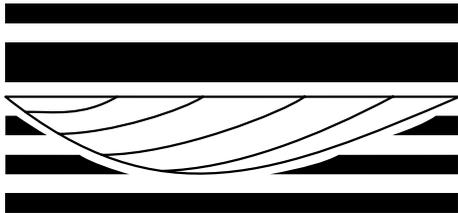


IAS



INTERNATIONAL ASSOCIATION
OF SEDIMENTOLOGISTS

NEWSLETTER

N° 186

June 2003

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EDITORIAL

This issue of the IAS Newsletter contains a novelty: a section entitled SUPER SEDIMENTOLOGICAL EXPOSURES. The aim of the section is to open a series of short articles dealing with localities throughout the world where sedimentologists can observe outcrops showing features of major sedimentological interest. Under the scope of the new section, IAS members will receive periodically, three times a year (to start), suggestions on selected places to visit and a summary description of the features to observe.

The first issue of the SUPER SEDIMENTOLOGICAL EXPOSURES section is devoted to shallow marine deposits of late Miocene age in the Sorbas Basin, SE Spain. Maybe, someone could think that the selection of the locality is constrained by my nationality but I have to say that he (or she) is wrong. In fact the described area is one of the basins which are shown in the first volume of the Field Guide series edited by the International Association of Sedimentologists (A.E. Mather et al., 2001, A Field Guide to the Neogene Sedimentary Basins of the Almería Province, South-East Spain), which is a guaranty of the scientific interest and excellent quality of the exposures shown in the first issue of the new section.

The example presented in the Newsletter will be followed by other case

studies coming from different regions in the world (North America, South Africa, ... and as many locations as relevant contributions will be received). The section is open to all IAS members who wish to provide beautiful and interesting exposures that contribute to increase sedimentological knowledge.

The printed version of the IAS Newsletter includes articles of 3-4 pages in length. Figures are limited to a few line drawings with general geographic and geological information of the area and just one photograph of the outcrops described in the article. It is important to notice that this limitation does not affect the electronic version of the Newsletter, which will include many more outcrop photographs (8-10) in order to show properly a large number of the nice exposures. The enlarged version of the articles will be shown in the electronic version of the Newsletter at the IAS-Homepage (<http://www.blackwellpublishing.com/uk/society/ias>).

I hope that the new section of the Newsletter will be attractive and useful to our society. From the IAS Secretary, I encourage members to contribute and maintain the section in good shape.

José-Pedro Calvo
IAS General Secretary

SUPERSEDIMENTOLOGICAL EXPOSURES

LATE MIOCENE, SHALLOW MARINE DEPOSITS OF THE SORBAS BASIN, ALMERIA SPAIN

Around Sorbas (Almería, SE Spain), in an area within 10 km distance from the village centre, some exceptionally preserved outcrops of shallow-marine temperate and tropical carbonates, evaporites and siliciclastic deposits can be found. All of them can be easily reached either by car or after a short walk.

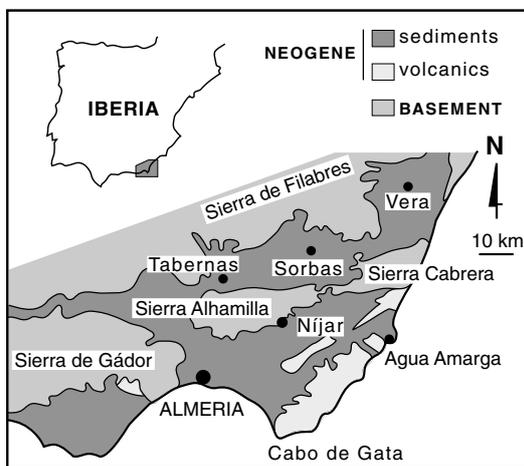


Figure 1.- Geographical and geological location of the Sorbas basin.

The Sorbas basin is a narrow, east-west elongate, intramontane basin of Neogene age within the Betic Cordillera. It is bounded by the metamorphic basement reliefs of Sierra de los Filabres to the north and the Sierra Alhamilla and Cabrera to the south (Fig. 1).

The Neogene infill of the basin comprises a series of units separated by unconformities (Fig. 2). The lowermost unit consists of Serravalian (?) (Middle Miocene) conglomerates and sands. The overlying upper Tortonian (Upper Miocene) unit is made up of mixed siliciclastic-carbonate platform deposits and siliciclastic submarine fan deposits. The Messinian sequence, in turn, consists

of six units:

1 A temperate carbonate unit, composed of bioclastic calcarenites, locally mixed with siliciclastics, with abundant bryozoans, bivalves, coralline algae and benthic Foraminifera. These platform deposits grade upwards and laterally into marls. The Tortonian-Messinian boundary is recorded in the centre of the basin near the base of the marls.

