19TH INTERNATIONAL SEDIMENTOLOGICAL CONGRESS FROM 18 TO 22 AUGUST 2014 IN GENEVA, SWITZERLAND

SEDIMENTOLOGY AT THE CROSSROADS OF NEW FRONTIERS

Second circular

UNIVERSITÉ DE GENÈVE

IAS

CONTENTS

PRESENTATION

Located in the very heart of Europe, Switzerland is at the crossroad of the Alps and the Jura mountains; the Rhine and the Rhone rivers; and the home of magnificent glaciers, lakes and a landscape wonderfully tailored by tectonics and erosion through geological time. But it is also a crossroad of cultures that along with its breathtaking nature provides an ideal location for sedimentologists to gather!

INVITATION

Geneva welcomes Sedimentologists!

The Swiss sedimentological community and the organizing committee cordially invite you to the 19th International Sedimentological Congress 2014 to be held in Geneva, southwestern Switzerland from August 18 to 22. Following successful gatherings in three geographically different countries during the last twelve years (South Africa, Japan and Argentina), the 19th edition of the ISC is returning to the heart of Europe.

Geneva has a long tradition as a venue for major meetings and is a host city to many international organizations. It has been a cultural center for many centuries and home to many creative spirits in the fields of science and art. The Department of Earth Sciences of the University of Geneva is one of seven Swiss centers conducting research in all fields of sedimentology. Geneva amalgamates all the advantages of a small city with the facilities and services usually only found in much larger cities! It provides a unique environment for meeting with colleagues in a relaxing atmosphere.

On behalf of the Organizing Committee, we look forward to introducing you to the smallest of the big capitals. We are sure it will offer the ideal environment to discuss cutting edge sedimentology, as well as to explore new scientific frontiers that are relevant to the various societal challenges facing the 21st century.

VENUE

The Congress will be held at UniMail, one of the main buildings of the University of Geneva. Conveniently located in the center of the city, the building often hosts international meetings and has several well-equipped plenary rooms and lecture halls, as well as a large area for posters and other exhibitions. Two restaurants and coffee shops are available within the building. As a very cosmopolitan city, Geneva has more than 1,100 restaurants offering an extremely vast and varied range of cuisine, and there is one for every budget located in the vicinity of the conference center.

The city has a strong policy to promote the use of public transportation. In that framework all Congress participants staying in a hotel in Geneva will receive with their registration fee a free ticket to use all public transportation of the city of Geneva including buses, tramways and boats, for the entire duration of the Congress.

CONGRESS SCHEDULE AND KEY DATES

CONGRESS SCHEDULE	
Pre-Congress excursions	**From 13 to 17 August 2014**
Pre-Congress short courses	**16 and 17 August 2014**
Registration	**Start on 17 August 2014 at 5:00 p.m.**
Icebreaker Party	**17 August 2014 at 7:00 p.m.**
Technical Sessions / Special Symposia	**18, 19, 21 , 22 August 2014 a.m./p.m.**
Mid-Congress excursions	**20 August 2014**
General Assembly and Awards	**21 August 2014 p.m.**
Gala Dinner	**21 August 2014 8:00 p.m.**
Start of Post-Congress fieldtrips and short courses	**23 August 2014**

Notice that the final Congress timetable will be posted on the Congress Website in late July 2014

KEY DATES	
Deadline for applying for travel grants	30 April 2014
Deadline for field trip registration	30 April 2014
Deadline for IAS student member field trip registration	30 April 2014
Deadline for abstract submission	30 April 2014
Notice of acceptance of abstracts	21 May 2014
Deadline for payment of reduced registration fees	1 June 2014
Notice of decision on travel grants	15 June 2014
Deadline for online payment of registration fees	15 July 2014 by credit card: 1 August
Third and Final Circular (online only)	15 June 2014

REGISTRATION

Online registration is highly recommended since fees after 1 June 2014 or onsite registrations are more expensive. The registration is now open in the 19th ISC website: http://www.sedimentologists.org/meetings/isc. Both username and password will be received at the end of the online registration. Please follow the explicit procedures indicated in the website.

REGISTRATION FEES	Before 1 June 2014	After + onsite
Participating IAS members	CHF. 500.-	CHF. 600.-
Participating non-IAS members	CHF. 650.-	CHF. 750.-
Accompanying persons	CHF. 200.-	CHF. 300.-
IAS student members in the year 2014	CHF. 300.-	CHF. 400.-
Non-IAS student members in the year 2014	CHF. 400.-	CHF. 500.-
IAS retired members in the year 2014	CHF. 300.-	CHF. 400.-

Registration fees include opening icebreaker, coffee breaks, lunch packages and Mid-Congress excursion (limited places available on first come first served basis).

PAYMENT

Both online and onsite payments are in Swiss Francs (CHF.). Registration of the Congress will be confirmed under payment receipt.Participants who are not IAS members are encouraged to apply for membership prior to the meeting registration. Application forms can be downloaded at the IAS website http://sedimentologists.org/.

CANCELLATION POLICY

Cancellations will be accepted until July 15, 2014.

The full amount minus 100 CHF. to cover cancellation costs will be refunded.

No refunds will be made for cancellations received after this date. Cancellations should be notified in writing to the 19th ISC Secretariat Office by e-mail, fax or airmail. No reimbursements will apply for late arrival, unused services, unattended events or early departure from the Congress.

FIELD EXCURSIONS

Registration Procedures

Field trips are limited in size and places are allocated strictly on a first-come, first-paid policy. Once the numbers reach the maximum capacity of the trip, a waiting list will be created and the organizers will notify you if subsequently a space becomes available.

The online registration and payment is through the Congress website. A detailed description of each trip is available on the website and summaries are provided in this circular. The deadline for registration and payment for all trips is 30 April 2014. Final confirmation of participation will be notified by 30 June 2014. In your confirmation package, you will receive detailed information concerning exact meeting time and place, arrangements and contact details for the field trip leaders.

Field Excursion Fees

Field trip fees include accommodation, transportation during the trip and most meals (see individual trip descriptions for full details of inclusions). The field trip fee does not include travel to and from the pick-up point for the field course, or alcoholic beverages, telephone calls, and other personal costs. Health insurance is not included in any excursion and all attendees are required to have adequate travel insurance to cover illness or injury to themselves.

CANCELLATION

Cancellation by the Congress organizers

The number and type of field trips offered have been carefully weighted to avoid cancellation due to under-subscription of a trip. Please book and pay early to help avoid cancellation. In the event that a field trip is under-subscribed, the field trip may be cancelled at the sole discretion of the organizers. You will be refunded 100% of your payment if your field trip is cancelled. You will be offered the opportunity to attend an alternative field trip if places are available, and any credit will be refunded if the alternative field trip is less costly than your first choice. If it is more costly, then you will be required to pay the difference. However, we cannot accept responsibility for costs associated with cancellation of under-subscribed trips that fall outside of the field trip fee, such as airfares, and hotels costs before and after the trip, etc.

Cancellation by a delegate/participant

In the event that a delegate cancels a field trip booking, the following will apply:

On or before June 15 2014, the full amount minus 100 CHF. to cover cancellation costs will be refunded. After this date no refunds will be possible.

IMPORTANT NOTES

Participants are responsible for booking their own travel arrangements to the meeting point at the commencement and end of the trip. SWISS International Airlines is the official carrier of the Congress. A promotional code will be provided with your registration confirmation letter. Participants are responsible for ensuring they have correct visas, passport and other documents for travel. Please note that, upon request, the organizers will be

pleased to send a personal letter of invitation to enable participants to obtain supporting funds or visas to attend the Congress and participate in field trips. These invitation letters cannot be considered an offer of financial support by the organizers and will be issued only after registration to the meeting.

Constantly updated details of each individual fieldtrip can be found at the Congress website.

A. PRE-CONGRESS EXCURSIONS

Are you an IAS student member? If so, you will be interested in the Pre-Meeting IAS-STUDENT Field Trip: The Mt. Salève

Leaders: Arnoud Slootman (arnoud.slootman@unige.ch) and Pascal Kindler (University of Geneva)

Note: The field trip takes place in France (check if a visa is required for your nationality).

Cost: Excursion including overnight stay on Saturday 16 August = 10 CHF. Excursion including overnight stay on Friday 15 + Saturday 16 August = 20 CHF.

Description:

Following a successful initiative at the last ISC in Mendoza, Argentina, this field trip aims to gather IAS student members prior to the Congress. It will provide the opportunity to meet other PhD students and to share experiences, skills and ideas in the field in a friendly atmosphere. It will not be a classic 'show-and-tell' excursion as participants are expected to actively contribute to the observation and interpretation of the field data. Moreover, to meet student demands, the excursion will encompass three important aspects: it will be instructive, low cost, and have a social evening program!

In his Introduction to Geology (1813) Robert Bakewell stated "If any readers of this volume should visit Geneva, I would recommend them to devote a day to visiting the mountain called the Salève, in the immediate vicinity of that city." Two hundred years later we will follow his advice and set out for the summit of the Mont Salève (1379 m) on Saturday 16, prior to the Congress. After reaching the lower station by public transport, we will make the breath-taking ride to the top by cable car to observe the mountain's geographic setting between the Jura mountains, the Prealps, the Subalpine chains and, most notably, the Mont-Blanc massif. We will then split up in small teams to examine the Upper Jurassic to Lower Cretaceous stratigraphic succession that is predominantly composed of a variety of limestones with local intercalations of marl and coal. The itinerary will also bring us to some spectacular (paleo)karst structures and faults. Sitting on erratic boulders at the end of the day, we will work out the geological history of the Salève and its regional significance as we summarize the observations together with Prof. Pascal Kindler, a specialist in the geology of the Geneva region.

The trip leads participants through mountainous terrain and therefore requires appropriate footwear. Moreover, the trip is not suitable for people with vertigo, as we will walk small paths along high cliffs. The number of participants is limited to 36 students: first-come, first-served. So, do not miss this unique opportunity. Please refer to our website to get all the updated details.

FTA1

City of Geneva: glacial, fluvial, lacustrine history and early human occupation

Fieldtrip Leader: Walter Wildi (University of Geneva)

Duration: 3 ½ hours

Departure place, date and time: Geneva, at the IAS Congress reception, UniMail, Sunday 17 August at 9:00 a.m.

Return: The excursion will end in front of the Cathedral, in the old city of Geneva at 12:30

Transportation: by foot!

Number of participants: maximum 40

Conditions: Easy walking in town during 3 ½ hours. Equipment depending on the weather (umbrella, raincoat or sunglasses...), a bottle of water and a Swiss chocolate.

Cost: 15 CHF.

Description:
The field trip will visit key sites and outcrops that explain the glacial, fluvial and lacustrine history of the landscape where people settled for the first time 8000 years ago. Remember that 18'600 years ago, the Rhone glacier occupied the lake basin of the "Jet d'eau", the famous 140 m high fountain. Icebergs where then floating on the lake with a water level 30 m higher than now. As a comparison: During Late Bronze Age, 3000 years ago, human settlements occupied the lake shores, on places that are now 3 m below lake level. The fluctuations of the lake, from Late Glacial to modern times illustrate the climate history and the complex interactions between Rhone and Arve glaciers, Lake Geneva and the Arve River that flows from the Mont Blanc Mountains to the Geneva and joins the Rhone River a few hundred meters from the outlet of Lake Geneva.

FTA2

The Hauterivian-Lower Aptian sequence stratigraphy from Jura platform to Vocontian basin: a multidisciplinary approach

Fieldtrip Leaders: Adatte Thierry, Alexis Godet, Annie Arnaud-Vanneau, Hubert Arnaud, Karl Foellmi
Duration: 5 days, 4 days of fieldtrip, day 5: trip back to Geneva
Departure place, date and time: Geneva airport, 13 August 2014, 9:00 a.m.
Return: Geneva airport 17 August 2014 around 2:00 p.m.
Transportation: Minibus
Number of participants: minimum 15, maximum 27
Conditions: We expect warm weather, but cold weather and rain are possible. No walking difficulties. Short walking times, except for one day with a 2-3 hours walk. Expected equipment: boots, reasonably warm clothes, waterproof.
Cost: 650 CHF. per person and includes hotel and breakfast, lunch and dinner, transportation and field guide.

Description:
This trip will focus on the bio- and chemo-stratigraphy (stable isotopes and radioactivity), sedimentology, diagenesis and sequence stratigraphic architecture of the Urgonian carbonate platform (Barremian-Aptian), from the Jura Mountains to the Vocontian Basin. The aim of the trip is to identify different types of depositional sequences, describe their spatial and temporal relationships from facies and parasequence scale to basin scale, speculate about their diagenetic evolution. Excellent outcrops exposures of Urgonian limestones will be examined within a context of inner platform in Swiss and French Jura and in Vercors France, Gorges du Nant close to Grenoble, and in a context of platform margin near the Scenic Archiane canyon, La Montagnette landscape and Glandasse plateau. Coeval basinal environments will be visited near Castellane in the southern French Alps. Aspects of sequence stratigraphy, sedimentology, paleoenvironments, facies and diagenesis will be discussed during the trip where active participation to the discussion will be encouraged.

