

IAS

INTERNATIONAL ASSOCIATION OF SEDIMENTOLOGISTS

Newsletter

February 2009

<http://www.iasnet.org>

Nº 220

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Report

Annual Report of the International Association of Sedimentologists

The International Association of Sedimentologists was founded in 1952. Its objectives are the promotion of the study of Sedimentology by publications, discussion, and comparison of research results, by encouraging the interchange of research through international collaboration, and by favouring integration with other disciplines.

Accomplishments in 2008

The IAS held the 26th IAS Meeting of Sedimentology in Bochum, Germany, from September 1 to 3. More than 330 participants represented 36 countries, and eleven field-trips were run. Furthermore, the IAS co-sponsored conferences and workshops in Argentina, Poland and Peru.

A lecture tour developed by Prof. Judith A. McKenzie, from Switzerland, has started to be organised.

The IAS published 6 issues of its journal *Sedimentology* comprising

1740 pages. The electronic paper handling of the journal is settling down. *Sedimentology* is accompanied by a Newsletter, and the IAS homepage (<http://www.iasnet.org>) is regularly updated.

The IAS friendship scheme for scientists and libraries in developing countries continues. In 2008, 157 individuals and 36 libraries benefit from it. The new IAS Postgraduate Grant Scheme offered 22 grants, ranging from 1000 to 1080 Euros, to young researchers from 10 different countries.

Membership accounts for 1628 associated sedimentologists from 98 countries in the year 2008.

Goals for 2009

The 27th Meeting of Sedimentology will be held in Alghero, Italy (20 – 23 September). The Association will also co-sponsor meetings and workshops in United Kingdom, Venezuela and Argentina. A lecture tour developed by Prof. Judith McKenzie, from Switzerland,

will be run in several countries of South America, Asia and Europe to reach institutions who could otherwise not afford to invite foreign lecturers.

The Third IAS International Summer School will be organised during the third term of 2009 in SE Spain. Thirty postgraduate students and five senior sedimentologists will participate at the IAS Summer School.

On 2009, the journal *Sedimentology* will appear with 7 issues, starting with a January issue and then being followed by issues on even months throughout the year. Eight Special Publications and two Field Guides are in preparation.

We will continue to publish high-quality science, and to organize and

sponsor top-level research conferences and meetings. However, we also want to encourage young sedimentologists from countries where research possibilities are less well established, and where funding is lacking. We do this through our friendship and grant schemes, and by paying travel expenses to international congresses and field workshops.

Funding

IAS is funded by membership fees. All officers work for free, and there are no permanent staff or formal headquarters.

José-Pedro Calvo
General Secretary

IAS Financial Report

1.- BALANCE SHEET

	As at June 30, 2008		As at June 30, 2007	
	EUR	EUR	EUR	EUR
<u>FIXED ASSETS</u>				
Tangible assets		2.982,00		2.774,91
<u>CURRENT ASSETS</u>				
Stocks (books/publications)		39.546,89		27.676,75
Receivables				
Prepayments	3.240,00		3.240,00	
Other receivables	<u>76.380,70</u>		<u>73.0750,45</u>	
		79.620,70		76.315,45
Cash and cash equivalents		<u>2.574.375,91</u>		<u>2.397.111,45</u>
<u>TOTAL ASSETS</u>		<u>2.696.525,50</u>		<u>2.503.878,56</u>
	As at June 30, 2008		As at June 30, 2007	
	EUR	EUR	EUR	EUR
<u>EQUITY</u>				
Reserves	2.458.047,08		2.226.270,04	
Surplus for the year		<u>0,00</u>		<u>231.777,04</u>
		2.458.047,08		2.226.270,04
<u>SHORT TERM DEBTS</u>				
Other debts and prepayments received		<u>89.288,08</u>		<u>45.831,48</u>
<u>TOTAL EQUITY AND LIABILITIES</u>		<u>2.547.335,45</u>		<u>2.503.878,56</u>

