



36<sup>TH</sup>  
**IAS**

MEETING OF  
SEDIMENTOLOGY



12 - 16 June 2023  
CROATIA  
DUBROVNIK



## 36<sup>th</sup> IAS Meeting of Sedimentology

Dubrovnik, 12–16 June, 2023



### Third Circular

[www.iasdubrovnik2023.org](http://www.iasdubrovnik2023.org)

Registration and accommodation e-mail: [info@iasdubrovnik2023.org](mailto:info@iasdubrovnik2023.org)

Conference e-mail: [iasdubrovnik2023@hgi-cgs.hr](mailto:iasdubrovnik2023@hgi-cgs.hr)

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## Important dates

- **October 1, 2022** 1st circular, Call for sessions
- **December 1, 2022** Deadline for session proposals
- **December 1, 2022** Online registration opens
- **December 15, 2022** 2nd circular, Call for abstracts
- **February 15, 2023** Deadline for abstract submission
- **March 15, 2023** Deadline for field trip registration  
Notification on acceptance of abstracts
- **April 1, 2023** Deadline for the early registration fee
- **April 15, 2023** Deadline to short course registration and fee
- **May 20, 2023** 3rd circular  
Deadline for the regular registration fee
- **June 9–12, 2023** Pre-conference field trips
- **June 12, 2023** Pre-conference workshop
- **June 12, 2023** Icebreaker party
- **June 13–15, 2023** Meeting
- **June 14, 2023** Gala dinner
- **June 16–19, 2023** Post-conference field trips
- **June 15–16, 2023** Post-conference workshop

### Programme overview

The main scientific programme will take place over three days, between the Opening ceremony with the Icebreaker party in the evening of Monday, June 12<sup>th</sup> and the Closing ceremony in the afternoon on Thursday, June 15<sup>th</sup>. The 36<sup>th</sup> IMS will include three pre-conference, one mid-conference and three post-conference excursions. The workshops will be pre-conference and post-conference.

### 36th Meeting of Sedimentology Dubrovnik, 12–16 June, 2023

| 10.6.<br>Saturday | 11.6.<br>Sunday | 12.6.<br>Monday  | 13.6.<br>Tuesday  | 14.6.<br>Wednesday | 15.6.<br>Thursday | 16.6.<br>Friday        | 17.6.<br>Saturday | 18.6.<br>Sunday        | 19.6.<br>Monday  |
|-------------------|-----------------|------------------|-------------------|--------------------|-------------------|------------------------|-------------------|------------------------|------------------|
|                   |                 | Field trip A1    | Opening ceremony  | Morning Session 1  | Morning Session 1 | Workshop 2<br>(part 2) | Field trip C1     |                        |                  |
|                   |                 | Field trip A2    | Plenary lecture   |                    |                   |                        | Field trip C2     |                        |                  |
|                   |                 | Field trip A3    | Coffee break      | Coffee break       | Coffee break      |                        | Field trip C4     |                        |                  |
|                   |                 |                  | Morning Session 1 | Morning Session 2  | Morning Session 2 |                        |                   |                        |                  |
|                   |                 | Workshop 1       | Lunch             | ECS W1             | Lunch             | ECS W2                 | Lunch             | ECS W2                 |                  |
|                   |                 |                  | Plenary lecture   |                    | Plenary lecture   |                        |                   |                        |                  |
|                   |                 |                  | Afternoon Session |                    | Afternoon Session |                        | Afternoon Session | Workshop 2<br>(part 1) |                  |
|                   |                 |                  | Coffee break      |                    | Coffee break      |                        | Coffee break      |                        |                  |
|                   |                 |                  | Poster Session    | ECS Corner         | Poster Session    | ECS Corner             | Poster Session    | ECS Corner             | General Assembly |
|                   |                 |                  |                   |                    |                   | Closing ceremony       |                   |                        |                  |
|                   |                 | Icebreaker party | ECS Party         | Gala Dinner        |                   |                        |                   |                        |                  |

### Organizing Committee

Lara Wacha, *chair*, Croatian Geological Survey, Zagreb

Katarina Gobo, University of Zagreb, Faculty of Science

Nikolina Ilijanić, Croatian Geological Survey, Zagreb

Tvrtko Korbar, Croatian Geological Survey, Zagreb

Marijan Kovačić, University of Zagreb, Faculty of Science

Duje Kukoč, Croatian Geological Survey, Zagreb

Borna Lužar-Oberiter, University of Zagreb, Faculty of Science

Maja Martinuš, University of Zagreb, Faculty of Science

Slobodan Miko, Croatian Geological Survey, Zagreb

Davor Pavelić, University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering

Kristina Pikelj, University of Zagreb, Faculty of Science

Igor Vlahović, University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering

## Scientific Committee

### President:

**Igor Vlahović**, *University of Zagreb, Croatia*

### Members:

**Nevena Andrić Tomašević**, *Karlsruhe Institute of Technology, Germany*

**Bruno Campo**, *University of Bologna, Italy*

**Sonia Campos Soto**, *Complutense University of Madrid, Spain*

**Luca Caracciolo**, *FAU Erlangen-Nürnberg, Germany*

**Blanka Cvetko Tešović**, *University of Zagreb, Croatia*

**Shahin E. Dashtgard**, *Simon Fraser University, Canada*

**Andrea Di Capua**, *National Research Council – IGAG, Italy*

**Goran Durn**, *University of Zagreb, Croatia*

**Gianluca Frijia**, *University of Ferrara, Italy*

**Massimiliano Ghinassi**, *University of Padova, Italy*

**Luis Gibert Beotas**, *University of Barcelona, Spain*

**Bosiljka Glumac**, *Smith College, USA*

**Antun Husinec**, *St. Lawrence University, USA*

**Stuart Jones**, *Durham University, UK*

**Tvrtko Korbar**, *Croatian Geological Survey, Croatia*

**Marijan Kovačić**, *University of Zagreb, Croatia*

**Juan Carlos Laya**, *Texas A&M University, USA*

**Marta Marchegiano**, *University of Granada, Spain*

**Cole McCormick**, *Pennsylvania State University, USA*

**Mardi McNeil**, *Geoscience Australia, Australia*

**Theresa Nohl**, *University of Vienna, Austria*

**Shuxin Pan**, *PetroChina – NWGI, China*

**Guido Pastore**, *University of Milano–Bicocca, Italy*

**Maximiliano Paz**, *University of Saskatchewan, Canada*

**Daniel A. Petráš**, *Czech Geological Survey, Czech Republic*

**Miquel Poyatos-Moré**, *Universitat Autònoma of Barcelona, Spain*

**Joanna Pszonka**, *Polish Academy of Sciences – MEERI, Poland*

**John J.G. Reijmer**, *Vrije Universiteit Amsterdam, The Netherlands*

**Valentina Marzia Rossi**, *National Research Council – IGG, Italy*

**Arnoud Slotman**, *Colorado School of Mines, USA*

**Mirosław Slowakiewicz**, *University of Warsaw, Poland*

**Thomas Steuber**, *Khalifa University of Science and Technology, Abu Dhabi, UAE*

**Finn Surlyk**, *University of Copenhagen, Denmark*

**Michal Šujan**, *Comenius University in Bratislava, Slovakia*

**Romain Vaucher**, *University of Geneva, Switzerland*

**Alan Vranjković**, *INA Oil Company, Croatia*

**Lara Wacha**, *Croatian Geological Survey, Croatia*

**Guodong Wang**, *PetroChina, China*

**Pujun Wang**, *Jilin University, China*

**Valentin Zuchuat**, *RWTH Aachen University, Germany*

**Nadja Zupan Hajna**, *Research Centre of the Slovenian Academy of Sciences and Arts, Slovenia*

## GENERAL INFORMATION

### Language of the Meeting

English will be the official language of all Meeting activities.

You can change the presenting author in case of unforeseen circumstances and absence from the conference by addressing via e-mail [info@iasdubrovnik2023.org](mailto:info@iasdubrovnik2023.org).

Please note that only abstracts of participants who paid the registration fee will be included in the book of abstracts.

## Instructions for presenters

### Oral presentation

Each oral presentation **can last up to 12 minutes** (leaving at least 2 minutes for questions and discussion). Please format slides in widescreen 16:9 using the PowerPoint on screen page set-up function. Slides formatted at 4:3 can be shown, but there will be some blank screen to the sides of the slide. Please make slides easily readable with large text and do not put too much information on each slide.

Please upload slides in the **Speaker ready room** (slide corner) **on the day before your presentation**. Please check carefully that all videos run correctly and ensure that you have uploaded all the necessary files.

### Poster presentation

**Maximum poster size** is limited by the size of the panel, **which is 100 cm in width and 200 cm in height (i.e. portrait orientation)**. The size of the poster can be smaller than the panel but must not exceed aforementioned maximum dimensions. **For each poster a dedicated numbered poster board** with fixing material will be provided.

### Registration

Upon arrival, please proceed to the **Welcome Desk**. Registration will be available every day from **Monday, 12<sup>th</sup> to Thursday 15<sup>th</sup>** from **8:00 to 19:00**. The congress badge is mandatory to access the meeting. Onsite payment will be possible.

### Registration fees (EUR)

|                     | Student/Retired IAS member | Student/Retired non-IAS member | Professional IAS member | Professional non-IAS member |
|---------------------|----------------------------|--------------------------------|-------------------------|-----------------------------|
| EARLY               | 200                        | 300                            | 400                     | 600                         |
| REGULAR             | 280                        | 350                            | 500                     | 750                         |
| ON SITE             | 340                        | 400                            | 650                     | 1000                        |
| ONE DAY             | 120                        | 140                            | 250                     | 350                         |
| Accompanying person | 90                         | 90                             | 90                      | 90                          |

### Cancellation policy

All cancellations have to be sent by e-mail to [petra@spektar-holidays.hr](mailto:petra@spektar-holidays.hr).

Cancellation before March 01, 2023 – full refund deducting handling fee of 30 EUR.

Cancellation from March 01, 2023 to April 01, 2023 – refund of 50% deducting handling fee of 30 EUR.

Cancellation after April 01, 2023 – no refund.

### Visa and Letter of Invitation

We will provide a personal Letter of Invitation for the purposes of obtaining a visa to attend the IAS Meeting in Dubrovnik. The Letter of Invitation can be issued only to those who have completed the registration and paid the registration fee.

## Plenary speakers

Plenary lecture: Tuesday, June 13<sup>th</sup>, 10:00h, Room Mare

### **Coastal Changes 21st century: Perspectives from a sedimentologist**

**William Helland-Hansen**

University of Bergen, Norway

The majority of global coasts are projected to experience sea-level rise in the 21st century. Coasts and coastal lowlands are of great societal, economical and agricultural value with nearly 40% of the World's population living within 100 km of the coast. Understanding the causes of coastal change is urgently needed to mitigate risks, prepare, and adapt to acceleration of sea-level rise and more severe and frequent extreme weather events in the 21st century.

As reflected in the reports from the Intergovernmental Panel on Climate Change (IPCC), most research effort in predicting global-scale coastal changes in this century is focused on global sea-level changes, including the effects of melting ice-sheets and glaciers, the contribution from thermal expansion of oceanic waters, oceanic and atmospheric circulation, glacioisostatic adjustments (GIA) and gravitational effects. Thus far, less emphasis has been on fully integrating the impacts of global sea-level changes with the key natural and anthropogenic forced processes of vertical land movements, sediment delivery and sediment distribution, factors which are critical to understand and predict coastal changes.

In this talk I will review the key factors determining coastal change and the current status of coastal change predictions for the 21st century. I will also address the relationship between coastal type and present and future population density and inundation levels.

Plenary lecture: Wednesday, June 14<sup>th</sup>, 14:30h, Room Mare-1

## Past climate changes – a view from the karst underground

Petra Bajo

Croatian Geological Survey, Croatia

Climate change is one of the greatest challenges that the human society is facing nowadays. The 30-year long history of addressing this issue by scientific community might imply that palaeoclimate research is losing its relevance in the 21st century. Yet, an increasing number of high-quality research studies performed around the world would argue against this and witnesses the importance of palaeoclimatology as a backbone in understanding not only the causes of the natural climate variability in the past but also in assisting more accurate predictions of anthropogenically-driven climate changes in the future.

Speleothems, secondary cave deposits like stalagmites and flowstones, play an outstanding role in the field of palaeoclimatology firstly due to their amenability to radiometric dating as well as due to the possession of a remarkable number of climate-sensitive proxies. The majority of studies on past climate changes derived from speleothems rely on U/Th disequilibrium dating method. In this talk I will demonstrate an example where the less widely used U/Pb dating method for dating of speleothems has enabled deciphering one of the longest standing palaeoclimate debates centered around the causes of glacial-interglacial transitions, specifically during the Middle Pleistocene transition.

Despite their indisputable strengths, speleothems are not free of weaknesses like any other palaeoclimate archive. One of their most significant weaknesses lies in the often complex and skewed link between their chemical proxies (e.g. stable isotope ratios of oxygen and carbon, trace element composition) and climate variables at the surface. It was long time ago understood that extensive cave monitoring studies might help in resolving this conundrum by exploring the processes involved in transferring and modifying the climate signal from the surface, through the soil zone, epikarst and bedrock to the cave interior and finally speleothems under modern conditions. In the last part of this talk I will present results of a recently started project that includes a monitoring program of a cave site in North Croatia and their implications for interpretation of speleothem records from this site and beyond.

Plenary lecture: Wednesday, June 15<sup>th</sup>, 14:30h, Room Mare-1

## **Not all is lost. How we study mudstones on Mars without thin sections and make a virtue of necessity**

**Juergen Schieber**

Indiana University, U.S.A.

As on Earth, mudstones are likely the most abundant sedimentary rock on Mars and a key component in our efforts to search for life on other planets. In the quest to understand a mudstone's origins, the study of thin sections traditionally represents the coin of the realm. Yet, whereas on Earth this may not always be easy, but doable nonetheless, on Mars – it is not even an option. Mars rovers may return images at a range of resolutions (20-200 microns per pixel), but even at best resolutions they are a poor substitute for something as simple as a 10x hand lens.

Fortunately, mudstones have a live beyond the microscopic. Especially in the absence of bioturbation (a sensation were we to find it on Mars), mudstones display textural, compositional, and bedding attributes that are accessible to rover instrumentation. Whereas on Mars we do not have the benefit of saw-cut and polished slabs to make these features optimally observable, we do have “lucky breaks” where the soft touch of millennia of Aeolian abrasion brings out highly instructive details of texture and bedding that can be captured by on-board cameras. Also, in the case of Mars Science Lab (MSL), allied instruments like APXS (bulk rock composition), ChemCam (remote chemistry via Laser Breakdown Spectroscopy), and CheMin (mineralogy by XRD) provide us with bulk chemical and mineral composition, and even grain by grain chemistry.

Through carefully considered integration, comparison to Earth analogs, and qualitative and numerical modeling, these data sets provide a compositional and textural context that can provide insights into depositional conditions and diagenetic history that are just as profound as those obtained through traditional petrographic approaches. Though necessitated by limitations in resources, the way we study mudstones on Mars brings with it new and different perspectives that also provide untrodden pathways for their study on Earth. To paraphrase T.S. Eliot; the limitations of rover geology shall not keep us from studying Martian mudstones, and at the end of the journey we will conceptually arrive where we started, and know those we thought we knew for the first time.

## SHORT PROGRAMME

Tuesday, 13th June 2023

|                                |   |  |   |  |   |  |   |             |             |              |              |              |              |
|--------------------------------|---|--|---|--|---|--|---|-------------|-------------|--------------|--------------|--------------|--------------|
| <b>Tuesday, 13th June 2023</b> |   |  |   |  |   |  |   |             |             |              |              |              |              |
| 9:15 – 9:45                    | <b>OPENING CEREMONY, Room Mare</b>  |  |   |  |   |  |   |             |             |              |              |              |              |
| 9:45 – 10:30                   | <b>PLENARY LECTURE: William Helland-Hansen, Room Mare</b>                         |  |   |  |   |  |   |             |             |              |              |              |              |
| 10:30 – 11:00                  | <b>Coffee break</b>   |  |   |  |   |  |   |             |             |              |              |              |              |
| <b>Room</b>                    | <b>MARE 1-2</b>   | <b>MARE 3</b>  | <b>MARE 4</b>   | <b>LUNA</b>  | <b>DUB 1</b>  | <b>DUB 2</b>   | <b>PINIJA</b>   |             |             |              |              |              |              |
| 11:00 – 11:15                  | <b>2.1.</b><br>Biogeodynamics of Mesozoic marine carbonate depositional systems   | <b>5.1.</b> Lake sediments as archives of natural and anthropogenic changes in climate and the environment | <b>6.3.</b> Coastal boulder deposits (CBD) as archives of extreme wave events                             | <b>6.2.</b> Mixed process expressions, and controls on sedimentation in tidal systems                  | <b>11.2.</b> Trace fossils in sedimentological analysis: Expanding their applicability in space and deep time | <b>13.5.</b> Provenance of sediments – from source to sink | <b>14.1.</b> Intramountain basins – recorders of tectonics, climate, and biota interactions |             |             |              |              |              |              |
| 11:15 – 11:30                  |   |  |   |  |   |  |   |             |             |              |              |              |              |
| 11:30 – 11:45                  |   |  |   |  |   |  |   |             |             |              |              |              |              |
| 11:45 – 12:00                  |   |  |   |  |   |  |   |             |             |              |              |              |              |
| 12:00 – 12:15                  |   |  |   |  |   |  |   |             |             |              |              |              |              |
| 12:15 – 12:30                  |   |  |   |  |   |  |   |             |             |              |              |              |              |
| 12:30 – 12:45                  |   |  |   |  |   |  |   |             |             |              |              |              |              |
| 12:45 – 13:00                  |   |  | <b>6.4.</b> The sedimentology of coastal storms past & present: informing preparedness for climate change | <b>14.2.</b> Tectonics and sedimentation   |   |  |   |             |             |              |              |              |              |
| 13:00 – 14:30                  | <b>Lunch break</b>  |  |   |  |   | <b>ECS Workshop 1</b>                                      |   |             |             |              |              |              |              |
| <b>Room</b>                    | <b>MARE 1</b>   | <b>MARE 2</b>  | <b>MARE 3</b>   | <b>MARE 4</b>  | <b>DUB 1</b>  | <b>DUB 2</b>   | <b>PINIJA</b>   |             |             |              |              |              |              |
| 14:30 – 14:45                  | <b>2.2.</b> Shallow-marine carbonate depositional systems and carbonate platforms | <b>6.6.</b> Shallow-marine clastic depositional systems  | <b>4.5.</b> Modern advancements in the characterization of dolomite                                       | <b>6.1.</b> Coastal depositional systems: understanding past and modern systems for a resilient future | <b>11.2.</b> Trace fossils in sedimentological analysis: Expanding their applicability in space and deep time | <b>13.5.</b> Provenance of sediments – from source to sink | <b>14.2.</b> Tectonics and sedimentation  |             |             |              |              |              |              |
| 14:45 – 15:00                  |   |  |   |  |   |  |   |             |             |              |              |              |              |
| 15:00 – 15:15                  |   |  |   |  |   |  |   |             |             |              |              |              |              |
| 15:15 – 15:30                  |   |  |   |  |   |  |   |             |             |              |              |              |              |
| 15:30 – 15:45                  |   |  |   |  |   |  |   |             |             |              |              |              |              |
| 15:45 – 16:00                  |   |  |   |  |   |  |   |             |             |              |              |              |              |
| 16:00 – 16:15                  |   |  |   |  |   |  |   |             |             |              |              |              |              |
| 16:15 – 16:30                  |   |  | <b>8.1.</b> Subaqueous sediment gravity flow processes and products                                       |  |   |  |   |             |             |              |              |              |              |
| 16:30 – 17:00                  | <b>Coffee break</b>   |  |   |  |   |  |   |             |             |              |              |              |              |
| 17:00 – 18:30                  | <b>Poster Session, Lobby</b>  |  |   |  |   |  |   |             |             |              |              |              |              |
|                                | <b>2.2.</b>   | <b>4.5.</b>  | <b>5.1.</b>   | <b>6.1.</b>  | <b>6.2.</b>   | <b>6.3.</b>  | <b>6.4.</b>   | <b>6.6.</b> | <b>8.1.</b> | <b>11.2.</b> | <b>13.5.</b> | <b>14.1.</b> | <b>14.2.</b> |

**Wednesday, 14th June 2023**

| Room                 | MARE 1   | MARE 2  | MARE 3  | MARE 4  | PINIJA  | DUB 1   | DUB 2   | LUNA   |              |              |
|----------------------|--|---|---|---|---|---|---|--|--------------|--------------|
| 9:00 – 9:15          | <b>2.2.</b> Shallow-marine carbonate depositional systems and carbonate platforms  | <b>5.2.</b> New advances in lacustrine sedimentology                                  | <b>1.2.</b> Cave sediments – archives of past environmental changes | <b>12.3.</b> The stratigraphic record of paleoenvironmental variation in epeiric basins | <b>13.2.</b> Controlling factors of sediment generation in source to sink studies | <b>8.3.</b> General topics in clastic sedimentology   | <b>4.2.</b> Early diagenesis in carbonate sediments                     | <b>10.1.</b> Evaporitic sedimentary environments, processes and products, with emphasis on the Messinian Salinity Crisis |              |              |
| 9:15 – 9:30          |  |   |   |   |   |   |   |  |              |              |
| 9:30 – 9:45          |  |   |   |   |   |   |   |  |              |              |
| 9:45 – 10:00         |  |   |   |   |   |   |   |  |              |              |
| 10:00 – 10:15        |  |   |   |   |   |   |   |  |              |              |
| 10:15 – 10:30        |  |   |   |   |   |   |   |  |              |              |
| 10:30 – 10:45        |  |   |   |   |   |   |   |  |              |              |
| 10:45 – 11:00        |  |   |   |   |   |   |   |  |              |              |
| <b>11:00 – 11:30</b> | <b>Coffee break</b>  |   |   |   |   |   |   |  |              |              |
| 11:30 – 11:45        | <b>2.2.</b>  | <b>5.2.</b> New advances in lacustrine sedimentology                                  | <b>1.3.</b> Continental carbonates, karst and caves                 | <b>10.2.</b> Evaporites   | <b>13.3.</b> Quantitative study for source-to-sink system                         | <b>7.1.</b> Deep-marine clastic depositional systems  | <b>4.2.</b> Early diagenesis in carbonate sediments                     | <b>9.1.</b> Volcanism and sedimentology  |              |              |
| 11:45 – 12:00        | <b>12.1.</b> Understanding major paleoenvironmental and paleontological crises during the Mesozoic by exploring shallow water carbonates geological archives |   |   |   |   |   |   |  |              |              |
| 12:00 – 12:15        |  |   |   |   |   |   |   |  |              |              |
| 12:15 – 12:30        |  |   |   |   |   |   |   |  |              |              |
| 12:30 – 12:45        |  |   |   |   |   |   |   |  |              |              |
| 12:45 – 13:00        |  |   |   |   |   |   |   |  |              |              |
| <b>13:00 – 14:15</b> | <b>Lunch break</b>   |   |   |   |   |   | <b>ECS Workshop 2</b>   |  |              |              |
| <b>14:15 – 15:00</b> | <b>PLENARY LECTURE: Petra Bajo, Room Mare 1</b>  |   |   |   |   |   |   |  |              |              |
| Room                 | MARE 1   | MARE 2  | MARE 3  | MARE 4  | PINIJA  | DUB 1   | DUB 2   | LUNA   |              |              |
| 15:00 – 15:15        | <b>11.1.</b> Carbonate biomineralization processes, bio-minerals, environmental mineralogy /geochemistry   | <b>12.2.</b> The sedimentary role of calcareous green algae, from Paleozoic to modern | <b>1.3.</b> Continental carbonates, karst and caves                 | <b>12.5.</b> Paleoclimate and paleoenvironmental changes in shallow-marine seas         | <b>9.2.</b> Impacts of volcanism on sedimentary systems                           | <b>8.2.</b> Analogues and experiments for understanding early diagenesis of clastic sediments | <b>4.4.</b> Resedimented carbonates – generation, transport, deposition | <b>12.8.</b> Stratigraphic markers and archives  |              |              |
| 15:15 – 15:30        |  |   |   |   | <b>9.3.</b> Volcaniclastic deposits   |   |   |  |              |              |
| 15:30 – 15:45        |  |   |   |   |   |   |   |  |              |              |
| 15:45 – 16:00        |  |   |   |   |   |   |   |  |              |              |
| 16:00 – 16:15        |  |   |   |   |   |   |   |  |              |              |
| 16:15 – 16:30        |  |   |   |   |   |   |   |  |              |              |
| <b>16:30 – 17:00</b> | <b>Coffee break</b>  |   |   |   |   |   |   |  |              |              |
| <b>17:00 – 18:30</b> | <b>Poster Session, Lobby</b>   |   |   |   |   |   |   |  |              |              |
|                      | <b>1.2.</b>  | <b>1.3.</b>   | <b>4.2.</b>   | <b>4.4.</b>   | <b>5.2.</b>   | <b>7.1.</b>   | <b>8.2.</b>   | <b>8.3.</b>  | <b>9.1.</b>  | <b>9.2.</b>  |
|                      | <b>9.3.</b>  | <b>10.1.</b>  | <b>10.2.</b>  | <b>11.1.</b>  | <b>12.1.</b>  | <b>12.2.</b>  | <b>12.3.</b>  | <b>12.5.</b>   | <b>12.8.</b> | <b>13.3.</b> |

