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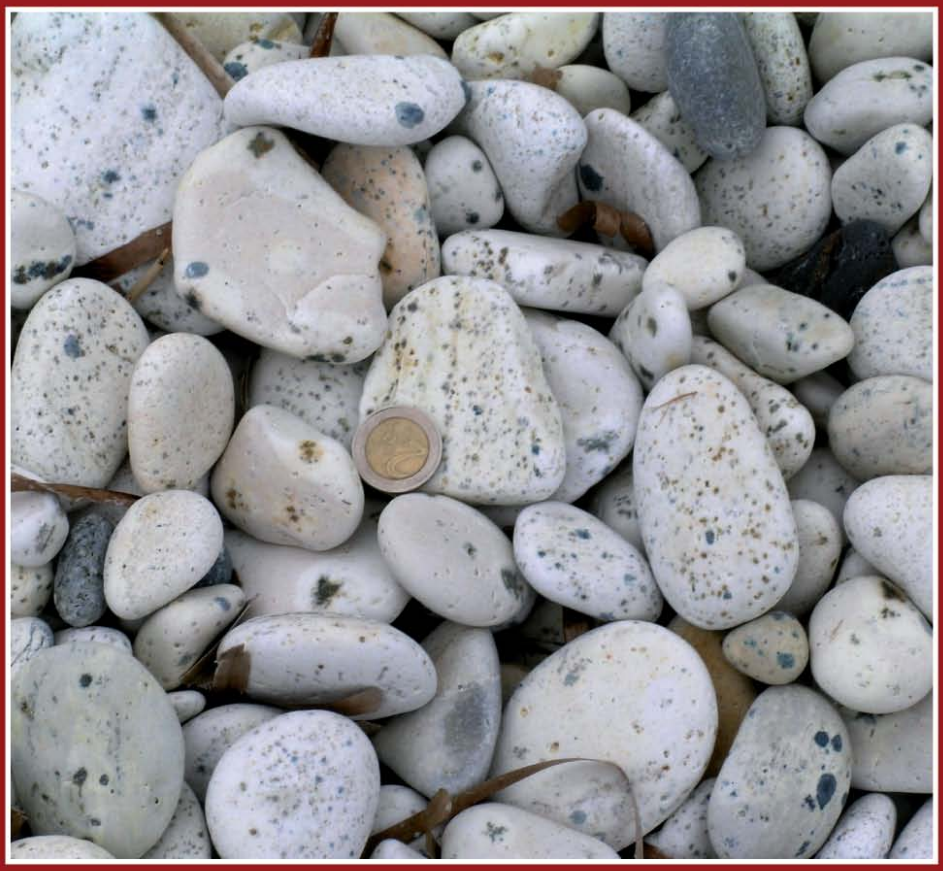

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EDITORIAL

Reports of the 11th Workshop of Alpine Geological Studies, 7th European Symposium on Fossil Algae (Austria), the 5th National Conference of Sedimentology-China, and the 1st School for Heavy Mineral Analysis are in the first part of Newsletter 249. PhD student Andrea Croci was awarded best poster during the Manchester IAS Meeting, held in September 2013. See the Student Corner for more information about Andrea and his work.

I would like to remind all IAS members that:

- the IAS Newsletter 249 is published on-line and is available at:http://www.sedimentologists.org/publications/newsletter
- the next IAS Meeting will be held in 2014 in Geneva (CH). For details, please check: http://www.sedimentologists.org/meetings/isc
- IAS will be present at the EGU Conference (April, 2014, Vienna - Austria); please visit: http://www.egu2014.eu
- IAS and Wiley are offering IAS Special Publications at a 50% discount; that is an additional 10% off of the normal membership discount.

The Electronic Newsletter (ENIAS), started in November 2011, continues to bring information to members. For info on ENIAS contact Nina Smeyers at nina.smeyers@ugent.be

Check the new Announcements and Calendar . Meetings and events shown in **CAPITAL LETTERS** and/or with * are fully or partially sponsored by IAS. For all of these meetings, IAS Student Member travel grants are available. Students can apply through the IAS web site. To receive the travel grant, potential candidates must present the abstract of the sedimentological research they will present at the conference. More info @ www.sedimentologists.org

Vincenzo Pascucci
(IAS General Secretary)

REPORT

11th Workshop of Alpine Geological Studies and of 7th European Symposium on Fossil Algae

9TH - 12TH SEPTEMBER 2013, SCHLADMING, AUSTRIA

AOrganizing a major EGU event on Alpine Tectonics requires a given name, one which should cumulate and represent excellence, originality and recognition. Among European geologists, one name is definitively linked with the history and building of this particular field of research: Emile Argand, a Swiss geologist who specialized in tectonics and mountain building processes. Based on his studies in the Alps and on global tectonics, he developed the concept of mobility. Much of Argand's work has been confirmed by modern plate tectonic theory, though the timing and mechanism proposed by his famous contemporary, Alfred Wegener, have been shown to be invalid.