Super Sedimentological Exposures

The geological park of Aliaga: and exceptional viewpoint of the Cretaceous and Tertiary evolution of the Iberian ranges (NE Spain)

Introduction

The outcrops located around the Aliaga village form a very attractive natural landscape in the Teruel province, northeastern Spain (see location map in Fig. 1). These outcrops constitute an exceptional viewpoint over the Cretaceous and Tertiary evolution of the northeastern part of the Iberian Ranges, and have been largely appreciated over the last decades for research and training purposes. In the early nineties, the development of the Geological Park of Aliaga was promoted by the Department of Geology of the University of Zaragoza and the municipality of Aliaga, and received financial support from the Aragón Government and the Leader program of the European Community. The Geological Park of Aliaga includes 11 points of special interest showing explanatory diagrams and informative panels in the field, all of them located up to 7

km around Aliaga (Fig. 2). After a brief explanation of the Mesozoic and Tertiary evolution of the Iberian Ranges, we will use these 11 points for the description of the proposed Geotour around Aliaga.

Geological setting

The sedimentary rocks of Aliaga form an almost continuous record of the Mesozoic and Tertiary strata (near 2,500 m of marine and continental sediments, see Fig. 3). The oldest unit represented in the area is the Upper Triassic gypsum-rich clays of the Keuper facies. The Jurassic form a nearly 400 m thick succession of shallow water carbonates, from the upper Raethian-Hettangian breccia and massive dedolomites to the lower Tithonian massive oncolitic-peloidal limestones (see Aurell *et al.*, 2003 for the general description of the Jurassic units). A widespread regression at the end of the Jurassic

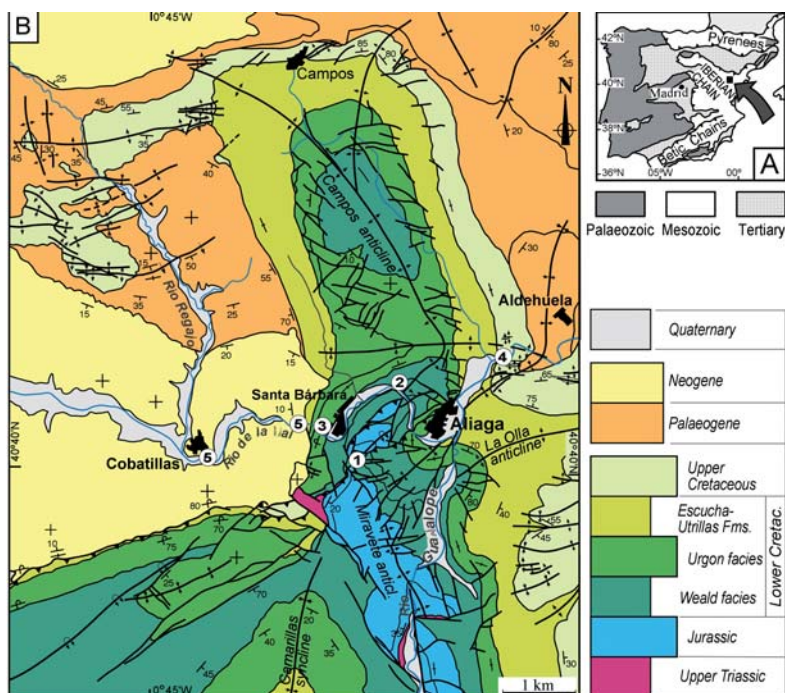


Figure 1. Geological map of the Geological Park of Aliaga, indicating the location of the five points described in the *Geotour* section.

times was followed by a major stratigraphic gap covering most of the Berriasian–Valanginian interval.