FTA3

Cruising Lake Lucerne: Exploring Sedimentary Processes and Alpine Geology on Mesozoic to Anthropogenic time-scales

Fieldtrip Leaders: Michael Strasser (ETH Zurich), Flavio Anselmetti (University of Bern)
Duration: 1 day
Departure place, date and time: August 17 2014, 8:45 a.m. landing stage, harbor of Brunnen (SZ, Central Switzerland). Participants can individually travel from Geneva (~3h by train) or from anywhere according to their own travel itinerary (e.g. from Airport Zurich in ~ 1.30h by train), also the day before the excursion. We have a block-reservation for 25 rooms in the "City Hotel" in Brunnen (100 CHF. per person, + 30 CHF. for single room, including breakfast and a dinner the evening before the excursion)
Return: Geneva, ~5:45 p.m. on August 17 2014 (bus will drop you off at or near your hotels)
Transportation: individual arrival, cruise ship, coach
Accommodation: City Hotel Brunnen, www.city-brunnen.ch
Number of participants: minimum 25, maximum 40
Conditions: no special condition, easy accessibly for everybody, only very short walking times of less than 10 min at individual boat stops.

Cost: 220 CHF. per person and includes boat, lunch, transportation to Geneva and field guide. Journey to the excursion departure place and pre-excursion accommodation is not included.

Description:
This one-day field trip along Lake Lucerne will take us onboard a ship from the main inflow to the outflow of this perialpine, fjord-type lake. Traces of alpine geology across the Helvetic nappes, the northern Alpine front, the subalpine Molasse and into the foreland Basin, glaciations and natural hazards (mass movements, earthquakes, tsunamis) in and around the lake will be explored. Results from lake sediment studies will be presented embedded in the landscape history. The scenic lake setting also hosts numerous historic events and places, which highlight the complex human-environment interactions in a scenic alpine setting.

FTA4

A transect through a Mesozoic Ocean – From Zürich to St. Moritz

Fieldtrip Leaders: Helmut Weissert, Isabel Millán and Stephan Wohlwend, ETH Zürich
Duration: 4 days
Departure place, date and time: Zürich (or Zürich airport), 13 August 2014, 10:00 a.m.
Return: Zürich, 8:00 p.m., 16 August 2014
Transportation: Bus, cableway, cable train
Accommodation: Hotels in Zernez, Bivio, Klosters
Number of participants: Minimum 18 and maximum 25
Conditions: Hiking in alpine terranes between 1500 m and 3000 m, sunny and hot or cool, windy and wet. Walking: good hiking boots. A waterproof is essential.
Cost: 650 CHF. per person and includes bed and breakfast, transportation (Bus, cableways) and field guide. Lunches and dinners are not included in the price.

Description:
The field trip will provide an overview of Mesozoic evolution of Alpine Tethys Ocean. Stops will include: Triassic tidal flats (Engadine); break-up of a continental margin (Jurassic; Engadine); sedimentation on a continent-ocean transition (Jurassic; Davos); evolution of carbonate platforms during Oceanic Anoxic Events (Cretaceous; Wildhaus).

FTA5

Late Jurassic shallow-marine carbonate facies and sequences (and dinosaur tracks)

Fieldtrip Leaders: André Strasser, Daniel Marty, Wolfgang Hug (University of Fribourg and Paléojura Porrentruy)
Duration: 2 days
Departure place, date and time: UniMail, 16 August 2014, 8:30 a.m.
Return: Geneva UNIMAIL, 18:00, 17.08.2014
Transportation: minibus
Accommodation: Hotel Terminus, Porrentruy
Number of participants: Minimum 8, maximum 16
Conditions: all outcrops are along footpaths or roads but good shoes are recommended.
Cost: 350 CHF. per person and includes bed and breakfast, two picnic lunches, one dinner, transportation and field guide.

Description:
The field trip will illustrate Late Jurassic (Oxfordian to Tithonian) shallow-water, carbonate-dominated facies, sedimentary structures, and hierarchically stacked depositional sequences in the Swiss Jura Mountains. Tidal flats, lagoons, patch-reefs, and ooid shoals are the main players. A highlight are wellpreserved Kimmeridgian dinosaur footprints and trackways. Palaeogeographical, palaeoclimatical, palaeoecological, taphonomical, sequence-stratigraphical, and cyclostratigraphical interpretations will be presented and discussed. The focus is set on the reactions of the carbonate systems to lowamplitude, high-frequency climate and sea-level changes as well as to differential subsidence.

FTA6

Sedimentology and wine, a cross road – From early evaporite to carbonate platform and foreland basin terroirs of the best Swiss wine – a Rhone Valley to Lavaux (UNESCO Site) taste transect

Fieldtrip Leaders: Aymon Baud and colleagues from Geological Museum in Lausanne
Duration: one day
Departure place, date and time: Geneva, in front of the IAS Congress reception, UniMail bus park, 16 August 2014, 8:00 a.m.,
Return: Geneva, UniMail same day 8:00 p.m.
Transportation: minibus or coach
Number of participants: minimum 14, maximum 35
Conditions: Short walks in the Valley, light sport shoes
Cost: 150 CHF., includes lunch, transportation, wine degustation and field guide.

Description and brief itinerary

Stop 1
St.-Triphon quarry in the Rhône valley: seismite and tsunamite on a large middle Triassic carbonate Platform. The St.-Triphon red wine is growing on a carbonate platform (Gamay and Pinot noir grapes)
Lunch: Underground Swiss raclette in the Bex Salt Mine. Salt deposition and diagenesis. Wine tasting of the Bex white wine growing on a gypsum substratum (Chasselas grape).
Stop 2
Yvorne village: the story of the "Ovaille". Historical landslide in the Rhône Valley. The "Ovaille" white wine is growing on the landslide (Chasselas grape).
Stop 3
"La Corniche" with scenic view on Lac Léman and Mesozoic Pre-Alps. Terraces of Dezaley wineyard in the Miocene Paleo-Rhône delta (Mont Pélerin conglomerates).
Stop 4
Le Daley (above Grandvaux village) another scenic view on Lac Léman: main wine tasting of the white and red wines from St.-Triphon, from Bex, from Yvorne and the grapes growing on the foreland Molasse Basin (Chasselas and Plan Robert).
Back to Geneva by bus arrival about 20h00

B. MID-CONGRESS EXCURSIONS

Please notice that limited places are available on first-come, first-served basis for each of the three offered excursions.

B1

Geology of Western Switzerland and nearby France in a Geo-Energy perspective

Fieldtrip Leaders: Andrea Moscariello, Jean Charollais, Georges Gorin (University of Geneva)

Description:
Since late 60s through the 80s the Western Switzerland and surrounding France regions have been intensely investigated for hydrocarbons. Several exploration wells were then drilled but without commercial success. Today, the interests for unconventional resources and geothermal energy have brought back the attention of the energy industry to this region. This field trip will provide a multidisciplinary and integrated overview of the key geological features (sedimentology, stratigraphy, structural geology, seismic character, etc.), which are associated with geo-energy resources from conventional hydrocarbons, shale gas, and deep-geothermal energy.

75 participants

B2

Limnogeological cruise on Lake Geneva

Fieldtrip Leaders: Stéphanie Girardclos, Pierre Corboud, Walter Wildi (University of Geneva)

Description:
Lake Geneva became famous in the scientific world since the publication of the pioneer limnology book "Le Léman" by François-Alphonse Forel. We will take you onboard the Neptun, a boat constructed in 1904, the same year Forel's book was published, for a short journey through the geological and sedimentological history of the lake. We will show you how the Leman and humans societies, including the palafittes (UNESCO world heritage), interacted through time and how two tsunamis swept over the lake. We will also take the opportunity of the breathtaking view over the surrounding landscape to give an overview of the regional geology (Prealps, Jura) and discuss how the Rhone glacier shaped the Geneva basin during the last glaciation (Last Glacial Maximum ca. 20 000 BP).

80 participants

B3

The Cretaceous and Paleogene carbonates from the Platé Massif, northern Subalpine Chains, Haute-Savoie, France

Fieldtrip Leader: Pascal Kindler (University of Geneva)
Note: The field trip takes place in France (check if a visa is required for your nationality).

Description:
Participants to this field trip will have the opportunity to examine, in a magnificent mountainous environment, the Cretaceous to Paleogene stratigraphic succession of the Platé Massif, northern Subalpine Chains (Haute-Savoie, France). This succession is well exposed, very diverse, and includes, from bottom to top, a drowned carbonate platform of Early Cretaceous age (the Urgonian Limestones), a condensed interval with glauconitic sandstones and phosphate crusts (the "Gault"), globotruncanid-rich pelagic limestone of Late Cretaceous age (the Seewen Formation), and an Eocene carbonate platform exhibiting a variety of facies, from terrestrial to reefal. Overlying globigerinid-rich shales and turbidites of Late Eocene to Oligocene age will be seen in the distance. Participants will reach the top of the stratigraphic succession by cable car and examine the rocks when walking back down to the station along an easy path. Good shoes are nonetheless required.

200 participants

C. POST-CONGRESS EXCURSIONS

FTB1

City of Geneva: glacial, fluvial, lacustrine history and early human occupation

Fieldtrip Leader: Walter Wildi (University of Geneva)
Duration: 3 ½ hours
Departure place, date and time: Geneva, at the IAS Congress reception, UNI MAIL, Saturday 23 August at 9:00 a.m.
Return: The excursion will end in front of the Cathedral, in the old city of Geneva at 12:30
Transportation: by foot!
Number of participants: maximum 40
Conditions: Easy walking in town during 3 ½ hours. Equipment depending on the weather (umbrella, raincoat or sunglasses…), a bottle of water and a Swiss chocolate.
Cost: 15 CHF.

Description:
The field trip will visit key sites and outcrops that explain the glacial, fluvial and lacustrine history of the landscape where people settled for the first time 8000 years ago. Remember that 18600 years ago, the Rhone glacier occupied the lake basin of the "Jet d'eau", the famous 140 m high fountain. Icebergs where then floating on the lake with a water level 30 m higher than now. As a comparison: During Late Bronze Age, 3000 years ago, human settlements occupied the lake shores, on places that are now 3 m below lake level. The fluctuations of the lake, from Late Glacial to modern times illustrate the climate history and the complex interactions between Rhone and Arve glaciers, Lake Geneva and the Arve River that flows from the Mont Blanc Mountains to the Geneva and joins the Rhone River a few hundred meters from the outlet of Lake Geneva.

FTB2

Sedimentology and wine, a cross road
From early evaporite to carbonate platform and foreland basin terroirs of the best Swiss wine – a Rhone Valley to Lavaux (UNESCO Site) taste transect

Fieldtrip Leaders: Aymon Baud and colleagues from Geological Museum in Lausanne
Duration: one day
Departure place, date and time: Geneva, in front of the IAS Congress reception, UniMail bus park, 8:00 a.m., 23 August 2014
Return: Geneva, UNI MAIL same day 8:00 p.m.
Transportation: minibus or coach
Number of participants: minimum 14, maximum 35
Conditions: Short walks in the Valley, light sport shoes
Cost: 150 CHF. Includes lunch, transportation, wine degustation and field guide.

Description and brief itinerary:
Same as FTA6, see p. 13

FTB3

Stratigraphic architecture and facies distribution of high-relief Middle Triassic carbonate platform (Central Southern Alps, Bergamo, Italy)

Fieldtrip Leaders: Fabrizio Berra, Marco Binda, Flavio Jadoul (University of Milan, Italy)
Duration: 2 ½ days
Departure place, date and time: Milan, 23 August 2014, 2:00 p.m. (according to the time of arrival from Geneva).
Return: Milan, 25 August 2014, 7:00 p.m. The participants have to individually arrange their travel to and from Milan.
Transportation: coach or minibus
Accommodation: accommodation will be close to a thermal village along the Brembo River, characterized by important art-noveau buildings (San Pellegrino Terme). Both single and double rooms are available.
Number of participants: minimum 12, maximum 25
Conditions: The field trip will be in a mountain area, with altitude between 600 and 1700 meters. Weather in August is generally warm, but some protection against rain is recommended. The field trip includes a few walks (1.5 hours) along unpaved roads and easy path, to observe in detail a basin-to-slope succession. Trekking boots are required, rain shelters are highly recommended.
Cost: 500 CHF. per person and includes bed and breakfast, transportation (including from and to Milan) and field guide.
Two packed lunch and two dinners are also included in the price.

Description:
During the field trip different aspect of a high-relief, flat-topped prograding platform will be observed. In particular, the field trip will focus on the general architecture of a well-preserved carbonate platform (Pegherolo Massif), with the observation of the basinal facies interfingering with the prograding slope breccias and the platform demise, both in the basinal area and on the platform top, where the subaerial exposure of the platform top is spectacularly recorded. Visit of the historical Calcare Rosso tepee rich succession.