The Alpine Workshop is held every two years to further interdisciplinary research on Alpine-type orogens. The 11th edition of the Alpine Workshop was parallel organized in parallel with the 7th symposium on Fossil Algae, both hosted in Schladming, Austria. A brief portrait of in brief about the venue: Schladming is located in the central area of the Eastern Alps, at the boundary of the Austroalpine basement units and the Upper Austroalpine cover units of the Northern Calcareous Alps, close to the Penninic and Subpenninic units within the Tauern Window, and directly on a major strike-slip fault documenting orogen-parallel escape tectonics. It is aA unique orogeny with a geological history which records mirrors the opening and closure of at least two oceanic domains: tThe Tethys and the Atlantic oceanic realms, with their classical margin evolutions inspiring palaeontological and geological studies worldwide.

For three days, Under the supervision of Walter Kurz (Graz University), Harald Fritz (Graz University), Kurt Krenn (Graz University), Hans-Jürgen Gawlick (Leoben University), Sigrid Missoni (Leoben University) and Ralf Schuster (Geological Survey of Austria) led, more than 120 scientists from 14 European countries (Austria, Bulgaria, Croatia, Czech Republic, France, Germany,

Hungary, Poland, Serbia, Slovakia, Slovenia, Switzerland, United Kingdom) in promoted on three days the discussion of new data and interpretations based on studies addressing the structural, tectonic, metamorphic and sedimentary evolution of the Alps and adjacent Mediterranean Alpine-type orogens in thean informal and friendly atmosphere of Congress-Schladming. Under the theme EGU Emile Argand Conference on Alpine Geological Studies the 11th Workshop on Alpine Geological Studies, the conference programme was comprised of 53 poster and 55 oral presentations distributed over 10 thematic sessions. The Session topics wereconcerned the tectonostratigraphy: Triassic-Neogene tectonostratigraphy in the Alpine Carpathian Dinaride realm; Tectonostratigraphy: The Alps-Apennine junction; Stratigraphy and facies; Metamorphic processes; Geomorphology and Llandscape evolution; Modelling and its application; Geophysics/seismics/ petrophysics, and Ggeoresources/ applied geosciences. Most sessions were introduced by the invited keynote lecturer for the session, including: : Miladinova, I. et al.,: Middle Triassic eclogite in the Rila Mountains (Rhodope Upper Allochthon, Bulgaria): A vestige of Palaeotethys subduction?; Manatschal, G. et al.,: The Alps/ Apennines boundary: Alternative

Figure 1. Participants of the field trip 'Southern Alps of Slovenia in a nutshell: Palaeogeography, tectonics and active deformation'. Field trip guide is explaining Jurassic stratigraphy of the Julian Alps; outcrop of the Lower Jurassic ooidal/peloidal limestones of the Julian Carbonate Platform in the Bohinj Range. (Photo: B. Celarc).

Figure 2. Curious participant's are very carefully listening very carefully to the interpretation ofabout the thrust tectonic configuration of the Julian Alps and enjoying beautiful views. Mt. Kobla, Bohinj Range. (Photo: B. Celarc)

models to explain the evolution of Alpine-type collisional orogens: The importance of rift inheritance;. Richoz, S. et al.,: News from the Upper Triassic in the Northern Calcareous Alps;. Tropper, P. et al.,: How good do simple experiments using natural rocks reproduce natural observations and theoretical calculations: Selected examples ranging from high-P to high-T settings (Austria);. Willingshofer, E. et al.,: Analogue modelling of continental subduction with laterally changing subduction polarity; and. Bokelmann, G. et al.: Large-scale deformation of the Eastern Alps from seismic anisotropy.

One of the most attractive points of the 11th Workshop on Alpine Geological Studies was the possibility opportunity to join several geological field trips. The final field trip programme included twofour pre-meeting and two post-meeting field trips, each a couple of days in duration. A pre-meeting field trip showed different aspects in the evolution of the easternmost part of the Southern Alps in Slovenia (Leaders: B. Celarc, M. Vrabec, B. Rozic, P. Kralj, P. Jamsek Rupnik, T. Kolar-Jurkovsek, L. Gale, A. Smuc). Another pre-meeting field trip visited the structure of the Austroalpine nappes northeast of the Tauern (Leaders: W. Kurz, H. Fritz). 'Cross section from the Austroalpine nappes to the Penninic and Subpenninic nappes of the Tauern Window' was the topic of a post-meeting field trip, on which

Figure 3. Participants of the field trip 'Structural evolution of the Silvretta-Seckau nappe system in the area of the Schladminger Tauern'. (Photo: W. Kurz)

Figure 4. Participants of the field trip 'Cross section from the Austroalpine nappes to the Penninic and Subpenninic nappes of the Tauern Window'. (Photo: W. Kurz)

