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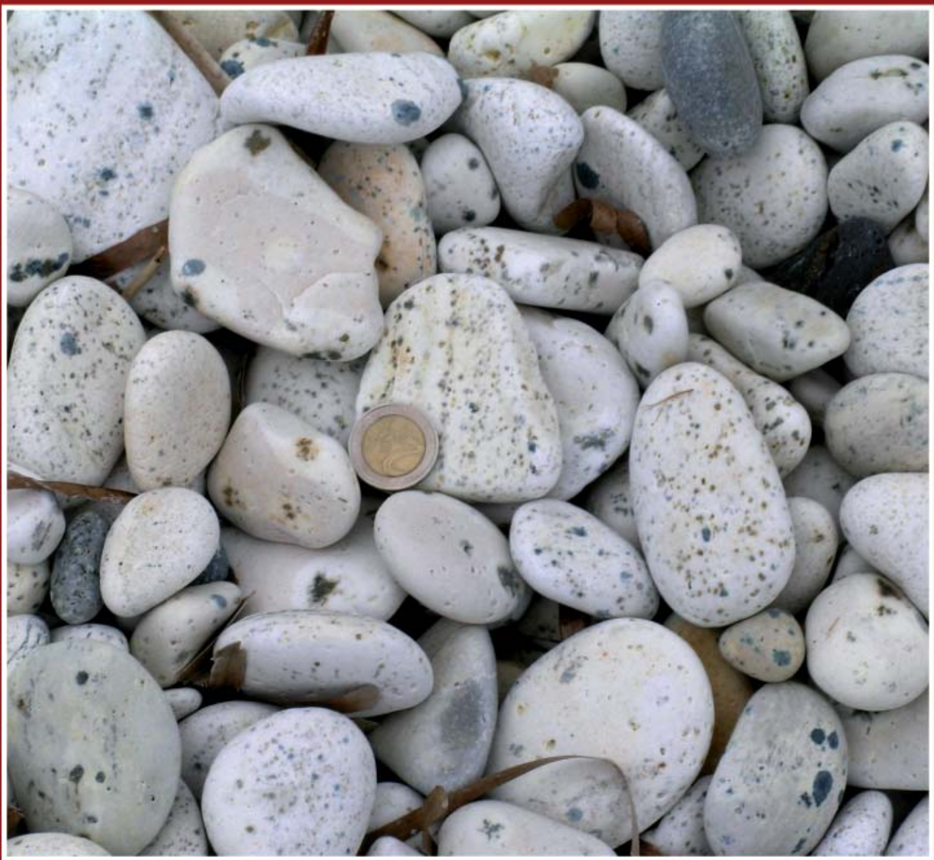

International Association of Sedimentologists

IAS Bureau and Council

Link to **IAS National Correspondents**:
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CONTENTS

EDITORIAL

The activities of the Argentinian Association of Sedimentologists are reported in the first part of Newsletter 248. In student corner session are research reports by Joanna Pszonka and Lara F. Pérez, recipients of IAS student grants (2nd session 2011).

The best paper in Sedimentology award has been given to M.E.J. Wilson. Motivations and an abstract are in the central part of the Newsletter.

Patric Jacobs has resigned as Deputy Treasurer/P.R. Officer. The entire IAS Bureau thanks Jacobs for the efforts he did inside the IAS Bureau and Sedimentological community.

Call for Nominations **for the 2014 Sorby Medal, Johannes Walther Award and Young Scientist Award** are still open. Deadline is **November 30.**

I would like to remind all IAS members that:

- the IAS Newsletter 247 is published on-line and 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 AGU Conference (December, 2013, San Francisco - USA) and will be sponsoring two sessions; please visit: http://fallmeeting.agu.org/2013
- IAS is sponsoring a student travel grant to the «5th International MAAR Conference» in Querétaro (Mexico), November 17-2, 2014. Info at: gerardoc@dragon.geociencias.unam.mx
- 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 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)

Argentinean Association of Sedimentologists

http://www.sedimentologia.org.ar/

The *Asociación Argentina de Sedimentología* (AAS) was founded in 1993 as the result of intense activity in the sedimentological field in Argentina. The objectives of AAS are to foster the study of Sedimentology through publications, organization of short-courses and meetings, as well as the **interaction of** postgraduate students and the interchange of research through regional and international collaboration. During its twenty years of existence, the AAS has been very active in maintaining and developing key goals for a growing sedimentological community - not only in Argentina, but in all of South America. The Association's website (http://www.sedimentologia.org.ar/) and Newsletters provide an extraordinary communication channel to keep the community informed about upcoming national and international scientific events, short-courses, training workshops and professional development. Likewise the blog on «Sedimentary Structures» (http://atlasaas.blogspot.com.ar/), which at present contains more than 100 photographs and explanations of excellent quality, will continue developing. According to the Atlas visitor log, the blog is mostly visited by students in Earth Sciences, which encourages its continuity and improvement.

From the very beginning a pioneer group of scientists and post-graduate students has been committed to supporting the AAS by sustaining and promoting *Reuniones Argentinas de Sedimentología* (Argentinean Sedimentological Meetings) and the publication of the only specialized sedimentological journal in South America «AAS *Revista» (AAS Journal),* now «Latin American Journal of Sedimentology and Basin Analysis». The AAS was initially chaired by Professor Luis «Chango» Spalletti, who is considered one of the leading proponents of modern sedimentology in Argentina, and who was awarded Honorary Membership in the IAS in 2002. Indeed the development of all these activities has been essential for the choice of Argentina as the venue of the 18th International Congress of Sedimentology in 2010 (Mendoza, ISC-18) strengthening the links between the AAS and the International Association of Sedimentologists.