FTB4

Start-up, growth and death of microbial carbonate platforms of the Dolomites

Fieldtrip Leaders: Piero Gianolla (University of Ferrara, Italy); Nereo Preto (University of Padova, Italy).
Duration: 5 days
Departure place, date and time: Venice, Marco Polo International Airport, 23 August 2014, 4:00 p.m.
How to reach the point: The airport is served by a large number of international and national flights. Airport bus shuttle departure from Venice (Piazzale Roma) and Mestre, Railways Station. A more expensive boat service crossing the lagoon is available from Venice. Further information and schedule will be provided to the participants.
Return: Venice, Marco Polo International Airport, 27 August 2014, 4:00 p.m.
Transportation: coach and small vans
Accommodation: Olympia Hotel, Arabba (BL). The hotel is located on the slope of the Sella Group in the village of Arabba, in the heart of the Dolomites, a magic location surrounded by the amazing Dolomites, natural UNESCO World Heritage.
Number of participants: minimum 25, maximum 45
Conditions: The excursion will take place during summer times, through a high mountain range, at elevation sometimes exceeding 2000 m. Windy and rainy conditions, and cold temperature cannot be excluded, alongside warmer sunny days, depending on unpredictable weather conditions.
Climate and temperature: 5 to 25 C°, strong wind, rain, as well as hot, sunny and clear days.
Altitude range: 800-3000 m a.s.l.
Physical difficulty: moderate, some walking along steep slopes although no alpinist skills are required. Maximum walking distance about 5 km.

Recommended field equipment: mountain boots, warm clothes, sweater and wind jacket, gloves, backpack, sunglasses and a hat.
Cost: 900 / 1100 CHF. per person depending if it is a single/double room, and includes bed, breakfast, pocket lunch and dinner, transportation and field guide. Travel from and to Geneva is not included in the price.

Description:
The field trip will focus on Triassic carbonate buildups and coeval basinal units, Anisian to Carnian in age. High relief isolated carbonate edifices will be visited, together with low-relief ramp systems, in detail will be discuss the start-up of different generation of carbonate platforms, the internal architecture and the changes of the carbonate factories. Terrigenous sealed, drowned aggradational pinnacles will be discussed, alongside with progradational slope deposits. Sedimentary facies will be examined within the seismic scale depositional geometry, and framed into a high-resolution chrono- and sequence stratigraphic scheme.

FTB5

Field trip in the Gironde estuary and Arcachon lagoon: reservoir heterogeneity in wave-and tide-dominated incised valleys (Bordeaux area, SW France).

Fieldtrip Leader: Hugues Féniès (University of Bordeaux)
Duration: 2 days, Saturday 23 and Sunday 24 August 2014.
Departure place, date and time: The participants check in at Hotel Victoria Garden (Bordeaux city) on Friday 22 August, evening. The trip will start from the hotel on 23 August 2014 at 8:30 a.m.
Return: Bordeaux city (Victoria Garden hotel); 24 August 2014 at 7:00 p.m. (possible transfer to the airport or railway station, on the evening of 24 August 2014, after 5:00 p.m.).
Transportation: bus and boats
Accommodation: Hotel Victoria Garden; category: 3 stars hotel; www.victoriagarden.com; Address: 127, Cours de la Somme, 33800 Bordeaux (downtown Bordeaux), France.
Number of participants: minimum 9, maximum 11.
Conditions: expected weather: hot and sunny, field equipment: neoprene booties and raingear (just in case!).
Cost: 450 CHF. per person and includes transportation, field guide, 2 hotel nights with breakfasts (Friday 22 August and Saturday 23 August 2014), 2 field lunches (Saturday 23 August and Sunday 24 August), 1 dinner in a restaurant in Bordeaux (Saturday 23 August), 1 wine tasting session at Château Tayac. Transportation from Geneva to the hotel and return are not included in the price, nor the additional dinners and additional hotel nights (dinners not included: Friday 22 August and Sunday 24 August; night not included: Sunday 24 August).

Description:
On the first day, the field trip will visit the Gironde estuary, a worldwide reference model for tide-dominated incised valleys and will focus on heterolithic estuarine point bars and tidal bars, deposited within a maximum turbidity area.
Detailed facies analysis will be performed based on field observations and trenches. The reservoir heterogeneity of heterolithic point bars and tidal bars will be presented, thanks to numerous cores and very high-resolution seismic lines.
On the second day, the field trip will visit the Arcachon lagoon, a wave-dominated incised valley and will focus on the facies, reservoir heterogeneity and geometry of sandy tidal channel-fill, deposited without a maximum turbidity area.
The sequence stratigraphic models of the Gironde and Arcachon incised valleys will be presented and compared; specific processes controlling reservoir geometry in wave- and tide-dominated incised valleys will be assessed.

FTB6

Reef and lagoonal bituminous carbonates from the Kimmeridgian of the western Jura Mountains

Fieldtrip Leaders: Eric Davaud, Georges Gorin, Elme Russillon (University of Geneva)
Duration: 1 day
Departure place, date and time: Geneva, 23 August 2014 at 8:30 a.m.
Return: Geneva, 23 August 2014 at 7:00 p.m.

Transportation: minibuses
Accommodation: no, lunch in restaurant
Number of participants: minimum 15, maximum 24
Conditions: 1 hour walking overall, steep rocky slopes, good walking shoes.
Cost: 90 CHF.
Note: The field trip takes place in France; check if a visa is required for your nationality.

Description:
Two outcrops will be visited during this field trip. One will show bituminous, laminated, lagoonal, very low-energy carbonates surrounded by partly dolomitized patch-reefs, overlain by storm deposits. The latter two deposits will be examined in the second outcrop.

FTB7

Carbonate mixed ramps through time, tectonic and paleogeographic settings. Sicily, Southern Italy

Fieldtrip Leaders: Andrea Moscariello (University of Geneva), Mauro Agate (University of Palermo), Gabriele Lena (University of Perugia
Duration: 4 days (1 travel day + 3 days in the field).
Departure place, date and time: Departure from Catania Airport (Sicily) at 3:00 p.m. on Saturday 23 August. Recommended flight is direct flights from Geneva with Easyjet at 7:30 a.m., which will give the possibility to have a ½ day touristic tour of the city of Catania. Other flight connections are with Alitalia via Rome. Participants will have to make their own travel arrangements.
Return: end of the trip in Trapani on Tuesday 26 August at 6:00 p.m. Participant's departure is recommended to be on Wednesday 27 August either from Trapani or Palermo, which have both international airports. Transports to these locations can be arranged depending on requests of participants. Cost of transports to airports ranging from 5 to 90 Euros will be at charge of individual participant.

Transportation: bus 25 seats (or mini vans depending on number of participants)
Accommodation: Hotel San Michele (Caltanissetta, 1 night), Hotel in Sciacca (TBA, 1 night), hotel in Trapani or Favignana (TBA, 1 night). Full boarding accommodation in medium-high level hotels (3/4 stars), all inclusive (internet, lunch bag).
Number of participants: minimum 15, maximum 20
Conditions: In August weather conditions in Sicily are very hot and humid. The outcrops are easy to get by short walking times. Recommended equipment consists of shorts, t-shirt, hat, sunglasses, water bottle, trekking shoes and abundant sun-protection lotion.
Cost: 950 CHF.

Description:
During the field trip we will visit outstanding outcrops displaying world-class sequences of mixed ramp depositional systems. Stratigraphy, sedimentology and overall geometry of large sedimentary bodies will be examined in the field at multiple scales ranging from seismic to microfacies. Focus on sedimentary facies and its lateral and vertical variations will be discussed to understand the evolution of depositional systems in different geodynamic and climatic contexts which affected the Sicilian region through the 5 millions of years. This field trip will provide a unique opportunity to compare and contrast within a relatively small region, different ramps systems characterized by sedimentary inputs of different nature and magnitude and related sedimentary processes. We will then observe the resulting facies association and architectures. The field trip will also provide an opportunity to discuss the implications for reservoir development and connectivity in genetically similar deposits around the world.

FTB8

Sedimentological development of the Molasse Basin in response to Alpine orogenesis and climate change, and glacial and fluvial fingerprints on the landscape at the Alpine border

Fieldtrip Leader: Fritz Schlunegger (University of Bern)
Duration: 3 days

Departure place, date and time: Bern train station at 10 a.m., 23 August 2014; participants take the train that leaves Geneva at 8.11 a.m.; they organize their own train tickets.
Return: e.g., Bern train station, 2:00 p.m., 25 August 2014; participants will be back at Geneva 4.00 p.m. at the latest
Transportation: train (individual), coach
Accommodation: e.g., Hotel Sporting, Marbach, excellent food.
Number of participants: minimum 6, maximum 12
Conditions: We will visit well-accessible outcrops on good quality trails. Good field physical conditions are required. The trails are not exposed but require basic training in hiking on steep trails. Hiking time will be ca. 1 – 1.5 hours per day. We will also visit river sections; if weather conditions are bad, then robber boots are needed.
Cost: 410 CHF. (double room), 430 CHF. (single room) per person and includes bed and breakfast, transportation from Bern on and field guide. Lunches and dinners plus train rides Geneva-Bern are not included in the price.

Description:
The field trip will visit key outcrops of the north Alpine foreland basin including megafan and debris flow fan deposits, the section illustrating the change from basin underfill to overfill, and finally tidal and wave dominated deposits indicating basin underfill. We will also discuss the contrasting landscapes of the Alpine border where glacial processes and fluvial erosion have imprinted on the landscape's property.

FTB9

Coastal zones in the geological archive from the French Alps to the Mediterranean Sea.

Fieldtrip Leader: Fred Bouchette (University of Montpellier)
Duration: 3.5 days
Departure place, date and time: Geneva UniMail, 23 August 2014, 10:00 a.m.
Return: Montpellier, 26 August 2014, 3:00 p.m. (adjustable).

Possible extension with a 1 day touristic trip South of France upon request.
Transportation: coach (small)
Accommodation: Housing will change from one day to another. Two first nights will be in the South-East Basin (Gap and Bagnols-sur-cèze, respectively), in guesthouses (single rooms) with the opportunity to taste local wines (wine cellars). Third night will be in Nimes, a sunny Roman town of the Languedoc-Roussillon region.
Number of participants: maximum 8
Conditions: Outcrops during the first day are along roads (from 1000 to 2200 m). The second day is mainly dedicated to a 3-4 hours long walk along good trails in the mountains (up to 2500 m). During the third days, stops will be along roads and small trails with no major effort. Stops of the fourth day will be in stone-pits and on the beach.
Expected equipment: classical mountain walk. Suncream recommended for the two last days.
Cost: 500 CHF. per person including bed and breakfast, transportation and field guide. Lunches and dinners are not included in the price.

Description:
This field trip is dedicated to the exploration of striking coastal/ littoral paleo-environments along a NE-SW transect from the French Alps to the Gulf of Lions passive margin (northernmost Mediterranean Sea). First topic concerns the Jurassic/ Cretaceous transition in the South-East basin with the presentation of the "Tithonian Controversy", ie, the conflicting interpretation of sedimentary breccia and various energetic deposits as (1) turbidite deposits in a central part of the South-East basin, or (2) tempestite deposits in a very shallow-water ramp. The second topic will be an introduction to Miocene tidal environments along the Gulf of Lions margin, displaying several striking beach morphologies (berm, sand bars,...). This topic illustrates the fact that paleogeography of coastal areas strongly controls deposition, and if the latter could be dominated by tide or not. The last topic will be covered by a presentation of the Holocene evolution of a

littoral sand barrier along the Gulf of Lions shorelines. Invariants (through time and space) of the littoral sedimentary recording will be highlighted all along the field trip.

FTB 10

The Mont-Saint-Michel bay (NW France): Facies, sequences and evolution of a hypertidal embayment and estuarine environment

Fieldtrip Leader: Bernadette Tessier (University of Caen)
Duration: 3 days
Departure place, date and time: 24 August 2014, 8:00 a.m., Nantes City (the participants must be in Nantes on the 23 August and stay overnight)
Return: 26 August 2014 at 7:00 p.m. in Nantes.
Transportation: coach
Accommodation: Hôtel de la Croix d'Or***, Avanches. www.hotel-delacroixdor.fr
Number of participants: maximum 30
Conditions: No difficulties. Expected equipment: rubber boots or "water proof" sandals, waterproof (just in case!)
Cost: 450 CHF. per person and includes bed and breakfast (2 nights), lunches (3), dinners (2), transportation from Nantes and field guide.

Description:
The aim of this 3-days field trip is to examine the different sedimentary environments, which compose the hypertidal (14 m tidal range) Bay of Mont-Saint-Michel (Embayment, Estuary, Sandy coast). Hydrodynamics, sedimentary facies and sequences, Holocene infill and evolution will be discussed through field observations, core, VHR seismic and GPR data. The field trip includes a sightseeing tour of Mont Saint-Michel, and an overview of Norman gastronomy.

FTB11

Paleohydrologic and paleoenvironmental reconstructions of the late Paleogene-early Miocene alluvial and fluvial systems of the Southwestern Alpine foreland basin, France

Fieldtrip Leaders: Isabelle Cojan (Mines – ParisTech), Thomas Gillot (Mines – ParisTech), Anne-Edwige Held (CEREGE)
Duration: 3.5 days
Departure place, date and time: Geneva railway station main hall, August 23 2014 at 8:00 a.m. (direct TGV from Geneva provisional time: departure 8:42 arrival 11:57)
Return: Aix-en-Provence TGV railway station (5:00 p.m.) or Marseille-Provence airport (5:30 p.m.) 26 August 2014.
Transportation: vans or coach depending on the amount of participants
Accommodation: Holiday Residence in Digne-les-Bains
Number of participants: minimum 8, maximum 16
Conditions: we will visit sites that are mostly accessible on good trails within a range of altitude less than 1500 meters. Walking time can be up to 1 hour per site. Good walking shoes are recommended. Expected weather warm and sunny, thunderstorms can occur during late afternoon.
Cost: 500 CHF. per person and includes accommodation (3 nights based on double occupancy), lunches (picnic) (4), dinners (3), transportation during the field trip (trip from Geneva to Aix en Provence is not included) and field guide.

