges, organic reefs, Earth History
Website: http://english.nigpas.cas.cn/

Breakout room 13
Lab: Natural History Museum, London, United Kingdom
Presented by: Nadia Santodomingo and Kenneth Johnson
Contact: n.santodomingo@nhm.ac.uk
Theme: Our main focus is the evolutionary history of coral reefs in the Coral Triangle (Oligocene to recent). Master students are welcome to carry our projects on coral growth, ecology of turbid reefs, taxonomy of Scleractinia, and coral phylogenetics.
Website: https://www.nhm.ac.uk/discover/coral-reefs.html

Breakout room 14
Lab: Salman Khan, Osmania University, India
Presented by: Salman Khan
Contact: salman98khan102227@gmail.com
Theme: Providing free education opportunities in internet