In this communication we would also like to announce some of the

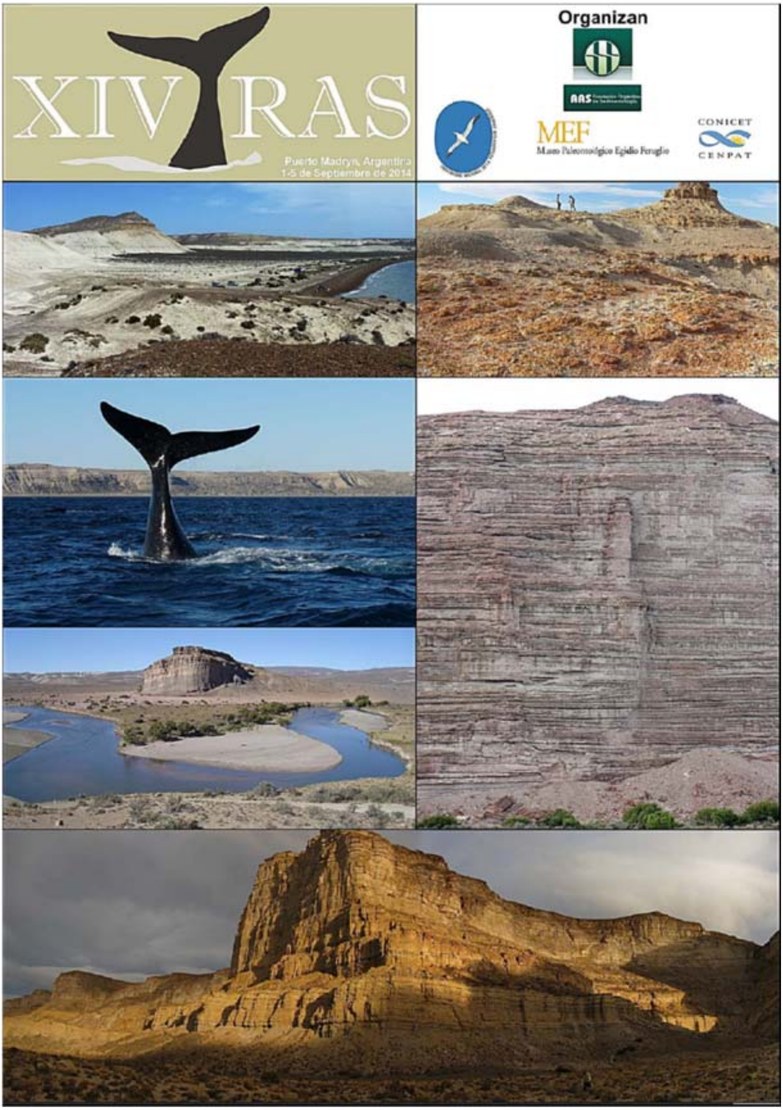

Figure 1. Spectacular images from Argentina.

Figure 2. The Argentinian sedimentologists.

upcoming meetings, goals and main strategies of the AAS, with a new Bureau since 2013. A central issue is the continuous publication of the Latin American Journal of Sedimentology and Basin Analysis (LAJSBA). The fundamental aim of the LAJSBA is to publish contributions dealing with all aspects of sedimentology, basin analysis and related disciplines, such as stratigraphy, paleoecology, and paleogeography, providing a timely forum to advance the entire field. Official languages of the Journal are Spanish, Portuguese and English. Thanks to the effort of AAS members and Argentinean Scientific Agencies, LAJSBA is an Open-Access Journal, free of charge for publications, available through SciELO Argentina at http://www.scielo.org.ar/scielo.php?script=sci_serial&pid=1851-4979.

The AAS provides special support for the organization of the 14th Argentinean Meeting of Sedimentology to be held in the city of Puerto Madryn, between the 1st and 5th of September 2014. This meeting will be the first to be held in the extra-Andean Patagonia, and is scheduled to include the participation of guest speakers, oral and poster presentation sessions, as well as intra- and post-Conference field-trips in the magnificent natural sceneries of Patagonia. Official languages of the meeting are Spanish, Portuguese and English. More information at xivras2014@gmail.com.

The AAS will also support the upcoming Field Training Course and Workshop of the Sam-GeoQuat Group «From the Pampean Ranges to the North Pampa: tectonic and climatic forcing on the Late Quaternary landscape evolution of Central Argentina» (http://www.samgeoquat.santafe-conicet.gov.ar/) from October 14th to

18th 2013, sponsored by the International Union for Quaternary Research (INQUA). The field course is open to young researchers from South American countries (PhD students & Post-Docs). The trip will cross a ca. 1,100 km geological transect that allows discussion in situ of outcropping Quaternary sequences and landforms.

As we mentioned previously, this year we celebrated the 20th anniversary of the Association in the city of La Plata. Undoubtedly, during this time we have seen continuous changes in objectives within the broad field of sedimentology, the emergence of new specialties and, most of all, the integration of new disciplines. In this sense, we are convinced that the Association should promote the discussion of frontier fields in sedimentology since the 21st century presents the international scientific community with the challenge of providing the society with the knowledge needed for sustainable environmental and natural resource management.

Finally, we would like to invite all of you to join the AAS and to consider the LAJSBA for publishing your research, especially research by international groups working in South America.

Looking forward to hearing from you,

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Vice-President: Eduardo Piovano
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STUDENT CORNER

Petrographic analysis of the Cergowa sandstones, outer Flysch Carpathians

IAS POSTGRADUATE GRANT SCHEME (2ND SESSION 2011)

Introduction and Geological Setting

The Cergowa Beds (Early Oligocene) occurs in two tectonic units of the Flysch Carpathians (Cieszkowski *et al.*, 1990). The south-western part of the Cergowa Beds lithosome is situated in the area of the Dukla Unit, and the north-eastern part occurs in the south-eastern sector of the Silesian Unit, referred to as the pre-Dukla Unit. The Cergowa Beds is an example of a submarine fan deposited by gravity flows. In general, the lithosome consists of two lithofacies, namely sandstones and sandstones interbedded with shales. The average amounts of individual components in the Cergowa sandstones enable classification of the rocks as greywackes (Peszat, 1984). According to Pettijohn's classification, taking the proportion of cement into account, the Cergowa sandstones represent the class of lithic wacke and, in subordinate cases, - lithic arenite.