Description:
During this field trip we will examine the Paleogene-Neogene continental succession of the western part of the alpine foreland Basin (digne Area, SE France). Emphasis will be placed on the paleohydrologic and paleoclimatic reconstruction of the area during that period. Proto-Durance network as early as late Oligocene will be discussed based on paleohydrologic elements from channelized facies. Influence of climate on the fluvial architecture will be presented based on the climofunctions and stacking pattern of the paleosols.

FTB13

From passive margin to foreland basin: stratigraphy and sedimentology of the Bornes-Aravis massif (Haute-Savoie, France) from the Triassic to the Oligocene

Fieldtrip Leader: Pascal Kindler (University of Geneva)

Duration: 2 days
Departure place, date and time: Geneva, 23 August 2014 at 9:00 a.m.
Return: Geneva, 24 August 2014 at 6:00 p.m.
Transportation: coach
Accommodation: Hotel les Ecureuils, Le Grand Bornand (Haute-Savoie, France). A charming hotel in a charming Savoy village nestled between the Bornes massif and the Aravis range. The restaurant serves the best "tartiflette" in the world.
Number of participants: minimum 16, maximum 24
Conditions: exposures are located along both roads and mountain trails at moderate elevations (1000 to 2000 m). Weather is expected to be nice and warm at this time of the year, but rain and thunderstorms can always happen. Up to three hours of easy walking on mountain trails requires good shoes. A wind stopper and/or a waterproof jacket will be useful in case of rain.
Cost: 500 CHF. per person including bed, breakfast, dinner, transportation and field guide. Lunches and drinks are not included in the price.

Description:
Taking place in a gorgeous Alpine landscape, the field trip will visit key outcrops showing the sediments deposited along the northern passive margin of the Alpine Tethys from the Triassic to the Late Cretaceous (mostly carbonates and shales) and the sedimentary filling of the North-Alpine foreland basin (platform carbonates, marls, and siliciclastic turbidites of Late Eocene to Middle Oligocene age). If time permits, the mélange representing the final closure of the foreland basin will also be examined.

SHORT COURSES

Important information about short courses

- Participants of short courses must also register for the 19th ISC.
- Attendees, who wish to book a short course should indicate this in the registration form.
- Short courses are limited in size and are reserved on a first-come, first-served basis and must be accompanied by full payment. A waiting list will be created and the organizers will notify you if space becomes available.
- We make every effort that those who wish can participate.

SCA1

Applied sedimentology in the geoenergy industry: Why it matters? Practical examples and workflows

Convener: Andrea Moscariello, University of Geneva
Date: 16 August 2014
Time: 9:00 - 5.00 p.m.
Number of places available on workshop: 30
Cost: 60 CHF.
Location: to be confirmed

Description:
The course is providing an overview of the integrated workflows used by geoscientists employed in the energy industry. Sedimentologists in particular play a key role in understanding the overall reservoir geometry, connectivity and spatial property distribution, which are keys to evaluate the economic potential held in the subsurface. Generally this knowledge has to be derived from multiple and very diverse, often scarce and discontinuous, types of data (cores, seismic, production tests). Real examples will be presented and a series of exercises will expose the course participants to the real challenges of exploring and developing geo-energy resources with the eyes of a sedimentologist.

SCA2

Applied Carbonate Sedimentology

Convener: Bruno Caline (TOTAL – Exploration carbonate Team)
Date: 17 August 2014
Time: 9:00 – 5:00 p.m.
Number of places available on workshop: 20
Cost: 50 CHF.
Location: to be confirmed

Description:
Carbonate rocks generate a large spectrum of hydrocarbon reservoirs. These reservoirs are characterized by internal heterogeneities, which result from spatial variation in both depositional facies and diagenetic overprint. Recent development in carbonate sedimentology, sequence stratigraphy and seismic imaging has resulted in a new understanding of the large-scale and small-scale geological characteristics of carbonate reservoirs. This one-day course focuses on these new developments through several practical exercises. Each of them illustrates the specificity of carbonate sedimentology in terms of reservoirs heterogeneities. Examples will be taken from major hydrocarbon fields in the Middle East, Far East and North Sea.

SCA3

Architecture and sequence stratigraphy of clastic shelf margins

Conveners: Ron Steel and Cornel Olariu (The University of Texas at Austin, USA)
Date: 17 August 2014
Time: 9:00-5:00 p.m.
Number of places available on workshop: 15 to 40
Cost: 60 CHF.
Location: to be confirmed

Description:
We will discuss new ideas regarding architecture of shelf & shelf margin prisms in different types of basins. The course is recommended for students and geologists who have interest in siliciclastic marine geology and dynamic stratigraphy. Modern shelf morphology variations will be presented along with depositional environments and their variability both across and along the shelf profile. Close attention will be given to (1) fundamental controls on the sequence stratigraphy of shelf margins; (2) shelf morphology changes in high supply conditions; (3) evolution and architecture of deltas on the shelf, (4) the role of deltas in sediment spreading on shelves and in the fundamental accretion of margins, (5) shelf-edge deltas and conditions for by-passing of sediment to deepwater, and (6) competing models of deepwater sand delivery to the basin floor. "Rules of Thumb" for predicting deepwater sands will be emphasized and there will be some exercises during the course.

SCA4

Numerical dating of sediments and their minerals

Conveners: (in alphabetic order): Matt Horstwood (NIGL, British Geological Survey, Keyworth), Urs Schaltegger (Geneva), Dave Selby (Durham), Richard Spikings (Geneva), Horst Zwingmann (CSIRO, Perth)
Date: 16-17 August 2014
Time: 9:00-5:00 p.m.
Number of places available on workshop: 15 to 40
Cost: 40 CHF.
Location: to be confirmed

Description:
The short course should cover different techniques and aspects of quantification of time in sediments. It will discuss the state of the art in the different techniques, covering recent advances and discussing limitations of the applied techniques, and presenting guidelines for users. Covered topics include:
Fission track analysis of detrital zircons in clastic sediments: Provenance characterization (lithology and cooling history); reconstruction of exhumation history of the source regions. Theory and methodology of fission track analysis, interpretation of fission track data, case studies.
U-Pb dating of detrital zircon: The high spatial resolution analysis of detrital as well as igneous zircon by laser ablation ICP-MS can provide a wealth of information about the erosion and tectonic history of source regions. The most robust interpretations result from a careful and methodical approach addressing predefined questions. The lecture will illustrate the state-of-the-art in data handling and interpretation, focusing on understanding

the limits of the technique and recognizing the interpretive power in comprehending these limits.

K-Ar and 40Ar/39Ar dating of clays: Clay are associated with soil formation, erosion and sedimentation as well as diagenetic processes. The lecture is covering specific questions of mineral separation and of isotopic dating techniques, among them (1) dating deep burial clay mineral authigenesis in sandstones, (2) timescales of smectite to illite transition during burial diagenesis in shales, (3) glauconite dating for stratigraphic age control and (4) dating of brittle deformation events

Re-Os systematics of organic-rich rocks (ORR): The Re-Os systematics of ORR can yield a depositional age and thus provide valuable time markers for basin and global correlation. In addition the Re-Os ORR systematics can information about the Os isotope composition of seawater, which yield insight into pale basin dynamics. We will explore the current knowledge of the Re-Os systematics in ORR, which will include sampling, analytical methods, Re-Os geochronology and the application of initial Os isotope stratigraphy.

High-precision U-Pb dating of volcanic ashes: Dating of volcanic zircon in ash beds that are interbedded with biochronologically or chemostratigraphically well-calibrated sediments are providing age information of highest precision and accuracy for timescale research. The lecture will give a short overview of the state of the art and the limits of this technique, point out some of the most important pitfall sand present some highlights from most recent research.

SCA5

Provenance analysis – Bulk-sediment petrography and heavy minerals

Conveners: Eduardo Garzanti (University of Milano, Italy)
Date: 16-17 August 2014
Time: 10:30-5:30 p.m.
Number of places available on workshop: 20 - 30
Cost: 60 CHF.
Location: to be confirmed

Description:
The purpose of this short course is to introduce young people worldwide interested in provenance studies of sediments and sedimentary rocks and in heavy-mineral identification carried out with optical methods. Students will be showed how long-standing problems concerning the appropriate identification and classification of various types of rock fragments and detrital minerals can be solved. After detailed analysis of most common and some rare groups of detrital components, we will illustrate a wide range of examples from real case histories from different environments and geological settings in different areas of the world. We will aim at improving our capability to extract information from detrital sediments and collecting quantitative petrographic and mineralogical data. We will also explain how to tackle problems related to hydraulic sorting, chemical weathering in hot humid climates and diagenesis. Finally, we will illustrate how Raman spectroscopy can allow us to correctly identify any mineral in thin section or grain mount. By using this innovative technique we can assess the chemical variability of different minerals and correlate their different Raman signatures with different source rocks.

SCA6

The application of chemostratigraphical techniques to Shale Gas exploration

Convener: Tim Pearce (Chemostrat, Hafren Scientific Ltd)
Date: 17 August 2014
Time: 9:00 – 12:00 p.m.
Number of places available on workshop: 30
Cost: 50 CHF
Location: to be confirmed

Description:
This course covers the best methods of acquiring suitable geochemical data and specific interpretative techniques, appropriate for Shale Gas exploration.

**ADDITIONAL SHORT-COURSES ARE UNDER CONSIDERATION.
PLEASE, CHECK OUR WEBSITE FOR COURSE UPDATES AND DETAILS.**

PLENARY LECTURES

The scientific program will include four plenary speakers that have been invited to gather the entire sedimentological community around new frontiers of research in the field. They will be delivered everyday (except Wednesday 20) just after the lunch break.

Our confirmed distinguished lectures are:

Monday, 18 August

Carlota Escutia

Instituto Andaluz de Ciencias de la Tierra, CSIC – Universidad de Granada, Granada, Spain

Sedimentary Records of Ice Sheet Behavior during Past Warm Intervals: An Ocean Drilling Strategy

Tuesday, 19 August

Isabel Montanez

Earth and Planetary Sciences, University of California, Davis Davis, California, USA

Earth's Deep-Time Insight into Our Climate Future

Thursday, 21 August

Marjorie Chan

Geology & Geophysics, University of Utah, Salt Lake City, Utah, USA

Sedimentology Frontiers from Earth to Mars: Dunes, Deformation, and Diagenesis

Friday, 22 August

Anny Cazenave

Laboratoire d'Etudes en Géophsique et Océanographie, Spatiale (LEGOS), Centre National d'Etudes Spatiales (CNES), Observatoire Midi-Pyrénées, Toulouse, France

Sea Level Rise: Recent Past, Present and Future

CALL FOR ABSTRACTS

Submission deadline: 30 April 2014

The organizers cordially invite the submission of abstracts under the themes and sessions outlined below.

Authors are invited to present their work as a talk or poster presentation. Several oral sessions will be run at the same time and particular emphasis will be placed on providing prominent space and time within the Congress schedule for the poster presentations.

THEMES

THEME 1

Continental depositional environments

- Aeolian environments
- Alluvial fan and fluvial environments
- Impact of glacial processes on sedimentation
- Lacustrine and palustrine environments
- Tufas, speleothems, evaporites, travertines, calcretes and sinters
- Interpreting and quantifying the controls on the preserved architecture of fluvial systems

THEME 2

Marine and coastal depositional environments

- Carbonate platforms
- Coastal environments
- Deep-sea environments
- Siliciclastic platforms

THEME 3

Processes in sedimentation

- Events in sedimentation
- Ichnology and taphonomic processes applied to sedimentology
- Microbial sediments and geomicrobiology
- Provenance, weathering and transport

THEME 4

Basin analysis

- Climatic signatures in sedimentation
- Sedimentation and tectonics
- Sequence stratigraphy and cyclostratigraphy

THEME 5

From sediments to rocks

- Diagenesis of carbonate sediments
- Diagenesis of non-carbonate sediments
- Microbial influence on sedimentation

THEME 6

Applied and resource sedimentology

- Environmental sedimentology and geohazards
- Hydrocarbon reservoirs and water resources
- Periglacial environments and hydrocarbon reservoirs
- Sedimentology of geothermal reservoirs

THEME 7

Predicting and visualizing sedimentary processes and systems through modeling

- Basin modeling and energy – water resources
- Numerical models on morphodynamics sediment transport and stratigraphy
- Numerical modeling and quantification of burial processes
- Flume experiments and sedimentary processes
- Recent developments in experimental sedimentology

THEME 8

Volcano-sedimentology

- Volcanogenic sedimentation
- Eruptions and tephra dispersal

THEME 9

Climate and Earth surface environments in deep time

- Sedimentary proxies of Precambrian environments
- The sedimentary record at times of biological crisis

THEME 10

Sedimentary organic matter

- New organic proxies in sedimentary environments
- Organic archives of environmental change

SYMPOSIA

S1

Subaquatic paleoseismology: records of large Holocene earthquakes in marine and lacustrine sediments

Maarten Van Daele, Marc De Batist, Christian Beck, Chris Goldfinger, Hans Nelson

In recent years, marine and lake sediments have increasingly been identified as valuable and high-precision paleoseismological archives that can complement classic paleoseismological approaches (e.g. trenching). Earthquake shaking may cause turbidity currents, underwater landslides, tsunamis, soft-sediment deformation and liquefaction or fluid expulsion, which may become incorporated into the sedimentary record. The study of such seismically induced event deposits can provide an insight in the character of the causative earthquake. Lake or sea floors may also be affected by fault scarps and offset structures. The study of such features can provide information on coseismic (or interseismic) fault displacement. For this session we invite contributions that cover all aspects of subaquatic paleoseismology, such as (but not restricted to) underwater-landslide and/or turbidite stratigraphy, development of criteria for distinguishing earthquake deposits (from e.g. flood deposits, or non-seismically triggered mass wasting), dating and development of new chronostratigraphic tools, seismic trenching and active fault mapping, but also applications of subaquatic paleoseismology in specific case studies.