Continental sedimentation at the Hauterivian and Barremian occurred in irregular basins (i.e., the Weald facies). These basins were controlled by two sets of synsedimentary normal faults, striking NNW-SSE and ENE-WSW, respectively (Liesa *et al.*, 2006). After gradual flooding of the basin at the late Barremian, the shallow platform carbonates of the Urgon facies represent sedimentation in a shallow platform developed during most of the Aptian (Vennin & Aurell, 2001; Bover-Arnal *et al.*, 2008). A second regression converted the area into a marsh associated to an estuary or a delta, including some coal-rich levels (the Escucha and Utrillas formations; e.g., Rodríguez-López *et al.*, 2008). The widespread Late Cretaceous marine transgression resulted in



Figure 2. Informative panel indicating the location of Point 1 and the nearest parking area. The location and access of the 11 points of the Geological Park are indicated across the roads in a similar way.

the flooding of most of the eastern part of the Iberian Peninsula (see Martín-Chivelet *et al.*, 2002).

The Iberian Chain formed during the Tertiary by inversion of an extensional Mesozoic basin, under

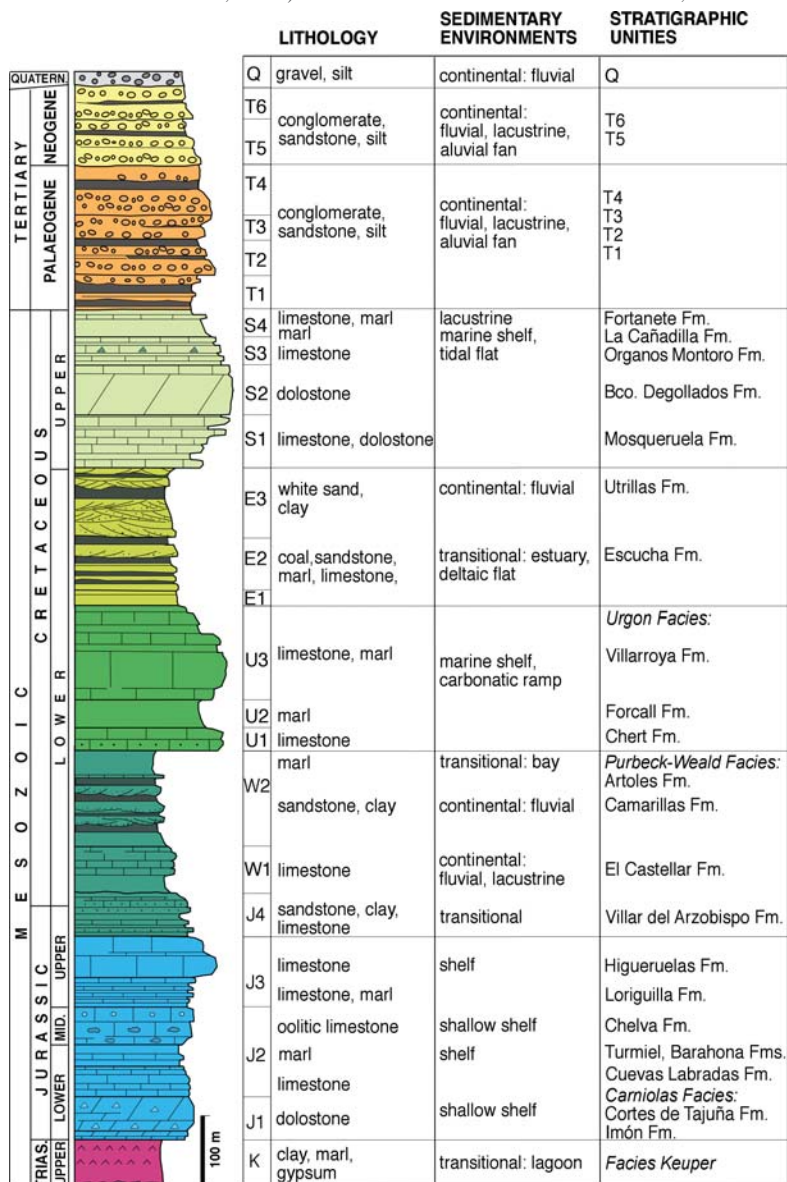


Figure 3. Stratigraphic units outcropping in the Geological Park of Aliaga.