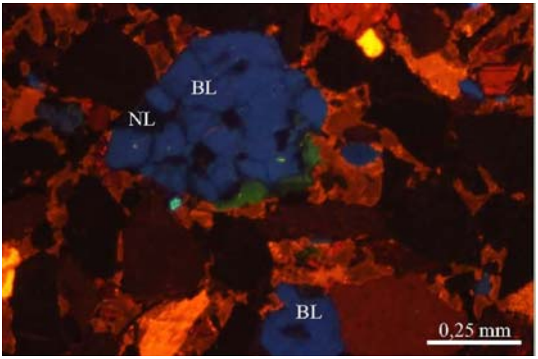

Figure 1. Blue CL K-feldspar (BL) with non-luminescent diagenetic changes (NL)

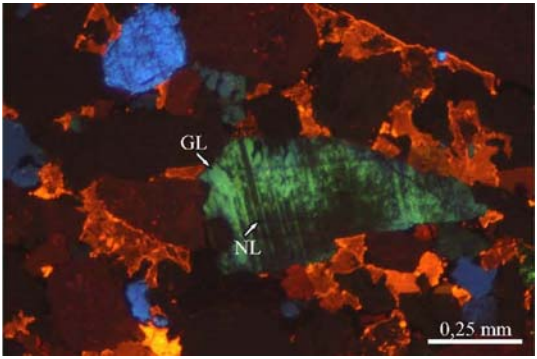

Figure 2. Green CL plagioclase (GL) with non-luminescent changes (NL)

Cergowa sandstones are considered, in economic terms, the most valuable industrial mineral of the Dukla and pre-Dukla Units and one of more important in the Carpathians. Highly valued technical properties of these sandstones are particularly related to their mineral composition, structural and textural features as well as diagenetic features. The sandstones show low and moderate resistance to abrasion, low absorption and very high resistance to freezing and thawing (Bromowicz *et al.*, 1976). Highly evaluated technical parameters of these rocks allow them to be used in the production of crushed aggregate, used mainly in roads and civil engineering applications. A part of the Cergowa sandstones, featuring poorer properties, are used in the road engineering at auxiliary works (Niec *et al.,* 2003).

The physical features of the Cergowa Beds sandstones, and observations under the polarizing microscope suggest exceptionally strong cementation of the detrital components. In order to gain a better understanding of the diagenetic processes that affected these rocks, cathodoluminescence was used for the observations of thin sections.

Materials and Methods

A Polarizing microscope (PM) was used at the AGH University of Science in Krakow and Technology in Krakow, for petrographic analyses of thin sections. Cold cathode

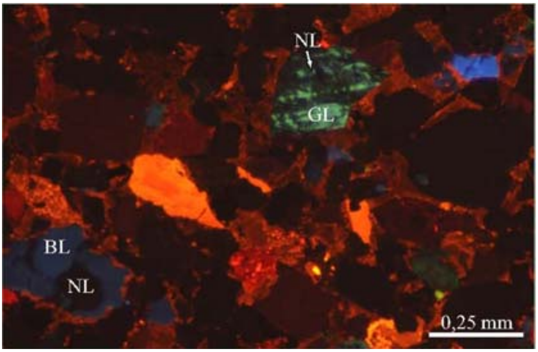

Figure 3. Blue CL K-feldspar (Kf) and green CL plagioclase with non-luminescent changes (NL)

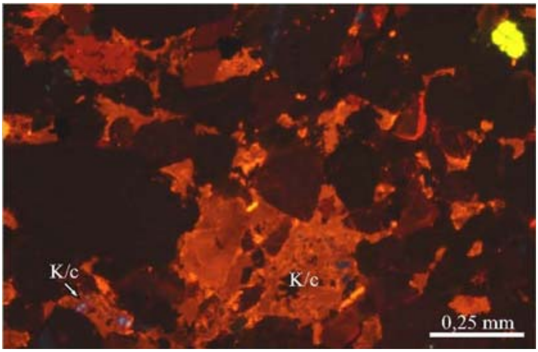

Figure 4. Feldspars altered by carbonates (K/c)

cathodoluminescence (CL), available at the Jagiellonian University, was used to determine textural features of sandstones and to identify the internal structures of their components. CL method has not been applied in the past studies of these rocks.

Diamond-polished thin sections, needed for the proposed microscopic studies, were prepared from oriented samples collected in outcrops. Thin sections were prepared in the Cutting-Polishing Laboratory at the AGH University of Science and Technology. The IAS Grant covered the cost of preparation of fifty of these sections.

Results

Cold cathode CL is a useful method for the analysis of mainly feldspars and carbonate cements. Feldspars constitute 1.2 to 6.8% the Cergowa sandstones, whilst cement: 8.7 to 45.8% (Peszat, 1984).

Feldspars

CL of feldspars is one of the tools enabling the interpretation of alterations and genetic conditions of rock formation, because feldspars formed under varying conditions can show different luminescence properties depending on the crystallization environment and trace element uptake during crystal growth or recrystallization (Owen, 1991).

Variations in colour and intensity of feldspars represent variations in the concentration of activators, sensitizers, quenchers or/and defects. Calcic plagioclases are yellow in colour, intermediate plagioclase appears green to yellow and K-feldspars (e.g. microcline, orthoclase) exhibit usually blue CL (Owen, 1991). CL emissions of feldspars consist of three broad emission bands:

- blue emission – 420 to 500 nm,
- green emission – 540 to 570 nm,
- red emission – 690 to 760 nm.