S2

Environmental signal propagation through sediment routing systems: turning geomorphology into stratigraphy from land to sea

Andrea Fildani, Julian Clark, Sébastien Castelltort

Understanding the transduction of environmental signals to the landscape and sedimentary records is fundamental to our understanding of the transformations of the surface we live and evolve on. The erosion-transfer "cell" is the part of earth surface systems that generates and delivers sediment to basins through the arteries and veins of the river network. The typical erosion-transfer cell functions as a complex network of interconnected sediment production and routing pathways with individual response behavior to perturbations which sum up to deliver an integrated sediment flux signal to basins. Each subsystem has a characteristic response time with respect to perturbations. Depending on the individual response times of these production and transfer subsystems, sediment flux may not necessarily be linked in a straightforward way to allogenic changes in the erosion zone. Additionally, such complex networks may exhibit a number of emergent properties able to produce "autogenic" sediment delivery to the basins potentially obfuscating the primary environmental signals. Despite a fast growing intelligence of Earth surface processes interactions and feedbacks over the last decades, our understanding of how these interconnections work together to shape our Earth's surface and deliver material to the sedimentary archives is still incomplete.

S3

Outwash depositional systems: from glaciers to stratigraphic architectures

Patrick Lajeunesse, Jean-François Ghienne

Meltwaters are instrumental in mobilizing, routing and depositing large volumes of clastics in proglacial environments connected to subglacial drainage networks. As a consequence, outwash systems, from small fluvioglacial to larger glaciturbiditic fans, are major components of glaciogenic depositional systems. If compared with analogous non-glacial systems, they should have characteristics specifically related to their proglacial context: for instance, sediment input points either focalized (e.g. a tunnel valley mouth) or distributed along a line source (sandar), their migration through time across glaciated basins as controlled by advancing/ retreating ice fronts, the recurrence of high-magnitude flow events, the superimposition of glacio-isostatic patterns (flexure and rebound) on basin subsidence, or the interplay with glaciotectonism. This session aims at illustrating the diversity of outwash depositional systems in the Earth glacial record. It intends to bring together geoscientists from geomorphology to reservoir engineering working on Quaternary to Proterozoic glacial depositional systems. We invite contributions presenting case studies establishing how all these elements impact on glaciogenic depositional suites and on resulting stratigraphic architectures.

S4

Rapid climate/environmental changes in Mesozoic greenhouse world

Xiumian Hu, Michael Wagreich, Helmut Weissert

As atmospheric CO_2 concentrations rise during the 21st century, the Mesozoic greenhouse world will serve as a relevant model. An understanding of how the Mesozoic greenhouse world works will aid predictions of modern climate changes. In recent years, information on the Mesozoic greenhouse world comes from numerous studies of both marine and terrestrial sediments, both from outcrops and scientific drilling sites (such as the Cretaceous Songliao continental drilling project). This session is to provide a platform for discussion among sedimentologists interested in Mesozoic rapid climate / environmental changes, such as oceanic anoxic events, oceanic red beds, carbonate drowning events, other extreme climatic and environmental events. Papers are invited on discussing specific stratigraphic and sedimentological records related to those rapid climate/environmental events in Mesozoic greenhouse world.

S5

Sedimentology of extreme events

Heinrich Bahlburg, Jasper Moernaut, Michaela Spiske

We seek contributions analyzing the geological, geomorphological, geomechanical and sedimentological processes involved in the generation and preservation of the sediments and sedimentary rocks deposited during extreme, catastrophic geological events, modern and ancient. Such events include, but are not restricted to, floods, storms and hurricanes, submarine and subaerial mass wasting, pyroclastic processes, earthquakes and tsunami. Observations on event magnitudes, rates of change and recurrence intervals relevant for hazard estimates are particularly welcome. Contributions may represent case studies of modern or ancient examples as well as theoretical, analogue and numerical considerations.

S6

Scientific Drilling for unraveling the sedimentary records of past tectonic, climatic and environmental processes

Michael Strasser, Flavio S. Anselmetti, Gregory F. Moore, Bernd Wagner

Exploring the subsurface through scientific drilling deepens our understanding on Earth-system geodynamics, long-term climate and environmental changes, evolution of life, and about the mechanisms causing geo-hazards. By monitoring, drilling, sampling, and analyzing subseafloor environments, the Integrated Ocean Drilling Program and its successor International Ocean Discovery Program (IODP) are the key for advances in the understanding of our “blue planet”. At the same time similar efforts on the continents, coordinated within the International Continental Scientific Drilling Program (ICDP), provide new means to tackle challenging geoscientific themes of socio-economic relevance such as paleoclimate, earthquakes and volcanism, or unconventional energy resources. The principal goal of this joint IODP/ICDP special symposium is to summarize and review recent scientific achievements in ocean and continental drilling of sedimentary systems and discuss how these records shed new light on tectonic, climatic and environmental processes. We invited presentations of recent, ongoing and future IODP/ICDP projects and seek contributions investigating the sedimentary record recovered by scientific drilling, and particularly welcome presentations focusing on sedimentological research frontiers or on new interdisciplinary approaches to interpret deep and hidden sedimentary archives accessible only by drilling.

S7

Turbidity current, subaqueous mass flow and mass movement processes - recent insights and future research directions

Peter Talling, Stéphanie Girardclos, Derek Sawyer, Michael Strasser

Turbidity currents, submarine debris flows and underwater landslides are some of the volumetrically most important processes for moving sediment across our planet. Some individual events transport more than ten times the annual sediment flux from all of the world’s rivers combined. There is still much to learn about these fascinating events in both lacustrine and marine settings. Key parameters for turbidity currents (e.g. sediment concentration in submarine flows) have never been measured precisely in any field location. Uncertainty surrounds issues including how submarine landslides are triggered on remarkably low gradients, the degree to which turbidites record major earthquakes or river floods, the effects of supercritical flow and origin of up-slope migrating bedforms. This session aims to show recent advances in

the study of subaqueous sediment flows, and lead to suggestions for future work that may result in fundamental step changes in understanding.

S8

Modern and ancient drainage networks in tectonically active settings

Anne-Sabine Grosjean, Uisdean Nicholson

Morphological evolution in space and time and depositional dynamics of drainage networks record the influence of tectonics, providing particularly useful information about the local and regional deformation patterns. Drainages can be considered as active systems that erode topographies independently from tectonics implying re-organization, river captures, new catchment areas and sediment fluxes. Another way is to interpret them as passive features that progressively co-evolve with strains recording the tectonic history of the region. Thus river systems represent an attractive tool in deciphering the tectonic and erosional history of actively deforming regions. This session aims to bring together a range of approaches (field, provenance analysis, detrital-thermochronology, cosmogenic nuclides, modeling) to discuss the role of drainage networks in landscape evolution and their erosional impact in various tectonic and climatic settings. We welcome all studies which have documented drainage network response to tectonics or climate from the sedimentary record, as well as modeling studies predicting sediment output from drainage systems to sedimentary basins in response to tectonic and climate.

S9

Developing the future geosciences workforce

Mary Anne Holmes, Nilgun Okay

How do we encourage the next generation of geoscientists? How do we ensure that the best minds all have a chance to practice in our field? Empirical research among scientists, engineers, mathematicians, and social scientists over the last ten years has yielded strategies that are more effective at increasing the diversity of the geoscience workforce than the well-intentioned but random efforts of previous eras. We will provide the latest research results from the U.S.' ADVANCE, E.U., and Asian programs that demonstrably increase the diversity of the next generation of geoscientists.

S10

Experimental modeling of alluvial systems: understanding processes and morphologies

Laure Guerit, Patrick Meunier, Peter Ashmore

Alluvial systems can be considered as a complex interaction between rivers and sediments. However, the complexity observed on the Earth surface can be greatly reduced in experimental models. This approach offers a strong decrease in both temporal and spatial scales and allows the control of many parameters, such as water and sediments inputs or sediment sizes. By this mean, we can gain strong insights in our understanding of the controls exerted by these parameters on alluvial morphology, erosion or sedimentation rates. The final aim is to propose predictive models. In this session, we propose to discuss the interaction between rivers and sediments within alluvial systems, in order to get distinctive insights into the dynamics of drainage network, individual rivers, or alluvial fans. This includes fluvial erosion, sediment transport and deposition, river dynamics, or any fluvial process related. Contributions focused solely on experiments are welcome, as well as studies based on comparisons between experiments and theoretical or field studies.

S11

Transport and sedimentation of pyroclasts in water

Martin Jutzeler

Large volumes of pyroclasts end up deposited in oceans or lakes. Clast sources comprise primary products from explosive eruptions and from resedimentation events. Subaerial volcanism generates pyroclastic flows, ash plumes, lahars and floods that can enter large water bodies, and together comprise an important source of marine/lacustrine pyroclastic sediments. Less well-known and even less well-understood, subaqueous explosive eruptions can generate similar volumes of pyroclasts as do their subaerial equivalents. In subaqueous volcanic settings, resedimentation events are common, occur on the smallest slope gradients and can be triggered by earthquakes, water-column disturbances of various sorts, or seafloor currents, resulting in erosional slope destabilisation, and a range of mass-wasting processes. We seek contributions on facies characterization of subaqueous pyroclastic accumulations though study of uplifted stratigraphic successions, submarine sampling, geophysical exploration, and micro-textural analysis of single particles. The

emphases of this session encompass the reconstruction of source environment, eruption style, transport and deposition processes. Case studies on risk mitigation are welcome.

S12

Carbonate mounds in shallow and deep time – COCARDE

Silvia Spezzaferri, Anneleen Foubert, Agostina Vertino, Andres Rüggeberg, Jean-Pierre Henriet

COCARDE is an open research network focusing on carbonate mound research through time and space. Throughout the Phanerozoic carbonate mounds have represented a recurrent strategy of Life and an exemplary mode of geosphere-biosphere coupling. During this session, we aim to scrutinize parallelism and contrasts between carbonate mound systems in the present and in the geological record to deepen our insights in their basic drivers and functioning.

S13

Recent developments in geomicrobiology of hypersaline systems

Pieter T. Visscher, Christophe Dupraz

Hypersaline environments are prime sites for the development of prokaryotic sedimentary ecosystems that produce a range of different minerals. For example, microbial mats found in hypersaline lakes can form a variety of different deposits, from almost exclusively organic to fully lithified. Many such lithifying systems have been recently discovered, and some harbor unusual microbial communities and/or are driven by unusual element cycles (including those of metals and metalloids). The extent of hypersaline lakes has enabled a comprehensive investigation of mineral precipitation and early diagenesis. This has been accomplished at the level of genes, organisms, communities and ecosystem. This session will review combination examples of such novel studies from a sedimentologic and geomicrobiological perspective.

S14

What's up with varves?

Pierre Francus, Antti Ojala, Arndt Schimmelmann, Bernd Zolitschka

Varves, i.e. annual laminations in lacustrine and marine sediment records, are exceptional features in many aspects: they are rare, can be used to constrain and build calendar-year chronologies, and contain high-resolution records of past environmental and climatic conditions. Moreover, their reproducibility at a given depositional site, e.g. within a lake basin, allow for internal validation of their continuity and integrity. Nevertheless, varves appear in a variety of forms (clastic, biogenic and evaporitic) making their interpretation site-specific. This session welcomes reports about latest developments in the sedimentology, genesis and interpretation of varved sediment records from both the marine and the continental realm. We invite contributions using varved records to (1) establish robust chronologies for limnogeological and paleoceanographic research, (2) constrain the timing and paleogeography of ice retreat, (3) improve geochronological methods, (4) document new analytical methodologies, for example achieving subannual temporal resolution, (5) show how varve records improve our understanding of paleoclimatic conditions for the Holocene, the Late Glacial, and earlier time periods, and (6) highlight any other topic related to the study of varves such as process-studies of varve formation and preservation.