compressive stresses both transverse (NNE to NE) and parallel (SE to SSE) to its overall trend (Capote *et al.*, 2002). The NNE to NE compression was responsible for the principal folds and thrusts, whereas the SE to SSE compression had a more limited macrostructural record. As a consequence of those varied compression directions, fold interference structures are common in the region (Simón, 2004, 2005). The development of these interference structures was enhanced by rheology of the Mesozoic cover, which can be considered as a multilayer composed of three competent ensembles (Jurassic, mid-Cretaceous Urgon facies, and Upper Cretaceous) separated by two incompetent ones (Weald facies, and Escucha-Utrillas formations). In particular, the outline of the vertical fold of «La Olla», which can be seen looking south from the Aliaga village (*Point 7 of the*

Geological Park) has provided the graphical motif for designing the logo of the Geological Park (Fig. 4).

Timing of folding is well constrained by relationships with syntectonic continental Tertiary deposits. These are divided into six tectonosedimentary units (T1 to T6), each one being bounded by unconformities related to compressive structures (González & Guimerà, 1993). Units T2 to T4 (Eocene-Oligocene in age) are coeval of NNW-SSE folds; T5 (Early Miocene) lies unconformably on the western limb of the NNW-SSE anticline and is affected by ENE folds and thrusts near Cobatillas; finally, T6 postdates folding (Simón *et al.*, 1998).

Geotour

The five stops described below provide an overall view of the regio-



Figure 4. «La Olla» anticline, a vertical fold in Lower Cretaceous Urgon units resulting from fold superposition during Tertiary times. This image, as observed from the Aliaga village, is used for the logo of the Geological Park (see Fig. 7).

nal geology, and include the most representative sites referring to stratigraphy and sedimentology of the Mesozoic and Tertiary units in the Geological Park of Aliaga, all them marked with informative panels (Fig. 5). The description of these stops is partly based in a previous publication (Arenas *et al.*, 1999). Additional information about of the Geological Park of Aliaga can be found in the reference list and also in www.parquegeologicoaliaga.com, the web page including information about access to the different stops and telephone contacts of services (accommodation, restaurants). There are also other material and publications available at the *Visitors Center* of the geopark, located in the village of Aliaga, including a book with detailed geological descriptions (Simón *et al.* 1998).

Stop 1 Viewing point of the general stratigraphy and structure

Following the road TE-812 to Camarillas, 1.5 km after crossing the bridge over the La Val River, there is a signpost that marks the entry into **Point 1 of the Geological Park**. After walking 200 m along the marked path, we will reach a viewing point, from which the essential of the landscape

and geology of Aliaga can be observed. Spectacular crests and other structural landforms are observed everywhere, drawing the trace of vertical ('snake-like') folds resulting from superposition of younger, ENE-WSW trending folds on the eastern limb of the older, NNW-SSE trending Campos-Villarroya anticline (Simón, 2004, 2005). Examples of these structures are well exposed looking to the east and southeast (Fig. 6). To the north, the limestones of the Urgon facies are observed in the overturned limb of the Santa Bárbara anticline. To the northwest, the boundary between the Urgon facies and the lowermost Miocene conglomerates of the Cobatillas basin (T5 Tertiary Unit) is exposed. To the west, there is an angular unconformity between the undeformed Miocene conglomerates (T6 Tertiary Unit) and Urgon limestones affected by snake-like folds. In the distance, a number of angular ENE-WSW trending folds in Upper Cretaceous limestones may be identified, all them levelled by the late Neogene erosion surface of La Lastra. Near to the viewing point, in the road TE-812 (**Point 2 of the Park**), we have the opportunity to examine the Upper Triassic (Keuper facies) and Jurassic limestones highly deformed and fractured in the core of the Santa Bárbara anticline. An additional point



Figure 5. The key geological aspects of the 11 points of the geological park can be followed by means of different informative panels (the one show in this image corresponds to Site 1 of the geopark).

to recognize a more complete and continuous Jurassic succession is provided by erosion of the Guadalope River the core of this anticline, and can be visited 2 km south of Aliaga, in the road to Miravete village.