The blue emission generally is caused by the substitution of Al^{3+} for Si^{4+}, Cu^{2+}, Ti^{3+} or is associated with a hole on an oxygen adjacent to a divalent impurity ion ($Si\text{-}O^{-}\text{-}...M^{2+}$). The green/yellow emission is due to Mn^{2+} whilst the red or infrared emission is due to Fe^{3+}. The luminescent colour produced by iron activation is red alone but in many cases other activators compete with Fe^{3+} and the feldspar may exhibit blue, green or yellow CL. Rare earth elements (REE) are also potential activators of CL in feldspars. REE rarely occur in sufficient amounts in natural feldspars to be CL activators (Marshall, 1988). REE

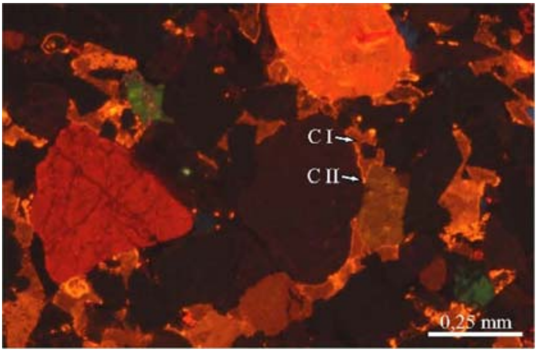

Figure 5. Two main generations of carbonate cement (arrows): C I – firs generation, C II – second generation.

contents are usually higher in plagioclases than in K-feldspars (Goetze *et al.*, 1999). Authigenic feldspar is nonluminescent because it has low concentrations of trace elements (Kastner, 1971).

In sandstones of the Cergowa Beds, post feldspar grains (both K-feldspar and plagioclase) reveal some diagenetic changes which are visible in CL images as nonluminescent parts (Figs 1, 2, and 3). Nonluminescent areas are common in the fractured grains and on cleavage traces, generating nonluminescent lines in the feldspars. One of the most important diagenetic changes that occurs in sandstones is the albitization of detrital K-feldspars and plagioclases (Milliken, 2005). However, it is difficult to determine the nature of diagenetic changes by means of cold cathode CL without additional studies to reveal the chemical composition of minerals.

Some feldspars are altered by carbonates (Figs 4 and 5).

Carbonates

Visual CL colour in carbonates is mainly yellow, orange, red or brownish. Almost all CL in carbonates is caused by trace elements, which are activators (Mn^{2+}, RREs), sensitizers (Pb^{2+}, Ce^{3+}) or quenchers (Fe^{2+}, Fe^{3+}, Ni^{2+}, Co^{2+}) (Machel, 2000).

The most active trace element in carbonates is manganese. As little as 10 to 20 ppm Mn^{2+} in a mineral is sufficient to provide visually

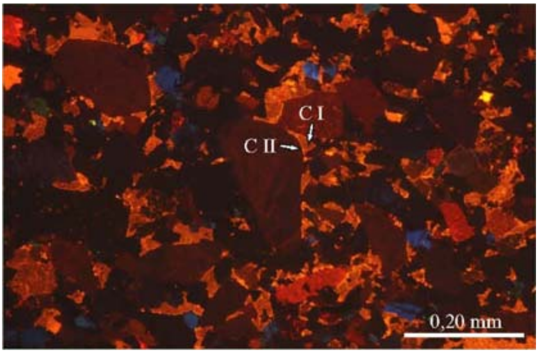

Figure 6. Two main generations of carbonate cement (arrows): C I – firs generation, C II – second generation.

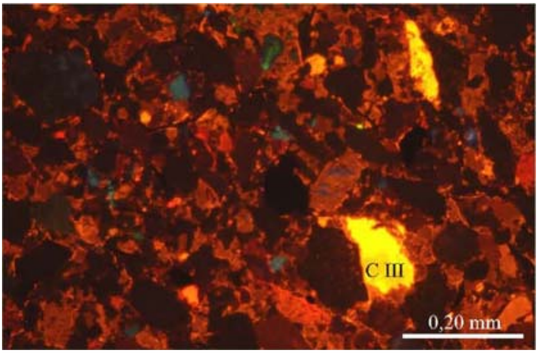

Figure 7. The youngest (third) generation of carbonate cement: C III – third generation.

detectable luminescence (Machel, 2000).

The CL images of the analyzed sandstone samples reveal two main generations of carbonate cement: an older generation, which appears brown-orange in colour and a younger generation seen as orange (Figs 4 and 7). The colour difference between the two generations reflects a difference in iron content of the diagenetic solutions and suggests that the older cement with lower iron content precipitated in the redoxomorphic phase of diagenesis. Sporadically, carbonate cement reveals yellow and bright yellow colour in CL images, which is caused by the presence of manganese ions (Fig. 6). The youngest generation of carbonate probably has not precipitated in oxidizing conditions because cement genetically related to such conditions shows low content of manganese.

The carbonate cement predates the silica cement present as thin siliceous rims around some detrital grains and as quartz veinlets within K-feldspar grains.

The CL technique is a useful tool in the detection and documentation of abundance patterns of foraminifers that are poorly visible under transmitted light (Fig. 8).