2 A bioherm unit (tropical), with coral patch reefs and *Halimeda* mounds, changing basinwards to marls and diatomites.

3 A prograding fringing-reef unit (tropical), composed of *Porites* corals encrusted by stromatolites, changing basinwards to marls and diatomites.

4 A gypsum (evaporite) unit. The selenite-gypsum deposits, up to 120 m thick, onlap the eroded reef slopes, occurring as banks (up to 20 m thick) separated by thin (up to 3 m thick) silt-marl interbeds. Sulphur and strotium

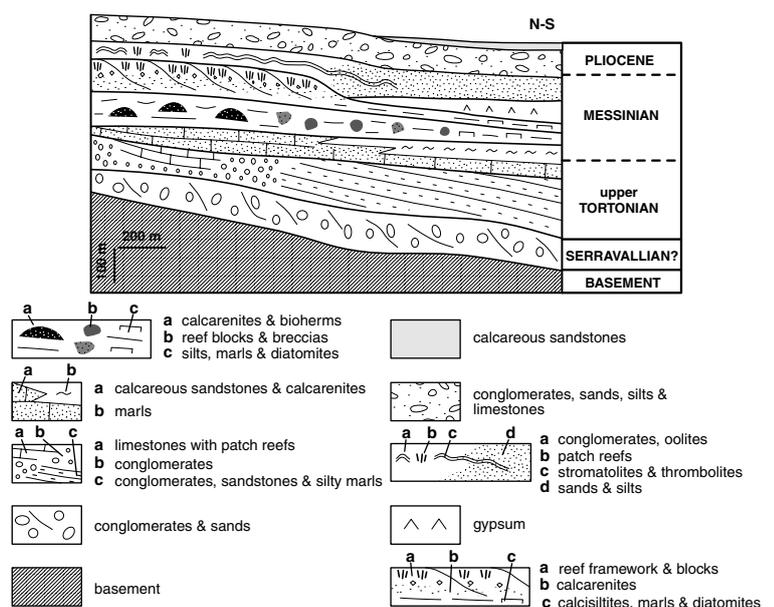


Figure 2.- Neogene lithostratigraphy of the Sorbas basin.

isotope data indicate a marine origin for this gypsum.

5 A marine, mixed siliciclastic-carbonate unit containing giant (up to 15 m in diameter) microbial (stromatolite-thrombolite) domes.

6 A fluvial to lacustrine unit consisting of siliciclastics intercalating two thick, basin-wide, ostracod-rich carbonate banks.

Pliocene to Quaternary deposits consist mainly of siliciclastic sediments of continental origin that complete the infilling of the basin.

Selected outcrops to be visited:

Temperate carbonates

One of the best outcrops located at the Los Molinos de Río Aguas, under the bridge on the main (Sorbas-Venta del Pobre) road, situated near the entrance to the village.

The lower part of the succession is coralline algal dominated. Small (3-6 cm), spheroidal rodoliths constructed by *Mesophyllum*, *Lithothamnion* and *Lithophyllum* predominate. The associated biota includes bryozoans, pectinids, ostreids, large benthic foraminiferans and echinoderms. Unattached branches of *Lithothamnion* abound towards the top. Small, isolated algal-built mounds (up to 20 cm high and 1 m in diameter) occur at the very top. The upper part of the temperate-carbonate succession is a complex shell bank assemblage comprising pectinids, terebratulids, oysters and echinoids. All these deposits formed in a warm-temperate, carbonate-ramp environment.

Halimeda mounds

The best outcrops are along the southern margin of the basin, near Hueli.

The Hueli hamlet, now abandoned, is 4 km to the SSE of Sorbas town. Once in Hueli, a track must be followed to the SW for 1 km to reach the outcrops. Field observations are to be made from a vantage point by the track. The hills in front are the bioherms.