Figure 5. Exposure at 47°16'24.00"N; 13°35'13.20"E, showing the angular discordance between the pre-Alpine basement (right) and the Permian to Triassic cover (left). The basement at this site is mainly comprised mainly ofs various paragneisses with distinct layers of amphibolite. The cover at the contact is compriseds of quartzite and quartz phyllite. Due to the angular disconformity, the penetrative foliation within the basement is assumed to be of pre-Alpine origin. This pre-Alpine foliation is subhorizontally layered in the area of exposure; the foliation within the cover is dipping towards southeast. (Photo: W. Kurz).

participants visited in visiting several locations of the Austroalpine nappes east of the Tauern Window, and the structures of Penninic and Subpenninic nappes within the Tauern Window (Leaders: M. Handy, R. Schuster, W. Kurz, H. Fritz). The post-meeting field trip 'Triassic to Early Cretaceous geodynamic history of the central Northern Calcareous Alps (Northwestern Tethyan realm)' examined in sedimentary successions ranging from Triassic rifting/drifting to Jurassic collision/accretion (Leaders: H.J. Gawlick, S. Missoni).

In the framework of the 7th Europaean Symposium on Fossil Algae, and under the guidance of Hans-Jürgen Gawlick (Leoben University), Sigrid Missoni (Leoben University) and Felix Schlagintweit (Munich), some 14 geologists, sedimentologists and palaeontologists of from 7 countries gathered for one day of presentations and posters. Participants also had the opportunity to join an exciting field trip to the Lake Gosausee in the Salzkammergut region; a Late Triassic prograding reef belt and classical locality of reef framework situated in the glorious scenery of the idyllic mountain lake, surrounded by the impressive Dachstein glacier. As is often the case, a relatively compact

Figure 6. Participants of the field trip 'Triassic to Early Cretaceous shallow-water carbonates in the central Northern Calcareous Alps (Northwestern Tethyan realm)'. (Photo: B. Saberzadeh)

number of participants, most of whom are were already known to each other from previously symposia, ensured a most pleasant and informal atmosphere; ideal not only for the scheduled scientific communications, but also for the exchange of opinions and for lively debates. The 7th Symposium on Fossil Algae was structured in 10 oral and 6 poster presentations, distributed over two thematic sessions, which wereeach dealing with new achievements in calcareous algae and microbial

Figure 7. Participants of the Lake Gosausee field trip at the end of a wonderful day. (Photo: S. Missoni)

Figure 8: At the south-eastern slope of Mt. Hochstein participants and the field trip guide of the field trip 'Lower to Middle Devonian algal limestones of the Graz Palaeozoic' started an intense discussion about an Emsian lanciculoid alga. (Photo: F. Messner)

carbonates. The invited keynote lecturers, Bucur, I.I.: Mesozoic dasycladalean algae from Romanian Carpathians: Diversity, environment and palaeogeographic context; and Riding, R.: Stromatolites in reefs past and present, both invited keynote lecturer gave new insights into important topics facing the modern biostratigraphy.

Also, tThe 7th Symposium on Fossil Algae were was also preceded and followed by field excursions. 'Triassic to Early Cretaceous shallow-water carbonates in the central Northern Calcareous Alps (Northwestern Tethyan realm)' was the topic of theis multiple-day in duration pre-symposia field trip (Leaders: H.J. Gawlick, F. Schlagintweit, S. Missoni, R. Lein). The post-symposia field trip to the 'Lower to Middle Devonian algal limestones of the Graz Palaeozoic' was guided by B. Hubmann and F. Messner.

The social programme of the Alpine Workshop and Algae Symposia started ion the evening of the 9th September with the Icebreaker Party. OIn the evening of the 11th of September, around 80 participants attended the conference dinner, which was served in one of the Sporthotel Royer restaurants. Participants enjoyedwere amused by delicious Austrian dishes and wonderful Austrian the atmosphere... In the late afternoon of the 12th September, we had to place emphasis on the public lecture of Kurt Stüwe (Graz University) presented the public lecture: Die Geologie der Alpen aus der Luft, which was followed viewed by a verylarge interested in the audience.

The feedback we received on the 11th Workshop on Alpine Geological Studies and the 7th Symposium on

Fossil Algae has been overwhelmingly positive and we thank everyone involved in the parallel organized conference - participants, field trip guides, student volunteers, sponsors, the convention staff of Congress-Schladming, Kulinarwerk, Sporthotel Royer, Schladming-Rohrmoos Tourist Office and the people of Schladming - for making this meeting to such a wonderful experience for all, both scientifically and socially.

The Abstract Volume and Field trip Guidebook can be downloaded from the following website of the Austrian Geological Survey: http://www.geologie.ac.at/produkte-shop/detail/?id=1674&tseo=nr._99

Walter Kurz (University of Graz),
Hans-Jürgen Gawlick
(Montanuniversitaet Leoben),
Sigrid Missoni
(Montanuniversitaet Leoben),
Ralf Schuster
(Geological Survey of Austria)

REPORT

The 5th National Conference of Sedimentology

16-20 OCTOBER, 2013, HANGZHOU, P. R. CHINA

Following the last national conference of sedimentology in Qingdao, Shandong, China in 2009, the 5th National Conference of Sedimentology was held on 16-20 October, 2013 in Hangzhou, the capital of the Zhejiang Province, which is one of the most modern and prosperous cities in Eastern China.