Discussion

The processes responsible for diagenesis of the Cergowa Beds sandstones were primarily related to dissolution. CO_2 was released during the organic matter decomposition with limited levels of oxygen. Small amounts of carbon dioxide acidifying the environment resulted in the dissolution of carbonates. In this way the pore waters were enriched with Ca^{2+} cations and with CO_3^{2-} ions. Increasing pressure and decomposition of the organic matter caused early dissolution of the mineral grains of quartz and feldspar unstable in the alkaline conditions, and crystallization of carbonate cement. Increasing alkalinity of the pore solutions, supported by reactivity of organic matter, caused dissolution of the remaining grains. The process of dissolution was so weak that mainly the marginal parts of grains were corroded. Alkaline solutions also facilitated precipitation of carbonate, which crystallized as pore-filling cement and on corroded grain surfaces in embayments and open cracks within grains. Despite low intensity this process was very important in lithification of the studied sediment. It increased the contact surface between the corroded grains and the cement. This resulted in

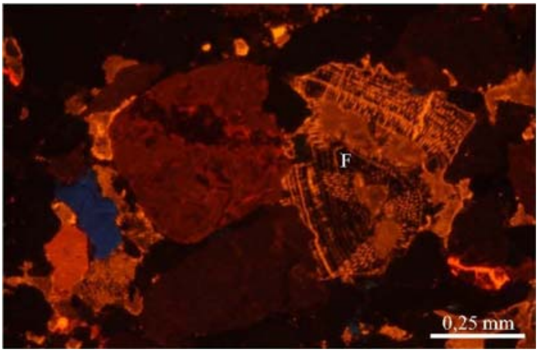

Figure 8. Foraminifer (F) detected in CL image.

very strong cementation of the Cergowa sandstones, which is shown by their high hardness and resistance.

Conclusions and suggestions for future research

Cold cathode CL is an irreplaceable method in many cases. The CL images can reveal textural features, substitution or transformation, which cannot be detected by means of other methods.

Substitution and transformation of minerals, next to dissolution and precipitation, played an important role in the diagenetic processes of the Cergowa sandstones, which is especially evident in CL images. These preliminary results are promising; therefore further studies with the use of CL are carried out in order to formulate more detailed conclusions.

Although cold cathode CL is a useful method it should be applied jointly with other methods in order to yield more convincing and satisfactory results. Further research is planned to determine chemical composition of minerals in order to determine types of substitution and transformation in minerals.

Acknowledgments

It has been a great honour and privilege for me to obtain financial support from the International Association of Sedimentologists' Postgraduate Grant Scheme. This work covers a significant part of my PhD study.

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Joanna Pszonka
Mineral and Energy Economy Research Institute of the Polish Academy of Sciences, and AGH University of Science and Technology in Krakow, Poland

STUDENT CORNER

Contourites at The Northern Scotia Sea: Sedimentary and oceanographic implications

IAS POSTGRADUATE GRANT SCHEME REPORT – 2ND SESSION 2011

Introduction

Circulation of bottom-water masses controls major along-slope (contourite) sedimentary processes on continental margins, which can generate both depositional [known as contourite drifts or drifts (Heezen *et al*., 1966; Faugerés *et al*., 1999)] and erosive features in deep marine environments. The effects of bottom currents and related deep-water processes and products are not well understood, but they have recently garnered major research interest in different fields (Rebesco & Camerlenghi, 2008).

The North Scotia Ridge (NSR) is a complex of shallow banks and submarine ridges that, at some point, formed the continuous continental link existing from southern South America to South Georgia (Ludwig & Rabinowizt, 1982; Lawver *et al.,* 1992; Barker, 2001). It constitutes the northern edge of the Scotia Sea; located near the sinistral strike-slip boundary of South-America and Scotia plates (Pelayo & Wiens, 1989; Barker *et al*., 2001; Thomas *et al*., 2003; Smalley *et al*., 2007). The study area is placed at the western end of the NSR (Fig. 1); in the vicinity of the shallow Burdwood Bank that constitutes a submerged E-W oriented continental fragment (Davey, 1972). This complex area is dominated by transpressional forces (Cunningham *et al*., 1998) resulting in an active convergence whose probable tectonic expression is the northern Malvinas/Falkland Trough (Ewing *et al*., 1971).

Due to its relatively low bathymetry (Fig. 1), the NSR forms an important morphologic obstacle to the northern flow of water masses between the Scotia Sea and the South Atlantic Ocean (Howe *et al*., 1997; Smith *et al*., 2010). The regional bottom-current circulation in the Scotia Sea is under the influence of two main active bottom flows: a) the Circumpolar Deep Water (CDW), which flows toward the east associated with the Antarctic Circumpolar Current (ACC); and b) the Weddell Sea Deep Water (WSDW), which circulates both toward the west, close to the South Scotia Ridge and derives from the Weddell Gyre (Orsi *et al.*, 1999) and the northeast and east along the eastern Scotia Sea. In the vicinity of the NSR, presumably both water masses flow through the NSR passages and come into the South Atlantic Ocean (Howe *et al.*, 1997; Hernández-Molina *et al.*, 2010).

Although contourite deposits are frequently described from the southern part of the Scotia Sea (Maldonado *et al.*, 2006); they were only mentioned a few times related to NSR (Lodolo *et al.*,2006) and the Malvinas/Falkland Trough (Howe *et al.*, 1997; Cunningham *et al.*, 1998). Consequently, the effect of bottom and deep current circulation in the northern part of Scotia Sea is unknown. The main purpose of the present study is to identify the major contourite features along the northern Scotia Sea margin, determine their evolution, and decode their sedimentary and oceanographic implications.

Methods and Justification

Regional morpho-sedimentary and seismo-stratigraphic analysis is proposed based on monochannel and multichannel seismic surveys conducted along the western end of the North Scotia Ridge (Fig. 1). They include previously published profiles (see Ludwig & Rabinowizt, 1982; Cunningham *et al.*, 1998; Lodolo *et al.*, 2006; Tassone *et al.*, 2008; Anderson *et al.*, 2010; Esteban *et al.*, 2011); publicly available single channel seismic lines in National Geophysical Data Center (NOAA) and Marine Geoscience Data System (ASP-UTIG; SCS data); available industrial seismic sections provided by the Geophysical Institute «Daniel Valencio» (Department of Geology, University of Buenos Aires, Argentina) in relation to the *Secretaría de Minería Argentina* (WG & 77 data); and multichannel seismic data acquired in October 1999 by the oceanographic vessel A.R.A. *Puerto Deseado*, in the frame of the TESAC project (TM data).