The bioherms developed as isolated coral and algal (*Halimeda*) mounds on the platform and at the platform slopes, respectively. *Halimeda* reefs are the largest and most complex. They formed on the mid-slope, at depths of 20-65 m, surrounded by silty marls. They are up to 40 m thick and 400 m long. They may locally have a *Porites* base. Cap facies consist of bioclastic and microbial carbonates. The *Halimeda*-bioherm core consists of jumble *Halimeda* segments released by spontaneous disaggregation of the algae. The segments were stabilized close to their sites of growth and rapidly lithified by micritic and peloidal microbial crusts. Residual cavities were further veneered by isopachous marine cements.

Messinian, coral-stromatolite fringing-reefs

The best outcrops of the Messinian fringing reefs are at the northern margin, near Cariatiz, located 7 km to the NNE of Sorbas. The first outcrop to be visited is on the southern side of a hill 0.5 km to the north of Cariatiz. It shows one of the best preserved outcrops of the reef-core, which is dominated by stick-like *Porites* colonies, connected by laminar bridges. Stromatolitic, micritic crusts occur around the corals, increase in importance upwards and are responsible for the early lithification of the reef. The reef crest is mainly stromatolitic.

The next stop is a view point above the north-south orientated

Barranco de los Castaños *c.* 2 km west of Cariatiz. The view point affords an overview of the geometry of the reef, and the relationships between the various facies (Fig. 3). The fringing reef localized around the northern basin margin and prograded basinwards for

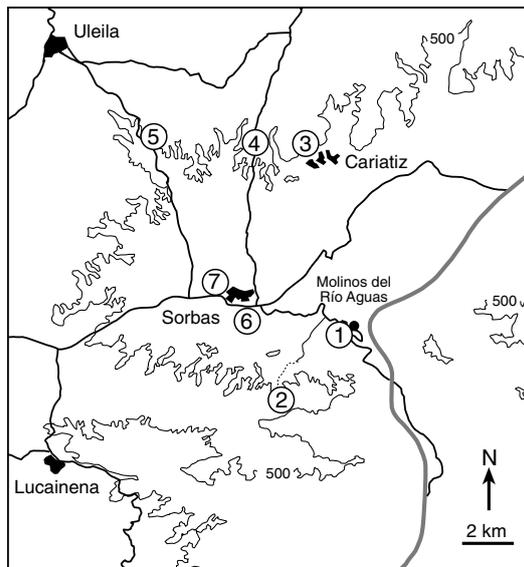


Figure 3.- Geographical location of the selected outcrops. 1: Temperate carbonates (Los Molinos de Río Aguas). 2: *Halimeda* mounds (Hueli). 3: Coral-stromatolite reef-core (Cariatiz). 4: Prograding fringing reef (Barranco de los Castaños). 5: Selenite-gypsum supercones (Rambla Río Aguas). 6: Prograding beaches (Sorbas). 7: Giant microbial domes (Góchar).

at least 1.1 km in a series of clinoform wedges. Each wedge consists proximally of reef, and distally of reef slope. The fore-reef-slope facies are exposed as giant decametre-scale cross-beds, with original dips as much as 30° close to the reef-core, gradually decreasing downslope to 3-5°. The thickness of the individual beds also diminishes downslope, where they interfinger with, and grade laterally into, the basinal facies. Upwards and downwards shifts of the reef facies at the Barranco de los Castaños section indicate high-resolution, relative sea-level changes during reef progradation at two different orders of cyclicity. The lowest order of

cyclicity (C1) is represented by one cycle and the beginning of a second one interrupted in its ascending phase. A higher order cyclicity (C2) modifies the C1 cycles. The estimated relative sea-level change in the C1 cycle is about 100 m. Sea-level oscillations in C2 cycles have an amplitude of several tens of metres.

Selenite-gypsum supercones

From the river bridge that cross the Río Aguas at KM 0.5 of the Sorbas-Venta del Pobre (Carboneras) road, walk for *c.* 0.5 km to the SW, along the rambla bed, to reach the outcrop.

The uppermost beds of the Messinian gypsum crop out in vertical cliffs on the southern side of the rambla. Three gypsum cycles, each 5-10 m high, can be recognized. They show spectacular selenite gypsum growths, known as supercones, associated with other gypsum structures such as nucleation cones and selenite palisades. Bunches of curved selenite gypsum crystals (up to 1.5 m in size), in the shape of “scimitar”, form the branches of the cauliflower-like, supercone, “tree-like” growths.

Giant microbial domes

The best outcrops locate at Rambla de Góchar. 1 km west of Sorbas turn right towards Uleila del Campo. After 4.75 km turn right onto a track which takes you (after following it *c.* 600 m) into the Rambla de Góchar. Cross the rambla and climb up the opposite side to the top surface.