**Thursday, 15th June 2023**

| ROOM                 | MARE 1   | MARE 2   | MARE 3  | MARE 4   | DUB 1   | DUB 2   | PINIJA  |  |             |              |              |              |              |              |              |              |              |              |
|----------------------|--|--|---|--|---|---|---|--|-------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| 9:00 – 9:15          | <b>15.1.</b> Seismo-sedimentological characterization of 3D seismic data | <b>5.3.</b> Continental clastic depositional systems   | <b>13.4.</b> From river catchments to the deep sea: case studies, applications, state of the art and new frontiers of source-to-sink research | <b>12.7.</b> IGCP739: The Mesozoic–Paleogene hyperthermal events | <b>4.1.</b> Special Session in celebration of Maurice Tucker’s contribution to carbonate sedimentology: Studies of carbonate rocks and sediments – from sequence stratigraphy and cycles to dolomites and microbialites | <b>6.5.</b> Spatial and temporal variability in coastal to shelf environments | <b>1.1.</b> The response of continental carbonates to (paleo)environmental perturbations: New insights from emergent and old/refined indicators |  |             |              |              |              |              |              |              |              |              |              |
| 9:15 – 9:30          |  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| 9:30 – 9:45          |  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| 9:45 – 10:00         |  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| 10:00 – 10:15        |  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| 10:15 – 10:30        |  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| 10:30 – 10:45        |  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| 10:45 – 11:00        |  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| <b>11:00 – 11:30</b> | <b>Coffee break</b>  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| 11:30 – 11:45        | <b>15.2.</b> Sedimentology and hydrocarbons                              | <b>5.3.</b>  | <b>13.4.</b>  | <b>12.7.</b> IGCP739: The Mesozoic–Paleogene hyperthermal events | <b>12.6.</b> Paleosols as valuable records of terrestrial climate and environments  | <b>4.7.</b> General topics in carbonate sedimentology                         | <b>3.1.</b> Deep-marine carbonate depositional systems  |  |             |              |              |              |              |              |              |              |              |              |
| 11:45 – 12:00        |  | <b>4.6.</b> Carbonate sedimentary systems and their petrophysical expression   |   |  |   |   |   | <b>4.3.</b> Non-marine and marine carbonate factories and their expressions in sequence stratigraphy |             |              |              |              |              |              |              |              |              |              |
| 12:00 – 12:15        |  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| 12:15 – 12:30        |  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| 12:30 – 12:45        |  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| 12:45 – 13:00        |  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| <b>13:00 – 14:15</b> | <b>Lunch break</b>   |  |   |  |   | <b>ECS Workshop 3</b>   |   |  |             |              |              |              |              |              |              |              |              |              |
| <b>14:15 – 15:00</b> | <b>PLENARY LECTURE: Juergen Schieber, Room Mare 1</b>                    |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| Room                 | MARE 1   | MARE 2   |   | MARE 4   | DUB 1   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| 15:00 – 15:15        | <b>16.2.</b> Techniques and technologies in sedimentology                | <b>17.1.–17.5.</b> 17.1.: Open Science: data, software, knowledge, and education; 17.3.: Sedimentology and geotourism; 17.4.: Sedimentology and archaeology; 17.5.: Open topics in sedimentology |   | <b>12.7.</b> IGCP739: The Mesozoic–Paleogene hyperthermal events | <b>12.6.</b> Paleosols as valuable records of terrestrial climate and environments  |   |   |  |             |              |              |              |              |              |              |              |              |              |
| 15:15 – 15:30        |  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| 15:30 – 15:45        |  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| 15:45 – 16:00        |  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| 16:00 – 16:15        |  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| 16:15 – 16:30        |  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| <b>16:30 – 17:00</b> | <b>Coffee break</b>  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
| <b>17:00 – 18:30</b> | <b>Poster Session</b>  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |
|                      | <b>1.1.</b>  | <b>3.1.</b>  | <b>4.1.</b>   | <b>4.3.</b>  | <b>4.6.</b>   | <b>4.7.</b>   | <b>5.3.</b>   | <b>6.5.</b>  | <b>12.6</b> | <b>12.7.</b> | <b>13.4.</b> | <b>15.1.</b> | <b>15.2.</b> | <b>16.2.</b> | <b>17.1.</b> | <b>17.3.</b> | <b>17.4.</b> | <b>17.5.</b> |
| <b>18:30</b>         | <b>CLOSING CEREMONY</b>  |  |   |  |   |   |   |  |             |              |              |              |              |              |              |              |              |              |



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**IAS**

MEETING OF  
SEDIMENTOLOGY



12 - 16 June 2023  
CROATIA  
DUBROVNIK

## Scientific Themes

### Special Sessions (SpS) and General Sessions (GS)

**Presentations in each section are shown in alphabetical order of presenting authors - the final program with a detailed schedule will be published 10 days before the meeting**

#### Theme 1. Continental carbonates, karst and cave deposits

**1.1. SpS 1: The response of continental carbonates to (paleo)environmental perturbations: New insights from emergent and old/refined indicators**  
(Convenors: Daniel A. Petrash, Ivica Pavičić and Andrea Martín Pérez)

##### Oral presentations:

- Ana Maria Alonso-Zarza: Agricultural irrigation systems in volcanic islands: carbonate factories in continental settings
- Karina Apolinarska: The temporal variability of the Holocene calcium carbonate deposition at four alkaline fens in the young glacial area of central Europe
- Maciej Bojanowski: Proterozoic dolostones deposited in an ice-covered, alkaline lake during the sturtian panglaciation
- Marta Marchegiano: The ostracod clumped-isotope thermometer: A novel tool to reconstruct quantitative continental climate changes
- Andrea Martín-Pérez: Precipitation mechanisms and early diagenesis of modern cryogenic cave carbonates
- Andrea Molero: On the origin of coloured patinas over speleothems in a Mediterranean cave
- Daniel Petrash: Investigating the intermittent carbonate factory of the mid-Miocene Eger Rift Basin in Central Europe: A geochemical approach
- Mike Rogerson: Linking product and process in terrestrial carbonates: experimental construction of a robust phase diagram
- Maria del Mar Simonet Roda: Using Electron Backscatter Diffraction (EBSD) to reveal formative mechanisms of Cretaceous lacustrine stromatolite at ultra-high-resolution

##### Poster presentations:

- Sadegh Adineh: Origin of atypical carbonate caprock assemblage in the Iranian salt diapirs (Paskhand salt diapir, Southern Iran)

- Concha Arenas Abad: Stable isotope composition record through the Oligocene-Miocene Transition in lacustrine sequences (Ebro Basin, NE Iberia)
- Natalia Illueca Fernández: Climatic periodicity in the Cretaceous synrift lacustrine sediments of the El Castellar Formation (Galve Subbasin, NE Spain)
- Alessandro Mancini: Using stable isotopes in deciphering climate changes from travertine deposits: the case of the Lapis Tiburtinus succession (Tivoli, central Italy)
- Javier Martín-Chivelet: Paleoenvironments in the Sierra de las Cabras Ichnofossil Site (Late Miocene, SE Spain): A freshwater wetland in a semi-arid climate
- Torromé Diego: Marine influenced low-gradient ephemeral lakes and vegetated marshes forming a palustric-lacustric carbonate setting (latest Cretaceous, Iberian Basin, Spain)
- Jinyi Wang: Controlling Factors for Quality of Lower Jurassic Nonmarine Shale Reservoirs in Sichuan Basin, China
- Ziru Zhao: Paleoenvironmental reconstruction of Bonan Sag, Bohai Bay Basin: Evidence from aragonite laminae

**1.2. SpS 2: Cave sediments – archives of past environmental changes** (Convenors: Nadja Zupan Hajna, Petra Bajo, Maša Surić, Tomislav Kurečić and Astrid Švara)

##### Oral presentations:

- Tomislav Kurečić: Changes in Cave Sedimentation Mechanisms During the Late Quaternary: An Example from the Lower Cerovačka Cave, Croatia
- Susanne Gier: Varve-like sediments in caves from the northern rim of the Dachstein Massif (Austria)
- Adrian Immenhauser: Carbonates that defy gravity
- Primož Miklavc: Sedimentology and provenance of unroofed cave sediments as paleoflow proxies, Laški Ravnik (central Slovenia)
- Bogdan P. Onac: Mid-to-Late Holocene climate changes in the Southwestern USA inferred from stable isotope analysis of ice in lava tube caves
- Dominik Schmitt: Great Blue Hole: a 7000-year-long sedimentological archive of tropical cyclone frequency at annual resolution
- Astrid Švara: Sedimentological record in the Plio-Quaternary speleogenetic evolution of the Loza Cave System (Slavinski ravnik, SW Slovenia)
- Nadja Zupan Hajna: Sedimentation in caves: clastic cave sediments and speleothem multiproxy datasets; examples from Slovenia

##### Poster presentations:

- Šimon Kdýr: Paleomagnetic and rock magnetic investigations of cave sediments in Lipiška Jama: insight into Classical Karst (SW Slovenia) evolution
- Nadja Zupan Hajna: The sedimentary sequence of the Račiška pečina



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### 1.3. GS: Continental carbonates, karst and caves

#### Oral presentations:

- Alham Al-langawi: Diagenesis of Palaeozoic-Mesozoic Tethys Ocean Carbonate succession- Oman Mountains
- Parthasarathi Ghosh: Genesis of ferruginous grain coatings in palustrine limestones, the Early Jurassic of India
- Fenglei Li: Characteristics of differential distribution of fracture-cavity karst reservoirs in different carbonate sedimentary environment in Tabei area, Tarim Basin
- Ruben Loma: Controls in polygenetic karst from the Upper Jurassic rimmed carbonate platform in offshore Kenitra, Morocco
- Alessandro Mangione: Hypogenic void systems in Mississippian carbonates (UK) and implications for geothermal heat production
- Kevin Moreau: Assessing the age and evolution of a 30 Ma old karstic system by in-situ U-Pb dating of calcite cements
- Bojan Otoničar: Relative sea level changes recorded in the stratigraphic position of paleokarst caves/cavities and associated cave sediments; Podgrad, SW Slovenia
- Jingbin Wang: Using Southern Guizhou modern karst systems as analogs for the Ordovician paleokarst reservoirs in Shunbei Oilfield, Tarim Basin, NW China
- YaJun Zhang: The Paleo-Karst Characteristics of Carboniferous KT-I Formation in the Eastern Margin of Pre-Caspian Basin

#### Poster presentation:

- Ivona Ivkić Filipović: Enigmatic occurrence of botryoidal carbonates (aragonite?) in a Holocene karst paleolake Prološko Blato (Dalmatia, Croatia)
- Zuriñe Larena: Palaeoenvironmental reconstruction of the lacustrine-palustrine record of Peña Adrian section, Upper Miocene (Miranda-Trebiño basin, N Spain)
- Andrea Molero: Speleothems and speleogenesis of Don Juan Cave (Jalance, SE Spain)
- Bojan Otoničar: Dedolomite as cave wall rock
- Eduardo Roemers-Oliveira: Anatomy and stacking pattern of palustrine-dominated carbonate parasequences (Thanetian-Ypresian, SE France): insights from carbonate petrography associated with aerial photogrammetry

### Theme 2. Shallow-marine carbonate depositional systems and carbonate platforms

#### 2.1. SpS 1: Biogeodynamics of Mesozoic marine carbonate depositional systems (Convenors: Thomas Steuber and Mariano Parente)

##### Oral presentations:

- Grgasović Tonči: Basin to reef transition in the Middle Triassic Northwestern Croatian rift related basin (NCTRB)
- Antun Husinec: Biotic and carbon cycle perturbations during OAE1a along the NE Arabian Plate, Zagros Mountains
- Jarno Huygh: Astronomical pacing of flint beds in the European chalk sea (type-Maastrichtian, Upper Cretaceous)
- Arnaud Ruchat: Bajocian coral reefs: Likely a global reef growth event
- Steuber Thomas: Biogeodynamics of Cretaceous marine carbonate production

#### 2.2. GS: Shallow-marine carbonate depositional systems and carbonate platforms

##### Oral presentations:

- Ammar Ahmad (Klaus Eder): Integration of Forward Stratigraphic Modeling for characterizing a Reefal Carbonate buildup within the Middle East
- Drew Brown: Geochemical Analyses and the Impact of Bioturbation in Hardground Formation; the Abu Dhabi Coastal Sabkha
- Blanka Cvetko Tešović: Larger benthic foraminifera as an important tool for palaeoenvironmental interpretation of Campanian inner platform settings, island of Brač (Croatia)
- Eberhard Gischler: Sediments and facies of modern warm-water carbonate platforms: a global perspective
- Yuan Huang: Understanding depositional processes and controls of the Cambrian carbonate platforms (northern Tarim Basin, China) by using 3D stratigraphic forward modelling
- Fabian Käsbohrer: Combined Architectural-Element and Microfacies Analyses in Carbonate Sedimentology: the intra-basin shoal complex of the Lower Muschelkalk (Rüdersdorf Formation, Anisian)
- Mateus Kroth: Revision of the Upper Cretaceous to Danian Stratigraphy of the Upper Chalk Group of South Limburg, the Netherlands
- Cecilia Lopez-Gamundi: Deciphering the Drivers of Suspended Sediment atop the Great Bahama Bank
- Kathrine Maxwell: Fossil coral reef terraces in Southeast Asia as recorder of sea-level changes since the Pleistocene
- Diana Ortega-Ariza: Miocene shallow-water tropical transitional carbonate systems in the Caribbean affected by adverse photic zone conditions: Characteristics and how they formed



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Manuel Paez-Reyes: Origin of low-frequency sedimentary cycles in the Middle Magdalena Valley Basin of Colombia: A 30 Ma sedimentary archive of the Upper Cretaceous orbital beat

Alberto Riva: New insights on the eastern margin of the Early Jurassic Trento Platform (Southern Alps)

Lucija Slapnik: Sedimentary Succession with Reddish Polyphase Infillings in the Megalodontid Bivalves and Solution Voids in Julian Alps

Tanja Unger: Cave exposes three-dimensional architecture of a Middle Devonian biostrome

Aurelien Virgone: Role of metamorphic core complex (MCC) topography dynamic evolution during the Paleocene-Eocene Thermal Event (PETM): example of Coral Sea (PNG)

Jody M. Webster: Coral reef development and sea level changes over the past 50,000 years: new evidence from the northwest shelf of Australia

Hildegard Westphal: Low scleractinian coral diversity in the incipient Red Sea (Burdigalian, Saudi Arabia)

Yisi Zhong: Carbonate sediment dynamics in the Abu Dhabi lagoon

#### **Poster presentations:**

Sayed Hassan Alsaihati: Updated facies models for the Middle Jurassic Bathonian-Callovian Upper Dhurma, and Tuwaiq Mountain Formations of Central Arabian Plate

Juan Ignacio Baceta: "Temperate-like" seagrass development in a (sub) tropical terrigenous-influenced inner ramp setting (middle Eocene, Urbasa–Andia Plateau, Western Pyrenees)

Andrei Briceag: Cretaceous to middle Miocene carbonate platforms of SE Romania

Hao Cheng: Carbonate depositional models based on well-logging data statistics analysis: A case study of the Callovian-Oxfordian Stage in the Amu Darya Basin, ABU Dhabi

Tojo Chirakal: Facies, depositional setting and sequence stratigraphic evolution of Cenomanian to Turonian shallow water platform carbonates from southern and central Jordan

Diana Diers: Environmental changes during the late Holocene in the lagoon of Rasdhoo atoll (Maldives)

David Griffing: Development of reef microbialites from eemian portions of the Grotto Beach formation, San Salvador Island, Bahamas

Diego Marianelli: Tortonian - early Messinian carbonate ramp development in the Paleoadriatic domain, the role of Mediterranean evolution on carbonate factory and facies belt: insight from the Lithothamnion Limestone (Majella, Central Apennines Italy)

Maja Martinuš: Characteristics of subaerial exposure surfaces marking terrestrial periods during Late Cretaceous to Early Paleogene carbonate platform evolution, the island of Brač (Croatia)

Victor Mircescu Cristian: Facies analysis, biostratigraphy and isotope chemostratigraphy of the Upper Jurassic-lowermost Cretaceous transition in the eastern Getic Carbonate Platform

Prantik Mondal: Brecciated carbonate rocks within Late Cretaceous Bagh Group, Central India: Implications on genesis and paleoenvironment

Claudia Morabito: Carbonate Factory Response through the MECO Event: Insight from the Middle Eocene of the Apulia Carbonate Platform

María Najarro: Contrasting shorelines of an Albian carbonate platform (Cantabria, Spain): tidal flats versus eroded-bioturbated emergent surfaces

Francesca Petrella: Paleogeographic evolution of the early Middle Jurassic carbonate succession of the Sciacca area (southwestern Sicily)

Ángel Puga-Bernabéu: Mixed carbonate–siliciclastic tidal sedimentation in the Río Alías Strait, Early Pliocene, SE Spain

Jesus Reolid: Sedimentology and palaeontology of tidal carbonates from the Upper Triassic of the Internal Zones of the Betic Cordillera (SE Spain)

Ruberti Daniela: Current pathways in Rudist-dominated Upper Cretaceous shelves. Case studies from the Adria Promontory

Todaro Simona: A benthic community biodiversity crisis documented on a Rhaetian carbonate succession from western Tethys (Sicily)

Travé Anna: Diagenetic evolution of platform carbonates flanking diapiric structures: examples from Tazoult and Assemsouk salt walls (High Atlas, Morocco)

### **Theme 3. Deep-marine carbonate depositional systems**

#### **3.1. GS: Deep-marine carbonate depositional systems**

##### **Oral presentations:**

Sara Bashah: Marion contourite depositional system: implications on sea-level studies

Špela Goričan: Restricted to open-marine Middle Triassic basins of the Dinarides and their radiolarian faunas

Damian Lodowski: Towards the concise model of the latest Jurassic–earliest Cretaceous climate and oceanographic change in the Western Tethys

Purkis Sam: Deep-Sea Brine Pools Deliver an Exquisite Record of Climate and Tectonic Events in the Gulf of Aqaba (Red Sea)

##### **Poster presentations:**

Alexandra Delgado: The sedimentary record of the last Mesozoic anoxic event (OAE3) in a dying epicontinental sea

Rüdiger Henrich: Spectacular Alpine mass wasting deposits – a case study from the Liassic Alpine margin

Jose Maria Lopez-Garcia: Usefulness of strontium isotope stratigraphy in slope–basinal carbonate environments (Middle-Upper Jurassic, Mallorca, western Tethys)



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#### Theme 4. General topics in carbonate sedimentology

**4.1. SpS Special Session in celebration of Maurice Tucker's contribution to carbonate sedimentology: Studies of carbonate rocks and sediments – from sequence stratigraphy and cycles to dolomites and microbialites** (Convenors: Juan Carlos Laya, Paul V. Wright, Mirosław Slowakiewicz, Edoardo Perri and Trevor Burchette)

##### Oral presentations:

Daniel Ariztegui: Experimental and modelling results bridge the gap between biological and physical factors ruling the formation of freshwater ooids

Mario Borrelli: Cold seep carbonates in the Neogene succession of the Croton Basin (South Italy)

David Hunt: Structural and Stratigraphic Controls On Carbonate Ridge Mound Development, Diagenesis and Excess Permeability: A Barra Velha Formation, Pre-Salt Case Study, Santos Basin

Edoardo Perri: Fluvial barrage tufa as a natural lab for the improving of geotechnical engineering properties of sand by microbially induced calcium carbonate precipitation (MICP)

John Rivers: The Idea of Shallowing-Upward Peritidal Parasequences: A thing of the Past

Mirosław Slowakiewicz: The role of viruses in biomineralization of modern carbonate deposits as a key to the past

##### Poster presentations:

Robert Dalrymple: Carbonate Shoals and Coastal Barriers are Misunderstood

Juan-Carlos Laya: Controls on Neogene Carbonate Facies and Dolomitization on an Isolated Carbonate Platform – the Island of Bonaire

Irene Cantarero: Characteristics, distribution and origin of Cretaceous dolostones from the western Maestrat Basin (E Iberian Chain)

**4.2. SpS 2: Early diagenesis in carbonate sediments** (Convenors: Theresa Nohl, Chelsea Pederson, Mohammed Hashim, Juan Carlos Laya and Paul Wright)

##### Oral presentations:

Vagle Eivind Block: Gypsum-driven dedolomitization: Insights from reactive transport modelling

Alex Brasier: Recent freshwater stromatolites constructed of primary calcite spar

Gregor Eberli: Fast rates of microbially-mediated early marine cements

Pablo Forjanes: Susceptibility of aragonitic biominerals to diagenetic alteration

Juan-Carlos Laya: Early Diagenetic Processes on Resedimented Carbonates on the Sea Floor Lessons Learned from the Maldives and the Midland Basin, Texas

Matteo Mangiagalli: Controls on formation and early diagenesis of gypsum microbialites at Lake Afdera (Ethiopia)

Or Mordechai Bialik: Impact of storm-induced disturbance on slope diagenetic processes - caught in the act

Theresa Nohl: Phanerozoic trends in early diagenetic aragonite dissolution

Ashley Scott: Evaluating Diagenesis in Peritidal Carbonates: A Case Study from Southeast Indiana, USA

Peter K. Swart: Hypersaline Origins of Bahamian Dolomites: Evidence from New Geochemical Proxies

Renaud Toullec: Study of two carbonate seepages from lower to Upper Miocene Hikurangi active margin (New Zealand, North Island)

Paul Wright: Early marine carbonate diagenesis and bedding planes: why is there so much misinformation in the literature?

##### Poster presentations:

David De Vleeschouwer (Theresa Nohl): Coring technique choices in scientific ocean drilling affect the observed lithification and physical properties in marine carbonate sediments

Julien Douçot: Laboratory early diagenesis of carbonates: an experimental approach of geological processes, and their role on aquifer development

Olena Ganzha: Hydrothermal alteration of microcrystalline dolomite concretions from the Permian continental red beds

Martin Ladron de Guevara: Early post-sedimentary multi episodic fluid flow into post-rift Cemonian limestones in the NE of the hyperextended Basque-Cantabrian basin margin, western Pyrenees

Luke Nothdurft: Automated Mineral Analysis of Holocene Reef Rocks

**4.3. SpS 3: Non-marine and marine carbonate factories and their expressions in sequence stratigraphy** (Convenors: John Reijmer and Peter Burgess)

##### Oral presentations:

Pierre Boussagol: Role of microbial communities in carbonate precipitation in river systems and their efficiency in CO<sub>2</sub> capture and storage

Julien Michel: Is sea level driving greenhouse carbonate sedimentary systems?

Emmanuelle Vennin: Microbialite development and preservation in lakes

##### Poster presentations:

Irene Cantarero: The classical Santonian carbonate platforms of Les Collades de Basturs (southern Pyrenees) revisited with drone imagery

Xia Qinyu: Sedimentary Architecture of Carbonate Mud Mounds: A Case Study on the Dengying Formation of Sinian in Sichuan Basin, China



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#### 4.4. SpS 4: Resedimented carbonates – generation, transport, deposition

(Convenors: Arnoud Sloomman, Katarina Gobo, Krešimir Petrinjak, Rosine Riera and John Reijmer)

##### Oral presentations:

Christian Betzler: Disintegration of isolated tropical carbonate platforms through flank collapse and canyon erosion

Carolyn Furlong: A Process Sedimentology Approach to Understanding the Deposition of Fine-Grained Mixed Siliciclastic-Carbonate Systems: A Case Study from the Altares Member within the Lower Triassic Montney Formation, Western Canada Sedimentary Basin

Katarina Gobo: Resedimented carbonates in the evolution of the Dinaric Foreland Basin in northern Dalmatia, Croatia

C. Robertson Handford: Supercritical and critical bedforms in Mississippian (Visean) carbonate slope clinothems and basin-floor sediment waves, Kentucky-Tennessee, USA

Krešimir Petrinjak: Carbonate Turbidites of Istrian Flysch: Composition and Origin

Ángel Puga-Bernabéu: Architecture and genesis of Miocene margin-collapse carbonates (Prebetic, Betic Cordillera, S Spain)

Arnoud Sloomman: Shape-dependent settling velocity of skeletal carbonate grains: Implications for calciturbidites

##### Poster presentations:

Marco Brandano: Tortonian Carbonate intercalations in the foreland hemipelagic marls of Latium - Abruzzi (Central Italy). Depositional processes, triggering mechanisms and sediment composition of carbonate gravity flow

Milovan Fustic: The white cliffs of Aktau: Bioclastic deposits of the Maeotian (Upper Miocene, Eastern Paratethys) of Western Kazakhstan

Lina Jin: Calci-turbidites reveal seismic cycles of transform faults on slow-spreading mid-ocean ridge since 200 kyr BP

Sebastian Lindhorst: Erosive channels in deep-water areas surrounding carbonate banks of the Queensland Plateau (NE Australia)

Claudia Morabito: Eocene base-of-slope resedimented carbonate deposits of the Gargano Promontory (Italy)

John J. Reijmer: Lateral facies variability in carbonate turbidites in Ionian Basin outcrops (Cretaceous, Albania)

Ioannis Vakalas: Early Cretaceous to Eocene calciturbidites and calcidebrites of the Ionian zone, Western Greece: Implications for the role of salt tectonics processes

#### 4.5. SpS 5: Modern advancements in the characterization of dolomite (Convenors:

Cole McCormick and Cathy Hollis)

##### Oral presentations:

Stephen Kaczmarek: Tracking Trace Element Concentrations in Dolomite during High-Temperature Experiments

Rong Li: Genesis of island dolostones during rapid island subsidence: Example from the Xisha Islands, South China Sea

Ariel Martin: The Effect of Ca-Mg-carbonate Mineral Phase on Oxygen Isotope Fractionation in Experimental Dolomites

Mathias Mueller: Towards an improved understanding of palaeothermometry data in dolomites

Min Ren: Rare earth elements in cap dolostones: implications for ocean redox conditions in the aftermath of the Marinoan glaciation

##### Poster presentations:

Adrian Immenhauser: Understanding magnesium-rich carbonates with warped crystal lattices: An experimental approach

#### 4.6. SpS 6: Carbonate sedimentary systems and their petrophysical expression

(Convenors: Anneleen Foubert, Eva de Boever and John Reijmer)

##### Oral presentations:

Cédric Bailly: Multi-scale geological significance of acoustic properties in carbonates

Anneleen Foubert: Towards an integrated approach to characterize pore connectivity in marine to continental rift carbonates (Danakil Depression, Ethiopia)

Ralf J. Weger: Uniform Petrophysical Properties of Carbonate Contourite Drifts

##### Poster presentations:

Thomas Houghton: Zechstein Petrophysical Facies Variability Across the Greater Mid North Sea High Area

Tuutaleni Angula: Sedimentology and Geochemistry of Carbonate Bearing-Argillites on the Southeastern Flank of Mount Cameroon (Likomba)

#### 4.7. GS: General topics in carbonate sedimentology

##### Oral presentations:

Sreetama Aich: Diagenetic evolution of the Middle Eocene ramp carbonates in the Bombay offshore basin, India

Marcello Caggiati: Evolution of Middle Triassic polynucleated, isolated microbial carbonate platforms in the Western Tethys (Dolomites, northern Italy)



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Giovanni Coletti: The hidden potential of the shallow water record: a large-scale meta-analysis of Palaeocene to Miocene carbonates of Southern Tethys

Lee Jeong-Hyun: Fine-grained Cambrian stromatolites in grainstone shoals: Selective trapping by microbial mats?