Stop 2 Lower Cretaceous continental formations (Weald facies)

The Lower Cretaceous continental units included in the classical Weald facies are well exposed near the road TE-820, midway from Aliaga to Santa Barbara (*Point 3 of the Park*, see Fig. 7). The Weald facies are divided into three formations. The **El Castellar Fm** (Upper Hauterivian-basal Barremian) shows red and brown lutites with interbedded sandstones at the base, followed by alternating grey marls and limestones with charophytes, ostracods, bivalves,

gastropods and fish teeth. This formation overlies through an angular unconformity the Jurassic units. The **Camarillas Fm** (Lower Barremian) comprises yellow and red channeled sandstones showing cross-bedding with interbedded massive lutites. It contains rare traces of reptils (dinosaurs, crocodiles and turtles). The **Artoles Fm** (Upper Barremian-basal Aptian) is formed of grey marls and limestones with debris of charophytes, benthic foraminifera and oysters. The Weald facies represents essentially continental and transitional environments: lutitic plains with low sinuosity river channels connected to shallow lacustrine systems (El Castellar Fm), lutitic plains with braided channels (Camarillas Fm) and shallow bays with bioclastic lobes brought by storm activity (Artoles Fm).



Figure 6. Panoramic view from Site 1 of the Geological Park. Folded Cretaceous units modeled into crest landforms.



Figure 7. One of the informative panels in Site 3 of the Geological Park, pointing the presence of charophytes in the El Castellar Formation.

Stop 3 Lower Cretaceous marine formations (Urgon facies)

The Urgon facies consists of three formations that can be examined near the road TE-820, east of the Santa Barbara district (**Point 4 of the Park**, Fig. 8). Another easily accessible point to check these urgonian formations is the road to Miravete de la Sierra village, less than half kilometre south of Aliaga. The **Chert Fm** (Lower Aptian) shows, at the base, calcareous sandstones and bioclastic limestones with echinoderms, foraminifera, ostreids, algae and ooids towards the top. The **Forcall Fm** (Lower Aptian) is composed of massive grey marls with abundant orbitolines, echinoderms and ostreids. The maximum flooding of the platform was reached at the middle part of this

unit, as indicated also by the record of the early Aptian oceanic anoxic event in an exposed section north to Miravete de la Sierra (Moreno-Bedmar *et al.*, 2008). The **Villarroya de los Pinares Fm** (Upper Aptian) shows nodular limestones with orbitolines at the base, followed by a number of metric-scale sequences of marls and massive limestones with abundant rudists (mainly *Toucasia*). Coral-rudist reef locally developed in the lower part of the Villarroya de los Pinares Fm can be observed south of Aliaga, in the road to Miravete de la Sierra (Vennin & Aurell, 2001).

Structural landforms (crests) are modelled into the Urgon facies conditioned by the alternation of limestone and marls and the vertical attitude of beds. This gives rise to one of the most particular elements



Figure 8. Urgon units (Lower Cretaceous) at the overturned limb of Sta. Bárbara. Site 4 of the Geological Park.

of the Geological Park, «La Porra», a monolith isolated from one of these crests which appears close to the bridge (see *Point 8 of the Park*, east of Aliaga).