Microbial carbonates (stromatolites and thrombolites) occur within fan-delta conglomerates that pass laterally into sands. They extend laterally from shallow coastal areas

to the adjacent basin, down to depths of *c.* 40 m. The stromatolites present a very distinct internal lamination, whereas the thrombolites are massive and contain abundant irregular fenestrae. Both incorporate terrigenous sand and pebbles. Microbial bioherms, up to 9 m wide and 3-4 m high, with thrombolite domes up to 2 m high, formed at the shelf break, while biostromes developed throughout the slope. Within the upper slope, gentle (1-2 m high and up to 5 m wide) stromatolite, and steep-sided (1.5 m high and 2 m wide) thrombolite domes occurred on top of debris flows. Within the lower slope, only very gentle, elongated (up to 11 m across and 3 m high) stromatolite domes proliferated.

Prograding beach sequences

Along the bed of the Rambla de Cinta Blanca, just immediately west of Sorbas, an impressive, prograding beach sequence, consisting of stacked, laterally attached sandstone beds (up to 2-3 m thick), gently dipping to the East, can be observed. These sediments belong to the same Messinian unit containing the giant microbial domes. The lower part of the beds consists of metre-sized, trough

cross bedding deposits, developed in an upper shoreface setting. The middle part is a parallel-laminated interval, corresponding to foreshore deposits, which locally intercalate some breccias (beach-rock deposits). The upper part is mainly a structureless interval formed in a backshore environment, with abundant burrowing at its base.

References:

A more complete information can be found in: Martín, J.M. and Braga, J.C. (2001). Shallow Marine Sedimentation. In: A. Mather, J.M. Martín, A.M. Harvey and J.C. Braga (Editors). *A Field Guide to the Neogene Sedimentary Basins of the Almería Province, South-East Spain*. Blackwell, Oxford, p. 134-185. (Check also the reference list of the field guide for more specific references).

Accommodation

- Cortijo Urra Field Study Centre. Sorbas 04270 (Almería, Spain). Phone: 7 359 7087
- Hostal El Arrecife. Paraje Los Martínez s.n. Sorbas 04270 (Almería, Spain). Phone: 950 525136.
- Hostal Sorbas. Carretera Almería-Murcia s.n. Sorbas 04270 (Almería, Spain). Phone: 950 364160



Figure 4.- Fringing-reef section at Barranco de los Castaños (locality 4). Reef-framework facies prograde on top of reef slope deposits, which dip steeply basinwards. A Messinian gypsum quarry can be seen in the middle ground, in the basin centre.

Compiled by: *Juan C. Braga & José M. Martín*. Departamento de Estratigrafía y Paleontología. Universidad de Granada. Campus de Fuentenueva s.n. 18002 Granada (Spain).

GATHERING THE SEDIMENTOLOGISTS IN THE SAME ASSOCIATION: THE NEW PHASE OF IAS IN PERU

The activities of IAS in Peru are experiencing the beginning of a new phase. Few but enthusiastic geologists are willing to share knowledge and experiences between themselves and the local community. A campaign to gather more and more members to our association will be launched next month in the universities, aiming to bring “fresh air” through the input of new students members. Professionals who are currently working in several companies widespread all over Peru will also be invited to join IAS. The best advertise is undoubtedly the high standard and high quality of the Sedimentology. I do expect that in a very little time our “team” will be greater in number and quality!

I have to say that I am just getting to know the geology of Lima. Before living in Lima, every time I was here I wondered if I would have the opportunity to visit the outcrops, which are located at the beach. Now, I live here and all I can say is that the outcrops are really terrific. Actually, the whole geology is amazing. Close to the beach, the outcrops have a predominance of Holocene alluvial fans, but there is also a very good Cretaceous section with a good plataformal exposition, showing tidally-influence deposits. In another section, deep-water environment with some small scale turbidites. Needless to say but, as a Brazilian geologist who is used to a passive margin, I am spellbound with this geology. And lots

of good outcrops are still unknown to me. That is why I got in contact with the other IAS members. Now, we have plans to organize small field trips to the beautiful outcrops located close to the beach. I myself have been taking to the field some new geologists who just joined to my company, Perez Companc. Our routine is to choose some Saturday to go to field, mixing hours of spare time with work, breathing some fresh air and learning geology in a very relaxed and informal way. We call this kind of field trip as “crypto” or “micro” field trip because normally, it takes less than 3 hours. Fast but very effective field training!