Robert Riding: How to build a thrombolite: Late Cambrian examples in Texas

Ying Zhou: The puzzle of 'Molar Tooth Structure': geochemistry, origin and significance of calcite microspar cements

### Poster presentations:

Mubashir Ali: The late Thanetian demise of coral reefs in the Hazara Basin (Pakistan)

Luca Mariani: Palaeoenvironmental and stratigraphic reconstruction of the Early Eocene Foraminiferal Limestone of Pag Island (Croatia)

Cole McCormick: Mg-rich brine seeps in the Burgess Shale lagerstätte constrained by dolomite U-Pb geochronology

Or Mordechai Bialik: Global shelfal carbonate factory, processes and patterns

Kristina Pikelj: Relationship and interaction of carbonate bioclastic sediment and *Posidonia oceanica* in case of two Croatian pocket beaches

Robert Šamarija: Carbonate platform margin to foreland basin evolution in the Pre-Karst unit of the Dinarides (Gacko, Bosnia and Herzegovina)

Chen Qiyang: Research methods and exploration significance of ancient water systems of carbonate buried hill

## Theme 5. Continental clastic depositional systems

### 5.1. SpS 1: Lake sediments as archives of natural and anthropogenic changes in climate and the environment (Convenors: Marta Marchegiano and Patricia Roeser)

#### Oral presentations:

Brahimsamba Bomou: Palaeoenvironmental and paleoclimatic evolution in Jura lakes since the Late Glacial Period

Niels Brall: Paleotemperature shifts revealed by seasonal halite records from the Dead Sea basin during interglacial period MIS 7c

Pierre Francus: The Atlantic Multidecadal Variability recorded in a varved sequence in Eastern Canada

Ádám Kovács: Supply-induced transgression in endorheic lakes: a fundamental difference between lacustrine and marine settings

Shah Parth: Sedimentary responses to the climatic and environmental variations recorded from lake Karif Shawran in the southern Yemen

Jennifer Scott: Cyclical and non-cyclical stratigraphy in Pliocene lakes of the East African Rift System

Nicolas Waldmann: Pliocene environmental conditions in the Levantine Corridor (Near East): perceptions from a multi-proxy study on a lacustrine record

#### Poster presentations:

Alicja Bonk: Limnological responses to human activity: an example of varved record of Lake Lubińskie (western Poland)

Alicja Bonk: Are diatoms and chrysophyte cysts reliable indicators of meteorological conditions? A case study from eutrophic Lake Żabińskie, northeastern Poland

Armel Zacharie Ekoa Bessa: Holocene lacustrine paleoenvironmental evolution from Cameroon lakes (SW-Africa)

Pengjie Ma: Environmental implications of nodular carbonate-bearing fluorapatite (CFA) in the lacustrine shale of the Shahejie Formation, Dongying Depression, Bohai Bay Basin: Insight from petrographic and geochemical analysis

Wenmiao Zhang: Sedimentary and inorganic geochemistry records of Early Cretaceous paleoclimate fluctuations in lacustrine sediments, Luanping Basin, northeastern China

### 5.2. SpS 2: New advances in lacustrine sedimentology (Convenors: Shuxin Pan, Carlos Zavala, Mathieu Schuster, Guodong Wang and Lisha Yang)

#### Oral presentations:

Orsolya Sztanó: Sequence stratigraphy in supply-dominated, hydrologically closed lakes

Paul Wignall: Extraordinary intraclast conglomerates in a stormy, hot-house lake: Early Triassic, North China Basin

Yongbo Chen: Seismic prediction technology for "sweet spot" reservoir of glutenite trap and application result

Xi Guan: Characteristics of high-quality beach-bar sand reservoirs of Permian Lower Urho Formation in Madong area, Junggar Basin

Junping Huang: Sedimentary Dynamics and Deposition model of Chang 7 member from the Yanchang Formation Lacustrine Fine-grained Sedimentary Rocks in Tongchuan area of the Ordos Basin, China

Linjun Huang: Fluid-rock interaction and pore formation in deep clastic reservoir

Xiangbo Li: Sedimentological response of late Triassic Carnian Pluvial Episode (CPE) in lacustrine basin: A case study from Yanchang Formation of Ordos Basin

Jianyu Liu: Identification and quantitative characterization of silty laminae and beds in lacustrine organic-rich shales

Yongping Ma: Recognition of Milankovitch cycles in the Early Triassic in the Junggar Basin, NW China : Implications for sequence stratigraphy

Shuxin Pan: Seismic response characteristics of typical sublacustrine landslides in continental basins of China



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Duonian Xu: Discovery and petroleum geological significance of beach sand in Badaowan Formation, Shawan Sag, Junggar Basin

#### Poster presentations:

Huang Dongmou: The genesis and influences on oil-bearing property of thin sandstones interbedded in deep lacustrine shales

Jennifer Scott: Sedimentary evidence for hydrothermal activity in cores from lake basins of the East African Rift System

### 5.3. GS: Continental clastic depositional systems

#### Oral presentations:

Adriano Banak: European loess – similarities and differences revealed by SEM analysis of grain surface microtextures

Jean Carvalho Toledo: Accumulation vs non-accumulation in a Distributive Fluvial System: What do fluvial-aeolian deposits reveal about cyclicity?

Brady Foreman: Scales of fluvial and floodplain deposition within alluvial stratigraphy (Willwood Formation, Wyoming, U.S.A.)

Fengtao Guo: Evolution of the depositional environment of the Roseneath-Epsilon-Murteree (REM) strata in the Cooper Basin, Australia: a multidisciplinary revisit with new data

Monica Manna: End-Permian Paleoenvironmental Changes in Parana Basin, Western Gondwana

Rajat Mazumder: Archean continental sedimentation: the Singhbhum perspective

Áquila Mesquita: Interdune deposition in Precambrian aeolian systems: architecture, depositional model and controlling factors (Galho do Miguel Formation, SE Brazil)

Raymond R. Rogers: A Sedimentological Perspective on the Taphonomy of Large Dinosaurs

Xiaoqian Shi: Quantitative prediction of sand bodies in a sparsely explored zone of the Tarim Basin: A Case Study of the Aketao Area

#### Poster presentations:

Diana Hatzenbühler: Extracting the fingerprint of a city's history: The anthropogenic impact of Vienna as seen in downstream Danube river sediments

Liz Mahon: Late Cretaceous fluvial systems of the Gippsland Basin, SE Australia

Áquila Mesquita: Why are complex aeolian systems apparently scarce in the Precambrian record? Lessons from the Galho do Miguel Formation (SE Brazil)

Cristina Sequero: Factors controlling the sedimentary evolution in an Upper Jurassic fluvial system (Morrison Fm, Colorado Plateau)

Daniel Šimíček: Red or black? Sediment color as a reflection of early diagenetic processes in glaciofluvial sediments

Szymon Świątek: Soft-sediment deformation structures – development in laboratory conditions

Szymon Świątek: In search of sedimentological records of Quaternary earthquakes in central Europe

Yorick P. Veenma: Sedimentological Postcards from Ireland's Earliest Forest: Biogeomorphological Innovations Recorded in the Late Devonian Harrylock Formation, Co. Wexford

### Theme 6. Shallow-marine clastic depositional systems

#### 6.1. SpS 1: Coastal depositional systems: understanding past and modern systems for a resilient future (Convenors: Valentina M. Rossi, Cornel Olariu, Ron J. Steel and Allard W. Martinus)

#### Oral presentations:

Liz Mahon: Cenozoic coastal peatlands and giant coal deposits, Gippsland Basin, SE Australia

Valentina Marzia Rossi: Changing Characteristics of Wave-Dominated and Wave-Influenced Compound Clinofolds in the Rock Record

Sabin Rotaru: Modern Danube river delta front evolution: geomorphic adjustments under anthropogenic pressures

Fanni Szabó: Seismites in Lake Pannon? – signatures of an extreme event on a sandy delta plain

#### Poster presentations:

Kyungsik Choi: The role of an intensified early Holocene summer monsoon on the sedimentation and stratigraphic evolution in the macrotidal embayment, mid-western Korea

Diana Graciela Cuadrado: MISS generated in a temperate hypersaline relic estuarine saltpan, with current continental influence

Carolyn Furlong: Depositional environments along an arid coast and its implications for dispersal processes to basinal settings: Case study along eastern margin of the silt-dominated, Lower Triassic Montney Formation of the Western Canada Sedimentary Basin

Václav Hladík: Sedimentary architecture of the UGS Dolni Dunajovice

Petra Žvab Rožič: Impact of submarine karstic sulfur rich springs on sediment environment (Izola, northern Adriatic Sea)

#### 6.2. SpS 2: Mixed process expressions, and controls on sedimentation in tidal systems (Convenors: Shahin E. Dashtgard, Robert W. Dalrymple and Sergio G. Longhitano)

#### Oral presentations:

Diana G. Cuadrado: Interaction between physical and microbial processes in a coastal modern environment: the stabilization of flaser and wavy bedding

Robert Dalrymple: Characterizing Mixed-Energy Environments Using Sedimentary Structures

Shahin Dashtgard: Tidal Shorefaces and their rock record expression: A unifying model and refinement of the coastal-environments classification scheme



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Alok Mall: Facies architectures of a Mesoproterozoic Fan delta, Rajgarh Formation, North Delhi Fold Belt, NW, India

Min-Kyu Oh: Sedimentology of the Myeonsan and Myobong formations, eastern Korea: A siliciclastic tide-dominated succession formed during early Cambrian transgression

Xin Shan: Sea-level changes and strait topography control sedimentary evolution of the Taiwan Strait

#### **Poster presentation:**

Agustin Arguello Scotti: From Concept to Reservoir Modelling: The Record of Tide-dominated, Progradational Shoreline Systems

Juraj Janocko: Sand-rich, mixed-energy, tide-influenced deltaic system: Upper Jurassic – Lower Cretaceous Bidu Formation, Central Iran

Julio Leva López: Deltas affected by longshore currents: insights from numerical model

Robert J. Sokolowski: Reconstruction of tidal-fluvial processes in the eastern part of the North Sea basin during the Lower Miocene, northern Poland

### **6.3. SpS 3: Coastal boulder deposits (CBD) as archives of extreme wave events**

(Convenors: Stefano Furlani, Giovanni Scicchitano and Tvrtko Korbar)

#### **Oral presentations:**

Tugce Akkas: Cape Town's fossil beaches aid in reconstructing Pliocene shoreline dynamics

Bosiljka Glumac: Monitoring coastal boulder deposits in the Bahamas: Records of past hurricanes and future storm-impact baselines

Valeria Vaccher: Extreme Wave Boulders at Fenoliga (Premantura, Croatia): inventory storm "footprints" in the northern Adriatic Sea

#### **Poster presentations:**

Tvrtko Korbar: Coarse-clast storm deposit and solitary boulders on the island of Mana (NP Kornati, central Adriatic, Croatia)

Orsolya Sztanó: Facies and implications of a coarse-grained lacustrine onshore paleo-tsunamiite: an integrated study of an upper Miocene bouldery cobble gravel

### **6.4. SpS 4: The sedimentology of coastal storms past & present: informing preparedness for climate change**

(Convenors: Michael Savarese and Bosiljka Glumac)

#### **Oral presentations:**

Giulia Casagrande: Evolution and natural recovery of a washover fan, North Adriatic Sea, Italy

Sebastian Lindhorst: Polar gravel beaches: recorders of storm climate?

Lisa Park Boush: What Paleotempestology Can Say About the Intensity and Frequency of Future Atlantic Basin Tropical Cyclones

Savarese Michael: Assessing the Impact of Hurricane Ian on the Southwest Florida Gulf Coast to Build Resilience Capacity

#### **Poster presentations:**

Patricia E. Fraino: Soft-Sediment-Induced Seafloor Relief Control on Bedforms, Early Triassic Sulphur Mountain Formation (Alberta, Canada)

Chaon Kim: Monitoring of pebble-beach response to typhoons using a drone photogrammetry, Wando, southern coast of Korea

### **6.5. SpS 5: Spatial and temporal variability in coastal to shelf environments**

(Convenors: Sonia Campos-Soto, Marta Cosma, Marcello Gugliotta, Romain Vaucher, Anna van Yperen and Valentin Zuchuat)

#### **Oral presentations:**

Annelore Bezzi: Saltmarshes in a backbarrier lagoon: sediment source and variability

Friederike Bungenstock: Distribution pattern and controls of biosedimentary facies in backbarrier tidal flats of the central Wadden Sea (North Sea)

Sonia Campos-Soto: Cautions to be taken when analysing cyclicity in mixed siliciclastic-carbonate coastal successions

Patricia E. Fraino: Gone Digital – Utilizing Drone Imaging to Characterize Siltstone-Dominated Deposits: Implications for Quantifying Meter-Scale Sedimentary Heterogeneity

Serin Lim: Three-times transgressive sedimentation from the late Quaternary of Baeksu tidal flat, southwest coast of Korea

Mardi McNeil: A standardised seabed geomorphology classification scheme to support mapping and interpretation of submerged environments

Valentin Zuchuat: Short-term variability of a forced regressive shoreline: using remote-sensing to quantify coastal movement along the Gulf of Carpentaria

#### **Poster presentations:**

Seolhui Bang: Sedimentation on a channelized, open-coast macrotidal flat of the mid-western coast of Korea

Tae Soo Chang: Subaqueous dune asymmetry analysis reveals separation of a linear tidal sand ridge off the Garolim Bay mouth, midwestern macrotidal coast of Korea

Kyungsik Choi: Sedimentation on a channelized, open-coast macrotidal flat of the mid-western coast of Korea

Flavio Norberto de Almeida Junior: Sedimentology and stratigraphic variability of uplifted Late Quaternary shoreline deposits along the southern margin of the Corinth Rift, Greece

Daniela Ruberti: Natural vs. anthropic signature in a coastal evolution. The case study of the Domitia Littoral (southern Italy)



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Francisco Mon Lucas: Variability in process regime in the Lower Cretaceous Pilmatué marginal-marine system (Neuquén Basin, Argentina)

## 6.6. GS: Shallow-marine clastic depositional systems

### Oral presentations:

Finn Surlyk: A little-known class of marine, high-angle, sub-wave base sandy clinoform beds – a possible motif for shallow marine, intracratonic rifting

A little-known class of marine, high-angle, sub-wave base sandy clinoform beds – a possible motif for shallow marine, intracratonic rifting

Andrea Cuesta Cano: Introduction to a new clastic, wave-dominated shoreline system in southern Montana (USA)

Zimmerli Geraldine: Vertical and lateral facies correlation of Opalinus Clay in central northern Switzerland: towards an integrative depositional model

Yasemin Geze Kalanyuva: Evaluation of the Seyhan-Ceyhan Delta and Plio-Quaternary Stratigraphy of the Adana Basin

Ábel Markó: Investigation of a deltaic thermal water reservoir formation in the Zala region (SW Hungary) to estimate the “geothermal reinjection potential”

### Poster presentations:

Lorenzo Milaneschi: Stratigraphic architecture of the Pliocene extensional Valdelsa Basin in the hinterland of the Northern Apennines (Italy): data from the CARG Project

## Theme 7. Deep-marine clastic depositional systems

### 7.1. GS: Deep-marine clastic depositional systems

#### Oral presentations:

Guilherme Bozetti: Architectural analysis of the Paine C Channel System, Cerro Toro Formation, Chile

Fabrizio Felletti: Sedimentary architecture of turbidite channel-levee deposits: THE TACHRIFT PROJECT (Tachrift system, Taza-Guercif Basin, late Tortonian, NE Morocco)

Jan Golonka: The deep-water sedimentation in the Złatne Basin, Pieniny Klippen Belt, Carpathians, Poland

George Pantopoulos: Sedimentary architecture and statistical data from the late Tortonian deep-marine channel-levee Complex 5 (Tachrift system, Taza-Guercif Basin, NE Morocco)

#### Poster presentations:

Marcin Barski: Mid Oligocene section of Maikop Formation from Kartli Basin (Georgia)- environment and source rock characteristic

Soma Budai: The peculiarity of Precambrian and Paleozoic turbidites: Influence of climate change and rise of land plants on delivery of sediment to the deep-sea

Zainab Iftikhar: Investigation of deep water depositional elements of the Indus Submarine Fan through Seismic facies analysis

Daniele Invernizzi: Sedimentary architecture of a channel-levee complex from the Taza-Guercif Basin (late Tortonian, NE Morocco)

Piotr Łapcik: Significance of siliciclastic deposits in marl-dominated deep-water proximal setting (Turonian – Paleocene Ropianka Formation, Polish Outer Carpathians)

George Pantopoulos: Architectural organization of the Tachrift channel-levee Complex 5 (late Tortonian, Taza-Guercif Basin, Morocco) based on detailed sedimentary log correlation

Olgierd Pedrycz: Depositional processes in deep-water Caledonian pre-flysch basin recorded in Silurian carbonate concretions and calcified tuffites of the Holy Cross Mountains (Poland)

Vanni Pizzati: The influence of tectonic confinement on lateral and vertical turbidite facies distribution (Firenzuola turbidite system, Marnoso-arenacea Formation, Italy)

Fabrizio Felletti Regu (Simone Reguzzi): Architecture, evolution, and controls of channel-levee: Complex 4 from the Tachrift system (Taza-Guercif basin, NE-Morocco)

Ioannis Vakalas: Sedimentary characteristics and basin evolution of a compartmentalized foreland basin – Internal Ionian zone, Western Greece

Gaokui Wu: Structural characteristics and deep-water hydrocarbon accumulation model of the Scotia Basin, Eastern Canada

Chiara Zuffetti: Turbidite channel-levee transitions: the Complex 6 of the Tachrift system (Taza-Guercif Basin, NE Morocco)

Junping Huang: Control of tectonic-lithofacies palaeogeography on the development of marine shale - A case study on the Ulalik Formation of Ordos Basin

## Theme 8. General topics in clastic sedimentology

### 8.1. SpS 1: Subaqueous sediment gravity flow processes and products (Convenors:

Joanna Pszonka, Xin Shan, Arif Hussain and Katarina Gobo)

#### Oral presentations:

Amy Lawrence: Evaluation of turbulent diffusion of suspended particulates

Jaco H. Baas: Predicting pre-lithification mud bed density and yield stress from chevron marks and striated groove marks

Matthieu Cartigny: Quantifying water entrainment processes in turbidity currents by direct measurements in the Monterey Canyon (California)

Jeffrey Peakall: A new process model for hybrid event beds: The importance of debris heads

Boštjan Rožič: The Role of Hyperpycnal Flows in the Preservation of Fossil Medusae in the Eocene Flysch from the Slovenian Coast



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#### Poster presentations:

- Sergio A. Celis: Coarse-grained submarine channels and channel-lobe transition zone in late Eocene deposits from Colombian Caribbean
- Florian Jacques: Holocene sedimentary processes in submarine canyons offshore Pointe-des-Monts (Lower St. Lawrence Estuary, Canada)
- Jianan Wu: Stratigraphic Cycles in Turbidite Sand Sheet Systems----Implications for Progradation/Retrogradation Cycles

#### 8.2. SpS 1: Analogues and experiments for understanding early diagenesis of clastic sediments (Convenors: Stuart Jones, Richard Worden, Dimitrios Charlaftis and Sanem Acikalin)

##### Oral presentations:

- Sanem Acikalin: The role of biofilms in clay coating of deep water deposits
- Dimitrios Charlaftis: Interdependence between bacterial EPS and early grain coat development
- James Houghton: Understanding the origin and distribution of reservoir quality enhancing clay grain coats in the modern, macro-tidal estuary using optimised machine learning
- Meike Janssen: From loose sand to sandstone: experimental approach of early calcite cementation in sandstones
- Thomas Nichols: An Analogue Study of the Ravenglass Estuary: detrital to authigenic grain coats

##### Poster presentations:

- Anna Travé: Origin and controls of wood silicification in the Upper Stephanian of the south-eastern Pyrenees

#### 8.3. GS: General topics in clastic sedimentology

##### Oral presentations:

- Maria Belen Febbo: Diagenetic features of the Tunas Formation (Permian) in the Claromecó Basin (Buenos Aires province, Argentina): its implication in reservoir characterization
- David Cruset: Petrothermal and petrophysical characterization of alluvial fan, fluvial fan and lacustrine Paleogene sediments of the Ebro Foreland Basin, South Pyrenean fold and thrust belt
- Gabriel Ion: Sedimentary features and structures of a sea level changing continental platform - NW Black Sea
- Jernej Jež: Insight into the chronology of sedimentation at the Bela alluvial fan (Karavanke Mts., NW Slovenia)
- Christopher Geovani Kaeng: Shale facies characterization as a determining factor for the assessment of CO<sub>2</sub> plume and pressure footprint

- Marie Marsden: A 125-million-year-old mystery: what killed the Hypsilophodon? A sedimentological investigation into the genesis of the Hypsilophodon Bed (Wealden Group, Isle of Wight)
- Rikke Weibel: Reactivity of glauconitic clasts during burial diagenesis
- Shiming Zhang: Characteristics and their controlling factors of mixed deposition in saline lakes: A case study of lower Ganchaigou Formation in the western Qaidam Basin

##### Poster presentations:

- Ammar Ahmad: Increasing reservoir predictability by reducing uncertainty by using machine learning analytics with forward stratigraphic simulations
- David Cruset: Analysis of the controls on thermal properties in the Sant Llorenç del Munt distal fan-delta complex, eastern Ebro foreland Basin
- Michał Cyglicki: Polygenetic Soil Development in Glacial Till During the Vistulian Stage, Poland: Evidence from Heavy Mineral Analysis
- Marijan Kovačić: Sedimentological evidence of climatic changes during the Miocene Climatic Optimum in the North Croatian Basin (SW Pannonian Basin System, Croatia)
- Monika Milošević: The Badenian/Sarmatian environment on the edge of the Pannonian Basin System
- Arnoud Slootman: Shape, volume-to-area ratio, and settling-velocity models for siliciclastic, carbonate, volcanic and plastic particles and their sedimentary implications
- Wenguang Wang: Diagenesis, diagenetic facies and their relationship with reservoir "sweet spot" in low-permeability and tight sandstone: Jiaxing area of the Xihu Sag, East China Sea Basin
- Marianna Tuchkova: Ordovician-Silurian and Devonian sedimentary complexes of Mendeleev Rise, Wrangel Island and Chukotka and their correlation (Russian Arctic)
- Yunfeng Huang: Study on the evolution and distribution of lacustrine sediments in the narrow intermountain basin - Jurassic of Shengbei depression in Tuha basin as an example

#### Theme 9. Volcaniclastic deposits

##### 9.1. SpS 1: Volcanism and sedimentology (Convenor: Pujun Wang)

##### Oral presentations:

- Ruiyi Han: Prediction of volcanic facies in Liaohe Basin using multi-label ensemble learning
- Karoly Nemeth: Complex terrestrial sedimentary systems associated with mature intracontinental monogenetic volcanic fields of Saudi Arabia
- Pujun Wang: Interaction between basement fault, volcanism and overlying basin fills on an active volcanic continental margin
- Wenhua Wang: Late Permian volcano-sedimentary succession description and basin filling characteristics in Sichuan Basin
- Taiji Yu: Geochemical characteristics of Late Jurassic–Early Cretaceous lamprophyres in western Songliao Basin, NE China: Implications for lithospheric evolution



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#### Poster presentations:

Jose F. Mediato: Wind influence on volcanoclastic deposits of 2021 eruption in La Palma (Canary Islands)

Rossano D. L. Michel: Latest Triassic active aeolian dune field preserved by CAMP lava flow

Anna Wysocka: Preliminary studies of the volcanic and volcanoclastic sequences of the south-central coast provinces of Vietnam, including the Ly Son Island (Neogene; South China Sea)

#### 9.2. SpS 2: Impacts of volcanism on sedimentary systems (Convenors: Andrea Di Capua, Federica Barilaro, Rosanna De Rosa and Gabor Kereszturi)

##### Oral presentations:

Michał Krobicki: Peperites in the Ukrainian Carpathian Mts – sedimentological perspective

Pragya Singh: Investigation of the compositional spectrum of clay minerals within interbasaltic green volcanoclastic beds of Late Cretaceous Deccan volcanic province

##### Poster presentations:

Andrea Di Capua: Pyroclastic deposits within Triassic limestones (Northern Italy): genesis, emplacement dynamics and diagenesis

Shilong Ma: Controlling Effect of Tectonic Movement in Chepaizi Area on Volcanic Rock Evolution and Fracture Distribution

Branimir Šegvić: Trace-element budget of chlorite from hydrothermally altered volcano-sedimentary record of Adria passive margins

#### 9.3. GS: Volcanoclastic deposits

##### Oral presentations:

Frane Marković: Tuff from Nježić locality: 40Ar/39Ar age with integrated biostratigraphy

Ousbih Mehdi: Depositional environment of the late Ediacaran terrestrial volcanosedimentary succession in the Imiter mine area, North Eastern Saghro Inlier, Anti Atlas, Morocco

Nina Trinajstić: Tephrostratigraphy of the Early and Middle Miocene volcanoclastic horizons in Croatia-widespread silicic explosive eruptions

##### Poster presentations:

Duje Kukoč: Deposition of volcanoclastites in pelagic environment on rifted continental margin during the Middle Triassic

Mario Matošević: The oldest Miocene volcanoclastics of the Carpathian-Pannonian region based on U-Pb zircon LA-ICP-MS dating in the Mura Depression (northwestern Croatia)

Eva Wegerer: Volcanic ash layers in Mid-Carnian turnover siliciclastics of the East Bosnian Durmitor megaunit in the northern Montenegro

#### Theme 10. Evaporites

##### 10.1. SpS 1: Evaporitic sedimentary environments, processes and products, with emphasis on the Messinian Salinity Crisis (Convenors: Francesco de la Pierre and Luis Gibert)

##### Oral presentations:

Luis Gibert: Palaeogeographic evolution of the Betic Seaway closure (Betic Cordillera, Spain)

Luis Gibert: The Indalecio section, a new Messinian Salinity record in the Tabernas basin (SE Spain)

Gustavo Kenji Lacerda Orita: The sedimentary record of the Yeson Alto and Rambla de Lanujar sections (Tabernas Basin, SE Spain): implications for the Messinian Salinity Crisis

Jingjing Liu: The classical Messinian Rio Aguas section revisited (Sorbas Basin, Spain)

Enrico Nallino: Resedimented where? Messinian hemipelagic deposits interbedded with clastic gypsum facies from the Belice Basin (Italy)

Marcello Natalicchio: Unravelling a puzzling gypsum lithofacies: the Messinian branching selenite

Luca Pellegrino: Leaving (almost) no trace: diagenetic alteration of biosiliceous sediments during the Messinian salinity crisis

Nuria Sierra Ramirez: The Sofia 7 core: new insights into the Messinian sedimentary record of the Sorbas Basin

##### Poster presentations:

David Artiaga Torres: The evaporites of Zakynthos Island (Ionian Sea, Greece): new insights for the Messinian Salinity Crisis in the Eastern Mediterranean

Mario Borrelli: Permian-Triassic sedimentary and diagenetic reconstruction of the Southern Adriatic area

Fulvio Franchi: Authigenic clays and evaporites from the Makgadikgadi Salt Pans (Botswana): from Quaternary paleoenvironments to astrobiology perspectives

Luis Gibert: Sedimentary history of the Salar de Uyuni (Bolivia) from a 460m drill core

Erhan Karakuş: Geochemical evidence of Messinian Salinity Crisis in the Adana Basin, southern Turkey

Enrico Nallino: Geological Map of a Messinian deep water evaporitic basin (Belice Basin, NW Sicily, Italy)

Nuria Sierra Ramirez: Using isotopy of Ca-sulfates for documenting marine-to-nonmarine transitions in Neogene basins (Betic Cordillera)

#### 10.2. GS: Evaporites

##### Oral presentations:

Tihana Pensa: Evolution of the post-rift evaporitic section in the Red Sea basin

Valentin Rime: Evaporites in the Danakil Depression: a Recent analogue for salt giants ?