S15

Sedimentary hosted mineralization and placer deposits (Mineral deposits of sedimentary successions)

Alexander Lalomov, Harald G. Dill

The deposition of sedimentary successions is accompanied by different types of mineralization from chemical and residual concentrations in weathered crusts, through mechanical concentrations of heavy minerals in fluvial/coastal marine conditions (e.g. gold, tin, diamonds, rare metals), to hydrogenic (leached) deposits related to (occurring on) complex geochemical barriers (uranium, manganese, rare elements). The formation of these sedimentary mineral deposits is known to occur in the basins of various ages, ranging from Recent to Precambrian. Studies of facies relationships and the lithodynamic conditions of mineralization, as well as evolution of the mineralization processes through Earth history, are important from the point of view of both fundamental science and industry from which contributions are solicited.

S16

High-resolution terrestrial archives of climate change across the Mediterranean

Nicolas Waldmann, Achim Brauer

Various sedimentary systems including lake and marine deposits have been demonstrated to be very valuable sources for reconstructions of past climate changes. The diversity of proxies obtained from these sedimentary archives includes biological, chemical or physical data for inferring various climatic parameters including water and air temperatures, precipitation, atmospheric circulation and extreme hydrometeorological events. For detecting abrupt climatic changes and decadal-scale variability, annually laminated sediments from lake and marine basins or other high-resolution archives like speleothems are of particular importance. Moreover, high-resolution records allow investigating differences in the temporal sensitivity of proxies and sediment records to climatic change. As a matter of course, well-established and robust chronologies are crucial for all reconstructions. Investigating high-resolution sediment archives in the Mediterranean for deciphering climate history and its impact on landscapes is of particular importance since this region is the cradle of modern human societies and situated in human migration route out from Africa during the past millennia. Therefore, this session invites high-resolution climate reconstructions from the Mediterranean region. Contributions from lacustrine sediments, speleothems, travertine, fluvial deposits and paleosoils are welcome. Combinations and comparison of different proxies from different sediment archives in different regions within the Mediterranean realm are highly appreciated, as is the discussion of novel proxies. Records of extreme events are especially welcome.

S17

Phosphorus, phosphorites and marine authigenesis: sedimentology, geochemistry and environments of formation

Ian Jarvis, El Hassane Chellai

The session focus will be on the stratigraphy, sedimentology, petrography, mineralogy and geochemistry of phosphatic sediments and associated authigenic mineral deposits. Depositional models and diagenetic studies of phosphorites, glauconies and other iron minerals, barite and clay minerals should be included. Laboratory and field experiments, and observations of modern phosphogenesis and other authigenic mineral systems might be discussed. The formation of phosphatic sediments in upwelling systems, oceanic islands, atop seamounts, guyots, plateaux, shelves, slopes and in epeiric environments are of interested. Sources of phosphorus and geochemical modeling of nutrients and allied element cycles at all scales, from local to global, should be considered. Applications of trace element and isotopic studies, particularly the use of novel isotope systems to constrain authigenic processes, are particularly sought. Topics might additionally include: environmental issues associated with excess phosphorus concentrations in water and sediment; the nature and origin of currents that play important roles in many phosphorite deposits, including condensation, concentration and redeposition as turbidites and tempestites; relationships between authigenic mineral formation, sea-level change and sequence stratigraphy; the relative importance of biological/microbial versus inorganic processes during carbonate fluorapatite precipitation at the sediment/water interface, within the sediment column, and/or during later burial diagenesis; phosphorus and authigenic mineral distributions in the geological record and their potential as palaeoevironmental proxies.

S18

Mesozoic to Cenozoic marine and terrestrial silica cycling – from data to models

Peter O. Baumgartner, Taniel Danelian, Paul Treguer

The rapid advancement of analytical techniques, in particular the in situ measurement of stable isotopes such as Si, Ge, Fe, as well as trace elements, has produced a wealth of new data that may allow to tackle the global silica cycle of past greenhouse climates. Besides geochemistry, cyclostratigraphic approaches in pelagic sediments such as radiolarites and diatomites may allow for models of silica burial though time. The idea of this session is to compare in a multidisciplinary way chemical weathering rates and silica burial both in continental, platform and pelagic records, as a function of paleoclimate scenarios and the evolution of siliceous biota from greenhouse to icehouse.

S19

Measuring time in sedimentary successions

Urs Schaltegger, Björn Baresel

[Eventually to be merged with S20]

This session focuses onto the accurate reconstruction of time and of the rates of geological processes in sedimentary successions. We especially welcome contributions that correlate relative and numerical time series (e.g., bio-, chemo-, magneto- and lithostratigraphy, astrochronology, isotopic dating) for precise and accurate definition of the geological time scale. In addition, we are seeking for contributions that use quantitative approaches for temporal reconstruction of basin formation, mineral authigenesis, maturation of organic matter and migration of oil, or of provenance (such as low-temperature thermochronology, K-Ar and Re-Os dating, and detrital mineral dating). We especially encourage contributions on techniques of sample preparation and characterization prior to isotopic analysis.

S20

Measuring and estimating rates of sedimentary processes

John Tipper, Damian Lawler, Rudy Slingerland

[Eventually to be merged with S19]

Sedimentation systems shape the surface of the Earth through time and build the stratigraphic successions that record Earth history. Sedimentary processes are the building blocks of these systems. This session is centered on the question of how best to measure and to estimate the rates at which sedimentary processes operate and operated. We place no restriction on the types of sedimentary process dealt with in the contributions, but insist that all contributions focus primarily on the matters of rate measurement and rate estimation. We anticipate contributions covering some or all of the following topics:

- Pre-erosional processes – rates of weathering and of regolith development;
- Erosional processes – rates of erosion, linked into landscape evolution;
- Transport processes – rates of particulate and solute transport, rates of transport in confined and unconfined systems;
- Depositional processes – rates of deposition measured in modern sedimentation systems, rates estimated from the stratigraphic record;
- Post-depositional processes – rates of early diagenesis, rates of compaction;
- Scale-dependency of rates – upscaling and downscaling, fractal theory;
- Rates of processes involved in sequence stratigraphy;
- New rate measurement techniques – remote sensing, data logging;
- Estimation in general – statistical questions, particularly about uncertainty and the matter of spatial and temporal variability;
- Inference of past rates from present rate measurements – how much uniformitarianism can we really stand?

S21

Non-marine carbonates and basin hydrology

V. Paul Wright, Enrico Capezzuoli, Jeff Lukasik

Non-marine carbonates represent a new research frontier as repositories of environmental, climatic, and tectonic information, as well as for their potential economic value. This session aims to focus attention on how tectonics, climate and catchment geology of continental sedimentary basins interact with hydrology to produce a wide range of non-marine carbonates (e.g., microbialites, coated grains, skeletal accumulations, calcareous tufas, hydrothermal travertine, calcretes), and especially how during basin evolution, changing hydrological regimes affect facies character, spatial distribution and diagenesis.

S22

Sedimentary dynamics and depositional controls in mudrocks

Gregory Frébourg, Stephen C. Ruppel

Though representing an estimated 70 % of the volume of sedimentary rocks in the Earth's crust, mudrocks have until recently received relatively little detailed study from sedimentologists. These rocks have previously been assumed to have accumulated principally by suspension settling of silt- to clay-size sediment under low-energy conditions forming homogeneous, widely extensive layers. This paradigm is now being challenged by the cascade of new data that are being collected to better understand sedimentary variability in mudrocks as targets for hydrocarbon exploration and exploitation of hydrocarbons ("oil/gas shales"). It is now understood that mudrocks, like sandstones and carbonates, are highly complex sedimentary successions whose composition and architecture are a function of many depositional and diagenetic processes. The fine-grained character of these deposits combined with their intense compaction makes the use of conventional sedimentological tools problematic for accurate characterization. It also

seems apparent that eustatic controls have far less impact on sediment input and dynamics in settings where most mudrock accumulate, making utilization of classic sequence-stratigraphic concepts for defining and modeling facies architecture a challenge. Recent advances in large and small-scale field observations, petrography, flume and laboratory experiments, geochemical investigations, and process-response modeling provide new perspectives on the sedimentary dynamics of mudrock systems at a wide variety of scales. This session seeks contributions at all scales of study: from the basin scale (kilometers) to the microscopic scale (nanometers), in both hydrocarbon-bearing and non-hydrocarbon-bearing mudrock systems. Our goals are to share evolving ideas and understanding of depositional dynamics of these fine-grained rocks at all scales, so that we may further refine our knowledge of those potentially economically important rocks.

S23

Climate changes on continental shelves: natural events and human impact

Vincenzo Pascucci, Francisco José Lobo, Helenice Vital

Climate changes are among the main actual topics. Investigating how the climate has changed in the past is one of the keys to hypothesize possible future scenarios in the short/medium term. Coasts and adjacent continental shelves constitute sensitive environments, which are modified by the interaction of diverse environmental factors and by increasing human activities of economic value. The purpose of this session is to bring attention to the morphological and sedimentary consequences of those mutual interactions and impacts from high-latitude to subtropical regions subjected to diverse tectonic regimes (from stable areas to those experiencing isostatic movements), with particular focus on: (a) Rapid natural processes, such as sea-level changes, responses to high-energy events and to active oceanographic processes. As sea-level fluctuations may be imprinted both in the coasts and in the shallow waters, a reconstruction of past changes occurred during the last interglacial and early post-glacial times may be helpful to model future sea-level change. (b) The human fingerprint, including the consequences of economic activities in the adjacent continental basins and in the shallow waters.

S24

Sedimentary record of wind-driven hydro-morphodynamics in shallow lakes, lagoons and epeiric seas

Frédéric Bouchette, Mathieu Schuster

Enclosed water bodies are multifarious continental sedimentary systems for which no unifying depositional model exists. Since hydrodynamics of many enclosed basins appears to be dominated by wind-driven processes, this session suggests a new category of water bodies: Wind-driven Water Bodies (WWB). This concept encompasses modern and ancient systems as different as lakes, inland seas and lagoons (e.g., Lake Erie, Megalake Chad, Azov Sea, Mediterranean coastal systems). WWBs share the following fundamental common features: (i) their depth is small with respect to their size; (ii) hydrodynamics and sediment transport are driven by wind waves to the first order; (iii) they are large enough for significant geomorphic features to develop along their shoreline; (iv) they display restricted to no connection to the open sea, most being closed water bodies. This session welcomes any contribution dealing with sedimentary processes and facies, morphosedimentary features and basin-scale analysis in such water bodies. The aim is to confront the various existing points of view on WWB, more specifically those with implications for paleoenvironmental and paleoclimatic reconstructions.

S25

Hot vents, cold seeps, terrestrial and marine crusts: the challenge of non-classic carbonates

Robert Riding, Eric P. Verrecchia, Aurélien Virgone

There is considerable current interest in terrestrial, lacustrine and marine carbonate deposits that until recently have been relatively overlooked. These range from soil carbonates (calcretes) and speleothem, through spring-fluviatile-lacustrine travertines and tufas, to deep sea cold seeps and hot vents. Research, variously stimulated by investigations of lacustrine and speleothem environmental archives, deep sea exploration, and offshore hydrocarbon targets, has attracted new attention to these diverse deposits. Many of these carbonates confront the narrowness of facies models heavily focused on shallow marine environments, and they often fit poorly within current classification schemes. Gaps in understanding these deposits represent major challenges; at the same time they have much to offer. They stimulate us

to think more deeply about processes of carbonate precipitation near the biotic-abiotic interface, and about the wide variety of environments in which carbonates form. Their often poorly explored ancient record promises to shed light on long-term changes in global marine and terrestrial conditions, including the nature of some very old carbonates. This session aims to bring together leading and new researchers from these diverse areas, to share experiences, stimulate fresh insights, reflect on novel possibilities, and develop new links and collaborations.

S26

Role of benthic microfossils in shallow-water carbonate sedimentation

Ioan I. Bucur, Bruno Granier

[Eventually to be merged with Theme 2]

Foraminifera and calcareous algae are common in shallow-water carbonate, tropical and non-tropical environments. Both groups, as well as companion micro-encrusters and micro-borers, contribute to the growth and/or the bioerosion of carbonate sands and gravels (allochems), cobbles and blocks (larger lithoclasts), as well as large rocky surface areas including hardgrounds and bioconstructions. This session aims to focus on the paleoecological and sedimentological role of these microorganisms in discrete stratigraphical intervals, as well as their importance in the production and stabilization of the carbonate sediments on ramps and open or rimmed platforms.

S27

Radiolarite events in Earth history

Hisashi Suzuki, Hans-Jürgen Gawlick

[Eventually to be merged with Theme 3]

Radiolarites play an important role in the reconstruction of ancient oceans, where radiolarites are a far common lithology. Dating of such radiolarites can unravel open questions in the reconstruction of plate tectonics motions, e.g. the consumption of lost oceanic realms. Radiolarian cherts were deposited also in open marine passive margin settings in relative shallow-water depths, obviously these radiolarian cherts occur only in some relative short-lasting stratigraphic levels in the Phanerozoic. Sometimes they are related to volcanic events, sometimes they can be correlated with sea-level rises, in other cases they can be related to the break-up of an ocean or subduction/obduction processes. The reasons for such radiolarite events are quite unexplored, e.g. the change in nutrient levels, the controlling factors of palaeoenvironment or diagenesis, or how is the abundance of radiolarites related to the global silica and carbon cycles or seawater geochemical changes.