Under the organization of the Commission on Sedimentary Geology, Geological Society of China; Commission on Sedimentology, Chinese Society of Mineralogy, Petrology and Geochemistry; and Commission on Petroleum Geology, Chinese Society of Petroleum; 1079 academics and students from universities, experts from three major oil companies (CNPC, SINOPEC and CNOOC), sedimentologists from China Geological Survey(CGS) and managers and researchers from R&D organizations, including invited IAS representatives from the Netherlands, Belgium, Switzerland, and Austria, gathered for three days to participate in a broad interdisciplinary scientific program and an exciting range of post-conference field trips.

Under the theme *Sedimentology Innovation and Energy Resources,* 380 oral and 71 poster presentations were scheduled for the 5th National Conference of Sedimentology. Distributed over 13 thematic sessions, topics covered new achievements in: 1) clastics depositional systems and sequence stratigraphy; 2) carbonate rocks and evaporites; 3) sedimentary geology and tectonics; 4) basin analysis and modelling; 5) palaeontology and sedimentology; 6) sedimentary petrography, mineralogy and sedimentary geochemistry; 7) marine geology and sedimentology; 8) environments and applied sedimentology; 9) palaeoclimatology, paleogeography and palaeo-oceanography; 10) reservoirs and conventional petroleum resources; 11) sedimentology and unconventional petroleum resources; 12) sedimentology and other resources, and 13) advances in technology and methodology. More than 70 keynote lectures were given in the total 13 themes, which represent the latest developments and achievements in the sedimentological domain in China.

Figure 1. Participants at the opening ceremony in the plenary lecture hall.

On the morning of 17 October, the Opening Ceremony started with a documentary video «Oil Industry and Sedimentology in China». The video vividly showed that sedimentological research plays a key role in the development of the oil industry in China, and was followed by addresses from Zhao Wenzhi, the Director of the Research Institute of Petroleum Exploration and Development, CNPC; and Liu Baojun, the Chairman of the Academic Committee, Academician of the Chinese Academy of Sciences. Twelve convention rooms equipped with modern conference technology at the Taixuhu Holiday Hotel and the Oriental Hotel guaranteed the successful combination of parallel oral presentation sessions on some days and poster presentations on other days.

Other highlights of the Hangzhou conference included invited plenary lectures on the morning of 17 October and the afternoon of 19 October. Leading geoscientists gave their in-depth understanding and insight into the scientific frontier of sedimentology. Plenary lecturers and topics were: Sun Longde (CNPC), *Global oil & gas E&D practice and sedimentological research advances*; Poppe de Boer (Utrecht University, the Netherlands), *Variations of the ocean tide on decadal and on Milankovitch time scales and their impact on sedimentary systems*; Ma Yongsheng (CNPC), *Carbonate reservoirs sedimentology advancement and discussion on the hotspot issues;* Wang Chengshan (China University of Geosciences, Beijing), *Palaeoclimate change records of the depositonal processes in both East Asian lakes and North American inland seas during the Late Cretaceous*; Yin Hongfu (China University of Geosciences, Wuhan), *Geobiology – a new interdisciplinary field of sedimentology*; Judith A.

Figure 2. The keynote talk in session 3 was given by Sigrid Missoni, on the Carnian-Norian tectonics and seawater from the Western Carpathians, Neotethys realm.

McKenzie (ETH Zurich, Switzerland), *Microbial dolomite formation in modern hypersaline environments: Implications for ancient micritic dolomite reservoirs*; Zhu Weilin (China National Offshore Oil Corporation), *Two sedimentary systems and deep-water hydrocarbons in northern South China Sea; Zou Caineng (Research Institute of Petroleum Exploration and Development)*, and Wang Qingchen (Institute of Geology and Geophysics, Chinese Academy of Sciences), *Unconventional oil & gas development and sedimentary reservoir innovation, and erosional process and depositional record of orogenic belt uplift.*

At the end of the Hangzhou conference, after review by the Commission on Sedimentary Geology, Geological Society of China, 15 papers and 5 posters received awards for outstanding youth papers and best posters, respectively. As a reward, IAS will provide a one-year membership to the awarded candidates.

One of the most attractive parts of the 5th National Conference was the opportunity to participate in the post-conference geological field trips. The final program included four post-conference field trips,each lasting two or three days. Two field trips covered the marine depositional systems of ancient and modern times (Leaders: Luo Ping and Lu Fuliang). One field trip examined an ancient fluvial delta (Leader: Zhang Huiliang), and another trip showed ancient landforms and volcanics (Leader: Chen Nenggui).