Stop 4 The Upper Cretaceous of Estrecho de la Aldehuela

A complete cross-section of the Upper Cretaceous marine deposits can be observed across the road TE-821, starting near the cross-road to Campos and ending less than 1 km east (*Points 5 and 6 of the Geological Park*). The road goes parallel to an impressive cannon left by the Guadalope River (Estrecho de la Aldehuela). The upper Cretaceous represents a general transgressive-regressive episode, giving rise to successive units: (1) **Mosqueruela Fm** (Cenomanian, Fig. 9), with sandy marls with oyster

shells at the base, followed by thin bedded limestones arranged in muddy and grainy shallowing upward-sequences, with algal-laminated caps; (2) **Barranco de los Dego-llados Fm** (upper Cenomanian-Turonian), with massive dolostones with rudist debris, corresponding to a shallow carbonate platform; (3) **Organos de Montoro Fm** (Coniacian-Santonian?), made of grey and brecciated limestones with black pebbles, vertical bioturbation of root traces and interbedded levels of miliolids; (4) **La Cañadilla Fm** (upper Santonian), with grey and white marls interbedded with limestones rich in benthic foraminifera. The latest Cretaceous regressive episode (i.e., Fortanete Fm) is not represented at this site due to Palaeocene-Early Eocene erosion. The unconformity between the Cretaceous deposits and the



Figure 9. Marine limestone beds of the Mosqueruela Fm at Estrecho de la Aldehuela (Upper Cretaceous; Site 5 of the Geological Park).

Eocene continental calcareous conglomerates (T2 Tertiary Unit) can be observed at the end of the itinerary. The latter are syntectonic mass-flow and water-laid deposits coming from the nearly vertical eastern limb of the Campos-Villarroya anticline. They show some interbedded olistolites, which suggest short transport.

Spectacular disharmonic snake-like folds appear in the Upper Cretaceous limestones, ranging in size from several tens to several hundreds of metres. Microstructures related to them (stylolites, faults, flexural slip striations) can also be observed in detail. Two superposed sets of striations are distinguished: «dip-slip» striations related to the first fold system (NNW-SSE trending Campos-Villarroya anticline) and «strike-slip» striations related to the Villarroya, snake-like vertical-axis folds.

Stop 5 The lower Miocene Cobatillas alluvial system

The main characteristics of the lowermost Miocene alluvial system of Cobatillas (**T5 Tertiary Unit**) can be observed by three successive points of the Geological Park, along the road TE-820. In a first stop, located 300 west of Santa Barbara (**Site 9 of the Geological Park**), the apex zone of the alluvial fan is observed, starting from an abrupt palaeotopography in the northern slope of Cabezo de la Muerte. An angular unconformity between the deposits of the Cobatillas alluvial system and Oligocene vertical beds (T5 and T4 Tertiary units, respectively) can be observed at the road margin, 150 m west to the onset of this first stop. The vertical strata are formed by conglomerates (mainly limestone and sandstone clasts) with sandstone and lutite intercalations. The overlying strata (lower unit of the Cobatillas system) consist of massive, clast-supported conglomerates, mostly made of heterometric, limestone and sandstone clasts.

The alluvial deposits as a whole have a complex fining-upward sequential evolution that is related to the tectonic activity that caused the nearby structures (González *et al.*, 1991, Arenas *et al.*, 1989). The alluvial environment was formed of a small alluvial fan (less than 3.5 km long) connected with an extensive playa (more than 10 km long). An additional stop located east of Cobatillas (**Site 10 of the Geological Park**, see Fig. 10) will allow the observation of the middle fan facies (sandstones and conglomerates). The distal facies, including ephemeral lacustrine deposits (gypsum and lutites) can be observed in a third