This research project was executed at the Geophysical Institute «Daniel Valencio» Department of Geology, University of Buenos Aires (Argentina), under the supervision of Dr. Alejandro Tassone. The IAS funding was used for travel expenses during a short stay in Buenos Aires by the author.

To facilitate the description of the results, the studied area is divided into two zones in relation with the Burdwood Bank (BuB) morphological boundary: to the north the Malvinas/ Falkland Trough (M/F T); and to the south the Northwest most part of the Scotia Sea.

Results

Malvinas/Falkland Trough

The sediment thickness, seafloor bathymetry and acoustic basement depth follow an E-W tend increasing to the east edge of the study area. Within this sedimentary record five seismic units can be distinguished; called V to I from bottom to top. The acoustic basement morphology has an important influence in the morphology; but from the upper part of Unit III to the seafloor this influence is less marked, and contourite sedimentary features can be identified. Most of the drifts of this area are sheeted drifts.

Northw est m ost part of the Scotia Sea

This area presents a great range of depth and the acoustic basement is highly irregular, especially close to the slope, where it forms deep

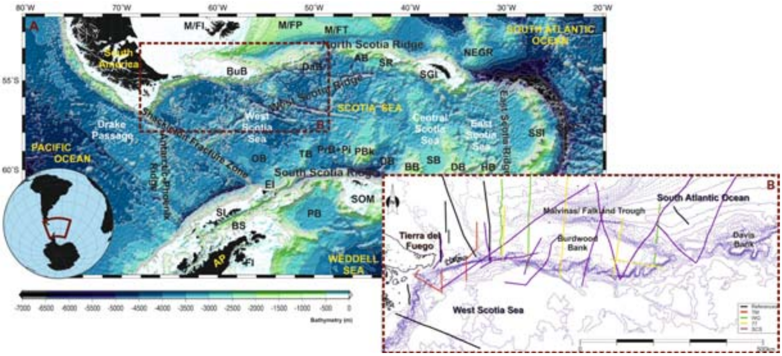

Figure 1. Simplified bathymetric chart from the GEOSAT gravimetric anomaly map of the Scotia Sea (Smith & Sandwell, 1997). A) Morphological and oceanographic features: AB, Aurora Bank; AP, Antarctic Peninsula; BB, Bruce Bank; BS, Bransfield Strait; BuB, Burdwood Bank; DaB, Dav is Bank; DB, Discovery Bank; DvB, Dove Basin; EI, Elephant Island; HB, Herdman Bank; M /F I, Malvinas/Falkland Islands; M /F P, Malvinas/Falkland Plateau; M/FT, Malvinas/Falkland Trench; NEGR, Northeast Georgia Rise; OB, Ona Basin; PB, Pow ell Basin; PiB, Pirie Basin; PiBk, Pirie Bank; PrB, Protector Basin; SB, Scan Basin; SGI, South Georgia Island; SI, Shetland Islands; SOM , South Orkney Microcontinent; SR, Shag and Black Rocks; SSI, South Sandwich Islands; SST, South Sandwich Trench; TB, Terror Bank (Maldonado et al.*, 2006). B) Seismic data set over the study area GEBCO bathymetry map.*

perched basins. The sedimentary record mainly fills the acoustic basement depressions and can be divided in five seismic units. In the same way, the acoustic basement morphology control decreases from the upper part of Unit III to the seafloor; especially to the abyssal plain where main thickness zones are related to contourite drifts. The contourite drift types include sheeted, mounded, confined, infilling and patch drifts.

Discussion and further work

Much work is yet to be done to make full use of the data. In a preliminary approximation, the established stratigraphic model of both areas can be tentatively related to the previously published set by Maldonado *et al.* (2006) for the south Scotia Sea. In both cases, the lower units are highly controlled by the acoustic basement morphology and tectonic deformation. Nevertheless the upper units have seismic attributes of active bottom water circulation. According to the previous regional circulation models (Howe *et al.*, 1997; Cunningham *et al.*, 1998; Orsi *et al.*, 1999) the contourite features can be tentatively associated with a northeastward current in the Northwest most part of Scotia Sea and a westward current in Malvinas/Falkland Trough; related to the CDW and the WSDW flow across the NSR.

Further work will look for a strong relation between the Malvinas/ Falkland Trough and the Northwestern most part of the Scotia Sea; identify an association between the northern and southern Scotia Sea stratigraphic models and create a robust regional circulation model. This work is predicted to be ready for the Scotia Arc Symposium in May 2013 and will hopefully be included in the special publication of the meeting.

Acknowledgements

Many thanks to the IAS Postgraduate Grant for the travel support. Also thanks to the people providing support from the University of Buenos Aires. And finally, thanks to the *Istituto Nazionale di Oceanografia e Geofisica Sperimentale* (OGS) for the TM data seismic processing.

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Lara F. Pérez
PhD Student, Instituto Andaluz de Ciencias de la Tierra (CSIC-UGR)
18100 Armilla (Granada), Spain.

ANNOUNCEMENT

The «editors' choice» for best paper in Sedimentology Volume 59 (2012):

The editors' choice for Best Paper in Sedimentology is chosen each year by the Associate Editors and Editors. Papers that receive the award are regarded as exemplars of what is possible and desirable for Sedimentology. The 25 Associate Editors make suggestions for their favourite papers based on scientific excellence. The Editors tally the votes and create a short-list for a second (and final) round of voting. Based on this year's voting, the winner of the Best Paper award in Sedimentology Volume 59(1), 1-31, is Moyra E.J. Wilson, for her paper entitled «Equatorial carbonates: an earth systems approach» (DOI: 10.1111/j.1365-3091.2011.01293.x). Among the many very positive comments from the Associate Editors were that this paper presents an «excellent new model for equatorial carbonate products and diagenesis» and a «valuable holistic approach to the study of carbonates.»