On behalf of the organizers of the 5th National Conference of Sedimentology, we are pleased to acknowledge the sponsorship and support provided by our sponsors: the China National Petroleum Corporation

Figure 3. Academicians of the Chinese Academy of Sciences, Baojun Liu and Shu Sun, awarded outstanding youth paper winners to ten young sedimentologists. One of the winners was IAS-sponsored PhD student JianQiang Xu (in blue).

(CNPC); China Petroleum and Chemical Corporation (SINOPEC); China National Offshore Oil Corporation (CNOOC); China Geological Survey(Chengdu Institute of Geology and Mineral Resources); Division of Earth Sciences; National Natural Science Foundation of China; and International Association of Sedimentologists (IAS).

Figure 4. Participants of the field trip 'marine depositional systems of modern times'.

The Hangzhou conference was a great success both scientifically and organizationally. The feedback we received on the 5th National Conference of Sedimentology has been overwhelmingly positive and we thank everyone involved in the conference - participants, field trip guides, student volunteers, exhibitors, sponsors, the convention staff of Taixuhu Holiday Hotel and Oriental Hotel and the people of Hangzhou - for making this meeting such a wonderful experience for all.

Lastly, the IAS National Correspondent from China would like to extend sincere thanks to Sigrid Missoni (Leoben University, Austria) for her many suggestions and assistance with this report, and thanks to Zhou Xiaolin (Chengdu Institute of Geology and Mineral Resources, P. R. China), Wu Songtao (Research Institute of Petroleum Exploration and Development, P. R. China), and Wei Min, Tang Pengcheng (PetroChina Research Institute of Geology, P. R. China), who provided information and photos.

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REPORT

The 1st School for Heavy Mineral Analysis

Between May 7th and 10th 2013 the 1st School for Heavy Mineral Analysis took place in Milan at the Department of Earth and Environmental Sciences, University of Milan Bicocca. The event was dedicated to the recently deceased Maria Mange, the pioneer of modern heavy minerals research. The great interest for the topic was shown by the massive attendance of 30 PhD students, 2 from industry, representing Belgium, England, France, Germany,

Persons

30 Attendants
10 Crew
10 invited speakers
6 sponsors

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Università di Padova	Italy	Padua
Università degli Studi di Pavia	Italy	Pavia
Université Libre de Bruxelles	Belgium	Bruxelles
Department Geology & Soil Science	Belgium	Ghent
Lancaster Environment Centre (LEC)	England	Lancaster
Department of Earth Sciences	England	London
Royal Holloway University	England	London
University of Göttingen	Germany	Gottingen
University College Dublin	Ireland	Dublin
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University of Stockolm	Sweden	Stockholm
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Eidgenössische Technische Hochschule	Swiss	Zürich

University - Overseas countries

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Institute of Geology and Geophysics	China	Beijing
School of Earth Sciences and Engineering	China	Nanjing
University of Ferdowsi	Iran	Mashhad
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The University of Texas	USA	Austin
Cornell University	USA	Syracuse
Ankara University	Turkey	Ankara
The University of Hong Kong	China	Hong Kong

Industry

Saint Gobain	France	Paris
Institute of Petroleum Geology and Geophysics	Russia	Novosibirsk
BP Exploration Operating Company Ltd	England	London
Chemostrat International Ltd	Wales	Welshpool

Ireland, Italy, Spain, Sweden, Switzerland, China, Iran, Perù, Russia and USA. The goal of the school was to provide the knowledge and methods needed to tackle critical problems occurring in Provenance Studies, such as sampling strategy, hydraulic sorting, chemical weathering and diagenesis, through the analyses of both theoretical and real case studies. Furthermore, students were trained to extrapolate information hidden in detrital sediments through the quantitative recognition of mineral assemblages. A special emphasis was given to Raman spectroscopy and its newest application, the identification of minerals as both single grains and in thin section. It was shown how this new technique can contribute to obtaining a more precise characterization of mineral internal chemical variability and thus, enhancing the provenance signals. The Keynote speakers, John Dewey, Andy Morton, Hilmar von Eynatten, Pieter Vermeesch, Danilo Bersani, Udo Zimmermann, Inga Sevastjanova and Omma Jenny, contributed passion and experience to our journey between heavy minerals and the Earth's sedimentary archive. Last but not least, the school was made possible thanks to the economic and logistical support of IAS. IAS provided support which permitted the participation of 12 students. Many thanks to students and to IAS for making this extraordinary adventure possible.

The organizers
Sergio Andò
Eduardo Garzanti
Department of Earth and Environmental Sciences, University of Milan Bicocca, Italy.

Luca Caracciolo (IAS National Correspondent for Italy)
Earth Science Department, University of Calabria, Italy.

STUDENT CORNER

Andrea Croci received the award for the best poster presentation during the IAS Meeting held in Manchester during September 2013. We are pleased to present a brief summary of his CV, the poster abstract and the pdf of the poster.