Philippe Sorrel: Evaporites from the Bresse Basin (France) across the Eocene-Oligocene Transition



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Jianyong Zhang: Unconventional hydrocarbon potential of self-sourced tight marlstone in evaporative lagoon: A case study from Triassic Leikoupo Formation in the central Sichuan Basin  
Soukaina Ajrhough: Sedimentology and stratigraphy of proximal alluvial-fan to dry mudflat deposits: evolution of the syn-rift series of the Berrechid sub-basin (Morocco)

## Theme 11. Biochemical and biological processes in sedimentary rocks

### 11.1. SpS 1: Carbonate biomineralization processes, biominerals, environmental mineralogy /geochemistry (Convenors: Mirosław Slowakiewicz, Edoardo Perri, Mónica Sánchez Román and Daniel Ariztegui)

#### Oral presentations:

Federica Barilaro: Exploring biominerals' formation in extreme environments: from terrestrial hot spring to sulfuric acid system  
Stefano Giunti: Microbially-controlled formation of methane-derived, shallow-marine thrombolites from the Outer Carpathians  
Alexander O'Donnell: How well does organic matter survive in hot springs?  
Branimir Šegvić: The role of clay minerals in bacterially-mediated eogenetic siderite cementation in the Missourian clastic rocks of the Anadarko Basin, U.S.A.  
Xinjian Zhu: Elements, isotopes and small shelly fossils characteristics from Late Ediacaran to early Cambrian in the northwestern Sichuan Basin: implications for stratigraphic correlation and co-evolution of life and environment  
Rute Coimbra: Paleocological significance of Serpulid abundance along Barremian carbonate deposits (W Portugal): geochemical clues

#### Poster presentations:

Camila Areias: In vitro microbial micritization of shallow marine carbonate grains  
Camila Areias: Microbial and geochemical signals related to micritization of carbonate grains in the shallow marine Al-Kharrar Lagoon in the Red Sea, Saudi Arabia  
Guolai Li: Dolomite formation in Salinas Lagoon, Alicante (Spain)  
Zeina Naim: Carbonate formation in a playa-lake system, Laguna Fuente de Piedra, Spain  
Edoardo Perri: Microbial mediated micritic cements in Upper Pleistocene (mis 5e) mid-latitude shallow marine carbonate deposits (Taranto gulf, south Italy)  
Mirosław Slowakiewicz: Viruses occur involved in biomineralization of travertines  
Dongya Zhu: Thriving buildup of microbialites as large-scale hydrocarbon reservoir linked to hypersaline lagoon during later Ediacaran to middle Cambrian  
Rute Coimbra: Multi-proxy evaluation of oyster-shell alteration: implications to paleoenvironmental reconstructions and age-assigning efforts of ancient coastal deposits

### 11.2. SpS 2: Trace fossils in sedimentological analysis: Expanding their applicability in space and deep time (Convenors: Anthony P. Shillito and Maximiliano Paz)

#### Oral presentations:

Luis Buatois: Trace fossils from Miocene to Pleistocene tidal straits in southern Italy: Implications for the ichnofacies model  
Sergio A. Celis: Evolution of coastline depositional systems in a tropical forearc basin during the Oligocene-Miocene in the Colombian Caribbean: signals from well-cores integrative sedimentological, ichnological, and micropaleontological analysis  
Lynn Dafoe: Variation in Lower Cretaceous coastline morphology and resulting depositional conditions along the Scotian Margin, Canada  
Mohuli Das: Carbonate ichnology of the Early Eocene Naredi Formation, Kutch (Kachchh) basin, Gujarat, India: Evaluating paleo-environmental controls and biotic responses  
Sudipta Dasgupta: Ichnology of the "paleo-Brahmaputra" shelf-margin hyperpycnal-deltaic system from the Miocene Boka Bil – Tipam formations of the Chittagong-Tripura Fold Belt, Bangladesh  
Neil S. Davies: The interplay of animal and plant life, landscape and sedimentation in a Devonian distributive fluvial system: evidence from the Hangman Sandstone Formation of SW England  
Renzo D'souza: An ultra-stressed infaunal niche, and ichnology of restricted xylic embayment setting from the early Eocene of western Kutch (Kachchh) basin  
Javier Fernández-Martínez: Long-term sea-level changes and paleoenvironmental conditions: ichnological analysis of the Late Pennsylvanian Midcontinent Sea  
Scott Melnyk: Burrow Distributions in an Active Intertidal Dune Field in White Rock, British Columbia, Canada  
Loyce Mpagala: From grains to tracks: the role of substrate on the anatomical fidelity of dinosaur tracks (upper Stormberg Group, southern Africa)  
Maximiliano Paz: The role of oxygen and substrate on trace-fossil distribution in the fine-grained Vaca Muerta Formation (Upper Jurassic-Lower Cretaceous, Argentina)  
Alina Shchepetkina: Seeing through mud: Effects of CT scanning on the ichnological interpretation of the Mira River estuary, Portugal  
Anthony Shillito: Temporal constraints on the ichnofacies paradigm  
Ayush Srivastava: "Kuphus tube"? Or Teredolites? What does the Cenozoic carbonate intervals of the western Kutch (Kachchh) Basin of India suggest?  
Yorick P. Veenma: Early Cambrian Trace Fossils in Shallow-Marine Quartzites from Baltica and their Implications for Sedimentary Stasis and Anactulistic Sedimentation



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#### Poster presentations:

- Shachi A. Bajpai: Ichnology of a Lower Cretaceous Nova Scotian shelf-edge delta: the Missisauga Formation from the Sable Subbasin, offshore eastern Canada
- Sudipta Dasgupta: Nummipera saraswatii: A proposed armored ichnospecies in a transgressive nummulitic-bank setting from the early Eocene (Ypresian) Naredi Formation, Kutch (Kachchh) basin of India

### Theme 12. Stratigraphic markers and archives

#### 12.1. SpS 1: Understanding major paleoenvironmental and paleontological crises during the Mesozoic by exploring shallow water carbonates geological archives (Convenors: Gianluca Frijia, Brahimsamba Bomou and Alexis Godet)

##### Oral presentations:

- Sahara Maria Cardelli: Sedimentary mercury as a proxy for volcanism in the Tethyan carbonate platforms during OAE-2
- Gianluca Frijia: Potential episodes of ocean acidification during Oceanic Anoxic Event 2
- Zsolt Vallner: Origin and preservation of cyclic successions in different environments of the Dachstein platform system around the Triassic-Jurassic boundary

##### Poster presentations:

- Brahimsamba Bomou: Evolution of the large benthic foraminifera assemblages during the Cenomanian–Turonian OAE 2 from the Mexican Guerrero-Morelos carbonate platform
- Javier Fernández-Martínez: Reconstructing redox and hydrographic dynamics during the early Toarcian (Early Jurassic): new insights from Mo/TOC covariation
- Ana Sevillano: The transition early-late Sinemurian crisis: environmental perturbations in shallow carbonate platform of Mallorca (western Tethys)

#### 12.2. SpS 2: The sedimentary role of calcareous green algae, from Paleozoic to modern (Convenors: Mardi McNeil, Juan Carlos Braga and Jody Webster)

##### Oral presentations:

- Juan C. Braga: Spatial and temporal distribution of Messinian Halimeda beds in the Sierra de Gádor (Almería, SE Spain)
- Ioan I. Bucur: Boueina, important carbonate producer from the Lower Cretaceous limestones of the Carpatho-Balkan region
- Axel Munnecke: Have green algae been major sediment contributors since their early Palaeozoic origin?

Luke Nothdurft: Project HALO: Unravelling the Origins, Function, and Fate of Halimeda Bioherms in the Great Barrier Reef

Jesús Reolid: A new type of mesophotic Halimeda bioherms (Queensland Plateau, NE Australia)

Zsanett Szilagyi: Morphometric analysis of Halimeda bioherms on the northern Great Barrier Reef using high-resolution bathymetry dataset

##### Poster presentations:

Mardi McNeil: Recent insights on green-algal carbonate systems informed by Holocene Halimeda bioherms in the Great Barrier Reef, Australia

#### 12.3. SpS 3: The stratigraphic record of paleoenvironmental variation in epeiric basins (Convenors: Miquel Poyatos-Moré, Orsolya Sztanó, Ernesto Schwarz, Chelsea Pederson and Mariano Remirez)

##### Oral presentations:

- Geoffrey J. Gilleaudeau: Euxinic expansion in epeiric seas of North America during the Late Devonian Hangenberg Event
- Gianni Mallarino: Sedimentary record and paleoenvironmental reconstruction of a Middle-Late Miocene marine to lacustrine succession: Pannonian Basin, southern Hungary
- Mariano Remirez: Beyond evaporites: hypersaline conditions in ancient epeiric seas
- Samuel Rybar: New insight into the north Central Paratethys Sea development
- Ernesto Schwarz: Large-scale reconstruction of the Early Cretaceous Neuquen Sea (SW Gondwana): unravelling key parameters for characterization and classification of epeiric seas
- Michal Šujan: A multiproxy study of a sequence boundary formed during isolation of an epicontinental basin: The Sarmatian–Pannonian transition in the Vienna Basin, Slovakia
- Adam Tomasovych: Discriminating between sedimentological and biogenic shell beds in an epicontinental sea during the Holocene (northern Adriatic Sea)

##### Poster presentations:

- Karolina Bieńko: Carbon isotope record and palynostratigraphy of the Lower/Middle Triassic boundary in the Holy Cross Mountains (Poland, southern Germanic Basin)
- Carlos A. Giraldo Villegas: Sedimentary evolution of the final stages of an epeiric sea in the NW of South America: A sedimentological and ichnological approach
- Kristina Ivančić: Badenian sedimentary succession of the Mestinje anticline (Western Central Paratethys)
- Maximiliano Paz: Basin circulation controlling the sedimentologic and ichnologic record of the fine-grained Vaca Muerta Formation (Upper Jurassic-Lower Cretaceous, Argentina)



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Josep Maria Puig Lopez: Late Jurassic sequence stratigraphy and sedimentology of shallow marine coarse grained siliciclastic deposits in the southern Utsira High: Deciphering the Intra Draupne Formation in the Johan Sverdrup field

### 12.5. SpS 5: Paleoclimate and paleoenvironmental changes in shallow-marine seas (Convenors: Romain Vaucher, Amy I. Hsieh, Barbora Krizova, Christian Zeeden and Shahin E. Dashtgard)

#### Oral presentations:

Irene Cornacchia: Increased biogeochemical weathering during the Middle Eocene Climatic Optimum (MECO): Insights from trace element analyses and Sr isotope ratios from a shallow water carbonate succession of the Ligurian Alps (Northern Italy)

Álvaro García-Penas: Expression of large-scale sea-level oscillations in a marginal shallow marine bay (Aptian, Spain)

Amy Hsieh: The influence of Taiwan orogenesis on the preservation of climate signals

Amir Kalifi: Sequence stratigraphy of the Upper Cretaceous-Eocene Belqa Group of Jordan

Anna Merkel: Glendonite-bearing concretions from the late Pliensbachian (Lower Jurassic) of Southern Germany – indicators for a massive cooling in the European epicontinental sea?

Wei Wei: Watermass reconstruction in the Variscan foreland basin based on integrated proxies of redox conditions, salinity, and nitrogen cycling in Mississippian to Pennsylvanian Namurian Shale, Belgium and S-Netherlands

#### Poster presentations:

Maria Ardila-Sanchez: Depositional system change at the Campanian-Maastrichtian boundary: from cherty phosphates and oyster mounds to organic-rich shales (Southern Tethys margin, Jordan)

Elodie Bracquat: Sedimentary records associated with the dynamics of the Mittie Glacier (Smith Bay, Nunavut, Canada) during the Holocene

Ye Chan Park: Late Holocene rapid infill history in the Seomjin river estuary, south coast of Korea

Antoine Dillinger: Extending the spectrum of storm-flood deltas: examples from a high-latitude deltaic system during the Early Cretaceous

Chiara Passaseo: Characterization of Halimeda bioherms of the pre-evaporitic Messinian of the Salento Peninsula (southern Italy)

Romain Vaucher: Warmer gets sandier? The paleoenvironmental record of hyperthermal events in coastal environments during the Early Eocene Climate Optimum (South Pyrenean Foreland Basin; Spain)

Wei Wei: Watermass reconstruction in the Variscan foreland basin based on integrated proxies of redox conditions, salinity, and nitrogen cycling in Mississippian to Pennsylvanian Namurian Shale, Belgium and S-Netherlands

### 12.6. SpS 6: Paleosols as valuable records of terrestrial climate and environments (Convenors: Goran Durn, Andrea Mindszenty and Franz Ottner)

#### Oral presentations:

Ondrej Bábek: Redox geochemistry and the origin of red colouration in palaeo-Vertisols of the Old Red Sandstone, South Wales, UK

Giorgio Basilici: Base level variations recorded in Holocene alluvium succession of mountain area of SE Brazil: climate and anthropic control

Nina Hećej: Evidence of Late Quaternary environmental changes preserved within the Privlaka pedo-sedimentary complex at the Eastern Adriatic coast, Croatia

Karol Jewuła: "It's a trap!" - critical assessment of geochemistry-based proxies in reconstructing past environments

Maud JM Meijers: Late Miocene to Pliocene rise and fall of C4 vegetation in Anatolia (Türkiye)

Krzysztof Ninard: Medieval Climatic Optimum recorded by buried Podzols: A new pedostratigraphic marker in inland dune deposits of Poland

Ivor Perković: Glauconite formation in a palaeosol as an indicator of the incipient sea-level rise: Case study of the Zlatni rat, Istria, Croatia

Yan Zhang: Paleosols in the Triassic Yanchang Formation, Ordos Basin, China

#### Poster presentations:

Adrijan Košir: Redoximorphic features in paleosols in Plio-Quaternary alluvial deposits in Slovenske Gorice, western Pannonian Basin, Slovenia

Artur Kuligiewicz: Does a change in hydrological conditions impact mineralogy and chemistry of Pennsylvanian paleosols from the Upper Silesia Coal Basin (Poland)? – Preliminary results

Ivor Perković: Paleoenvironmental and paleoclimatic changes during the deposition of Upper Jurassic bauxites and their immediate cover: Case study of the Rovinj bauxite pit, Istria, Croatia

### 12.7. SpS 7: IGCP739: The Mesozoic–Paleogene hyperthermal events (Convenors: Xiumain Hu and Tianchen He)

#### Oral presentations:

Thierry Adatte: Mercury and tellurium anomalies reflect increased volcanism during the Paleocene-Eocene Thermal Maximum (PETM)

Viktória Baranyi: Geochemical and palaeontological fingerprints of mixed clastic-carbonate successions from the Transdanubian Range (Hungary, Central Europe) during the Carnian Pluvial Episode (Late Triassic)

Xi Chen: Mercury and zinc cycles during Oceanic Anoxic Event 2

Alicia Fantasia: Palaeoenvironmental records across the early Toarcian hyperthermal event: From onset to recovery



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Piero Gianolla: Enhanced chemical weathering during the Carnian Pluvial Episode in the Southern Alps (northern Italy)

Zhong Han: Spatially heterogeneous seawater  $\delta^{34}\text{S}$  and global cessation of gypsum deposition during the Toarcian

Tianchen He: Marine redox dynamics in the European epicontinental sea during the end-Triassic mass extinction

Xiumian Hu: Mesozoic and Cenozoic hyperthermal events and Anthropocene global warming

Hang Jiang: Volcanism as trigger of Sinemurian/Pliensbachian environmental changes? Evidence from Lower Jurassic marine (Western Tethys, Italy) and continental (Sichuan Basin, China) successions

Jingxin Jiang: Eustatic variations across the Paleocene-Eocene thermal maximum in the epicontinental Tarim seaway

Xin Jin: The Carnian Pluvial Episode in China: Tracing Its Origins, Challenges, and Perspectives

Juan Li: Spatial heterogeneity in carbonate-platform environments across the Paleocene–Eocene thermal maximum in eastern Tethys

Mihaela Melinte-Dobrinescu: Preservation of the mid-Cretaceous hyperthermal event signals in deep and shallow marine paleosetting of Tethys

Robert Newton: Pyrite-sulfur isotopes as an indicator of increased sedimentation rate during the early Toarcian anoxic event

Omer Ismail Yilmaz: The first paleoclimatic records of the rudist genus (bivalvia) *Dictyoptychus* from the Upper Campanian on the Arabian carbonate platform, SE Türkiye

Zhicai Zhu: Sedimentary response and palaeoenvironmental perturbations related to the continental Permian-Triassic hyperthermal crisis in North China

#### Poster presentations:

Alicia Fantasia: A multiproxy record of the Paleocene-Eocene Thermal Maximum at the Contessa Road section, Italy

Parisa GholamiZadeh: Response of the Late Paleocene-Eocene sediments to relative sea-level changes in High Zagros, Lorestan

Cristina Sequero: Time response of the climate system at the onset of the early Aptian OAE 1a

### 12.8. GS: Stratigraphic markers and archives

#### Oral presentations:

Hermann Bermudez: Sedimentary signature of seismicity induced by asteroid impacts: the Chicxulub mega-earthquake (Cretaceous-Paleogene boundary)

Šimon Kdýr: Magnetostratigraphy of potential Tithonian-Berriasian boundary sequence at Golubac (Serbia): correlation to biostratigraphy record

Oleg Mandic: Plankton stratigraphy provides a mid-Paleogene age constraint for the Dalmatian Flysch in External Dinarides foreland basin

William McMahon: Mud matters: sedimentological evidence demonstrates how silicate mineral weathering evolved in synchrony with the first land plants

Hedvika Weinerová: Searching for a candidate section for the new basal Emsian GSSP in the Prague Synform

#### Poster presentations:

Jarno Huygh: Investigating the link between Devonian anoxic events and astronomical forcing: A two-pronged approach of cyclostratigraphy and numerical modelling

Zbyszek Remin: New insight into the K/Pg boundary interval at Nasitów (biostratigraphy and paleomagnetism), Poland, Central Europe

Michal Šujan: Redeposited mud in hybrid event beds hinder the applicability of the authigenic  $^{10}\text{Be}/^{9}\text{Be}$  dating: Eastern Danube Basin, Slovakia

Hedvika Weinerová: Comments on the microproblematicum *Menselina Antropov*, 1967

Nina Wichern: Environmental rhythms across the onset of the late Devonian Kellwasser Crisis recorded in the Usseln Limestone (Rhenish Massif, Germany) – a high-resolution study

### Theme 13. Provenance of sediments – from source to sink

#### 13.2. SpS 2: Controlling factors of sediment generation in source to sink studies

(Convenors: Guido Pastore and Muhammad Usman)

#### Oral presentations:

Carita Augustsson: Provenance of terrestrial deposits from whole-rock geochemistry? Example from the Permo-Triassic of central Europe illustrates that discrimination is possible

Fares Azzam: Tracing the origin of chlorite in Sedimentary Basins- A Source-to-Sink Approach

Gabriel Bertolini: The auto- and allogenic forces in grain-size spatial distribution within large-scale ancient erg

Angana Chaudhuri: Signatures of provenance and paleogeographic changes revealed through quantitative heavy-mineral analysis, single-grain garnet chemistry and zircon U-Pb geochronology: Mesozoic Kutch Basin, India

Sarah Feil: Inherited grain size distributions: effect on heavy mineral assemblages in modern and ancient sediments

Oded Katz: Glacial cycle induced change in sediment transport through blind canyons: a case study from the Eastern Mediterranean Sea



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**13.3. SpS 3: Quantitative study for source-to-sink system** (Convenors: Guodong Wang, Yongqiang Qu, Duonian Xu and Lisha Yang)

**Oral presentations:**

João Miguel Maraschin Santo: Provenance of Piauí Formation (Parnaíba Basin, Brazil) and effects of hydraulic segregation on heavy minerals assemblage

Wang Guodong: Constraints of Triassic provenance and paleogeomorphology on the formation of sedimentary fan groups in the central the Junggar Basin

Chen Lihao: Mesozoic-Cenozoic multistage tectonic deformation of the Qilian Shan constrained by detrital apatite fission track and zircon Usingle bondPb geochronology in the Xining Basin

Tingcong Qiu: A new quantitative method for provenance analysis based on well logging data

**Poster presentations:**

Michał Cyglicki: Exploring the Environment Hydrodynamics of the Late Cretaceous Szozdy Delta System by the Rutile-Tourmaline Index Analysis

Sabin Rotaru: Annual riverbed erosion rates in the Lower Danube during the last decade

Chao Yang: Identification and optimization of Carboniferous volcanic trap in Mahu Sag, Junggar Basin

Lisha Yang: The Influence of Wind Field on Depositional Systems in Qinghai Lake, China

**13.4. SpS 4: From river catchments to the deep sea: case studies, applications, state of the art and new frontiers of source-to-sink research** (Convenors: Alessandro Amorosi, Michael D. Blum, Piret Plink-Björklund, Luigi Bruno, Bruno Campo and Claudio Pellegrini)

**Oral presentations:**

Mohammed Abdullahi: Links between Quaternary climatic changes and sediment flux recorded in a deep-water active rift basin

John Armitage: From flood to turbiditic events: reduced complexity modelling of the Var source-to-sink system

Mike Blum: The Early Cretaceous Continental-Scale McMurray Sediment Routing System

Bruno Campo: The Last Glacial Maximum sequence of the Apennine-Adriatic system: new perspectives on offshore groundwater exploration by integrating source-to-sink analysis and sequence stratigraphic concepts

Albina Gilmullina: Triassic sediment routing system as a tool for plate tectonics reconstructions

Piret Plink-Björklund: Hydroclimate controls on S2S sediment transport: Integrating Ancient, Modern and Experimental Data

Shuqing Qiao: Modern Sediment accumulation and budget in the South China Sea

John Shepherd: Quantitative (3D) seismic stratigraphy of the Hammerhead shelf margin, southern Australia: Insights into stratigraphic architecture, shallow-marine processes, and deep-water sand delivery

Xuefa Shi: Sediment source to sink process and its controlling mechanism in Asian Continental Margin

Lucas Valore: Paleogeographic response to dynamic uplift in Shetland - constraints from Paleocene sediment fluxes and stratigraphy

Lesego Gaegane: Integrated dam sediment management, a South African case study on enhancing water security

**13.5. GS: Provenance of sediments – from source to sink**

**Oral presentations:**

Alejandro Beltran-Trivino: Cretaceous mafic magmatism as revealed by sedimentary provenance analysis in the Putumayo Basin, Colombia: implications for the regional tectonic evolution