In Perez Companc we are starting a reservoir characterization project, which is based mainly in outcrop studies. They are there for a long time and we do need to understand them... The project is ambitious, innovative and we expect that this work can support successful secondary recovery projects. Perez Companc has the concession of three blocks in Talara Basin, located in the NW Peru. We plan to use the methodology proposed by Miall and others, using photomosaic and vertical sedimentological profiles to obtain the hints to understand the subsurface reservoir. Well-logs, petrophysical and petrographical analysis will be integrated to compose the whole picture of the reservoir. The final step is the input to the flow simulator in order to foreseen

the reservoir response to any waterflood arrangements.

Concerning the IAS members in Peru, I think the big challenge we have to face is to promote the association through opened events, as our “cripto” or “micro” field trip. A day dedicated to presentation of sedimentological works that have been carrying by the members or companies, could be another idea. I

am making all the efforts to bring Mr. Roger Walker in his Special Lecture Tour 2003, which would be a great event. Lots of plans, willingness and expectations! That is the sedimentologists group in Peru!

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IAS National Correspondent
Perez Companc del Peru
(jdaudt@pecom.com)*

Report on

THIRD INTERNATIONAL LIMNOGEOLOGY CONGRESS (ILIC3)

The 3rd International Limnogeology Congress of the International Association of Limnogeology (IAL) was held in Tucson, Arizona (U.S.A.) from March 29 to April 2, 2003. 270 abstracts on lakes and lake deposits of all ages were submitted for presentation from lake workers from 34 countries. The chair of the organizing committee was Andrew Cohen of the University of Arizona. The format of the meeting was different than the first two ILIC meetings held in Copenhagen (ILIC1) and Brest (ILIC2). Each morning and afternoon session began with four keynote talks. After discussion, the remaining time was spent at a plethora of posters. Workshops were held later in the day covering topics such as hydrology and its affects on lake sediment diagenesis, scientific drilling opportunities, studies of floods and droughts, Asian paleolimnologic records, and paleolimnology of Meso- to South America. Sandwiched in among three days of sessions and workshops was a mid-meeting field trip lead by Owen Davis through the Plio-Pleistocene deposits of the San Pedro Valley, southeast of Tucson. The congress banquet was held at the Desert Museum among cacti and rocks, with an otherworldly plenary address by Vic Baker (University of Arizona) on paleolacustrine features on Mars. After dinner the W.H. Bradley Medal of the International Association of Limnogeology for excellence in research and service in limnogeology

was presented to Thomas Johnson of the Large Lakes Laboratory of the University of Minnesota, USA. A post-meeting field trip to the Grand Canyon and the Mesozoic lakes of the Colorado Plateau was led by Timothy Demko (University of Minnesota), Kathleen Nichol (University of Oxford), and Lisa Park (University of Akron).

Topics discussed at ILIC 3 comprised varve records, flood and drought signals for climate reconstruction, arid lakes and their records, lakes on the edge (extreme environments), Quaternary to Holocene lake signals from seven continents, and climate change and human activity in Meso-America. Other subjects included the use of isotopes in unraveling paleoclimate, paleoweathering, and paleodrainage in lakes, the recognition of seismic events in lake sequences, and ancient lake deposits from the Phanerozoic. Some new sedimentology research in lake sequences is outlined below; however, this only scratches the surface!

Research on Holocene to Quaternary lakes is focusing on high temporal resolution of sediments to tease out short-term climatic change as well as predict short-term events on a human scale. Paleomagnetism was suggested as a way to extend and verify chronology in lakes and correlate among a suite of lakes. Research also continues

in correlating continental records to marine events, such as the Heinrich and Dansgaard-Oeschger events. The goal of the lake drilling program of the ICDP is to collect climatic records from a series of lakes for assessing the effects of orbital precession vs. ice sheet dynamics in controlling climate at various latitudes. The Great Salt Lake and Lake Titicaca data are being processed while Lakes Malawi and Bosumtwi in Africa are the next targets. Also, work is underway in Asia and South America to collect and analyze lake signal archives to tie together data in regional syntheses.