Andrea Croci CV

Andrea Croci is a first year PhD student at the Earth Sciences Department, University of Milan. The PhD research project, developed under the supervision of Dr. Giovanna Della Porta and Dr. Enrico Capezzuoli, focuses on the facies character and spatial distribution of non-marine carbonate deposits precipitated by hydrothermal water and in lacustrine settings. The investigated deposits are located in Southern Tuscany and will be compared with hydrothermal travertine from other localities in Central Italy to establish a link between carbonate fabrics, depositional architecture and geometry and abiogenic vs. biogenic processes of carbonate precipitation.

Figure. 1 Andrea Croci receiving the award from the IAS President Poppe de Boer.

Abstract

Depositional geometry and facies of hydrothermal lacustrine travertine in a fault-controlled extensional basin (Miocene, Southern Tuscany, Central Italy)

Croci, A.[1], Della Porta, G.[1] and Capezzuoli, E.[2]

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The extensional Neogene Albegna Basin (Southern Tuscany, Italy) includes several hydrothermal travertine units of Pliocene to Holocene age. During the late Miocene (Messinian), a fault-controlled basin (nearly 4 km wide) was filled by precipitated carbonate and detrital siliciclastic strata, nearly 150 m thick. This continental carbonate succession was investigated to define its geometry, lithofacies types, and depositional environments, and to characterize the variety of precipitated carbonate fabrics.

The mixed carbonate-siliciclastic unit has a wedge-shaped geometry thinning northward. Carbonates are in centimetres to a few decimetres thick beds and include six facies types: 1) peloidal skeletal packstone/grainstone to rudstone/floatstone, containing gastropods, ostracodes and coated algae, which characterize the basal strata of the wedge-shaped carbonate unit; 2) crystalline dendrite and crystal fan cementstone, precipitated from spring-derived hydrothermal water, while flowing and degassing CO_2; 3) clotted peloidal micrite and microsparite boundstone, forming irregular framework to centimetre-thick dendrites, of possible microbially mediated precipitation; 4) beds of paper-thin rafts, which are flat horizontal carbonate structures precipitated in standing hydrothermal water pools at the water-air interface, cemented by prismatic calcite. Raft rudstones are often interlayered with: 5) coated bubble boundstone, consisting of sub-spherical or elongated micritic coatings around porous structures a few millimetres in diameter; and 6) coated reed boundstone, which consists of carbonate precipitated around phytoclastic reeds.

Four depositional units are identified in the mixed siliciclastic-carbonate succession. Unit 1, at the base, represents a travertine terraced slope, which laterally passed into a distal pond. The terraced travertines are characterized by crystalline dendrite and crystal fan cementstone. Unit 2 is characterized by metre to decametre-thick beds of breccias, pinching out northward, alternating with metre to decimetre-thick travertine beds and lenses. These lenses present many layers of coated bubbles and rafts deposited in shallow travertine ponds. The breccia beds, interpreted as alluvial fan deposits, have clasts derived from the Southern outcrops of Mesozoic substrate rocks deformed and uplifted during the Apennine orogenic phase. Unit 3 includes an association of siltstones, sandstones and conglomerates; the occurrences of a channel-shaped geometry in the southern part of the outcrop and silty clay layered beds in the northern part, suggest the interpretation of a fluvial system and adjacent alluvial plain deposits. The top of Unit 4 is characterized by a renewed deposition of travertine, rich in coated reed boundstone.

Deposition within this shallow lake, fed by intermittent

Depositional geometry and facies of hydrothermal lacustrine travertine in a fault-controlled extensional basin (Miocene, Southern Tuscany, Central Italy)

Croci Andrea1, Della Porta Giovanna1 and Capezzuoli Enrico 2

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2Department of Physics, Earth and Environmental Sciences, Siena University, 53100 Siena, Italy

1. Introduction

Travertines are limestones precipitated by hot (> 20°C) ground waters, rich in calcium and bicarbonate, emerging from tectonically controlled hydrothermal vents and outgassing CO_2. Travertine precipitation is suggested to be driven by both abiotic physico-chemical processes (CO_2 degassing, water evaporation) and biogenic microbially mediated processes.

The Marsiliana Quarry (Tuscany, Central Italy) mixed travertine carbonate-siliciclastic unit has a wedge-shape thinning northward. This continental carbonate succession was investigated to define its geometry, lithofacies types, depositional environments, and to characterize the variety of precipitated carbonate fabrics.

2. Geological Setting

Fig. 2-A)The extensional Neogene Albegna Basin is located in Southern Tuscany, Italy. B) It is oriented in a SW-NE direction and the substrate is filled by Miocene to Pleistocene deposits, including several travertine units (geological map redrafted after Carmignani and Lazzarotto, 2004) . C) Geological map (redrafted after Pertusati et al., 2004) shows the Messinian travertine of Marsiliana. Normal faults controlled the evolution of the basin.