Katja Bohm: Multi-technique provenance analysis of the Palaeogene aeolian dust deposits at Ulanatal, Inner Mongolia, China

Maximilian Dröllner: Constraining the timescales of intermediate sediment storage and refining sediment routing

Fulvio Franchi: New sedimentological data from the Okavango wetlands (Botswana): and endorheic sink for microplastic particles of the Cubango Okavango River Basin

Alice Fugagnoli: The physical abrasion of plastic to form microplastics: an experimental approach

Parisa GholamiZadeh: Provenance record of paleo-drainage evolution in the Zagors-Makran Transition Zone: Linking from source to sink

Mun Gi Kim: Provenance of upper Carboniferous sediments in the western Taebaeksan Basin, Korea: tectonic implications

Sankar Kumar Nahak: Use of heavy minerals as provenance indicator in fluvial successions of Paleozoic Pranhita-Godavari Gondwana rift basin, India

Iulian Pojar: Danubian sediments from Alpine-Carpathian en route to the Black Sea: a geochronological, lithological and geomorphological source-to-sink approach

Relu-Dumitru Roban: The provenance of Upper Jurassic-Lower Cretaceous sediments of the Ceahlău-Severin Ocean: discriminating between passive margins source areas based on U-Pb detrital zircons ages

Schieber Juergen: Two Sides of the Same Coin? Benefits of comparative study of mudstones from early Mars and Earth

Zhijie Zhang: The Provenances and Source-to-sink System evolution of Permian in NW Junggar Basin, China

Yi Dinghong: Sedimentary evolution and controlling factors of beach bar sand bodies : A case study of Neogene in Zhahaquan area, western Qaidam Basin



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Dubravko Lučić: Nile river - Regional Paleogeography, Stratigraphy and paleo-drainage reconstruction (Eocene-Present) and its implication to the Hydrocarbon Exploration

#### Poster presentations:

Alibek Abeuov: The abundance of detrital muscovite in Paleocene-Eocene uraniumiferous strata sheds a new light on paleo-drainage system, Chu Sarisu Basin, Southern Kazakhstan

Maximilian Dröllner: Head in the sand? An inter-laboratory comparison on detrital zircon age spectra reproducibility

Karmen Fio Firi: Košna conglomerates in the Velebit Mt., Croatia: particle composition, provenance and depositional environment

Olena Ganzha: The provenance of rutile and zircon from the Miocene Zr-Ti placer deposits, Ukraine

Relu-Dumitru Roban: Sediment origin of the Black Flysch and the Ceahlau thrust sheets from the Eastern Carpathians – tectonic implications

Simona Todaro: Plastic pellets as sedimentary components on a coastal dune system

Muhammad Usman: Sediments buffering system in the Thar Sand dunes for Provenance Studies

Shangfeng Yang: Provenance assessment of the Triassic Chang 6 Formation in the west Yanchi area, Ordos Basin, China

### Theme 14. Tectonics and sedimentation

#### 14.1. SpS 1: Intramountain basins – recorders of tectonics, climate, and biota interactions (Convenors: Nevena Andrić-Tomašević, Oleg Mandić and Marijan Kovačić)

##### Oral presentations:

Nevena Andrić-Tomašević: Tectonic control on the deposition of the travertine in Levač Basin (Serbia): insight on Miocene extensional phases in the Dinarides-southernmost Carpathians junction

Xianghui Li: Terrestrial carbon cycles unraveling longer-term patterns of ecosystem and climate following the end-Cretaceous extinction

Thomas Wilke: Deep drilling in ancient Lake Ohrid reveals 1.4 Myr of geological and evolutionary history

##### Poster presentations:

Carlos L. Liesa: Orbitally induced climate signal in the Lower Cretaceous synrift lacustrine sediments of the Enciso Group (eastern Cameros Basin, N Spain)

Marlene Löberbauer: Middle Miocene continental paleoenvironmental records from the Dinaride Lake System

Aránzazu Luzón: Climate, tectonics and microbial influence in sedimentation in a Cretaceous carbonate Mg-rich shallow lacustrine system (Aguilon sub-basin, Iberian Basin)

Mihaela Melinte-Dobrinescu: Shallow to deep marine and continental deposition in the Hațeg intramountain basin (SW Romania): influence of the tectonics on the biotic changes

Uday Sharma: Late Quaternary tectono-climatic coupled geomorphological and sedimentary feedback in Trans-Himalayan Spiti river basin, Himachal Pradesh, India

Jingyu Wang: Paleowind directions recording Late Cretaceous monsoon in East Asia

#### 14.2. GS: Tectonics and sedimentation

##### Oral presentations:

Claire Bossennec: Structural and sedimentary characterisation of Rotliegend units at the basement/sedimentary unconformity: Implications for heat storage development in the Upper Rhine Graben

Chuqiao Huang: Prism-top or retro-prism forearc basin? Evaluating tectonic models for Danian (Paleocene) strata of the southwest Canadian Cordillera

Dániel Nyiri: Tectonic control on the formation of Middle Miocene Leitha build-ups in the Pannonian Basin

Zbyszek Remin: Late Cretaceous inversion tectonics as a driver for the development of the Szozdy Deltaic System in the heart of the Polish Basin

Maulana Rizki Aditama: Tectonostratigraphic control on the development of Mississippian carbonate platforms in the Southern Irish Sea Basin

David Rukavina: Sequence stratigraphy of the Pliocene-Pleistocene infill in the Southern part of the Adriatic foredeep system

FX Anjar Tri Laksono: The Propagation of the 1693 Tsunami Wave in Catania, Italy Based on Multiple Scenario Simulation

##### Poster presentations:

Maria Belen Febbo: Thermal evolution of the Permian Claromecó foreland Basin (southern Gondwana, Argentina) based on organic petrology and basin modelling

Pranshu Bhardwaj: Reconstruction of palaeoclimate of Shyok valley to understand glacial dynamics using optically stimulated luminescence (OSL) dating method

Arantxa Bodego: Interplay between extension, salt-tectonics and sedimentation in a proximal rifted margin (Basque-Cantabrian Basin, westernmost Pyrenees)

José Federico Del Pozo Díaz: Subsidence analysis of the Cantabrian Zone Foreland Basin (Carboniferous, NW Iberia)

José Federico Del Pozo Díaz: Carbonate platforms in the variscan foreland basin of the NW Spain: A tool for quantifying tectonic flexure, accommodation and sedimentation rate

Mengyue Duan: Topographic response to invasion: the Ordos Loess Plateau, central China

Anna Filippek: Organic matter from clastic injectites in the Menilite Beds of Poland, Ukraine and Romania (Outer Carpathians)



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Darko Matešić: Cenozoic massive carbonate breccia in the Karst Dinarides of Croatia: the largest outcrop on the island of Krk

Norman Urrez: Tectonosedimentary variations from Permian to Triassic in the southeastern part of the Central Graben of the Norwegian continental shelf

### Theme 15. Sedimentology and hydrocarbons

#### 15.1. SpS 1: Seismo-sedimentological characterization of 3D seismic data (Convenors: Alan Vranjković and Camille Cosson)

##### Oral presentations:

Tomislav Baketarić: Seismic geomorphology of Pannonian clastic reservoirs in Drava and Zala basins, Pannonian Basin System

Kanchan Dasgupta: Seismo-sedimentological characterisation of Neogene successions in the Vienna Basin for exploring geothermal energy

Tong Duy Cuong: Seismic characteristics of the Miocene section in northern Song Hong basin, offshore Vietnam, suggestion to predict depositional environment and potential hydrocarbon stratigraphic trap

Imre Magyar: Pannonian turbidites on a topographically complex slope as exploration targets in the Zala Basin

Janko Sovilj: Reconstruction of the Upper Miocene deposits in the southeastern part of the Pannonian Basin, based on seismic, well log and sedimentological data

Alan Vranjković: Three-dimensional seismic analysis of geomorphological features on early post-rift sequence of Mura Basin (Neogene Pannonian Basin System, Croatia)

Wenguang Wang: Seismic diagenetic facies prediction of tight sandstone in the offshore sparse well area: An example from the Xihu Depression of the East China Sea Basin

#### 15.2. GS: Sedimentology and hydrocarbons

##### Oral presentations:

Jianli Lin: Fluid activity and diagenetic response during tectonic inversion and its impact on reservoir quality and gas accumulation

Tong Wang: Mechanism of pore evolution during the diagenesis and hydrocarbon generation of marine carbonate-rich shale - Insights from thermal simulation experiments

You Zhang: The Architecture of Cambrian Reef-beach and Their Control on Favorable Reservoirs: A Case Study of Gucheng Area in Tarim Basin, NW China

##### Poster presentations:

Sorin Anghel: The application of CO<sub>2</sub> EOR techniques in the west part of Moesian Platform

Krešimir Krizmanić: Miocene Facies Characterization and Distribution in the Zalata-Dravica Area (Drava Depression, Pannonian Basin, Croatia/Hungary)

Hao Liu: Sedimentary characteristics and oil-bearing of mixed shale in northern Dongying Sag, eastern China

Željka Marić Đureković: Lithofacies analysis of coarse-grained clastics using borehole image texture classification and MRGC clustering method

Walter Menapace: Mud volcanism and seismicity in the Gulf of Cadiz, a symbiotic relationship?

Goran Mikša: Pleistocene gas-bearing clastic deposits of the northern Adriatic, Croatia

Davi Querubim: Depositional control over oil reservoir quality in aeolian sandstones: A case study on the Triassic Piramboia Formation, Paraná Basin, SE Brazil

Davi Querubim: Petrophysical characteristics and oil storage in the Piramboia Formation aeolian sandstone reservoirs, Paraná Basin, Brazil

Haoran Shi: Sedimentary characteristics and reservoir differences of shallow water delta in Yangjiang sag, Pearl River Mouth Basin

Lumin Wang: Sedimentary Characteristics and Reservoir Property of Deep Lacustrine Fine-Grained Rocks in Shengbei Area, Eastern China

Shaoyong Wang: Reservoir characteristic and its relationship with Estimated Ultimate Recovery of Jurassic tight shelly limestone reservoir in the central Sichuan Basin, Southwest China

Yuan Wang: Depositional characteristics of microbial carbonate reservoir and their effects on favorable reservoir distributions of the IV Member of Sinian Dengying Formation, Gaoshiti-Moxi area, Sichuan Basin, Southwest China

### Theme 16. Techniques and technologies in sedimentology

#### 16.2. GS: Techniques and technologies in sedimentology

##### Oral presentations:

Charlie Bristow: Using ground-penetrating radar (GPR) to investigate the deposits from the Storegga Slide Tsunamis in the Shetland Islands, UK

Qian Ding: Exploring the genesis of deep and ultra-deep fractured carbonate reservoirs based on fracture-water-rock simulation experiments and modeling

Saverio Fracaras: Application of a semi-automatic method for sedimentological mapping

Agata Kuźma: Innovational techniques in sedimentology- new insight on Witów Series gravels

Vincenzo Pascucci: Cold and arid Late Quaternary climate oscillations as recorded in Lanzarote (Canary Island, Spain)

Hongqiu Wang: Multi-sparse inversion spectral decomposition technology and its application in carbonate sedimentary cycle division and facies zone identification

##### Poster presentations:

Beata Naglik: High resolution cyclostratigraphy of the Upper Carboniferous coal-bearing strata: the need for new approaches and concepts



36<sup>TH</sup>  
**IAS**

MEETING OF  
SEDIMENTOLOGY



12 - 16 June 2023  
CROATIA  
DUBROVNIK

Ivica Pavičić: 3D Geological model of the Paleogene deposits in bauxite-bearing district Snižnica (Posušje, BiH): From visualization to finding new bauxite deposits

Robert J. Sokołowski: Late Glacial depositional model of fluvio-aeolian succession in central part of European Sand Belt

Carra Williams: Dingo NeutronCT: A new high-resolution and non-destructive method for vetting coral fossil core for paleoclimate and paleochronological reconstructions

## Theme 17. Open topics in sedimentology

### 17.1. SpS 1: Open Science: data, software, knowledge, and education (Convenors:

Anne Bernhardt, Alisa Martek, Aurélia Privat, Romain Vaucher and Valentin Zuchuat)

#### Oral presentations:

Andrea Di Capua: The usage of open-source software applied to students' academic projects

#### Poster presentations:

Federica Barilaro: Open source software and tools for mapping and reconstructing sedimentary sequences

Zongqi Lin: DDE-Outcrop3D: exploring new forms of field geology education and research

Valentin Zuchuat: Sedimentologika: a community-driven Diamond Open Access journal in sedimentology

### 17.3. SpS 3: Sedimentology and geotourism (Convenors: Blanka Cvetko Tešović and Igor Vlahović)

#### Oral presentations:

Milovan Fustić: Sedimentology behind fascinating scenery and landforms of Mangistau (Western Kazakhstan) – Implications for Geotourism and Education

Tvrtko Korbar: As the Sea Rages

Michele Morsilli: The Gargano Promontory (Italy): A Perfect Destination for Carbonate Sedimentology and Geotourism in an Aspiring UNESCO Global Geopark

### 17.4. SpS 4: Sedimentology and archaeology (Convenors: Blanka Cvetko Tešović and Igor Vlahović)

#### Oral presentations:

Alicja Kochman: Carbonate rocks from the Kraków-Częstochowa Upland (Poland) – host of siliceous rocks; the provenance of siliceous rocks used as raw-materials

Thomas Teillet: How do sea level, climate, and structural controls impact Mid-Holocene paleogeography and Late Neolithic population along the Arabian Sea shoreline (Bar Al Hikman Peninsula, Oman)

#### Poster presentations:

Giorgio Basilici: Landscape impact and renaturalisation of a Bronze Age human community (Paduli, Colli sul Velino, Central Italy)

Manfred Frechen: An exploratory paleoenvironmental study on a coastal Palaeolithic site in Albania through an integrated stratigraphic approach (Dalani i vogël, Vlora)

Radosław Staniszewski: Modelling earthquake and palaeotsunami damage scenarios on the coasts of the Eastern Mediterranean between 300–551 CE

### 17.5. GS: Open topics in sedimentology

#### Poster presentations:

Giulia Bosio: Miocene marine phosphogenesis along the Peruvian coast: origin and sedimentological significance of the Pisco Formation phosphorites

Lara Wacha: Earthquake-induced liquefaction of Quaternary continental deposits (2020 Petrinja Earthquake, Croatia): a sedimentological perspective

## Description of Special Sessions

### **1.1. Special Session: The response of continental carbonates to (paleo)environmental perturbations: New insights from emergent and old/refined indicators**

Convenors: Daniel A. Petrash (Czech Geological Survey, Prague, Czechia), Ivica Pavičić (Faculty of Mining, Geology and Petroleum Engineering, University of Zagreb, Croatia) and Andrea Martín Pérez (Institute of Palaeontology ZRC SAZU, Ljubljana, Slovenia)

This session aims to bring together current research on the formation of continental carbonates to understand how tectonics, hydrology, climate and ecosystems interact to produce a wide array of deposits with contrasting physical features and discrete chemical and/or isotopic signatures with significance to paleoenvironmental reconstructions. We welcome contributions investigating the sedimentology, geochemistry and geobiology of continental carbonates, both in the rock record and in modern settings. We also look forward to receiving research seeking for a better understanding of their early stages of formation, or dealing with novel observations made in natural environments, or in the lab—in the form of experimental (synthetic) growth and carbonate mineral alteration efforts.

### **1.2. Special Session: Cave sediments – archives of past environmental changes**

Convenors: Nadja Zupan Hajna (ZRC SAZU Karst Research Institute, Postojna, Slovenia), Petra Bajo (Croatian Geological Survey, Zagreb, Croatia), Maša Surić (Department of Geography, University of Zadar, Zadar, Croatia), Tomislav Kurečić (Croatian Geological Survey, Zagreb, Croatia), and Astrid Švara (ZRC SAZU Karst Research Institute, Postojna, Slovenia)

Karst caves play an increasing role in studies of past environmental changes on various temporal and spatial scales. This is primarily due to the wealth of information stored in clastic sediments as well as speleothems found inside most of the caves. Both of these natural archives capture information about the conditions that prevail inside the cave and/or at the karst surface at the time of their deposition. Clastic cave deposits are typically derived from various processes. They contain critical information about the early phases of speleogenesis, climate, and regional palaeohydrology that may not be available in other archives. However, the vast majority of speleothems provide information about the latest speleogenetic phase, as they typically grow under vadose conditions. Due to their amenability for radiometric dating speleothems are nowadays considered as one of the most powerful archives in studies of past climate and environmental changes.

This session welcomes presentations on all aspects of research of cave sediments, i.e. their stratigraphy, depositional processes, provenance, mineralogy, geochemistry, dating techniques, palaeoclimate, and palaeoenvironmental interpretations as well as studies of modern depositional conditions. We especially welcome presentations in which research of clastic cave sediments and speleothem records is combined in order to explore the full potential of both archives. Presentations of the results based on field and laboratory observations, as well as innovative experimental work are all welcomed.

### **2.1. Special Session: Biogeodynamics of Mesozoic marine carbonate depositional systems**

Convenors: Thomas Steuber (Department of Earth Sciences, Khalifa University, Abu Dhabi, UAE) and Mariano Parente (Dipartimento di Scienze della Terra, dell'Ambiente e delle Risorse, Università di Napoli Federico II, Napoli, Italy)

The Mesozoic evolution of marine carbonate depositional systems was linked with the biological evolution of benthic and planktonic carbonate producers. During the Mesozoic greenhouse world, multiple innovations and crises in biocalcification occurred. These are typically evaluated in the context of environmental change such as, e.g., oceanic anoxic events, perturbations of the ocean's carbonate system, or rapid climate change. We invite contributions that address the biogeodynamics of Mesozoic carbonate depositional systems, preferably with a multidisciplinary approach.

#### **4.1. Special Session: Special Session in celebration of Maurice Tucker's contribution to carbonate sedimentology: Studies of carbonate rocks and sediments – from sequence stratigraphy and cycles to dolomites and microbialites**

Convenors: Juan Carlos Laya (Department of Geology and Geophysics, Texas A&M University), Paul V. Wright, Mirosław (Mirek) Slowakiewicz (University of Warsaw, Faculty of Geology), Edoardo Perri and Trevor Burchette

Studies in carbonate rocks and sediments have progressed at a remarkable pace in the last few decades and Maurice Tucker has been a key figure in many of those developments, ranging from the sequence to the nano-scale. As he has described his career "I study any Rock that fizzes". Maurice has not only been significant in developing new ideas but has also been a pivotal figure in disseminating the scientific progress through his many books, and is internationally recognized as an influential figure in advancing carbonate sedimentology. This session aims to celebrate his career with a combination of talks reviewing new advances in carbonate sedimentology including and not limited to carbonate sequence stratigraphy and cyclostratigraphy and diagenesis.

#### **4.2. Special Session: Early diagenesis in carbonate sediments**

Convenors: Theresa Nohl (Westfälische Wilhelms-Universität Münster, Institut für Geologie und Paläontologie), Chelsea Pederson, Mohammed Hashim, Juan Carlos Laya (Department of Geology and Geophysics, Texas A&M University) and Paul Wright

Carbonate sediments are our unique window into past ecosystem evolution, palaeoenvironmental changes and palaeoclimate. They form in a wide variety of depositional settings, involving numerous biological, chemical and physical processes. Post-depositional processes can subsequently alter the sediment's original characteristics. On one hand these processes complicate the reconstruction of original environmental and ecological information, especially at the early stages, and on the other hand they provide important insights into a range of biological, geochemical and physical interactions in the subsurface. Different diagenetic processes and products in marine environments have been studied extensively over the last decades. However, recent work has demonstrated that many of these processes are still poorly understood and controversial, especially those that occur during early marine diagenesis. Moreover, we now appreciate, but are yet to fully understand, how critically important mineral transformations are in marine fluids even during very shallow burial. This session invites contributions that focus on the sedimentological, geochemical, and geobiological processes associated with carbonate diagenesis in general, with a particular emphasis on processes that occur during early diagenesis.

#### **4.3. Special Session: Non-marine and marine carbonate factories and their expressions in sequence stratigraphy**

Convenors: John Reijmer (Amsterdam/Fribourg) and Peter Burgess (Liverpool)

The carbonate factory concept, including how such factories respond to relative sea-level oscillations, climate overturns and environmental changes, is still the fundamental basis for understanding most carbonate depositional systems. However, drone-assisted quantitative outcrop studies and experimental numerical forward modelling play an increasingly important role helping unravel the interplay of these controlling factors as they are expressed in the sequence stratigraphy of non-marine to marine, carbonate-dominated depositional systems. In this session we invite authors to submit contributions highlighting novel approaches in this research field. Studies applying various carbonate factory concepts in quantitative outcrop and forward modelling approaches, as well as seismic data applications are welcomed.

#### **4.4. Special Session: Resedimented carbonates – generation, transport, deposition**

Convenors: Arnoud Sloopman (Department of Geology and Geological Engineering, Colorado School of Mines, Golden, Colorado, USA), Katarina Gobo (Department of Geology, Faculty of Science, University of Zagreb, Croatia), Krešimir Petrinjak (Croatian Geological Survey, Department of Geology, Zagreb, Croatia), Rosine Riera (Norwegian Geotechnical Institute, Perth, Australia), and John Reijmer (Faculty of Science, Department of Earth Sciences, Vrije Universiteit Amsterdam, The Netherlands).

Department of Geosciences, University of Fribourg, Switzerland)

Carbonate environments yield a diverse range of depositional products. Carbonate sediments in marine, lacustrine and terrestrial systems are subject to a multitude of transport and depositional processes. The nature of sediment in carbonate-dominated environments relies on the carbonate factory involved, but also on the temporal and spatial setting, as well as the climate and environmental locale. These factors combine into

variations in the amount, grain-size spectrum and mineralogy of the carbonate sediments. Other parameters that impact sediment redistribution in carbonate-dominated settings include platform and slope morphology, and oceanic setting and currents.

Carbonate particles itself comprise a wide range of sizes and shapes governed less by sediment maturity and more by the skeletal nature of the carbonate-producing organisms combined with non-skeletal sediment production. The divergence of shape and density between carbonate and siliciclastic particles leads to marked differences in hydraulic behaviour. However, there are many examples of resedimented carbonate and siliciclastic grains occurring together.

This session aims to explore depositional models for pure and mixed resedimented carbonates – from modern to ancient and from the scale of single grains to shelf-to-basin profiles. We welcome researchers from all disciplines, in particular early career scientists.

#### **4.5. Special Session: Modern advancements in the characterization of dolomite**

Convenors: Cole McCormick and Cathy Hollis (University of Manchester)

Our understanding of dolomitization, cementation, and recrystallization in carbonate sedimentary rocks has progressed considerably over the past decade, namely due to modern advancements in the techniques used for field, petrographical, and geochemical analyses (e.g., clumped isotope thermometry, rare earth element analyses, U-Pb geochronology, noble gas isotope analysis). There have also been significant advances in the use of geochemical proxies (e.g.  $d^{53}\text{Cr}$ ,  $d^{56}\text{Fe}$ ,  $d^{11}\text{B}$  and halogen concentrations) for interpretation of palaeoclimate, seawater chemistry and oxygenation, although the extent to which these are retained after dolomitization is still unclear. We invite abstracts that address the geological significance of novel analytical techniques, particularly those that illuminate fundamental processes in the formation of dolomite and/or the significance of these processes to paleoceanography or tectonics.

#### **4.6. Special Session: Carbonate sedimentary systems and their petrophysical expression**

Convenors: Anneleen Foubert (Fribourg), Eva de Boever (Utrecht/Groningen) and John Reijmer (Amsterdam/Fribourg)

In this session we solicit contributions discussing the petrophysical properties of mixed, non-marine and marine carbonate systems. The evaluation of porosity (pore shape, pore size, pore networks) and permeability distributions as well as acoustic velocity expressions of mixed, non-marine and marine carbonate depositional systems are important in the exploration and exploitation of alternative geo-energy solutions, such as geothermal and geological storage applications (e.g., carbon capture and storage).

Outcrop-related studies and core studies, but also modelling studies and experimental studies are welcomed. Studies based on 3D correlative microscopy (e.g., FIB-SEM, CT-scanning) and upscaling, from sedimentary facies to outcrop-scale, would also fit in this session.

The understanding of carbonate sedimentary systems and their petrophysical behaviour, taking a process-based and quantitative approach across different scales, is crucial in the acceleration of the global energy transition towards a carbon-neutral and sustainable society.

#### **5.1. Special Session: Lake sediments as archives of natural and anthropogenic changes in climate and the environment**

Convenors: Marta Marchegiano (Chemistry Department, Vrije Universiteit Brussel, AMG-VUB research unit, Belgium) and Patricia Roeser (Environmental Geology Group Institute for Geosciences, University of Bonn, Germany)

Lake sediments offer valuable high-resolution archives allowing unique reconstructions of climate- and human-induced environmental changes at various time scales. The accurate interpretation of lacustrine records requires an in-depth understanding of both modern and past sedimentation processes. Combining these data with those of multi-proxy investigations can allow to understand the impact of global climate change on specific area as well as to disentangle climate from anthropic triggers. This session welcomes studies from the broad fields of modern and paleo limnology. We encourage presentations dealing with a variety of approaches (e.g. geochemical, sedimentological and biological) that allow to reconstruct past climate and environment, including state of the art methodology. Paleoclimate and paleoenvironmental reconstructions based on well-dated sedimentary archives applying methods such as inorganic and organic geochemistry, sedimentary DNA, biological remains as well as numerical models or statistical approaches are also welcomed.