S28

Provenance signatures in modern and ancient sediment dispersal systems

José Arribas, Luca Caracciolo, Salvatore Critelli, Hilmar von Eynatten, Eduardo Garzanti, Gert Jan Weltje

[Eventually to be merged with Theme 3]

Provenance analysis of clastics is a powerful method for verifying models concerning tectonic setting, temporal and spatial evolution of uplifted source regions, and volumes of sediment delivered to basins. Actualistic studies can be successfully applied to virtually all sedimentary succession and thus allow for understanding of the processes controlling sediment generation, transport, and final deposition in sedimentary basins. However, issues such as recycling, mixing of sediment sources, and pre- and post-depositional modifications to the sediment may complicate interpretations of the results obtained from individual provenance techniques. Multidisciplinary approaches are best suited to decipher changes in sediment dispersal patterns, paleoclimate, tectonics and sediment budget. We encourage contributions to this theme - ranging from innovative applications of standard techniques to new approaches, and from bulk to single-grain techniques - aimed at constraining sediment production and the evolution of sedimentary basins. Case histories and modeling of ancient sequences and modern analogues in different climatic and geotectonic settings are especially welcome in this technical session.

S29

Abrupt climate and environmental changes recorded by terrestrial sedimentary archives

Florence Sylvestre, Nicolas Waldmann

[Eventually to be merged with Theme 4]

Researchers first became intrigued by abrupt climate change when they discovered striking evidence of large, rapid and widespread changes preserved in paleoclimatic archives. Interpretation of such proxy records of climate (e.g., using tree rings to judge occurrence of droughts or gas bubbles in ice cores to study the atmosphere at the time the bubbles were trapped) is a well-established science that has grown fast in recent years. Documentation of past abrupt climate changes are reliable in certain regions (e.g., Greenland ice cores) but are especially scarce in tropical and subtropical regions. Moreover, rapid past climate changes and their effect in the hydrological cycle are especially poorly characterized relative to the importance to humans and ecosystems. The current session focuses on the use of terrestrial sedimentary archives, with an emphasis of deposits considered as reliable archives of abrupt climate and environmental change, such as varved lacustrine deposits and speleothems. A special attention will be addressed on records from Tropics and sub-Tropics and their links with the global climate system. Contributions from newly and innovative proxies are also highly welcomed.

S30

Tectonic controls on carbonate platform architecture

Xavier Janson, Gregor Eberli, Carine Grelaud

[Eventually to be merged with Theme 4]

The majority of well-documented carbonate platform architecture studies come from platforms developing on passive margins in a stable tectonic setting. However, carbonate platforms do develop in active tectonic settings where it is challenging to unravel the tectonic versus the eustatic control on platform architecture. This session aims to present advances in our understanding of the combined tectonic and eustatic controls on the morphology and stratigraphy of carbonate platforms based on both field-based studies of good quality outcrops or subsurface data for which the basinal setting, overall 3-D morphology, broad-scale stratigraphy and stratigraphic evolution is well established. We hope to assemble a series of examples of carbonate platforms developing in the following tectonic settings: rift margin, foreland basin, thrust and folded belt, salt influenced tectonic and strike-slip tectonic settings. In particular, we will seek studies that illustrate the large-scale evolution of platform architecture combined with the evolution of biota, facies associations and detailed stratal patterns within a robust stratigraphic context.

S31

Triassic to Jurassic basin analysis in the Tethyan realm

Sigrid Missoni, Fabrizio Berra, Tetsuji Onoue

[Eventually to be merged with Theme 4]

A substantial lack of knowledge limits our understanding of the evolution of the north-western Tethys margins during the Triassic-Jurassic and the interplay with (a) the onset of extension in the future Alpine-Atlantic/Alpine-Tethys system, and (b) the closure of the Palaeotethys (early Cimmerian orogeny) and the Neotethys (late Cimmerian orogeny). Open questions include: When and where Tethys related oceans were formed respectively when and where they were consumed? Which intervening continental units, terranes or miroplates were isolated by oceanization processes? The cause of the significant change at the Tethys passive margin setting during the Late Triassic is poorly investigated. Also, the exact time constraints and the palaeogeographic setting remain unexplored. In late Early Jurassic time orogenic movements starting in the interior of the Neotethys Ocean transferred the Triassic to Early Jurassic passive continental margin with its characteristic shore-parallel facies belts in a lower-plate position affected by ophiolite obduction and tectonic imbrication. Basin evolution, sedimentary cycles, and thermal overprint in Middle to Late Jurassic times show a nappe front propagating from the outer shelf to the interior shelf areas. Relevant questions such as basin formation and their related sedimentological evolution, geochronological and geochemical data sets in the north-western Tethyan realm should be an aim of this session.

S32

Microbial biominerals: their formation, transformation and diagenesis

Maria Dittrich, Crisogono Vasconcelos, Judith McKenzie

[Eventually to be merged with Theme 5]

Many minerals, such as metal oxides, carbonates and clay minerals, can be formed under biotic conditions, or in the presence of microorganisms. In this session, we welcome contributions on all aspects of interactions between microorganisms and sedimentary rocks. Studies to be presented will include investigations on how the metabolic activities, as well as the microbial produced organic matter, impact rock properties. We would like to invite

contributions based on both field studies and laboratory experiments. The wide range of open questions related to the signatures of such biominerals to the mechanisms of their formation will be discussed. Recently, novel microscopic and spectroscopic techniques, e.g. synchrotron based or 2D Raman mapping, have been applied to investigate the interfaces between microbe and rocks. In this session, we will also discuss the advantages and possible drawbacks of the application of these novel techniques.

S33

Sedimentological, stratigraphic, and geochemical archives of the late Paleozoic ice age

Christopher R. Fielding, Tracy D. Frank

[Eventually to be merged with Theme 9]

The late Palaeozoic Ice Age (LPIA) was one of the most significant intervals of icehouse climate in Phanerozoic Earth history, and is hypothesized to have had a profound influence on Earth's climate, sea level, depositional systems, and biogeography. However, aspects of the overall timing, duration, and character of glaciation and its impact on the stratigraphic record remain unresolved. Recent work by stratigraphers, sedimentologists, and sedimentary geochemists has improved understanding of this complex period of Earth history. Sedimentary records of the LPIA are preserved both in Gondwanan continental fragments (near-field records) and also on the lower-latitude palaeolandmass of Laurussia (far-field records). This session aims to bring together stratigraphers, sedimentologists and sedimentary geochemists who are working to understand the influence of Gondwanan glaciation on Carboniferous and Permian depositional systems worldwide. Presentations on a broad range of topics are encouraged, including – but not limited to – sedimentology, sequence stratigraphy, evidence for glaciation/deglaciation, chronostratigraphy and correlation, and geochemical proxies for oceans, atmosphere, and weathering.

S34

Palaeogeography, palaeoecology and resource geology in the geological past

Zhong-Qiang Chen, Ian Somerville, Gerard Stampfli

[Eventually to be merged with Theme 9]

This session focuses on dynamic Earth in the geological past with emphasis on palaeogeographical and palaeobiogeographic evolutions, basin development and resource geology as well as palaeoecology and life-environmental co-evolution. Through the geological times, the Earth surface experienced changes due to global events. As a result, palaeogeographical and palaeobiogeographical changes at global, regional and local scales have resulted in a wide variety of landscapes and tectonically complicated orogenic belts on Earth surfaces through time. Of these, the tectonically complicated orogenic belts offered the most important sources of various minerals and hydrocarbons (oil, gas, coal).. High-resolution sequence stratigraphy and sedimentology are crucial in not only revealing basin development history, but also in helping to reconstruct sea-level changes. Moreover, our Earth has undergone many environmental and climatic extremes. Ecosystem's responses to these crises characterize the biosphere and facilitated biotic-environmental co-evolutions through the geological past.

S35

Sediments, archives of global environmental change during deep time

Karl B. Föllmi, Alexis Godet

[Eventually to be merged with Theme 9]

Sediments are the unique source providing insight into environmental and evolutionary change during Earth's history. They allow the reconstruction of the band width and rapidity of climate change, the diversity in evolutionary pattern on land and in the sea, the impact of Earth-inherent processes such as the emplacement of large igneous provinces and of extraterrestrial processes such as Milankovitch cycles and meteorite impacts, and last but not least the feedback mechanisms between the lithosphere, life and environmental change. Deep-time research is primordial to understand the functioning and history of our Earth and to gain profound insight in present-day, anthropogenic change. For this session, we invite presentations on sedimentary records and their relevance for the reconstruction of global environmental change during Earth's history.

S36

Diagenesis in carbonate rocks

Peter K. Swart, Kacey C. Lohmann

[Eventually to be merged with Theme 5]

The recognition of diagenesis in carbonate rocks is important, not only in order to understand the processes leading to formation of reservoir rocks, but also to allow carbonates to be used as geochemical archives of environmental change. This session welcomes papers on the petrographic and geochemical processes involved in the formation of carbonate sediments and their stabilization to limestone and dolostones in all diagenetic environments. Although we welcome abstracts which use conventional geochemical methods such as stable C and O isotopes and trace elements, we particularly are interested in papers which use 'clumped' isotope method as well as the isotopic systematics involving Ca, Mg, Cr, and B as they apply to carbonate diagenesis including dolomitisation.

S37

Applications of X-ray computed tomography in sedimentology

Patric Jacobs, Pierre Francus, Bernard Long

X-ray computed tomography (CT) is a non-invasive imaging technique that allows the imaging of opaque objects in 3D. Thanks to its non-destructive character, ease of use and custom-tailored construction, CT has rapidly evolved into a powerful and versatile research technique that is widely applied in material research and process monitoring.

Since petroleum industry first introduced CT in the domain of sedimentology by analyzing petrophysical characteristics like porosity of oil-bearing sediments in cores, the application of CT rapidly developed. New advances in hardware and software allowed to visualize rock properties and structures in great analytical detail in a wide scale of resolutions from micro- to nanometer level. Constant developments in analysis software now permit quantification of (petro)physical properties and visualization of fluid flow in porous materials. Combination with other (non-destructive) research techniques like X-ray fluorescence or especially designed technical add-ons provides additional information about mineralogical or mechanical properties. The latest developments in CT largely demonstrated its potential to visualize and quantify sedimentary processes in experimental set-ups, thus providing physical evidence for theoretical insights on sediment transport mechanisms.

This session warmly welcomes papers relating the use of CT in sedimentology in general, including the ones dealing with sediments properties and structures, as well as study of the formation and deformation processes sediments undergo.

S38

Extraterrestrial Sedimentology

Gian Gabriele Ori, Clara Mangili

A wealth of data and images from the recent planetary missions shows that sedimentary processes shaped the surface of many planetary bodies. The rover on the surface of Mars observes sedimentary structures; orbiters around Mars show palaeolakes, rivers and deltas. Chemical conditions could have sustained the origin of life on the planet. Water, at that time stable, in liquid form, on the planet surface, disappeared but structures associated to its presence on the planet are well preserved. While on Mars rivers and lakes belong to the past, on Titan, in its hydrocarbon lakes, rivers and seas, sedimentary processes are presently at work. Sequence stratigraphy is also possible in some selected Martian settings.

Sedimentology and sedimentary geology appear to be a key in interpreting the geological history of planetary bodies. Even on the Moon, many surficial processes can be discussed in sedimentological terms. The interpretation of these sedimentary deposits gives us indications for reconstructing past climate conditions on Mars and Titan and a better key to understand also Earth's past and future.

This session invites contribution on extraterrestrial sedimentology, in particular, based on Mars and Titan observations. Earth analogues, a key in understanding the planetary processes, are also addressed. The session accepts all contributions dealing with different depositional environments, sedimentary sequences, facies models, as well as technological and operational aspects of the planetary exploration.

SUBMISSION OF ABSTRACTS

Abstract submission deadline: 30 April 2014

All Abstracts will be published in electronic format only and distributed to participants on a USB memory stick.

The 19th ISC will accept contributions from any field of sedimentology and related sciences. Presenting authors of abstracts at the meeting must register for this meeting and pay their registration fee not later than June 1, 2014. Presenting authors not registered and paid by June 1 will have their abstracts removed from the program and abstract book.

GUIDELINES FOR ABSTRACT PREPARATION

Authors are requested to ensure that their abstract complies with the guidelines, which are given below. Any questions or requests for further information should be addressed to the Congress organizers.

Heading: (**Times New Roman, 12 pt., bold**)

Name, First name: (**Times New Roman, 12 pt., regular**)

(**e.g., Smith, B.1, Dupont, L.2, Martinez, M.1, Wan, J.3**)

Address post address, email address: (**Times New Roman, 12 pt., regular**)

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- Maximum extent size of the abstract is 4000 characters including spaces, heading, names, address, text and acknowledgements.
- The English language will not be corrected.
- The abstract should include a brief introduction followed by a summary of methods, results and conclusions.
- Use Times or Arial standard font throughout. Font size 12 pt., regular.
- Only pure Latin letters are accepted. No additional characters are allowed neither in the text nor in given names.
- References, tables, figures or any other graphics are not permitted.
- Equations and symbols (e.g., Greek symbols) must be typed. Please, use metric measurements and symbols.
- Fossil names should be indicated in italics.
- Authors are advised to prepare their abstracts using a Word or Word compatible text editor (extensions use: .doc, .docx or .odt file).
- For easy identification of your abstract, name your file by the 1) first author – last name only, 2) proposed theme and 3) session, 4) proposed presentation mode, all separated by hyphens. Avoid special characters, use lowercase and replace all spaces by an underscore.
  Valid examples might be:
  jones_t1_s3_oral.docx, jones_t3_s1_poster.odt.
- Upload the entire abstract in the format outlined here on the abstract submission page. Note that to do so you will need an Adobe Flash enabled browser.
- Acknowledgements: A brief sentence(s) in Times New Roman, 12 pt., regular.