3. Sedimentary Units

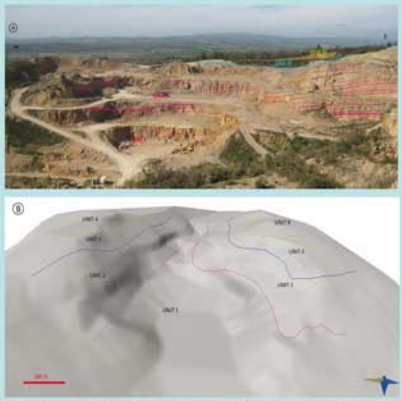


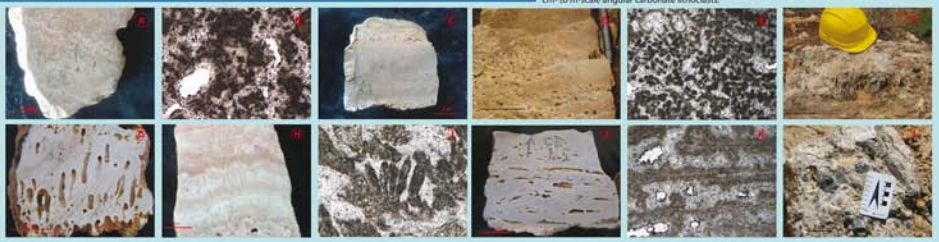
Fig. 3-A) The sedimentary succession is subdivided in 4 units, characterized by different lithofacies B) The 3D sketch of the quarry, modeled using Midland Valley's Move 2012, shows the structure of the whole quarry. Unit 1(30 m thick), 2 (30 m thick) and 4 (20 m thick) thick are characterized by metre to decametre alternation of precipitated travertine and lithoclastic breccias. Unit 3 (15 m thick) consists of an alternation of conglomerate, sandstone and shale layers.

4. Depositional Environments

Fig. 4-A) Unit I travertine deposits are characterized by decimetre-high pool walls and waterfalls, B) dm-size mounds and C) subhorizontal layers of ponds depositional environment with coated gas bubbles. D) The travertines of Unit II are tipically of a pond environment with coated bubbles and clotted peloidal micrite alternating with breccia beds up to 10 m thick. E) Unit III is consists of a cyclic deposition of conglomerates, sandstones and shales, with channel-shape geometry. F) Unit IV is characterized by a renewed deposition of travertine in a shallow pond with abundant carbonate encrustation of vegetation with frequent subaerial exposures marked by paleosols.

5. Fabric Types

Different fabrics types (Fig.5) representative of hydrothermal travertine and shallow lacustrine/palustrine environments: A) Clotted peloidal micrite (CPM) boundstone with irregular framework; B) CPM forms dark irregular lumps; C) micrite and microsparite are precipitated associated with D) bioclastic (gastropods and ostracods) and E) peloidal packstone/grainstone, representing freshwater lacustrine facies; F) coated reeds boundstone indicative of shallow ponds where vegetation stems were encrusted; G) coated bubble boundstone, typical of travertines; H) In fast-flowing thermal water setting, crystalline fans and dendrites are precipitated; I) crystalline dendrites fan in thin section; J) paper-thin raft rudstone typical of travertine ponds; K) rafts in thin section; L) breccias of cm- to *m*-scale angular carbonate lithoclasts.



6. Interpretation and Conclusions

The studied continental rift basin succession includes typical hydrothermal travertine precipitated carbonates such as coated bubble, reeds, raft and crystalline dendrites, and lacustrine facies, as grainstone/packstone and clotted peloidal boundstone. Carbonate deposition was promoted by the richness in Ca2+ and bicarbonate of the water and the occurence of microbial biofilms. The Marsiliana decametre-scale basin, controlled by extensional faults, was characterized by the intermittent deposition of hydrothermal travertine, freshwater lacustrine to palustrine facies and detrital alluvial fans. It was controlled both by extensional tectonics, which created the accommodation space and influenced the flow of hydrothermal water, and climate, which controlled the amount of atmospheric precipitation, favouring the establishment of freshwater ponds and the deposition of alluvial fans.

This study demonstrates the complex lithofacies variety and depositional architecture of a continental rift basin characterized by the superposition of siliciclastics, freshwater and hydrothermal travertine deposition in function of tectonic activity, climate, water chemistry and microbial activity.

7. Acknowlegements

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hydrothermal water and freshwater, was controlled by two main external factors, tectonics and climate: 1) two extensional faults, located south of the carbonate wedge, were responsible for creating the accommodation space above the hanging wall and for providing the source of the debris, which was derived from the erosion of the uplifted footwall block; and 2) the Messinian arid climate with occasional sheet-floods promoted the formation of detrital alluvial fans. Internal controlling factors that promoted the travertine precipitation, were: 1) the chemistry of the hydrothermal water, rich of Ca^{2+} and bicarbonate, issuing on the surface through the fault systems; and 2) the presence of microbial biofilms that could influence carbonate precipitation.