### **5.2. Special Session: New advances in lacustrine sedimentology**

Convenors: Shuxin Pan (Research institute of petroleum exploration & development-Northwest (NWGI), PetroChina, Lanzhou, China), Carlos Zavalam (Universidad Nacional del Sur, Buenos Aires, Argentina), Mathieu Schuster (Centre National de la Recherche Scientifique, Strasbourg, France), Guodong Wang (Research institute of petroleum exploration & development-Northwest (NWGI), PetroChina, Lanzhou, China) and Lisha Yang (Research institute of petroleum exploration & development-Northwest (NWGI), PetroChina, Lanzhou, China)

Lacustrine basins are important oil & gas-productive areas of the world. In recent years, lacustrine sedimentology has made great achievement in term of source-sink system analysis, shallow-water delta, beach bar, deep-water sediments, fine-grained deposits, lacustrine carbonate, events deposits, deep reservoir forming mechanism and seismic sedimentology. Even so, challenges of the lacustrine sedimentology are widely existed and needed to carry out innovation. The main idea of this theme is innovation and new exploration fields of lacustrine deposits.

### **6.1. Special Session: Coastal depositional systems: understanding past and modern systems for a resilient future**

Convenors: Valentina M. Rossi (National Research Council of Italy, Institute of Geosciences and Earth Resources, Pavia, Italy), Cornel Olariu (Jackson School of Geosciences, University of Texas at Austin, Austin, Texas, U.S.A), Ron J. Steel (Jackson School of Geosciences, University of Texas at Austin, Austin, Texas, U.S.A), and Allard W. Martinius (Delft University of Technology, Delft, The Netherlands and Equinor ASA, Trondheim, Norway)

Coastal areas are very economically and ecologically valuable environments, and some are very densely populated. However, nowadays these areas are extremely vulnerable and under the threat of global changes. Deposits of coastal environments constitute reservoirs for fresh water resources, hydrocarbons, geothermal energy, and can provide storage for CO<sub>2</sub>. Furthermore, these deposits are excellent archives that allow us to understand the evolution of coastal depositional systems under varying sea level, coastal processes and sediment supply.

In this session, we invite contributions on modern, ancient, experimental and numerical modeling studies of coastal depositional systems to improve our understanding of these systems in the past, present, and their possible evolution in the future to guide their correct management.

### **6.2. Special Session: Mixed process expressions, and controls on sedimentation in tidal systems**

Convenors: Shahin E. Dashtgard (Department of Earth Sciences, Simon Fraser University, Burnaby, Canada), Robert W. Dalrymple and Sergio G. Longhitano

This session focuses on how wave and fluvial processes are expressed in tidal systems, and the allogenic and autogenic forcings that impact sedimentation therein. The intention of this session is to develop a more complete picture of how tidal systems work and how they are expressed in the sedimentary record.

### **6.3. Special Session: Coastal boulder deposits (CBD) as archives of extreme wave events**

Convenors: Stefano Furlani (University of Trieste, Italy), Giovanni Scicchitano (University of Bari, Italy), and Tvrtko Korbar (Croatian Geological Survey, HGI, Croatia)

Extreme wave events along rocky coasts can produce specific geomorphological signature in terms of erosion and deposition. Large coastal boulder deposits (CBD) and solitary boulders are common in the sites exposed to open seas, but can be find also in sheltered areas due to regional strong winds, specific geomorphology of the basin, or appropriate local sea-bottom topography. The boulders can be emplace well above high tide and may include megaclasts that weight up to hundreds of tonnes. The origin of this type of coastal deposits can be related both, to extreme storm waves and to (mega)tsunamis, depending on the site conditions, such as the regional active tectonic setting or extreme wave exposure.

In this session, studies about coastal morphology and sedimentology of boulder deposit sites, monitoring of boulder movements using on-site observations with new technologies, such as image analysis and IA, modelling of wave impacts on rocky coasts, dating of the boulder deposition, and other approaches, are welcome.

#### **6.4. Special Session: The sedimentology of coastal storms past and present: informing preparedness for climate change**

Convenors: Michael Savarese (Department of Marine & Earth Sciences, Florida Gulf Coast University Fort Myers, Florida, USA) and Bosiljka Glumac (Smith College Northampton, USA)

As climate change is anticipated to generate greater storminess as the planet transitions through the 21<sup>st</sup> century, a better understanding of storm history and the associated sedimentologic processes and products is warranted. With such understanding comes a greater capacity to predict, and therefore manage, the impact of future storms. This session will explore: the proxies used by sedimentologists and stratigraphers to interpret storm history; the geomorphologic response of coastal landscapes; the new technologies employed to advance our knowledge; and the modeling efforts available to predict future outcomes. Lastly, we invite case studies in which geoscientists have effectively worked with managers and decision makers to build capacity in coastal resilience.

#### **6.5. Special Session: Spatial and temporal variability in coastal to shelf environments**

Convenors: Sonia Campos-Soto (Complutense University of Madrid), Marta Cosma (National Research Council of Italy), Marcello Gugliotta (University of Bremen), Romain Vaucher (University of Lausanne), Anna van Yperen (University of Oslo), and Valentin Zuchuat (RWTH Aachen)

At any latitude and under any kind of climatic conditions, coastal to shelfal systems are characterized by the interplay of various processes (e.g. riverine, tidal, waves/storms, wind). These processes interact with sediment mixtures and can result in complex morphodynamics, variable sedimentary facies, and stratigraphic architectures. The depositional record of these mixed process interactions is challenging to decipher, especially given changes in depositional systems across various timescales: variations in relative sea level, climate, and/or sediment supply, amongst other factors. In addition, the sedimentary signature and architecture preserved in the record can misrepresent what processes were active at the time of deposition, blurred by the amalgamation of different timescales at which each of the processes occur. Because coastal and shallow-marine areas around the world are subjected to intense and ever-increasing anthropogenic stresses, a better understanding of these depositional systems will benefit their sustainable protection and development by local communities and policy makers. In this session, we invite contributions of studies on coastal to shelfal systems either in the rock record or in modern examples, in any type of climatic and tectonic setting, with data acquired (but not limited to) from fieldwork, remote-sensing, experimental lab work, and numerical modelling. Early Career Scientists are warmly welcome to showcase their work, and we encourage them to apply for oral presentations.

#### **8.1. Special Session: Subaqueous sediment gravity flow processes and products**

Convenors: Joanna Pzonka (Mineral and Energy Economy Research Institute, Polish Academy of Sciences, Poland), Xin Shan (First Institute of Oceanography, Ministry of Natural Resources, China), Arif Hussain (College of Petroleum Engineering and Geosciences, King Fahd University of Petroleum and Minerals, Saudi Arabia) and Katarina Gobo (Department of Geology, Faculty of Science, University of Zagreb, Croatia)

Subaqueous sediment gravity flows constitute one of the most significant processes of sediment transfer on Earth. They transport and accumulate large quantities of clastic and carbonate sediments, organic matter, and anthropogenic pollutants (e.g. plastics) in subaqueous environments, including lake, delta, continental shelf, continental slope, submarine fan and basin plain. Their deposits may host large volume of hydrocarbon reserves, but also preserve organic carbon that reduces carbon dioxide in the atmosphere significantly. Subaqueous sediment gravity flows are caused by catastrophic events of variable magnitude such as mass failures, major river floods, storm waves, volcanic eruptions and earthquakes, therefore, they are difficult to predict and monitor directly. The sedimentary records of these flows significantly enhance our understanding of sediment transport processes and emplacement mechanisms, paleoclimate, and tectonics. We invite contributions focusing on depositional processes (shallow to deep-water settings) and products (both ancient to modern sediments) of subaqueous sediment gravity flows. Studies using established methods, as well as ones presenting applications of novel approaches, such as modelling and laboratory work to reconstruct records of past events, their impacts on the environment, and forecast the probability of future events. Early Career Scientists are warmly encouraged to give oral presentations.

## 8.2. Special Session: Analogues and experiments for understanding early diagenesis of clastic sediments

Convenors: Stuart Jones (Durham University, UK), Richard Worden (University of Liverpool, UK), Dimitrios Charlaftis (Durham University & Badley Ashton & Associates, UK) and Sanem Acikalin (University of Newcastle, UK)

Early clastic diagenesis occurs at or near the surface of sediments (sands and muds) where chemistry of the interstitial waters is controlled mainly by the depositional environment. The initial sediment composition, texture, pore fluid chemistry, microbiology and depositional setting all influence the mechanical and chemical properties of the sediment, which in turn may lead to substantial differences in the nature and magnitude of diagenetic change through time and burial. Understanding the early and on-going processes that change the properties of clastic sediments are of economic and environmental importance, and especially for the energy transition. This session invites contributions focused on multidisciplinary approaches to explore a broad range of geochemical, microbial and mechanical changes using modern sedimentary analogues and use of experimental studies. Early Career Scientists are encouraged to participate, including immature ideas and concepts to promote discussion. Our aim is to provide an in-person live discussion about the-state-of-the-art of diagenetic processes studies and to identify promising paths for new research focused on understanding the importance of early diagenetic processes.

## 9.1. Special Session: Volcanism and sedimentology

Convenor: Pujun Wang (Jilin University, China)

Volcanism and sedimentology are the twin brothers that reflect deep Earth properties and epigenic processes of the Earth. Their interaction process and results are the key to revealing characteristics of the Earth system. Volcano-sedimentary rock associations occur throughout Earth history. The evolution of the Earth surface system is controlled by the earth's internal operation. Volcanism is one of the important links between the Earth's internal processes and the evolution of the surface system. Volcanogenic sedimentary successions are common types of basin fills at various kinds of tectonic settings throughout Earth history. They provide key spatial and temporal records of the interaction processes between global and/or regional tectonics, volcanism, basement features, and overlying sedimentary covers. We seek contributions on (1) volcanism-sedimentary processes including sedimentology and facies analysis that operate between source and sink; (2) the past caldera tectonic systems buried in sedimentary basins and their impact on the subsequent basin forming, filling, and sequence of sedimentary facies; (3) the volcano-related basement architecture and building process and their impact on the overlying basin formation, filling style, and facies distribution; (4) the Paleoclimatic and paleoenvironmental aspects related to the interaction between volcanism and sedimentology; (5) the geological records and/or methods that can characterize the specific features of the interaction processes between volcanism and sedimentology.

## 9.2. Special Session: Impacts of volcanism on sedimentary systems

Convenors: Andrea Di Capua, Federica Barilaro, Rosanna De Rosa and Gabor Kereszturi

Volcanism plays a fundamental role in the evolution of sedimentary basins and the control of sedimentary processes. From one side, in fact, it produces and disperses large volumes of pyroclastic particles, which are directly accumulated into depocenters or enter into sediment routing systems before their final rest. From the other side, it drives the upcoming of hydrothermal/thermal fluids that interact with the surrounding environments, favoring a multiple spectrum of processes such as rock weathering, authigenic mineral precipitation and maturation of organic matter.

In order to stimulate a multidisciplinary debate on the impact exerted by volcanoes on sedimentary systems, we invite presentations that include, but are not limited to: 1) field- and/or laboratory-based description and interpretation of volcanoclastic sediments and related processes both in modern and ancient realms; 2) basin-related studies on the impact of volcanism under geo-energy purposes; 3) analyses on sedimentary sequences derived from or modified by the uprising of volcanogenic fluids.

This session is co-sponsored by the Commission on Volcanogenic Sediment of the International Association of Volcanology and Chemistry of the Earth's Interior (IAVCEI).

### **10.1. Special Session: Evaporitic sedimentary environments, processes and products, with emphasis on the Messinian Salinity Crisis**

Convenors: Francesco de la Pierre (Università degli Studi di Torino, Dipartimento di Scienze della Terra, Italy) and Luis Gibert (Universitat de Barcelona, Dept. Mineralogy, Petrology and Applied Geology, Spain)

Evaporites are chemical sediments formed in saline environments where evaporation generates brines concentrated in different compounds. These evaporitic rocks and associated brines have economic interest since are the source of basic materials used in construction, as gypsum, or strategic elements for the development of our society, as Na, K, Li, B. Because of their particular petrophysical properties evaporites are important in tectonic processes. They form detachment surfaces, diapirs and minibasins, playing a key role in the genesis and sealed structure of hydrocarbon reservoirs. During these energy transition times, thick evaporitic units have been proved useful to produce artificial reservoirs to store gas (hydrogen, methane etc). Finally, evaporites are excellent archive of biological activity, since both extremophile communities (archaea, bacteria) and the organisms that live above the pycnoclines (diatoms, forams etc.) are rapidly trapped in the evaporites and often excellently preserved. All these forms of life supply important information about the sedimentary setting and some of them favor the formation of bio-induced minerals as for example dolomite.

This session is addressed to all researchers working on different aspects of evaporitic sediments from ancient environments to modern analogs, from deep-sea brine pools to shallow continental salars. We welcome to this session studies related to the Messinian Salinity Crisis, when the youngest Salt Giant on Earth was formed in the Mediterranean region.

### **11.1. Special Session: Carbonate biomineralization processes, biominerals, environmental mineralogy /geochemistry**

Convenors: Miroslaw Slowakiewicz (University of Warsaw, Faculty of Geology), Edoardo Perri, Mónica Sánchez Román, and Daniel Ariztegui

Prokaryotes (bacteria and archaea) contribute a significant fraction of modern biodiversity in terms of species abundance, total biomass and capacity to thrive in habitats inhospitable to more conspicuous forms of life. As a consequence of their diverse metabolic capabilities, prokaryotes participate in transformations and fluxes of most elements present on Earth and hence are important drivers of geochemical cycles. Throughout their long evolutionary history, some prokaryotes have acquired the capability to precipitate biominerals, a process referred to as biomineralization. Biominerals in recent decades have received growing interest from a large interdisciplinary scientific community. Understanding carbonate (bio)mineralization processes gives a deeper knowledge of natural risk, of changes related to anthropogenic activities, and provides tools for risk assessment. Investigating (bio)minerals allows the development of new technologies for a wide range of problems such as water quality, pollution and cement failure. This session is open to the whole scientific community interested in biominerals, sustainability and related technology development. We especially target the following themes: (1) impact of geobiological, geochemical and physico-chemical processes driving carbonate precipitation, with applications to palaeoenvironments and past climate changes, (2) experimental methods and visualization technologies to understand mineral nucleation, precipitation, alteration, and diagenesis, and (3) their synthetic analogues relevant to the environment, biobased-environmental-technologies such as wetland systems, waste and water treatment, bio-metallurgy, bioremediation, or investigations on biominerals relevant to health.

### **11.2. Special Session: Trace fossils in sedimentological analysis: Expanding their applicability in space and deep time**

Convenors: Anthony P. Shillito and Maximiliano Paz

Trace fossil analysis is a valuable tool to support sedimentological, sequence stratigraphical, geochemical, and palaeoenvironmental interpretations in both modern and ancient sediments. For this reason, an accurate assessment of animal-substrate interactions is fundamental for any facies analysis. Despite the recent explosion of published papers, there are still many environments that have hardly been explored. Also, recent work has emphasized that trace fossil analysis can contribute to evolutionary palaeoecology, providing insights for the understanding of major radiations and extinctions through geologic time. This would be essential to calibrate currently used trace fossil models. In this session, we invite contributions concerning the innovative application of trace fossils analysis to several geological problems (sedimentological, geochemical, palaeoenvironmental, etc.) and the study of trace fossils through Earth's history, both in modern sediments and ancient deposits.

### 12.1. Special Session: Understanding major paleoenvironmental and paleontological crises during the Mesozoic by exploring shallow water carbonates geological archives

Convenors: Gianluca Frijia (University of Ferrara, Department of Physics and Earth Sciences), Alexis Godet (University of Texas at San Antonio, Department of Earth and Planetary Sciences), and Brahmisamba Bomou (Université de Lausanne, Institut des Sciences de la Terre (ISTE))

Shallow-marine carbonate-producing ecosystems represent unique windows on the geological past of our planet. They constitute excellent archives of the response of neritic biocalcifiers to severe perturbations of the geochemical cycles during the Mesozoic. Furthermore, they host a valuable record of carbonate-associated proxies of past ocean conditions due to their sensitivity to environmental parameters such as sea level, water temperature, chemistry and turbidity, nutrient and oxygen levels. During the last forty years, research efforts correlated Oceanic Anoxic Events that affected oceans worldwide and resulted in the deposition of organic-rich series in basins, to major biotic turnovers in carbonate platforms. However more discrete crises affected the carbonate platform during the Mesozoic which still need to be documented in detail.

We invite contributions that combine classic and cutting-edge methods in sedimentology, stratigraphy, geochemistry and associated subfields, to identify paleoenvironmental forcing mechanisms and quantify their impact on the evolution of Mesozoic carbonate platforms. Because shallow-marine carbonates are susceptible to be severely altered after their deposition, we also welcome contributions that will consider the impact of diagenetic alteration on the preservation of geochemical signals.

### 12.2. Special Session: The sedimentary role of calcareous green algae, from Paleozoic to modern

Convenors: Mardi McNeil (Queensland University of Technology, Brisbane, Australia), Juan Carlos Braga (Department of Stratigraphy and Palaeontology, University of Granada, Spain), and Jody Webster (School of Geosciences, The University of Sydney, Australia)

Calcareous green algae are important carbonate producers in modern low-latitude, shallow-water marine environments. They contribute significant amounts of carbonate either as fine-grained carbonate particles resulting from the decay of their aragonite skeletons or as sand- to pebble-sized skeletal pieces, which can be dispersed in the sediment or concentrate as biostromes and bioherms.

Similar carbonates related to calcareous green algae are known since the Late Paleozoic, when phylloid and other enigmatic algae together with dasycladaleans formed extensive deposits. Dasycladaleans continued to be noteworthy components of carbonate rocks until the Early Cenozoic. Halimedaceans are by far the major carbonate producers among green algae in the modern ocean. Members of the family such as *Udotea* and *Penicillus* are unidentifiable in the fossil record while *Halimeda* beds and bioherms occur sporadically mainly since the Miocene, with an extensive modern example of *Halimeda* bioherms occurring in Australia's Great Barrier Reef.

In the last decades, advances on the knowledge of calcareous green algae ecology, sedimentology and stratigraphy, morphology, biogeochemistry and geological record have improved the general understanding of the sedimentary role of the group. This session provides a forum for researchers on modern and fossil calcareous green algae to come together and share perspectives with the community. We welcome contributions from across the spectrum of spatial and temporal scales and from related sub-disciplines.

### 12.3. Special Session: The stratigraphic record of paleoenvironmental variation in epeiric basins

Convenors: Miquel Poyatos-Moré (Universitat Autònoma de Barcelona, Spain), Orsolya Sztanó (Eötvös Loránd University, Hungary), Ernesto Schwarz (Universidad Nacional de La Plata-CONICET, Argentina), Chelsea Pederson (University of Southern Mississippi, USA), and Mariano Ramirez (George Mason University, USA)

Epeiric seas are sea-water masses which extend over continental platforms. They have formed through Earth's history in multiple tectonic and climatic settings, with their deposits being relatively well preserved in the rock record. Modern examples include the Persian Gulf, the Marmara and Baltic seas, or the Hudson Bay, and ancient examples include the Western Interior Seaway, the Paratethys Sea, or the Iberian Basin. Epeiric sea basins are prone to periods of partial or total disconnection from larger oceans and thus to global eustasy and marine water composition. This makes them sensitive systems to local tectonics, salinity, oxygenation, and climatic fluctuations, and therefore excellent laboratories to study how changing conditions in receiving basins influence biogenic and sedimentation patterns. In order to gain a holistic understanding of the dynamics in these restricted seas (e.g., regional hydrography, ocean connections, sediment-distribution processes and pathways, sea-floor oxygenation, etc.), integration of multiple proxies is required, including (but not limited to) structural, sedimentary, ichnological, and geochemical studies.

This session invites contributions of studies on sedimentary successions from epeiric or restricted seas, either from the rock record or modern examples, from multiple climate or tectonic settings, and either focused on the sedimentological, ichnological, or geochemical record of such successions, or with a more multidisciplinary approach. Early Career Scientists are particularly encouraged to submit and present their work.

#### **12.5. Special Session: Paleoclimate and paleoenvironmental changes in shallow-marine seas**

Convenors: Romain Vaucher (Institute of Earth Sciences (ISTE), University of Lausanne, Geopolis, Switzerland), Amy I. Hsieh (Department of Earth Sciences, Simon Fraser University, Burnaby, Canada), Barbora Krizova (Department of Physics and Earth Sciences, University of Ferrara, Italy), Christian Zeeden (LIAG—Leibniz Institute for Applied Geophysics, Geozentrum Hannover, Germany) and Shahin E. Dashtgard (Department of Earth Sciences, Simon Fraser University, Burnaby, Canada)

The shallow-marine realm (i.e., beach to shelf) is directly affected by short- and long-term climatic fluctuations and sea level change on glacial-interglacial time scales. Climate fluctuations also drive changes in extreme weather events (e.g., tropical cyclones and floods). Traditionally, shallow-marine sedimentary strata are considered to preserve low-resolution archives of paleoclimate and paleoenvironment records because of their presumed temporal incompleteness. However, shallow-marine strata preserve high-resolution records of climate and environmental changes in sedimentary basins with high sediment accumulation rates. In this session, we invite contributions focused on reconstructing Earth's past climate and environmental conditions using shallow-marine strata as archives. Presentations may include but are not limited to field, borehole, laboratory, and modeling data dealing with clastic, carbonate, and/or mixed systems. We particularly invite early-career scientists to deliver oral presentations.

#### **12.6. Special Session: Paleosols as valuable records of terrestrial climate and environments**

Convenors: Goran Durn (University of Zagreb, Faculty of Mining, Geology and Petroleum Engineering, Zagreb, Croatia), Andrea Mindszenty (Eötvös Loránd University, Budapest, Hungary) and Franz Ottner (BOKU – University of Natural Resources and Life Sciences, Vienna, Austria)

The importance of geochemical, mineralogical, and micromorphological (GMM) studies for paleoenvironmental interpretation of paleosols in a variety of sedimentary settings is well recognized and can provide a high-resolution proxy for paleoclimate and landscape dynamics. Past climate changes have had a significant impact on the biogeochemical cycles, mineralogy, and micromorphological characteristics of paleosols. Paleoclimate signals in paleosols may also be complicated by diagenetic overprinting. We therefore welcome presentations that address GMM aspects in paleosols as indicators of changes in paleoclimate and paleolandscape as well as multidisciplinary studies of paleosols that examine weathering processes/erosion and paleosol formation at regional unconformities. Presentations addressing modern soil analogs of ancient climatic conditions are also welcome.

#### **12.7. Special Session: IGCP739: The Mesozoic-Paleogene hyperthermal events**

Convenors: Xiumian Hu (Nanjing University, Nanjing, China), David Kemp (China University of Geosciences, Wuhan, China), Micha Ruhl (The University of Dublin, Dublin, Ireland), Santanu Banerjee (Indian Institute of Technology, Powai, India), Ismail Yilmaz (Middle East Technical University, Ankara, Turkey), Ying Cui (Montclair State University, Montclair, USA)

Climate states have been alternating on variable timescales between Hothouse, Warmhouse, Coolhouse and Icehouse through the Earth history. Among them, the extreme global warming episodes, known as hyperthermal events, are often short-lived and widely documented in the sedimentary records of the Mesozoic-Paleogene interval, e.g., End-Permian mass extinction, Carnian Pluvial Event, End-Triassic mass extinction, Toarcian and Cretaceous Oceanic Anoxic Events and Paleocene–Eocene Thermal Maximum. These climate extremes have been linked to the massive and rapid release of greenhouse gases into the ocean-atmosphere system, and share common features in major environmental, paleoecological and biotic turnovers. As such, they can potentially serve as analogues for anthropogenic climate change and associated environmental changes. Nonetheless, the driving mechanisms, responses and feedback of the Earth's climate system across these deep time hyperthermals are heavily debated. The goal of this special session is to highlight recent research advances on Mesozoic-Paleogene hyperthermal events. We welcome contributions comprising interdisciplinary approaches (sedimentological, paleontological, geochemical, and numerical modelling) and comparative studies of both marine and terrestrial environments across these hyperthermals.

### 13.2. Special Session: Controlling factors of sediment generation in source to sink studies

Convenors: Guido Pastore and Muhammad Usman (Laboratory for Provenance Studies, Department of Earth and Environmental Sciences, University of Milano-Bicocca, Milano, Italy)

Throughout sediment routing systems, a series of chemical, physical and transport-dynamic processes modify the pristine sediment composition. Sediment generation (erosion, transport and accumulation) studies allow for a better understanding of the interplay between external forcing factors, such as climate and tectonics, and internal factors, such as proto-source lithology to better characterize the sedimentary history from source to sink. Recent developments in analytical techniques support the crucial role of modifications during sediment transport and storage on sediment composition. Future studies characterizing sediments should, therefore, explicitly consider possible modifications of sediment composition for a more robust understanding of sedimentary systems. The scope of this session is not only to present sedimentary provenance studies, sustained with robust mineralogical/geochemical/isotopic datasets and valuable statistical and modelling interpretations, but also to emphasize the processes controlling compositional modifications. Conceptual approaches and analytical techniques that aim to link sediment compositions to their respective source rocks need a renewed discussion in the sedimentology community. Aspects that deserve explicit consideration are: isotopic and geochemical provenance proxies, weathering of mineral phases in different climates, physical grain sorting due to density and shape during transport, and selective diagenetic dissolution. These often mask the original sedimentary signal, complicating our understanding of the overall sedimentary system. We encourage contributions on I) single grain analysis for source identification, II) multi-technique provenance analysis, III) physical and chemical alteration studies along transport and during diagenesis, IV) sorting and concentration effects of minerals during transport, V) study of sedimentary basins for Quantitative Provenance Analysis, sediment budget and mass balance of modern and ancient routing systems, IV) advances in investigatory techniques (e.g. refined microscale analysis or renewed statistical and modelling approaches).