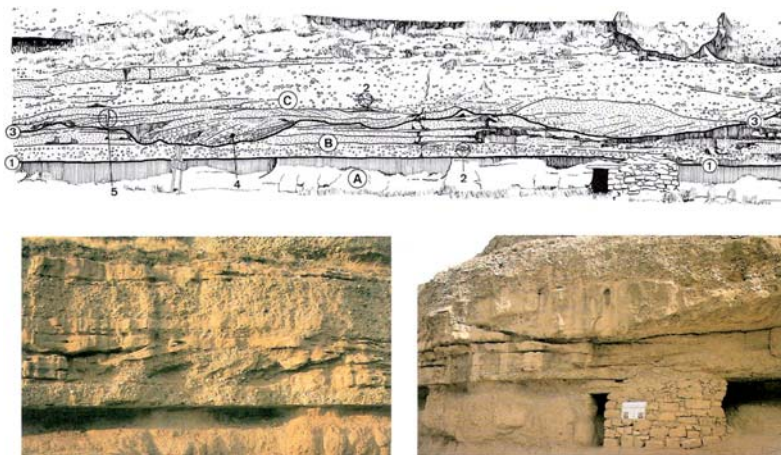


Figure 10. A field based sketch (exposed in Site 10 of the Geological Park) is used to show some key aspects observed in the fluvial detrital units of the Cobatillas alluvial system.

stop, located 1.5 km west of Cobatillas (**Site 11 of the Geological Park**). The evolution of the fluvial style reflects an increase of net sinuosity and extent of the inactive sectors from proximal to distal areas. The distal part shows an alternation in space and time of braided and point bars, reflecting that sinuosity was controlled by variations in discharge. The fan and the playa joined up via a break in slope that determined the predominance of sheet flows in the playa compared to channelled ones. Small deltaic bars record alternating progradation-reworking phases in the lake margins that were controlled by lacustrine base-level fluctuations.

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IAS Postgraduate Grant Scheme

IAS has established a grant scheme designed to help PhD students with their studies. We are offering to support postgraduates in their fieldwork, data acquisition and analysis, visits to other institutes to use specialised facilities, or participation in field excursions directly related to the PhD research subject.

Up to 10 grants, each of about € 1000 are awarded twice a year. These grants are available for IAS members only, and only for PhD students. Students enrolled in MSc programs are **NOT** eligible for grants. Research grants are **NOT** given for travel to attend a scientific conference, **NOR** for acquisition of equipment. Student travel grants for conferences can be usually obtained directly from organizers of the meeting.

The **Grant Scheme Guidelines** provide a summary of required information needed for successful a Grant Application. Applications are evaluated on the basis of the scientific merits of the problems, the capability of the researcher, and reasonableness of the budget.

Supervisor's Letter Guidelines list the information needed.

IAS Grant Scheme Guidelines

The application should be concise and informative and contains the following information (limit your application to 4 pages):

Research proposal - 2 pages maximum
Bibliography - ½ page
Budget - ½ page
Curriculum Vitae – 1 page

Recommendation letter (or e-mail) from the supervisor supporting the applicant is mandatory and the research proposal must be sent directly to the Treasurer of IAS by the application deadline

Guidelines for letter from supervisor

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 IAS by post or e-mail by the application deadline (Patric Jacobs, Department of Geology and Soil Science, Ghent University, Krijgslaan 281/S8, B-9000 Gent, BELGIUM. E-mail: patric.jacobs@ugent.be). An application form is on our website (<http://www.iasnet.org>).

Grant application

- Research Proposal –
 - ♦ **Title**
 - ♦ **Introduction:** Introduce the topic and provide relevant background

information; summarise previous work by you or others. Provide the context for your proposed study in terms of geography, geology, and / or scientific discipline.

- ♦ **Motivation:** It 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.
- ♦ **Methods:** 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.
- ♦ **Facilities:** Briefly list research and study facilities available to you, such

as field and laboratory equipment, computers, library.

- ♦ **Bibliography:** provide a list of key (5-10) publications that are relevant to your proposed research. The list should show that you have done adequate background research on your project and are assured that your methodology is solid and that the project has not been done already.
- ♦ **Budget:** Provide a brief summary of the total cost of the research. Clearly indicate the amount (in euros) being requested. State specifically what the IAS grant funds will be used for.
- ♦ **Curriculum Vitae:** Name, postal address, e-mail address, university education (degrees & dates), work experience, awards and scholarships, independent research projects, your abstracts and publications.