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The application should be concise and informative, and contains the following information (limit your application to 1250 words max.):

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Your research proposal must be submitted via the Postgraduate Grant Scheme application form on the IAS website before the application deadline. The form contains additional assistance details for completing the request. Please read carefully all instructions before completing and submitting your application. Prepare your application in 'Word' and use 'Word count' before pasting your application in the appropriate fields.

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Please make sure to adequately answer all questions.

Deadlines and notifications

Application deadlines:
1st session: March, 31
2nd session: September, 30
Recipient notification:
Before June, 30
Before December, 31

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The letter from the supervisor should provide an evaluation of the capability of the student to carry out the proposed research, the significance and necessity of the research, and reasonableness of the budget request. The letter must be sent directly to the Treasurer of the IAS by e-mail before the application deadline.

Application Form

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Title: .....
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Introduce briefly the subject of your PhD and provide relevant background information; summarise previous work by you or others (provide max. 5 relevant references, to be detailed in the 'Bibliography' field). Provide the context for your PhD study in terms of geography, geology, and/or scientific discipline.
Proposal (max. 250 words): ...
Describe clearly your research

proposal and indicate in what way your proposal will contribute to the successful achievement of your PhD. Your application should have a clearly written hypothesis or a well-explained research problem of geologic significance. It should explain why it is important. Simply collecting data without an objective is not considered wise use of resources.

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Outline the research strategy (methods) that you plan to use to solve the problem in the field and/or in the laboratory. Please include information on data collection, data analyses, and data interpretation. Justify why you need to undertake this research.

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Provide a list of 5 key publications that are relevant to your proposed research, listed in your 'Introduction'. The list should show that you have done adequate background research on your project and are assured that your methodology is solid and the project has not been done already. Limit your bibliography to the essential references. Each publication should be preceded by a '*'-character (e.g. *Surlyk et al., Sedimentology 42, 323-354, 1995).

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Provide a brief summary of the total cost of the research. Clearly indicate the amount (in Euro) being requested. State specifically what the IAS grant funds will be used for. Please list only expenses to be covered by the IAS grant.

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Curriculum Vitae (max. 250 words)

Name, postal address, e-mail address, university education (degrees & dates), work experience, awards and scholarships (max. 5, considered to be representative), independent research projects, citations of your abstracts and publications (max. 5, considered to be representative).

Advise of Supervisor and Head of Guest Department/Laboratory

When you apply for a grant, your PhD supervisor will receive an automated e-mail with a request to send the IAS a letter of recommendation by e-mail. You should, however, check with your supervisor everything is carried out the way it should be. It will be considered as a plus for your application if your PhD supervisor is also a member of IAS.

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of Department/Laboratory of your guest lab to assure its assistance during your visit. You should fill in his/her name and e-mail address to solicit his/her advise about your visit.

Name of Head of guest Department/Laboratory: .....

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- is your supervisor a member of IAS
- was this application your own initiative
- did you discuss your application with your Supervisor
- did you already had contact in the past with the Head of the Guest Department/Laboratory (if appropriate)

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CALENDAR

Mid-Mesozoic: The Age of Dinosaurs in Transition

30th April – 5th May 2014
Fruita, Colorado & Green River, Uta (USA)

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http://www.utahpaleo.org/mid-mesozoic-conference.html

Central European Meeting of Sedimentary Geology*

9th-13th June 2014
Olomouc, Czech Republic

Ondrej Babék
babek@prfnw.upol.cz
www.sedgeol.upol.cz

Sedimentary Provenance Analysis (SPA) Short Course*

23rd-25th June 2014
Gottingen Germany

Guido Meihold
guido.meinhold@geo.uni-goettingen.de

19th International Sedimentological Congress*

18th -24th August 2014
Geneva, Switzerland

Daniel Ariztegui
Daniel.Ariztegui@unge.ch,
http://www.sedimentologists.org/meetings/isc

XIV Argentinian Meeting of Sedimentology (RAS)*

1st-5th September 2014
Puerto Madryn (Patagonia)
Argentina

J. Marcelo Krause
mkrause@mef.org.ar
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Geological Society of Italy*

10th-12th September 2014
Milano
Italy

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2nd Deep-Water Circulation Conference*

10th-12th September 2014
Ghent
Belgium

David Van Rooij
david.vanrooij@ugent.be
www.2DWC.ugent.be.

6th International Symposium on Lithographic Limestone and Plattenkalk*

15th-19th September 2014
Museo del Desierto,
Saltillo,
Mexico

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Interim Colloquium of the Regional Committee of Neogene Stratigraphy (RCMNS)

25th-28th September 2014
Torino
Italy

Francesco De La Pierre
Francesco.delapierre@unito.it
www.rcmns-turin2014.weebly.com

4th International Palaeontological Congress (Mendoza, Argentina)*

28th September-3rd October 2014
Mendoza
Argentina,

Cecilia Benavente
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www.ipc4mendoza2014.org.ar

5th International MAAR Conference*

17th -21st November 2014
Querétaro
Mexico

Gerardo Carrasco Nuñez
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