### 13.3. Special Session: Quantitative study for source-to-sink system

Convenors: Guodong Wang, Yongqiang Qu, Duonian Xu and Lisha Yang (Research institute of petroleum exploration & development-Northwest (NWGI), PetroChina, Lanzhou, China)

The study of "source-to-sink" system is now a hot spot in the interdisciplinary research of basin-orogen dynamics sedimentology, geography and geomorphology. Although great success has gained after 20 years' research on source-to-sink system of all aspects, the theories and ideas still need to be deepened and improved in basins with different evolutionary processes and types and different time scales. Quantitative study is the key to the in-depth study of the source-to-sink analysis. Through the observation of the modern lake basins from source to sink, the modern source-to-sink parameter database by using high-resolution remote sensing data can be established for the physical and numerical simulation to innovate new methods and technologies for multidisciplinary integration of source-to-sink analysis. Finally, the quantitative source-to-sink system mapping can be achieved, and the quantitative source-to-sink system model can be established. Quantitative study for source-to-sink appears to be at the forefront of a new revolution in research and application. It is hoped that this meeting will provide a prelude to this revolution

### 13.4. Special Session: From river catchments to the deep sea: case studies, applications, state of the art and new frontiers of source-to-sink research

Convenors: Alessandro Amorosi (Biological, Geological and Environmental Department, University of Bologna, Italy), Michael D. Blum (University of Kansas, USA), Piret Plink-Björklund (Colorado School of Mines, USA), Luigi Bruno (Dipartimento di Scienze Chimiche e Geologiche, University of Modena and Reggio Emilia, Italy), Bruno Campo (Biological, Geological and Environmental Department, University of Bologna, Italy), and Claudio Pellegrini (Institute of Marine Sciences, Cnr, Italy)

The linkage between onshore to offshore segments, from river catchments to the deep oceans via coastal plains and shelves, is fundamental to unravel the complexity of Sediment Routing Systems (SRSs). Through basin analysis, landscape evolution and multiscale stratigraphic reconstructions, source-to-sink studies aim to quantify sediment generation, transfer, storage, and redistribution on a variety of timescales. The impact of several factors, including human activities and climate changes, can also be assessed by the study of SRSs.

This session aims to discuss the state of the art in source-to-sink analysis in siliciclastic and mixed siliciclastic-carbonate realms on a variety of time scales (from the ancient geological record to the Anthropocene), with a focus on future developments and their potential applications within the context of past, present, and future climate change. We invite presentations from stratigraphers and sedimentary geologists, experimentalists, and

numerical modelers that contribute to the advancement of our understanding of SRSs, both in modern and ancient depositional settings.

We particularly welcome comprehensive and interdisciplinary approaches that point to novel concepts of generic significance that enhance the holistic comprehension of: (i) assessment of sediment provenance through compositional characterization of sediments; (ii) dispersal pathways for organic and inorganic detritus; (iii) calculation of sediment volumes delivered to a basin; (iv) sediment-budget calculations reconstructed through geomorphological analyses; (v) processes and mechanisms of sediment production, routing and accumulation; (vi) evolution of sedimentary basins in response to changes in sediment supply and accommodation; (vii) applications to natural resource exploration and exploitation, landscape management, and the social and/or economic impact of source-to-sink investigations.

#### **14.1. Special Session: Intramountain basins – recorders of tectonics, climate, and biota interactions**

Convenors: Nevena Andrić-Tomašević (Institute of Applied Geosciences, Karlsruhe Institute of Technology, Germany), Oleg Mandić (Geological-Paleontological Department, Natural History Museum Vienna, Austria), and Marijan Kovačić (Department of Geology, University of Zagreb, Faculty of Sciences, Croatia)

Intramountain basins are an integral part of the mountain ranges. Therefore, they are important recorders of deformation, erosion, syntectonic deposition, magmatic events, variations in biodiversity, and local and regional climatic evolution. Consequently, their sedimentary succession provides an insight into links, interactions, and feedback between tectonics, climate, and biota.

This session aims to assemble research efforts focusing on the dynamics and evolution of the intermountain basins at various temporal and spatial scales, and the “inversion” of their sedimentary record to reconstruct climatic, tectonic and/or biotic evolution/interaction. We invite contributions from the broad field of earth sciences based on field observations, numerical and experimental work.

#### **15.1. Special Session: Seismo-sedimentological characterization of 3D seismic data**

Convenors: Alan Vranjković (INA Exploration, Oil Industry, Croatia) and Camille Cosson (Aspen Technology Inc., USA)

3D prestack and poststack seismic data holds crucial information necessary for unlocking hydrocarbon exploration and development potential, especially in stratigraphic type of HC trapping. Basin depositional environment evolution through 3D seismic attribute analysis can be used to identify lateral and vertical sedimentary facies distribution. Sedimentary analysis from core data through wireline logs is upscaled to 3D seismic data enabling seismo-sedimentological characterization of the subsurface. Extracted 3D seismic data geobodies in seismo-geological interpretation, calibrated with well data gives better understanding of key petroleum system elements distribution – source rocks, reservoir rocks and seal rocks. Seismo-sedimentological characterization which links core and 3D seismic data will play important role in future exploration of brown field basins. Towards seismo-sedimentary geobody atlas of depositional facies recorded in 3D seismic data, presented session will try to start this project on the wider exploration level.

#### **17.1. Special Session: Open Science: data, software, knowledge, and education**

Convenors: Anne Bernhardt (Freie Universität Berlin, Germany), Alisa Martek (National and University Library in Zagreb, Croatia), Aurélia Privat (University of Leeds, UK), Romain Vaucher (University of Lausanne, Switzerland) and Valentin Zuchuat (RWTH Aachen, Germany)

Open Science in academia implies that everything produced by researchers or teachers should be freely accessible to all. Despite a strong push towards Open Science practice in academia and beyond, many financial barriers and lack of Equity, Diversity and Inclusivity (EDI) in academia persist and contribute to major inequalities in access to global scientific knowledge, data, software, and education.

In the digital era where we evolve professionally, making these resources available around the world is easier than it was in the past, and more and more institutions commit to support Open Science. In addition, the world of publishing is undergoing radical changes. Promoting knowledge and science communication is crucial for our society and is a pivotal tool for decision-making by policymakers and stakeholders, as well as citizens who legitimately must have access to publicly-funded research.

In this session, we invite all types of contributions that promote and develop the Open Access to science for all, including the use of Open Science practices (i.e. Open Data and open-source softwares), sustainable and participative community-driven initiatives supporting EDI, transparency, and openness in research, and fostering



36<sup>TH</sup>  
**IAS**

MEETING OF  
SEDIMENTOLOGY



12 - 16 June 2023  
CROATIA  
DUBROVNIK

the broad dissemination of scientific knowledge related to the Earth System. Early Career Scientists are warmly welcome to showcase their work, and we encourage them to apply for oral presentations.

**17.3. Special Session: Sedimentology and geotourism**

**17.4. Special Session: Sedimentology and archaeology**

### Workshops

**W1**

**Date your late Cenozoic succession: Applications of cosmogenic nuclide methods in sedimentology**

**1 day, Monday afternoon, June 12, 2023**

**Workshop leader: Prof. Michal Šujan, PhD**

**Price: 80 EUR**

Department of Geology and Paleontology  
Faculty of Natural Sciences  
Comenius University in Bratislava  
Slovakia

Establishing the geochronology of epicontinental successions remains a difficult task, especially in the absence of ash layers, a scattered depositional record preventing effective application of magnetostratigraphy, and the isolated character of basins, which excludes the use of the standard biostratigraphy of planktonic fossil groups. The relatively new and rapidly advancing dating methods based on cosmogenic nuclides provide a solution in many geological tasks previously considered a conundrum. The specific advantage of the methods is found in their broad range of applicability in the Pliocene and Late Miocene age, in contrast with the routinely used radiocarbon and luminescence dating.

The attendees at the workshop will be able to familiarize themselves with the principles of the dating methods and their applications, sampling strategies, and the processing of samples from the rock right through to measuring isotopic ratios and age calculations as the final output. Special emphasis will be given to limitations of the methods across sedimentary environments. The workshop should serve as a basis for the attendees to design their own dating approach for specific geological problems.

The first part of the workshop will focus on authigenic  $^{10}\text{Be}/^9\text{Be}$  dating, which employs meteoric  $^{10}\text{Be}$  produced in the atmosphere. The method certainly has great potential in the establishment of depositional ages for clay, the most common type of sediment on Earth, up to an age of 14 Ma. Current advances in our understanding of the method's applicability will be presented – these are mostly taken from the Central and Eastern European Neogene basins. The factors affecting the method in alluvial, shallow lacustrine/marine and offshore settings will also be discussed.

The second part of the workshop will focus on applications of the cosmogenic nuclides produced *in situ*. These can be extracted from quartz ( $^{10}\text{Be}$  and  $^{26}\text{Al}$ ) and from carbonates ( $^{36}\text{Cl}$ ). Firstly, the exposure dating of sedimentary bodies, such as river terraces, using a depth profile strategy will be introduced. Apart from a simple depositional scenario, the principles of age calculation in the case of multiple depositional events will be presented. The attendees will also be briefed on burial  $^{26}\text{Al}/^{10}\text{Be}$  dating and the pitfalls of its application, for example, in the case of periglacial depositional systems.

**W2****Quantitative Provenance Analysis (QPA): open problems, applications, and future perspectives****2 days, Thursday afternoon and Friday, June 15–16, 2023****Workshop leader: Dr. Luca Caracciolo****Price: 150 EUR**Lehrstuhl für Geologie  
FAU Erlangen-Nürnberg  
Germany

Provenance Analysis is an established discipline in Sedimentary Geology. The proliferation of analytical techniques has increased the resolution to which both actualistic and deep-time geological settings can be reconstructed. Nevertheless, understanding compositional data generated from bulk-rock vs single-grain techniques and how to integrate them into geological models requires deep knowledge of (i) all factors controlling the generation of sediments (tectonics, climate, and lithology), their transfer and deposition (downstream grain-size fining, hydraulic sorting), and diagenesis (dissolution vs authigenesis); (ii) potential analytical biases, and (iii) processing of compositional data and integration of different database using state-of-the-art statistical workflows. Case studies and exercises aim at stressing both the need and importance of coupling provenance analysis with sedimentology, geomorphology, structural geology, and climatology, and how to use compositional data for numerical modelling, making Provenance Analysis 'Quantitative' (QPA). Eventually, we will explore how QPA can contribute to climate change research and applications for the energy transition.

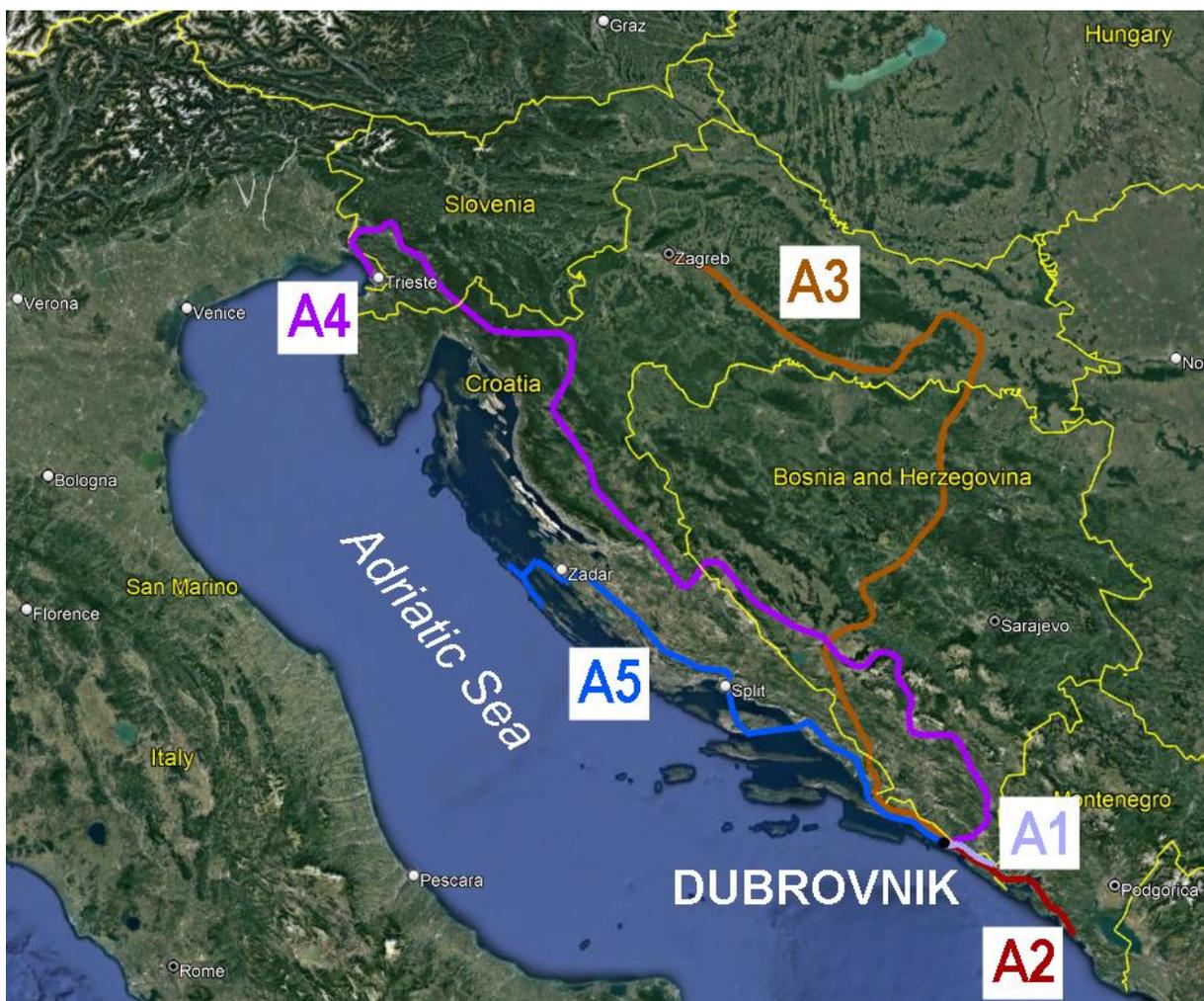
## Field trips

The deadline for field trip registration is March 15, 2023. The capacity of field trips is limited so, please register for the desired field trip as soon as possible to secure your place. Field trip registration must be accompanied by registration for the 36<sup>th</sup> IAS Meeting. Several weeks before the field trip, you will receive information about the field trip organization from the field trip leaders.

Trips with insufficient number of registrations might be cancelled. Some of the field trips include travel in countries other than Croatia (Slovenia, Bosnia and Herzegovina, and Montenegro). The participants should take care of any visa or special passports on time, as well as make necessary arrangements in advance. Please feel free to contact us for assistance.

### **Sedimentary cover of the Adria and surroundings: from aborted rifting in the central Adriatic to the post-collisional deposition in the Dinarides, southern Alps, and the Pannonian basin**

#### Pre-conference field trips



### A1

#### A brief insight into the Upper Triassic to Miocene sedimentary succession of the External Dinarides SE of Dubrovnik (southern Croatia)

1 day    June 12, 2023    Croatia    Starts and ends: Dubrovnik (CRO)

Trip leaders: I. Vlahović, A. Husinec, B. Prtoljan

Contact: [igor.vlahovic@rgn.hr](mailto:igor.vlahovic@rgn.hr)

Price: 95 EUR

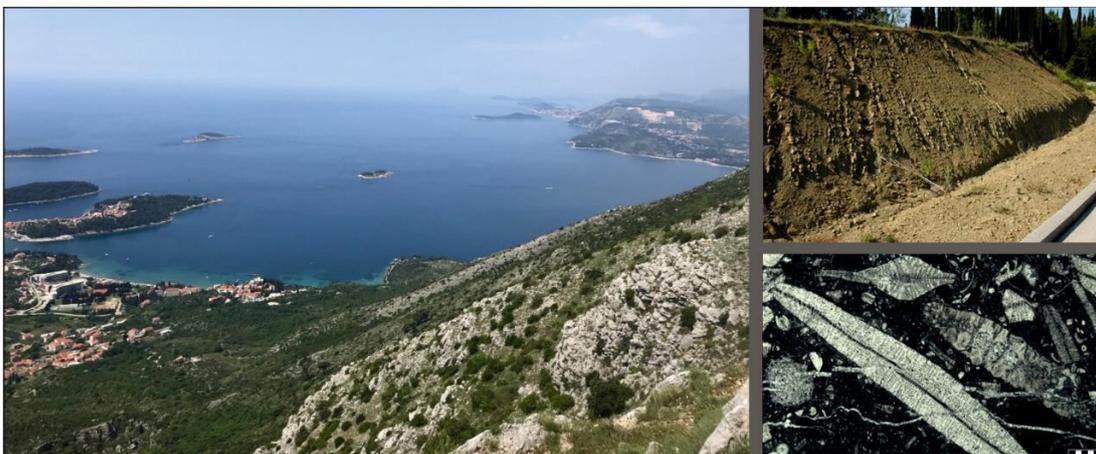
**Transportation:** bus;

**Preliminary number of participants:** 30–60

**Degree of physical difficulty:** short walks, trekking shoes

This field trip focuses on *selected* intervals of the ~5-km-thick Upper Triassic–Miocene predominantly carbonate sedimentary succession of the External Dinarides, spectacularly exposed in the Konavle area near Dubrovnik in southern Croatia. The oldest deposits cropping out in the area are Norian–Rhaetian laminated dolomites (regionally known as *Hauptdolomit* or Main Dolomite) overlain by Hettangian and Pliensbachian shallow-marine limestones, the latter with common lithiotid bivalves. These carbonates formed on a huge semi-isolated carbonate platform of the southern Tethys, which in the late Early Jurassic disintegrated into a set of smaller isolated platforms, separated by oceanic basins. A major part of the External Dinarides is therefore composed of the relatively well-preserved Adriatic Carbonate Platform deposits, predominantly typical shallow-marine carbonates ranging from Toarcian to Maastrichtian, covered by Eocene or in places younger foreland deposits formed due to the collision with the Eurasian Plate.

The trip will emphasize the tectonic, eustatic, and environmental controls that shaped the varied depositional environments, from tidal flats with subaerial exposure breccias and carbonate platform oolite shoals to foreland basins with mixed siliciclastic-carbonate deposits, showing more than 180 MY of a complex geological history in a single day. There will be a focus on Toarcian, *Fleckenkalk*-equivalent oncolitic and oolitic grain-supported limestones, Middle and Upper Jurassic carbonate parasequence/sequence development and disconformities, Upper Cretaceous to Paleogene carbonate deposits, and, in this area younger, Oligocene–Miocene flysch. In addition, we will provide some amazing viewpoints and a touch of local cuisine, as well as offer a glimpse into the contribution of terroir to the flavour of red wines in southern Croatia.



**A2**

**Deep-water Triassic to Cretaceous sedimentary successions of the Budva Zone (Montenegro)**

2 days June 11–12, 2023 Croatia, Montenegro Starts and ends: Dubrovnik (CRO)

Trip leaders: D. Kukoč, Š. Goričan, M. Đaković, A. Kocjančič

Contact: [dkukoc@hgi-cgs.hr](mailto:dkukoc@hgi-cgs.hr)

Price: 330 EUR

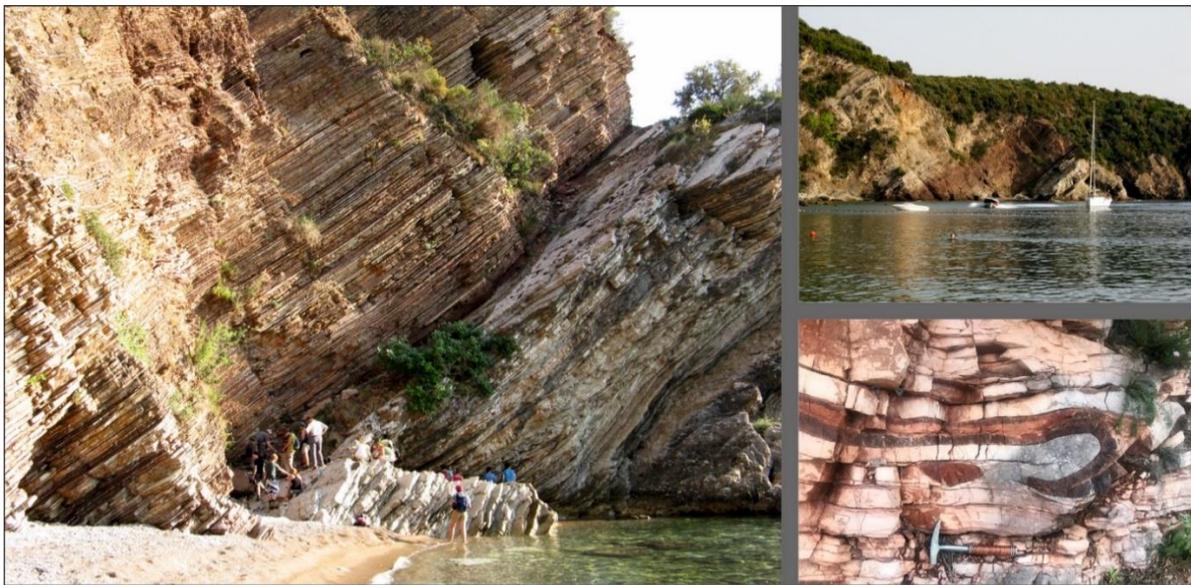
Transportation: bus;

Preliminary number of participants: 15–34

Degree of physical difficulty: short walks, trekking shoes

This excursion will examine the complete Middle Triassic to the end of Cretaceous succession of the Budva Basin, exposed in coastal Montenegro (SE of Dubrovnik). This intraplateau basin in the External Dinarides was characterized by deep-marine sedimentation from the Middle Triassic to the Paleogene. The Middle Triassic synrift carbonate and clastic sediments are overlain by a volcano-sedimentary succession. Alternation of pelagic limestones and radiolarites dominates the succession from the Upper Triassic to the Maastrichtian. The dynamics of surrounding carbonate platforms influenced the deep-water sedimentation, with carbonate gravity-flow deposits present throughout the succession.

Besides attractive geological locations, like the exceptionally well exposed Triassic-Jurassic boundary, this field trip presents a chance to visit the world-wide known historic coastal towns of Montenegro.



**A3**

**Oligocene to Pliocene depositional systems in the southern Pannonian Basin and the Dinarides Intramontane Basins**

3 days June 10–12, 2023

Croatia, Bosnia and  
Herzegovina

Starts: Zagreb (CRO)

Ends: Dubrovnik (CRO)

Trip leaders: O. Mandić, M. Kovačić, N. Andrić Tomašević

Contact: [mkovacic@geol.pmf.hr](mailto:mkovacic@geol.pmf.hr)

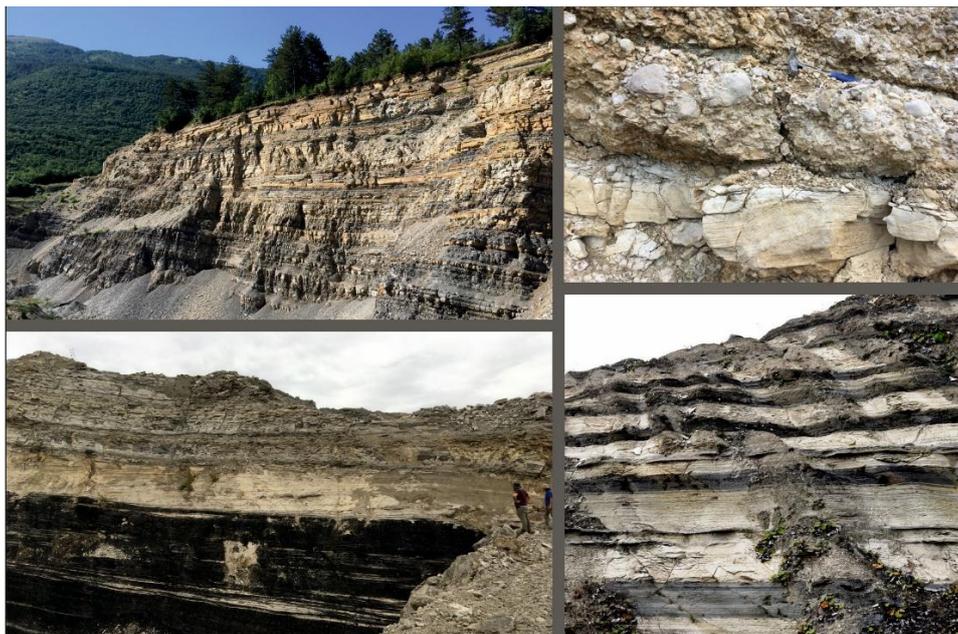
Price: 400 EUR

**Transportation:** bus;

**Preliminary number of participants:** 20–40

**Degree of physical difficulty:** short walks, trekking shoes

The Dinarides fold and thrust belt of Croatia and Bosnia and Herzegovina is positioned between the foreland Adriatic and the backarc Pannonian Basin. Gradual switch from contraction to extension during the Late Oligocene resulted in formation of the first lacustrine intramontane basins along the reactivated thrusts in the internal Dinarides. The extension reached the external Dinarides in the Early Miocene, when the combined effects of tectonic subsidence and the extended humid and warm climate of the Miocene Climate Optimum initiated the formation of the Dinaride Lake System. At the same time, the rifting in the Pannonian Basin and the related tectonic collapse of the internal Dinarides culminated in the Middle Miocene in their marine flooding by the Paratethys Sea. The present excursion will provide an overview on the Late Oligocene to Pliocene sedimentary evolution on different structural units along the transect from the southern Pannonian Basin to the external Dinarides. The first day of the excursion will be dedicated to the southern Pannonian Basin Neogene megasequence in Hrvatsko Zagorje and the Slavonian Mountains region, the second day to the Oligocene-Miocene sediments of the Ugljevik and Zenica-Sarajevo basins, and, finally, the third day to the Miocene-Pliocene successions of the Bugojno and Livno-Tomislavgrad basins.



|   |                 |   |   |
|---|-----------------|---|---|
| <b>A4 Quaternary glaciations of the Alps-Dinarides junction – Cancelled</b>     |                 |   |   |
| 4 days  | June 9–12, 2023 | Slovenia, Croatia, Bosnia and Herzegovina | Starts: Gorica (SLO)<br>Ends: Dubrovnik (CRO) |
| Trip leaders: M. Žebre, P. Jamšek Rupnik, J. Jež, G. Monegato, U. Stepišnik     |                 |   |   |
| Contact: <a href="mailto:uros.stepinsek@gmail.com">uros.stepinsek@gmail.com</a> |                 |   | Price: 700 EUR                                |

Transportation: bus;

Preliminary number of participants: max. 30

Degree of physical difficulty: short walks, trekking shoes

Formerly glaciated mountain landscapes are important archives for the study of Quaternary climate change. This landscape type is widespread in the European Alps as well as in the mountains around the Mediterranean, where a lot of new geomorphological and geochronological data has been collected in the last decade. This field trip will provide an overview of the latest findings on glacial chronology, ice extent and past climate, with a focus on the transition area between the Alps and the Dinarides, stretching from Slovenia and Croatia to Bosnia and Herzegovina. The first day will be dedicated to the Soča valley and the Trnovski gozd plateau at the Alps-Dinarides junction, where deformed glacial deposits in a profile at Most na Soči, the sedimentary succession in the Renče clay pit with one of the best preserved LGM palaeovegetation records at the Alps-Dinarides, and the moraine chronology of Smrekova draga will be discussed in detail. The second day will focus on the northern part of the Dinarides (Snežnik and Velebit mountains) and will cover glacial geomorphology and chronology with two main stops in Gomance and Krasno. On the third and fourth day, the glacial chronology of the Čvrsnica, Velež and Crvanj mountains in the central part of the Dinarides will be presented.