Abstract

The hypothesisis that an earth systems 'processes to products' approach can be used to better develop predictive models for the recognition and assessment of under-evaluated equatorial carbonate systems. Warm temperatures, together with common clastic, fresh water and nutrient influx, as well as basinal settings in the equatorial tropics, all have a major impact on carbonate deposition and diagenesis. Specific features of equatorial carbonate systems resulting from the combination of processes acting in the region include: common occurrence of photoautotrophs and heterotrophs, aragonitic and/or calcitic dominant mineralogies, lack of coated grains or aggregates, common associations with clastics, lack of associations with evaporites, and diversity of platform types, including oligophotic ones. Additional diagenetic characteristics include: common micritization and bioerosion, paucity of marine cements,

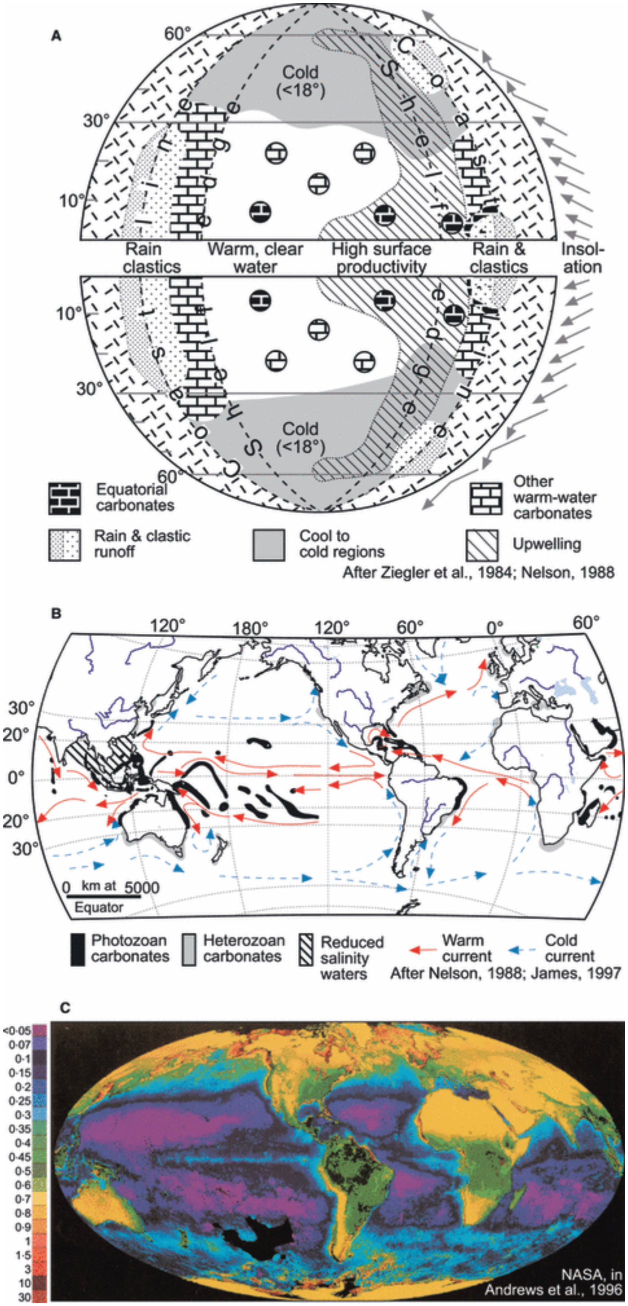
extensive vadose dissolution and concomitant phreatic cementation. There is also significant replacement of aragonite by calcite in regions of meteoric groundwater flow, common burial compaction and leaching, as well as localized massive dolomitization via sea water or continental derived groundwater flow. Although equatorial carbonates fall into the warm-water Photozoan Association, many of the features described above are at odds with models derived from their warm-water, arid-zone counterparts. Instead, a range of the equatorial carbonate features show some similarities with those formed in cool waters, and there have been difficulties separating carbonates from these two very different climatic regimes. Recommendations for the recognition of Phanerozoic regional equatorial carbonate development are: (i) a diversity of calcitic and/or aragonitic photoautotrophs; plus (ii) common elements of the Heterozoan Association; plus (iii) independent (for example, isotopic) evidence for warm temperatures (>22°C). Additional indicators towards a humid equatorial setting are: (iv) situation in appropriate paleolatitudes; (v) lack of association with sedimentary evaporites, coated grain or aggregates; and (vi) geochemical evidence for reduced marine salinity and/or nutrient upwelling. The aim is that this work will lead to greater awareness and understanding of equatorial carbonate systems, and contribute to the development of globally predictive models to better understand past and likely future environmental change.

Honourable mentions go to two the following papers:

Michael Salter and co-authors for «Production of mud-grade carbonates by marine fish»

and to Esther Sumner and co-authors for «Facies architecture of individual basin-plain turbidites».