Application deadlines: 1st session: **March 31**
2nd session: **September 30**

Recipient notification: 1st session: **before June 30**
2nd session: **before December 31**

List of student members who got grants in the past session

<u>Name</u>	<u>Institution</u>	<u>Financial support</u>
Bron , Katherine	University of Adelaide, Australia	1000 Euros
Costel Petrea , Catalin	University of Torino, Italy	1025 Euros
Cserkesz-Nagy , Agnes	Eotvos Lorand University, Hungary	1000 Euros
De Boever , Eva	K.U. Leuven, Belgium	1000 Euros
Dubois , Nathalie	Dalhousie University, Canada	1000 Euros
Jaffri , Ali	Colorado State University, U.S.A.	1000 Euros
Linch , Lorna	Queen Mary University, London, U.K.	1000 Euros
Natalicchio , Marcello	University of Torino, Italy	1080 Euros
Rubio Cisneros , Igor Ishi	UANL, Villa Mitras, Mexico	1000 Euros
Silvestri , Giulia	University of Modena, Italy	1028Euros

CALENDAR

17TH MEETING OF SWISS SEDIMENTOLOGISTS

21 February, 2009
Fribourg,
Switzerland

André Strasser
Department of Geosciences, University of Fribourg
CH-1700 Fribourg, Switzerland
E-mail: andreas.strasser@unifr.ch
Web-page: www.swissed.ch

IAVCEI – IAS THIRD INTERNATIONAL MAAR CONFERENCE *

14-17 April, 2009
Malargue,
Argentina

Dr. Corina Risso
Universidad de Buenos Aires, Argentina
E-mail: corinarisso@fibertel.com.ar
Website: www.3imc.org

5TH LATIN AMERICAN SEDIMENTOLOGICAL CONGRESS *

13-15 May, 2009
Puerto La Cruz,
Venezuela

Dr. Rosa Aquino
E-mail: aquinator@pdvsa.com;
rosaaquino@cantv.net



27TH IAS MEETING OF SEDIMENTOLOGY *

20-23 September,
2009
Alghero, Sardinia,
Italy

Dr. Vincenzo Pascucci and Dr. Stefano Andreucci
Università di Sassari, Sardinia, Italy
pascucci@unisi.it; sandreucci@uniss.it
Website: www.ias2009.com



9TH INTERNATIONAL CONFERENCE ON FLUVIAL SEDIMENTOLOGY *

24-28 August, 2009
San Miguel de
Tucumán,
Argentina

Dr. Sergio M. Georgieff (UNT-CONICET)
Miguel Lillo 205, T4000JFE,
San Miguel de Tucumán, Tucumán, Argentina
E-mail: icfs9@csnat.unt.edu.ar
Phone: +54 381 4321 165 Fax: +54 381 4321 165
Website: <http://lillo.org.ar/content/view/551/153/>

THE 4TH CHINESE NATIONAL CONGRESS ON SEDIMENTOLOGY

16-20 October,
2009
Qingdao, China

Dr. Ping Yin
E-mail: yinping@cgs.gov.cn;
yaocx@cgs.gov.cn

12TH FRENCH MEETING OF SEDIMENTOLOGY

27-29 October, 2009
Rennes, France

E-mail: asf2009@univ-rennes1.fr
Webpage: <http://www.asf2009.univ-rennes1.fr>

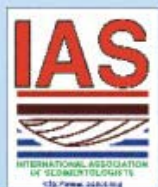


18TH INTERNATIONAL SEDIMENTOLOGICAL CONGRESS*

26 September,
1 October, 2010
Mendoza,
Argentina

Eduardo Piovano
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Data Print Ltd. 11a West Way Botley Oxford OX2 0JB, UK
Designed by Proedex s.l. Francisco Silvela 27
28028 Madrid, Spain editorial@proedex.com

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