The ancient deposits of the Eocene Green River Formation are receiving renewed attention. Detailed basin analyses suggest that the number of varves or rhythmites in the lake basin center is not the same in areas toward the lake margin. This puts into question the exact procedure for determining Milankovitch cycles in ancient lake sequences. In addition, a sedimentary record of tectonic change in the Green River Basin, i.e. a drainage diversion, has been determined through detailed fieldwork. This suggests that the scale of effects in a lake record from tectonic conditions can be separated

from sedimentation patterns attributed to climatic change. A new tool in the recognition of provenance changes due to tectonic diversions of drainage is isotopic Sr ratios. Helpful in teasing out tectonic signals in the Green River Formation, this geochemical tool has also been applied to Quaternary Lake Bonneville deposits and Holocene Lake Victoria and Lake Edward sediments to determine water sources through time. These techniques will be useful as limnogeologists continue to test the lake model proposed by Bohacs, Carroll, and colleagues (balanced fill, overfilled, and underfilled basins) to understand the relative effects of climate and tectonics on ancient lake sequences.

ILIC3 was a successful meeting with much discussion on the frontiers of limnogeology; the global camaraderie of the lake scientists was quite apparent. ILIC4 is set for Barcelona in 2007. Hope to see you there!

*E.H. Gierlowski-Kordesch
President of IAL
Associate Professor
Ohio University
Athens Ohio U.S.A.*

ICHNIA 2004: THE INTERNATIONAL CONGRESS ON ICHNOLOGY

Trelew, Patagonia, Argentina, April 19-23, 2004

The ichnologic community has been particularly active during the last decade in Southern South America. Following pioneer work during the sixties, Ichnology expanded subsequently during the eighties and nineties. The results of research undertaken by South American ichnologists are usually published in international journals such as *Ichnos*, *Palaios*, *Journal of Paleontology* or *Palaeogeography Palaeoclimatology Palaeoecology*. Innovative research embraces several lines, including, for example, continental ichnology and the application of ichnology in sedimentologic and sequence stratigraphic studies. Since 1993 the Argentinean Meetings of Ichnology are organized on a regular basis. These national meetings were expanded to cover the Mercosur (Argentina, Uruguay, Brazil and Paraguay) in 1998. Last year a successful meeting was held in Tucumán, Argentina. These meetings were attended by researchers and undergraduate and graduate students as well. Keynote speakers in the past included George Pemberton, William Sarjeant, Gustavo Politis, Peter Crimes, Steve Hasiotis, Richard Bromley, Conrad Labandeira, Alfred Uchman, Jorge Genise, Florencio Aceñolaza and Jaime Powell.

At present there are various ichnological meetings that focus on specific topics. However, there is a need for a larger meeting where researchers with a bewildering variety of backgrounds and interests gather to exchange their different views of Ichnology. It is expected that this exchange will strengthen our discipline and enhance its recognition from the scientific and technical community. We intend to trace, extend or fortify existing bridges between different fields of Ichnology, such as paleoichnology, vertebrate and invertebrate ichnology, benthic ecology and paleoichnology, and soft and hard substrate ichnology.

The scientific programme of **Ichnia 2004** will include oral sessions (regular talks and invited keynotes) and posters. Five keynote speakers have been invited and have already been confirmed: Richard Bromley, Conrad Labandeira, Martin Lockley, George Pemberton and Adolph Seilacher. Pre and postcongress fieldtrips to the Mesozoic and Cenozoic outcrops of Patagonia are planned (estimated duration 3-4 days). Additionally, a one-day intracongress field trip to examine Miocene marine ichnofaunas and paleosol trace fossils is scheduled. An abstract book will be distributed among the participants. Full-length papers will be published in a book or a special issue of a leading journal.

We plan a grant program for students and young researchers, depending on the amount of financial support to be obtained. The estimated number of participants is two hundred. The meeting is sponsored by the Argentinean Palaeontological Society and the Museo Paleontológico Egidio Feruglio. Sponsorship is being asked to other societies in South America and overseas.

Success of this meeting is of great importance to the development of Ichnology. We envisage strong interaction among the different subfields within the study of organism-substrate

interactions. Cooperation between geologists and biologists will be particularly encouraged and we feel this particular point will be a major contribution of the meeting to future developments of Ichnology. The success of this congress is essential to future organization of international congresses on a regular fashion.