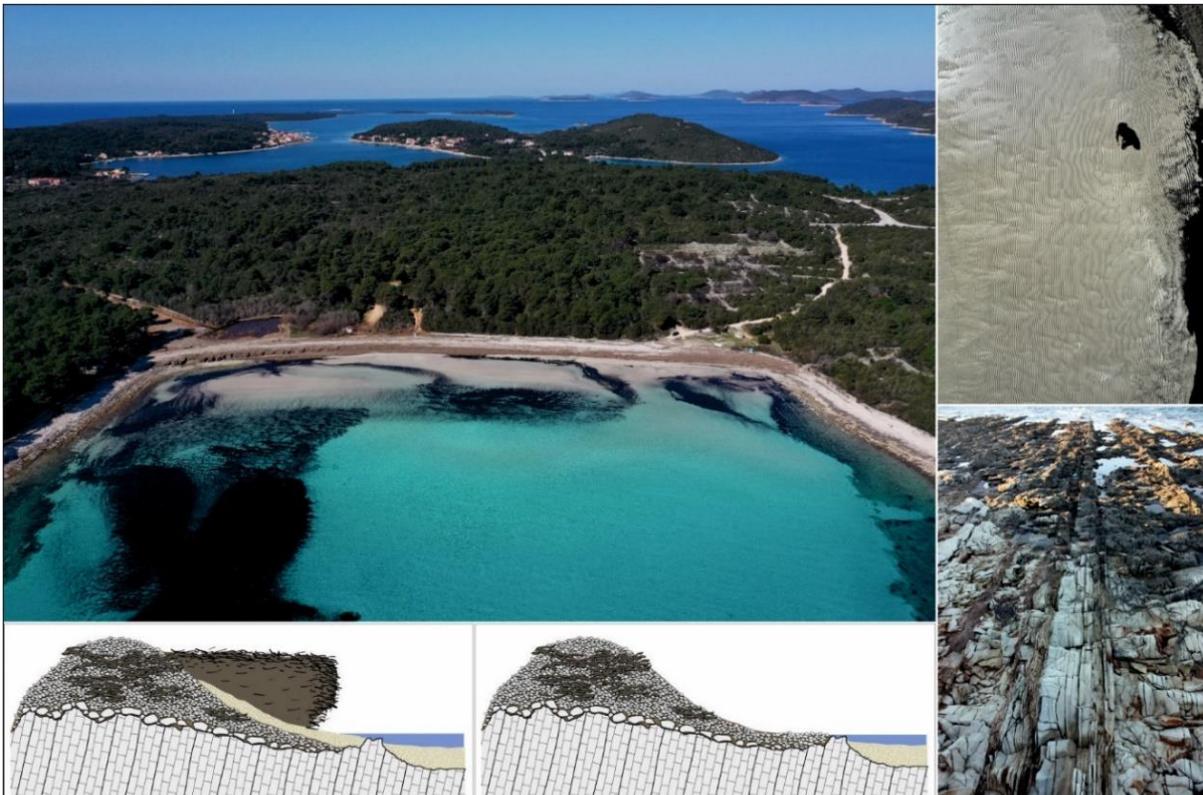
|   |                 |         |   |
|---|-----------------|---------|---|
| <b>A5 Beaches and cliffs – uncommon coastal forms along the Croatian Adriatic (Dugi Otok, Split, Brač) – <b>Cancelled</b></b> |                 |         |   |
| 4 days  | June 9–12, 2023 | Croatia | Starts: Zagreb/Zadar (CRO)<br>Ends: Dubrovnik (CRO) |
| Trip leaders: K. Pikelj, M. Martinuš, B. Cvetko Tešović   |                 |         | Price: 630 EUR                                      |
| Contact: <a href="mailto:kpikelj@geol.pmf.hr">kpikelj@geol.pmf.hr</a>   |                 |         |   |

**Transportation:** bus + ferry boat;

**Preliminary number of participants:** 15–30

**Degree of physical difficulty:** short walks, trekking shoes

The over 6.000 km long Croatian coast is primarily an erosive coast, formed after the Pleistocene-Holocene sea-level rise when previously deeply karstified terrain was submerged. As a result, this coast is mainly rocky and steep, where beaches and cliffs are not common coastal forms. This field trip will focus on coastal segments where gravel beaches and true cliffs were formed. The first segment of the field trip includes the Dugi Otok Island with the famous wide Sakarun beach where gravel, sand, and *Posidonia* banquettes participate in unique biogeomorphological processes. In contrast, tectonically predisposed plunging cliffs formed in carbonates in the Telašćica Nature Park will also be visited. The second location is a true cliff developed in flysch within the Split urban zone. This coastal form undergoes rapid erosion, where its slope processes are endangering a part of the urban area. The third location is Brač Island and its unique gravel spit Zlatni Rat. The other carbonate segments of the Brač Island coast will be visited as well, including Pučišća quarry.



### Mid-conference field trip

|   |   |                |                                  |
|---|---|----------------|----------------------------------|
| <b>B1</b>   | <b>Geology of the old town of Dubrovnik</b> |                |                                  |
| 4 days  | Any time, self-guided                       | Croatia        | Starts and ends: Dubrovnik (CRO) |
| Trip leader: T. Korbar  |   |                |                                  |
| Contact: <a href="mailto:tvrtko.korbar@hgi-cgs.hr">tvrtko.korbar@hgi-cgs.hr</a> |   | Free of charge |                                  |

Southern and northern elevated parts of the Old town of Dubrovnik are built on Mesozoic carbonate rocks deposited on the Adriatic Carbonate Platform. The carbonate bedrock is heavily faulted and fractured since strong tectonic deformations of the once buried carbonates began in Eocene with the formation of the External Dinarides, and are still ongoing because of the proximity of regional active faults. The deformed packages of stratified limestones and dolomites resemble lithostratigraphical units established in the wider region of southern Dalmatia, and show sedimentological features typical for peritidal subtropical sedimentation while rare key microfossils allow age determination. The central part of the town is built on anthropogenic deposits filling a narrow late Holocene embayment characterized by superficial Quaternary sediments that cover the heavily fractured and dissected carbonate bedrock. The southern rocky shore is in patches covered by thin (sub)recent supratidal aragonitic encrustations known as pelagosite.





### Post-conference field trips



|  |                  |         |  |
|--|------------------|---------|--|
| <b>C1</b>  |                  |         |  |
| <b>Volcano-sedimentary-evaporitic rocks from aborted Triassic rift and Cretaceous to Paleogene Adriatic carbonate platform successions: OAEs, K – Pg boundary and Pc platform top (central Dalmatian islands, Croatia)</b> |                  |         |  |
| 4 days   | June 16–19, 2023 | Croatia | Starts: Dubrovnik (CRO)<br>Ends: Split (CRO) |
| Trip leaders: T. Korbar, M. Belak, L. Fuček, T. Steuber  |                  |         |  |
| Contact: <a href="mailto:tvrtko.korbar@hqj-cqs.hr">tvrtko.korbar@hqj-cqs.hr</a>  |                  |         | Price: 615 EUR                               |

**Transportation:** bus + ferry + catamaran;      **Preliminary number of participants:** 15–30

**Degree of physical difficulty:** short walks, trekking shoes

Vis archipelago is located in the central part of the Adriatic Sea and was recognized as UNESCO Global Geopark in 2019. The islands emerged during the Quaternary because of the salt tectonics that characterizes the area. The Adriatic Carbonate Platform (ACP) existed during most of the Mesozoic in the central part of the then more spacious subtropical Adriatic microplate (Adria). The NE part of the platform has been incorporated into the Dinarides fold-and-thrust belt during the Paleogene while the SW part remained relatively undeformed within the Adriatic foreland that is now mostly covered by the sea. Salt diapirs are the most prominent subsurface tectonic structures in the central part of the Adriatic, and are built of once deeply buried volcano-sedimentary-evaporitic rocks deposited during the middle Triassic rifting stage of the Adria. Diapirs uplifted overlying carbonates and in places pierce a few kilometres thick ACP succession (e.g., Komiža Bay, Vis island). Thus, up to 1500 m thick succession of Cretaceous shallow-water carbonates is exposed on the flanks of the Komiža diapir. While pre- and post-Aptian successions are characterised by monotonous peritidal cycles, the Aptian is marked by prominent facies diversification because of the perturbations caused by the Ocean Anoxic Event 1 (OAE 1). The OAE 2 is not completely recorded within the Cenomanian-Turonian succession on the islands of Vis and Biševo, because of a local emergence of the platform during the event, which is followed by a relatively short period of deposition until the Coniacian. In the NE part of the platform, the deposition continued until the Maastrichtian, and in places even into the Paleocene. Thus, the Cretaceous–Paleogene (K-Pg) boundary event is recorded within rare successions deposited on tidal flats (Hvar island) or in inner-platform lagoons (Brač island), but there is still debate on the origin of the specific boundary layer. The Palaeocene platform top is characterized by a major subaerial exposure during which distinct discontinuity surfaces have been formed. The ACP top is unconformably overlain by diachronous Eocene Foraminiferal limestones that are deposited on the distal ramp of migrating Dinaric foreland basin.



|   |                  |                                 |   |
|---|------------------|---------------------------------|---|
| <b>C2 Mesozoic-Cenozoic Dinaric foreland basins (Bosnia and Hercegovina, Croatia)</b> |                  |                                 |   |
| 4 days  | June 16–19, 2023 | Croatia, Bosnia and Herzegovina | Starts: Dubrovnik (CRO)<br>Ends: Zadar/Zagreb (CRO) |
| Trip leaders: B. Lužar-Oberiter, K. Gobo, D. Kukoč                                    |                  |                                 |   |
| Contact: <a href="mailto:bluzar@geol.pmf.hr">bluzar@geol.pmf.hr</a>                   |                  | Price: 650 EUR                  |   |

**Transportation:** bus/minivans;

**Preliminary number of participants:** 15–29

**Degree of physical difficulty:** short walks, trekking shoes

Synorogenic basins record the long-lasting evolution of the Dinarides mountain chain which developed along the Adria margin through multiple tectonic phases involving large-scale ophiolite obduction and nappe stacking events. From rugged mountain landscapes in the hinterland to the clear blue waters of the Adriatic seaside the field trip will explore basin deposits ranging from the Jurassic to the Paleogene, displaying a variety of sedimentary facies from deep-water pelagics, various types of gravity deposits to shallow-marine and continental environments. Visited outcrops will cover the Late Jurassic-Cretaceous deep-water "Bosnian flysch" which initially formed in response to ophiolite nappe emplacement. The field trip will further follow outcrops recording later phases of flexural foreland basin advancement towards the Adriatic foreland during Cretaceous to Cenozoic orogeny. This involved major composite nappe stacking including thick sequences of Mesozoic and Paleogene carbonates giving rise to the calciclastic Promina beds which record syn-tectonic sedimentation in thrust wedge-top "piggyback" basins.



**C3** Mass wasting deposits: From ancient catastrophic submarine collapses to recent alluvial fans; Julian Alps, Soča Valley and Adriatic coast (SW Slovenia, Istria) – **Cancelled**

|  |                  |                   |  |
|--|------------------|-------------------|--|
| 4 days   | June 16–19, 2023 | Croatia, Slovenia | Starts: Dubrovnik (CRO)<br>Ends: Koper/Ljubljana (SLO) |
| Trip leaders: L. Gale, D. Gerčar, A. Novak, K. Petrinjak, T. Popit, Ž. Pogačnik, B. Rožić, A. Šmuc, T. Verbovšek |                  |                   |  |
| Contact: <a href="mailto:andrej.smuc@ntf.uni-lj.si">andrej.smuc@ntf.uni-lj.si</a>                                |                  |                   | Price: 720 EUR   |

**Transportation:** bus;                      **Preliminary number of participants:** 15–30  
**Degree of physical difficulty:** short walks, trekking shoes

Mass movements represent important processes that shape the surface of the Earth. This trip will present an overview of recent and ancient mass movements in a variety of different settings: from recent slope processes to Mesozoic massive submarine platform collapses. Holocene: Tamar and Soča valleys are alpine valleys filled with Holocene rock falls, landslides, debris-flows, mudflows and fluvial deposits. They are forming talus slopes, alluvial and debris-flow fans, each of them with a complex history of sedimentation and erosion. Quaternary: Vipava valley represents a “tectonic” topography with steeply deeping Mesozoic carbonates thrust over gently-sloping Palaeogene flysch. This facilitated the formation of a complex Quaternary sedimentary slope system (debris-flows, scree, mud-flows, rock avalanches, rotational and translational landslide). At the Adriatic coast, ongoing cliff evolution will be observed along with Eocene carbonate megabeds. Mesozoic-Cenozoic: In the middle Soča Valley we will observe three ancient mass movement deposits. Carnian extensional blocky breccia with up to 300m large blocks was deposited in the toe-of-slope. Middle Jurassic basal blocky limestone breccia that documents the transition to the compressional regime. Paleogene up to 250m thick massive blocky breccias related to thrusting and foreland basin formation.



|   |               |                |                                  |
|---|---------------|----------------|----------------------------------|
| <b>C4 Quaternary deposits of the island of Mljet</b>      |               |                |                                  |
| 1 day   | June 16, 2023 | Croatia        | Starts and ends: Dubrovnik (CRO) |
| Trip leaders: I. Razum, P. Bajo                           |               |                |                                  |
| Contact: <a href="mailto:irazum@hpm.hr">irazum@hpm.hr</a> |               | Price: 150 EUR |                                  |

**Transportation:** bus + ferry;

**Preliminary number of participants:**

**Degree of physical difficulty:** short walks, trekking shoes

Formation of Quaternary sediments of the South Dalmatian Archipelago is tightly connected to the sea level oscillations. In one case sea level rise enabled lake formation in sinkholes and dolinas which were eventually submerged. The best examples of such sedimentary environments are Veliko and Malo jezero, situated in the Mljet national park. In this field trip, evolution and palaeoclimate records derived from the needle-like aragonites, of these submerged Marine lakes, will be shown. Furthermore, the areal distribution of some well-known Holocene eruptions will be discussed since in Veliko jezero are the northernmost findings of Avellino and Mercato eruptions. In the other case, during low sea level, the shelf was emerged which enabled aeolian transport of shelf sediments onto the Islands forming the aeolian sand deposits. In this field trip provenance and time of formation of Aeolian sands will be discussed, again with the emphasis on the tephra occurrence, which enabled high precision dating of the deposits.



## Activities for Early Career Scientists

Early Career Scientists (ECS) are IAS members who are students or scientists who received their highest degree within the past seven years, with additional time allowed for those whose work record has been interrupted by child birth, family care, serious health issues, etc.

To encourage the cooperation and exchange of ideas and experience between the young scientists at the beginning of their career different workshops, best poster competition, ECS corner and ECS party will be organized.

### ECS workshops

#### ECS workshop: “How to publish a paper in IAS journals”

**Tuesday, June 13, 2023, lunch break.**

**Leader Alexander Brasier (University of Aberdeen, UK)**

Editors of the IAS journals including Sedimentology will discuss key topics including:

- What editors are looking for in a good “Sedimentology” paper
- How the peer-review process works: myths vs reality
- How to respond to critical review comments, and produce a thoughtful rebuttal letter

#### ECS workshop: “IAS Social Media”

**Wednesday, June 14, 2023, lunch break.**

**Leaders Joanna Pzonka (Polish Academy of Sciences) and Stephen Lokier (University of Derby, UK)**

Social Media is one of the most important channels for communication, outreach and networking. Yet, for many scientists entering the ‘professional’ side of Social Media is a daunting affair. During this workshop we shall explain how to use Social Media to safely and effectively communicate within your discipline, the broader scientific community and with the general public. Using the four IAS Social Media accounts, on Facebook, Twitter, WeChat and LinkedIn, as an example, we shall demonstrate how different platforms can be used to target different audiences. By explaining the important ‘dos’ and ‘don’ts’ of the Social Media Universe we shall enable you to take an active role in the dissemination of your research.

#### ECS workshop: “How to prepare a CV and a cover letter for job application”

**Thursday, June 15, 2023, lunch break.**

**Leaders Cathy Hollis (University of Manchester, UK) and James Hendry (University College Dublin, Ireland)**

This workshop will discuss how you prepare your application for academic positions as well as in industry. We will offer some examples of best practice when preparing your CV and letter of application, as well as discussing some of the additional documents that you might be asked to present. As the social media aspect is increasingly important, we will also discuss how it can help you gain visibility in your field and get recognized by employers.

## Best poster competition

Dear Early Career Scientists and Students, we invite you to register for participating in the best poster competition. Two best poster categories each with five prizes will be awarded, one is the Student category and one the ECS category (post-doc and researchers with less than seven years from their PhD).

For registration on the competition please go the <https://iasdubrovnik2023.org/eng-early-career-scientists.php> and sign in using the form added under the Best poster competition. Registration will be possible until July 5.

## ECS corner

Next to the poster space you can find the ESC corner to catch up with your colleagues and make new acquaintances and connections, especially if it's your first conference or you're coming alone. We invite you to share your experiences, research, ideas and perhaps challenges you have encountered in a relaxed atmosphere in front of a friendly audience. You can choose any form of presentation, a short talk with power point slides or without it, you can show pictures or video material, or not, as best suits you. A tombola with gifts will be organized for participants.

## ESC party

Dear Early Career Scientists and Students, the ESC party will be held on **Tuesday, June 13, 2023** starting at **19:30** in the brewery Dubrovnik Beer Company. The registration for this event is no longer possible due to the full capacities. Everyone who registered will receive by email more detailed information.

## Venue

Hotel Dubrovnik Palace  
Masarykov put 20, 20 000 Dubrovnik, Croatia



Breathtaking Adriatic views from every room, a fresh new contemporary interior design scheme and intuitive service are all ingredients for a perfect five-star seaside escape at the multi-award-winning Hotel Dubrovnik Palace.

Hotel Dubrovnik Palace nestles on the scenic seafront between a pine forest and the turquoise coastal waters of the lush Lapad peninsula. Just a few minutes' drive north west of medieval Dubrovnik Old Town, the stunning location offers phenomenal photo opportunities of the Elafiti Islands from every direction.

Magnificent views, relaxing al fresco event spaces, five-star facilities and skilled technical support make Hotel Dubrovnik Palace's conference centre one of the best equipped, and stylish meeting venues in the region. It is also one of the largest and most flexible.

Eleven conference and meeting rooms are designed for standout events for 10 to 750 delegates. Spacious sun terraces overlooking the crystal-clear waters of the Adriatic are ideal for memorable informal gatherings, cocktails and coffee breaks. Similarly, the chic design of the Sunset Lounge is perfect for casual meetings, or for simply relaxing in style after a busy day. It keeps you satiated with a range of creative banqueting and fine wine menus.

This contemporary luxury resort has direct access to a quiet and peaceful beach, two outdoor pools and a third indoor pool. Additionally, there is a PADI diving centre, tennis court, a leafy jogging path and walking routes through the picturesque woods that rise up Petka hill behind the hotel.

## How to get there

### By Air

Croatia's national air company is Croatia Airlines. Via direct flights, it connects Croatia with a great number of European destinations.

Major airports in Croatia are Zagreb (Croatia's biggest international airport), Split, Dubrovnik, Osijek, Zadar, Pula, and Rijeka/Krk.

From the Dubrovnik Airport flights connect the city with Zagreb several times a day, as well as with nearly all European capitals during the summer, directly or via Zagreb. Dubrovnik airport is located 25km from the city port. You can take a bus from the airport to Dubrovnik, which is available after every arrival and drives you to the Bus Station. Taxi services are also available. You may also sign up for a rent-a-car at the airport.

#### Croatia Airlines:

Tel: +385 1 66 76 555; <https://contact@croatiaairlines.hr>

#### Dubrovnik Airport:

Address: 20213 Čilipi, Croatia, Tel. +385 20 773 100; <https://www.airport-dubrovnik.hr/en>

#### Zagreb Airport:

Pleso bb, p.p. 40, 10150 Zagreb

Tel: +385 (0)1 6265 222 or +385 (0)1 4562 222; <https://www.zagreb-airport.hr/en>

### By Car

Croatia is well connected with its inland as well as with the rest of Europe. It is recommended to respect the traffic regulations which do not differ significantly from the traffic regulations in other European countries. However, it is important to mention the major ones: driving with the lights on during day and night is compulsory as well as the use of the safety belt. The use of the mobile phone while driving is strongly forbidden except for the handsfree device. The maximum allowed quantity of alcohol is 0,5 ‰ except in cases of an offence. In that case it is treated as a separate criminal offence.

To enter Croatia, a driver's licence, an automobile registration card and vehicle insurance documents are required. An international driving licence is required for the use of rent-a-car services.

The permit is issued by the parent motor-club.

Split can be reached by the Adriatic Coastal Road, winding by the sea or by hinterland roads. From Dubrovnik, it will take you 7 hours to get to Zagreb and 4 hours to get to Split by car.

### Speed limits:

Towns and cities – max. 50 km/h

Local roads out of town max. 90 km/h

Motorways max. 130 km/h for motors and cars

Motorways max. 80 km/h for vehicles pulling trailers and for coaches with or without a smaller trailer

24h Breakdown service dial number: 1987

During the whole year petrol stations are open from 7:00 to 20:00. However, during the tourist season they are open 24h a day in all the major cities. Every petrol station offers Eurosuper 95, Super 95, Super 98, Super plus 98, Euro Diesel and Diesel and in better equipped petrol stations consumers can buy liquid gas and Bio Diesel.

Pay-toll is paid according to the number of passed kilometres and according to the vehicle's category. At the toll you can pay cash or by credit card like AMERICAN EXPRESS, DINERS, MASTER CARD, MAESTRO and VISA.

### By Bus

Croatia is connected with its neighbouring countries and the majority of central and western Europe through regular international coach lines. Coach stations are to be found in all the major Croatian cities: Zagreb, Osijek, Rijeka, Pula, Split, Šibenik, Zadar and Dubrovnik.

The main **bus station in Dubrovnik is situated in Gruž** and it is 2 km away from the Old town, that is the centre of Dubrovnik. It has been built recently, in the vicinity of the port. In addition to **international lines**, there are intercity bus lines between Dubrovnik and all the major cities in Croatia on a daily basis. **All city parts in Dubrovnik are very well connected by city bus lines.** We recommend you buy a bus ticket in due time, especially during the summer.

### By Rail

Croatia has direct connections with Slovenia, Hungary, Italy, Austria, Switzerland, Germany, Bosnia and Herzegovina and Serbia. There are transfer connections with almost all other European countries.

There are trains from Split to the north of the country (the main railway route is Zagreb-Split) and further on to Europe. You can transport your car by train, as well. Split railway station is located near the ferry port, next to the bus station, in the centre of the city.

From Split you can take bus or rent a car to Dubrovnik.

### By Ferry & Boat

Jadrolinija is the main Croatian ship passenger carrier that maintains the majority of regular, international and domestic car-ferry, ship and high-speed lines.

You can reach Dubrovnik if you get on a coast ferry liner from Split or from all central Dalmatian islands. There are excellent fast and regular ferry lines from Ancona and Pescara, Italy.



36<sup>TH</sup>  
IAS

MEETING OF  
SEDIMENTOLOGY



12 - 16 June 2023  
CROATIA  
DUBROVNIK

## Accommodation

Dubrovnik offers various kinds of accommodation, from camping sites and comfortable rooms in private accommodation to luxurious 5-star hotels. A certain number of rooms have been reserved in the Palace Hotel for conference participants. Please check our website for more information ([www.iasdubrovnik2023.org](http://www.iasdubrovnik2023.org)). For those who like travelling by car, Cavtat is another pearl of southern Dalmatia worth visiting.

For support and assistance with accommodation, conference and other travel-related issues and inquiries please feel free to contact our PCO:

Spektar Putovanja, travel agency Ltd.

Mrs. Petra Miškulin Štefek

E-mail: [info@iasdubrovnik2023](mailto:info@iasdubrovnik2023)

*For more details please visit our web page and follow us on twitter and Facebook!  
See you soon!*



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