PRESENTATION INFORMATION

Oral Presentations

Oral presentations will be organized into sessions of approximately ten related talks. Each talk is 15 minutes. Please note that the time available for your oral presentation includes 3 min. for questions and discussion, e.g., a 15 min. talk should be 12 min. actual presentation + 3 min. discussion. Your presentation must be prepared in a 4:3 dimension.

Each session room will be equipped with a computer with Powerpoint, a digital projector, a laser pointer, and lapel microphone. You will not be able to use your own computer and presentations need to be loaded ahead in a speaker-ready-room. If you wish to show a film as part of your presentation then it is better

in file format WMV (Window Media Video). Alternative files should be requested in advance under the presenter responsibility.

Poster Presentations

The size of the poster board will be announced later on the Congress website.

TO KEEP IN MIND

- Please note that your registration and abstract submission without payment of the registration fee will not be considered.
- Maximum extent size of the abstracts is 4000 characters with spaces.
- The title of the abstract and the name, post and email address of the corresponding author are to be entered into the fields when completing the submission form online. All correspondence regarding the abstract will be restricted to the corresponding author.
- Do not submit an abstract unless the first author is certain to attend the 19th ISC Meeting.
- Participants will be able to choose their preference (oral or poster mode) in the application form, but the Scientific Committee and the Session Chairs, based on space/time restrictions, will decide the definite mode of presentation.
- Please note that participants will only be permitted to deliver one oral and one poster presentation as first author (unless they are a plenary or invited keynote speaker), but they may be co-author of multiple presentations.
- Student submissions are encouraged to all themes.
- Authors will be notified of acceptance by May 21 2014.
- All accepted abstracts will be compiled and edited in pdf format. The electronic version of these abstracts and the final program will be available on the website.
- Oral and poster presentations will be scheduled in the final program.

LANGUAGE OF THE CONGRESS

English will be the official language of the meeting and no translation facilities will be available. Switzerland has three official languages: French, German and Italian, as well as a fourth language Romansh. French is the official language spoken in Geneva, but most citizens speak fluent English.

TRAVELLING INFORMATION AND ACCESS

Geneva's favored geographical position makes it a natural focal point for the international traveller. It has an international airport offering direct regular flights to many international destinations. SWISS is the exclusive official carrier of the Congress and special fares are offered. Please check the Congress website to see how to proceed to take profit of this advantage. Road and rail facilities radiate from Geneva to provide rapid access to the rest of Switzerland and Europe.

ACCOMMODATION

Geneva and its vicinity have over 10 000 rooms in more than 130 hotels. Many hotel rooms at different categories have been pre-booked for delegates in order to secure the best rates. Lodging in student housing are also available. Please check the meeting website since all bookings must be done through it in order to obtain the Congress rate discount. Notice that all delegates staying in a hotel in Geneva will receive with their registration fee a free ticket to use all public transportation of the city of Geneva, including buses, tramways and boats, for the entire duration of the Congress.

VISAS

EU citizens require only their national identity papers to travel to Switzerland. Citizens from most other countries will need a valid passport. However, they are encouraged to contact the

Swiss embassy or consulate in their countries to enquire about the necessity of a visa. Each delegate participating in excursions in neighboring countries should also consult the consulates of each of these countries.

LETTER OF INVITATION

Upon request, the organizers will be pleased to send a personal letter of invitation to enable participants to obtain supporting funds or visas to attend the Congress. These invitation letters cannot be considered an offer of financial support by the organizers and will be issued only after registration to the meeting.

TRAVEL GRANTS

IAS Grants

PhD students may apply for IAS travel grants that are available for subscribing IAS student members only, and on the condition that they will present an abstract at the Congress. For more details on how to apply for travel grants, please visit the IAS website : http://sedimentologists.org/

INSURANCE

All delegates are advised to take out their own private medical cover and personal insurance for the duration of the Congress and accompanying field excursions.

SOCIAL PROGRAM

Icebreaker Party

All delegates are kindly invited and encouraged to attend the Welcome Reception and icebreaker party on Sunday 17 August 2014 starting at 7:00 p.m. in the central hall of UniMail. Delegates will be able to register onsite starting at 5:00 p.m. and collect their Congress material. The cost of the icebreaker is included in the registration fee.

GALA DINNER

The official Congress Gala Dinner will be held at the Bâtiment des Forces Motrices de Genève, a historical building located in the heart of the city and at walk distance from most hotels in downtown Geneva. This event will feature dancing music and several surprises. The cost per person is 100 CHF. Space is limited, so be sure to purchase your Congress Dinner tickets on the on-line registration form. Do not miss it!

ACCOMPANYING PERSONS PROGRAM

Geneva city and surroundings offer a varied and exciting number of activities for accompanying persons. Please check the Congress and the Tourist Office of Geneva websites.

LOCAL BOARD

Chairperson: Daniel Ariztegui, Geneva
Honorary Chairpersons: Judith A. McKenzie, Zürich; Thierry Lombard, Geneva
Vice-Chairpersons: Peter Baumgartner, Lausanne; Helmut Weissert, Zürich
General Secretary: Rossana Martini, Geneva

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SECRETARIAT AND CORRESPONDENCE

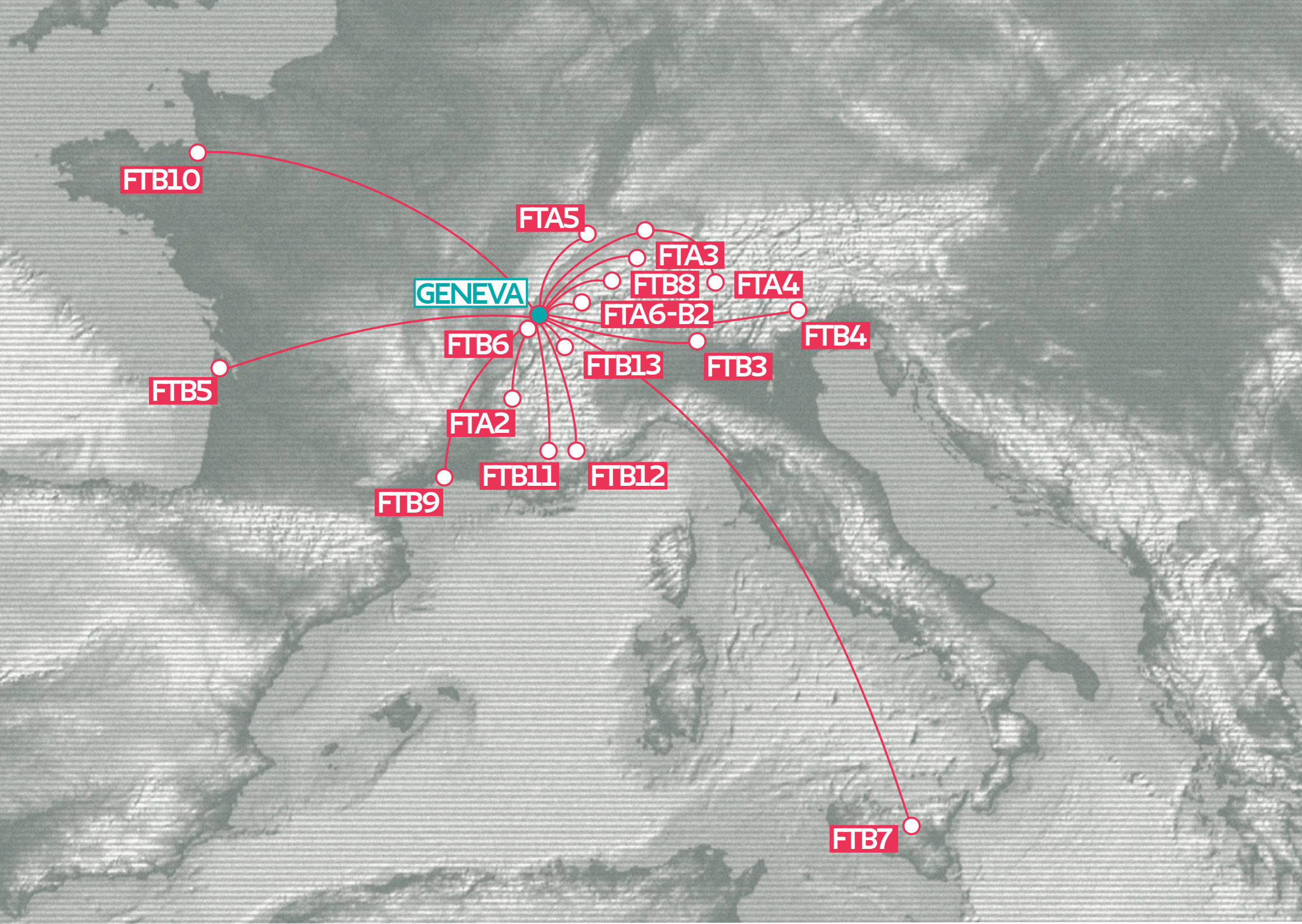
Address all correspondence dealing with
Registration and accommodation to:
Elisa Laget – Congress manager
ISC2014 Secretariat Office
SYMPORG SA
Rue Russeau 30, 1201 Geneva, Switzerland
e-mail: isc2014@symporg.ch
Phone/Fax: +41 22 839 84 84/+41 22 379 84 85
Scientific Program and Abstracts:
Elias Samankassou
e-mail: elias.samankassou@unige.ch

WAIVER OF LIABILITY

The Organizing Committee has taken reasonable care in making arrangements for the Congress and field excursions. The organizers do not accept any liability and cannot be held liable for any loss or injury sustained by delegates, or for any unforeseen changes to the Congress program. The Organizing Committee reserves the right to cancel any event(s), excursion or technical session due to insufficient participation or interest, or for any unforeseen reason.

CREDITS

Second Circular text: Organizing Committee Geneva 2014, University of Geneva and Symporg SA.
Design: Organizing Committee Geneva 2014, University of Geneva and www.l-artichaut.ch (jennifer@l-artichaut.ch)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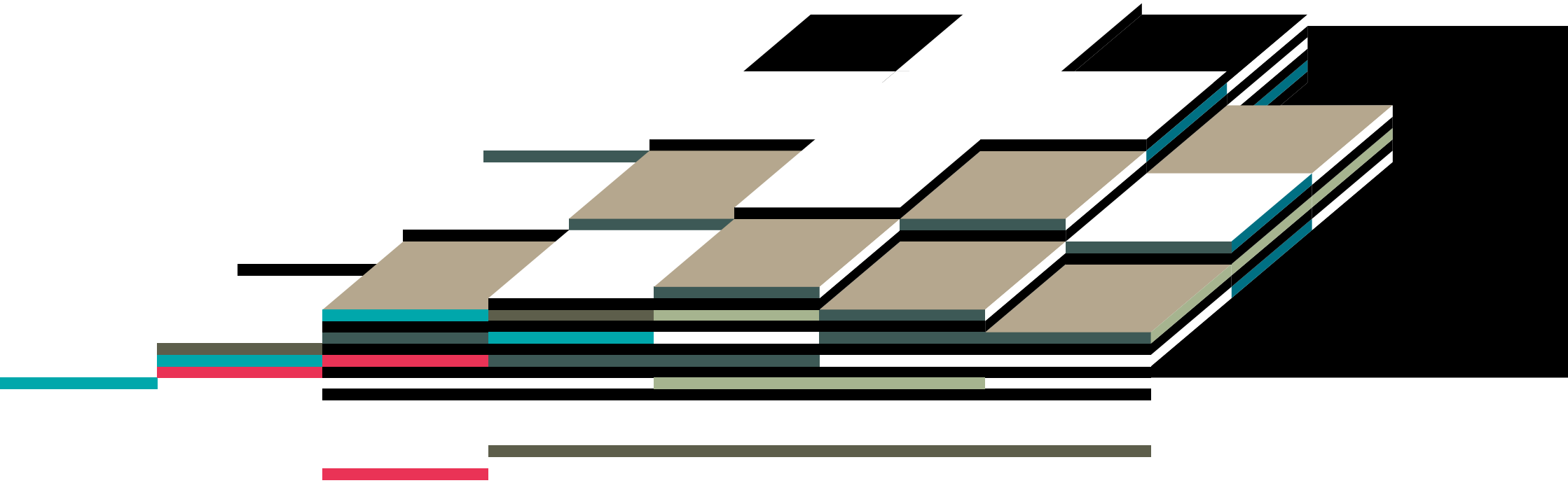

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Geneva Tourism & Conventions