Detailed information on Ichnia 2004 can be obtained by entering the web page of the conference: www.ichnia2004.com

Luis Buatois
E-mail: ichnolog@infovia.com.ar

CALENDAR

12TH BATHURST MEETING OF CARBONATE SEDIMENTOLOGISTS

8-10 July 2003, U.K. (Durham)
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 Web-page: <http://www.dur.ac.uk/bathurst>

MESOZOIC PALAEOCEANOGRAPHY IN RESPONSE TO PALAEOGEOGRAPHIC & PALAEOCLIMATIC FORCINGS

July 10-11, 2003, FRANCE (Paris)
 Contact:
 Francois Baudin UPMC-PARIS VI
 E-mail: frbaudin@ccr.jussieu.fr
 Taniel Danelian UPMC-PARIS VI
 Helmut Weissert ETH Zürich
 Monique Troy (Secretary)
 University P. & M. Curie

16TH CONGRESS OF THE INTERNATIONAL ASSOCIATION FOR QUATERNARY RESEARCH (INQUA)

July 23 - 31, 2003, U.S.A. (Reno, Nevada)
 Contact:
 M. Jones
 Division of Hydrologic Sciences
 Desert Research Institute
 2215 Raggio Parkway, Reno
 NV 89512, U.S.A.
 E-mail: inqua03@dri.edu
 Web-page: <http://inqua2003.dri.edu>

INNOVATIVE STUDIES AND DISCOVERIES

August 10-12, 2003
 New York, U.S.A.
 Contact: Gerald M. Frieman
 Northeastern Science Foundation
 Rensselaer Center of applied Geology, 15 Third
 St./PO Box 746, Troy
 NY 12181-0746, U.S.A.
 E-mail: gmfriedman@juno.com
 Web-page: [www.geocities.com/
northeasternscifdn](http://www.geocities.com/northeasternscifdn)
 Fax: 518 273 3249
 Tel: 518 273 3247

IGCP#463 UPPER CRETACEOUS OCEANIC RED BEDS: RESPONSE TO OCEAN/CLIMATE GLOBAL CHANGE – WORKSHOP AND FIELD EXCURSION

August 25-31, 2003
 Lhasa, Tibet
 Contact: Wang Chengshan
 Chengdu University of Technology
 Chengdu 610059
 Sichuan, China
 E-mail: wcs@cdut.edu.cn
 Web-page: www.igcp463.cdut.edu.cn

PRESENT STATE AND FUTURE EVOLUTION OF PALEOGENE STRATIGRAPHY

**A Symposium of the International Sub-
commission on Paleogene Stratigraphy**
 August 26-30, 2003, BELGIUM (Leuven)
 Contact: Noël Vandenberghe
 Dept. Geografie-Geologie
 Afd. Historische Geologie
 KU Leuven, Redingestraat 16
 B-3000 Leuven, Belgium
 E-mail: noel.vandenberghe@geo.kuleuven.ac.be
 Web-page: www.unituebingen.de/geo/isps/news

**TRIASSIC GEOCHRONOLOGY AND
CYCLOSTRATIGRAPHY – A FIELD
SYMPOSIUM**

September 11-15, 2003
Sta Christina, Val Gardena, Dolomites, Italy
Contact: Peter Brack
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Switzerland
E-mail: peter.brack@erdw.ethz.ch
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**THE OCEAN MARGIN RESEARCH
CONFERENCE**

September 15-17, 2003
Paris, France
Contact: Juergen Mienert
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Geoscience Research Division 0220
La Jolla, California 92093
USA
E-mail: jmienert@ucsd.edu
Web-page: <http://www.ig.uit.no/konferanser/omarc/index.htm>

**22nd IAS MEETING OF
SEDIMENTOLOGY**

September 17-19, 2003, CROATIA (Opatija)
Contact: Davor Pavelic
IAS-2003, Institute of Geology, HR-10000
Zagreb, Sachsova 2, Croatia
Fax: +385 1 6144718
E-mail: dpavelic@yahoo.com
Web-page: www.igi.hr/ias2003

**8TH INTERNATIONAL SYMPOSIUM ON
FOSSIL ALGAE**

September 18-20, 2003, SPAIN (Granada)
Contact: Juan C. Braga or Julio Aguirre
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**THIRD REGIONAL COMMITTEE ON
ATLANTIC NEOGENE STRATIGRAPHY
CONGRESS**

September 19-25, 2003
Asilah, Morocco
Contact: Abdelkhalak ben Moussa
E-mail: b.moussa@fst.ac.ma
Web-page: www.fst.ac.ma/rcans03

**FIFTH CONGRESS OF THE SPANISH
TERTIARY GROUP**

September 23-25, 2003
Granada, Spain
Contact: Fernando García
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Facultad de Ciencias Experimentales
Universidad de Jaén
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**ANALOGUE AND NUMERICAL
FORWARD MODELLING OF
SEDIMENTARY SYSTEMS; FROM
UNDERSTANDING TO PREDICTION**

October 9-11, 2003
Utrecht, The Netherlands
Contact: Poppe de Boer
Institute of Earth Sciences
Utrecht University
P.O. Box 80.021
3508 TA Utrecht
The Netherlands
E-mail: basinmodelling@geo.uu.nl
Web-page: <http://basinmodelling.geo.uu.nl>

**9TH FRENCH CONGRESS OF
SEDIMENTOLOGY**

October 14-16, 2003, FRANCE (Bordeaux)
 Contact: Thierry Mulder
 Université Bordeaux 1, DGO, Avenue des
 Facultés, 33405 Talence cedex, France
 Tel: + 33-556 84 88 47
 Fax: +33-556 84 08 48
 Philippe Razin, EGID, Université Bordeaux 3,
 1, Allée F.DAGUIN, 33607 PESSAC cedex,
 France
 Tel: +33-556 84 80 67
 Fax: +33-556 84 80 73
 E-mail: cgrsasf@pop.epoc.u-bordeaux.fr
 Web-page: <http://www.epoc.u-bordeaux.fr/ASF/asf.html>

**FIFTH INTERNATIONAL CONFERENCE
ON ASIAN MARINE GEOLOGY**

January 14-16, 2004, THAILAND (Bangkok)
 Contact: Thanawat Jarupongsakul
 Department of Geology, Faculty of Science,
 Chulalongkorn University
 Bangkok 10330, Thailand
 Fax: (662) 2185464-5
 E-mail: thanawat@sc.chula.ac.th

**ICHNIA 2004: THE INTERNATIONAL
CONGRESS ON ICHNOLOGY**

April 9-13, 2004
 Trelew (Patagonia), Argentina
 Contact: Luis Buatois
 E-mail: ichnolog@infovia.com.ar

**LE 2ème COLLOQUE SUR LE
JURASSIQUE MAROCAIN**

April 21-22, 2004, MOROCCO (Marrakech)
 Contact: Prof. A. Ait Addi
 Département de Géologie (FST)
 B.P.: 549-Guéliz, Marrakech-Maroc
 Tel: (212) 44 43 34 04
 Fax: (212) 44 43 31 70
 E-mail: aitaddi@fstg-marrakech.ac.ma
 Web-page: www.ucam.ac.ma/fssm/cjm2

TIDALITES-2004**6th International Conference on Tidal
Sedimentology**

August 2-5, 2004
 Copenhagen, Denmark
 Contact: Jesper Bartholdy
 Institute of Geography, University of
 Copenhagen, Oster Voldgade 10, Dk-1305
 Copenhagen K, Denmark
 E-mail: jb@geogr.ku.dk
 Web-page: www.geogr.ku.dk/tidalites
 Fax nr. +45 35 32 25 01
 Tel. nr.: +45 35 32 25 00

**32nd INTERNATIONAL GEOLOGICAL
CONGRESS**

August 20-28, 2004
 Florence, Italy
 Contact: Chiara Manetti
 Dipartimento di Scienze della Terra
 Via La Pira, 4
 50121 Firenze, Italy
 e-mail: casaitalia@geo.unifi.it
 Phone/Fax: + 39 055 2382146
 Web-page: www.32igc.org

23rd IAS MEETING OF SEDIMENTOLOGY

September 15-17, 2004, PORTUGAL (Coimbra)
 Contact: Rui Pena dos Reis
 Universidade de Coimbra, Dpto. Ciências da
 Terra
 Largo Marquês de Pombal, 3014 Coimbra
 (PORTUGAL)
 E-mail: penareis@ci.uc.pt

**7TH INTERNATIONAL SYMPOSIUM ON
THE CRETACEOUS**

September 5-9, 2005

Neuchâtel, Switzerland

Contact: Karl B. Föllmi or Thierry Adatte

Institut de Géologie, Université de Neuchâtel,
case postale 2, CH-2007 Neuchâtel, Switzerland

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Web-page: <http://www-geol.unine.ch/>

Fax nr.: 0041-718 26 01

**17TH INTERNATIONAL
SEDIMENTOLOGICAL CONGRESS**

August 27 – September 1, 2006

Fukuoka, Japan

Contact: Ryo Matsumoto

Department of Earth & Planetary Sciences

University of Tokyo

Hongo

Tokyo 113, Japan

E-mail: ryo@eps.s.u-tokyo.ac.jp

Web-page: <http://sediment.jp/>

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