Figure 1. Factors influencing the global distribution of modern carbonates. (A) Idealized model showing a range of important influencing factors on shallow–marine carbonate sedimentation (modified after Ziegler et al., 1984; Nelson, 1988). Warm-water carbonates in both shelf and island occurrences are shown in a brick pattern. Equatorial carbonates (shown in the inverted brick motif) have been added to the original diagram and these are commonly influenced by terrestrial runoff, upwelling and warm temperatures.
Heterozoan carbonates (not illustrated) commonly develop in cool to cold temperatures, or at depth below photozoan (warm-water) systems. (B) Global distribution of modern carbonate associations (modified after Nelson, 1988; James, 1997). In the equatorial tropics, note the significant occurrence of photozoan (warm-water) carbonates in SE Asia: a region of reduced marine salinity, significant terrestrial runoff and upwelling. (C) A global view of the Earth's biosphere via satellite image compilation by NASA (in Andrews et al., 1996) concentrating on the light spectrum dominated by green chlorophyll (scale is in pigment concentrations – mg m»3). Chlorophyll content provides an estimate of plant standing, and is a proxy for productivity, which in the oceans reflects upwelling and nutrient runoff.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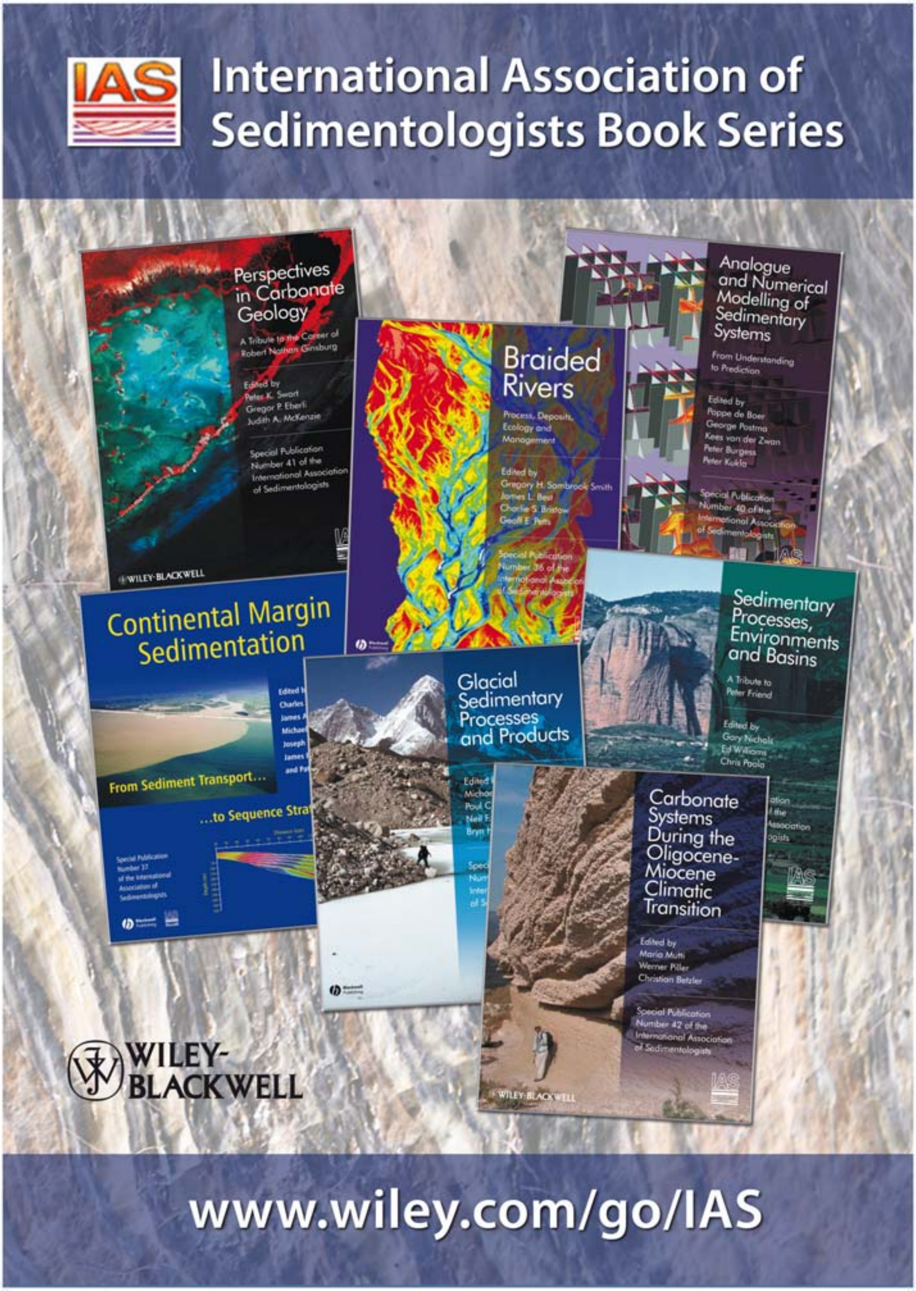
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Special IAS Grants or Institutional IAS Grants are meant for capacity building in 3rd world countries. There exists a list of 'Least Developed Countries' (LDC) by the UN. This list categorizes countries according to income per capita and is yearly updated.

Grants are allocated to allow Geology Departments in LDC to acquire durable sedimentological equipment for teaching and research (like sieves, calcimeters, auger drilling tools, etc.) or tools that can be used by all geology students (like general geology/sedimentology textbooks, IAS Special Publications (SP), memory sticks with back issues of Sedimentology or SP, etc). Therefore the grant application should clearly demonstrate to increase the recipient's capacity to teach sedimentology at the undergraduate level (Bachelor) in a durable way. It should also indicate in what way it would enable to support sedimentological research at the graduate level (Master).

Applicants should have a permanent position at their University and should be IAS members. Applications should provide the following information (not exhaustive list):

- the mission statement of the University/Geology Department
- the approval of the University Authorities to accept the grant
- a list of permanent teaching and technical staff members of the Geology Department (with indication of their area of research)
- the structure of the geology undergraduate and graduate courses (Bachelor/Master programme with indication of courses and theoretical and practical lecture hours)
- the number of geology students
- the actual facilities for geology/sedimentology students
- a motivation of application
- a budget with justification
- the CV of the applicant, including a sedimentology research plan

The institutional grant scheme consists each year of 2 sessions of 1 grant of 10.000 Euro. Applications run in parallel with the PhD research grant scheme (same deadline for application and recipient notification). The IAS Grant Committee will seek recommendations from relevant National Correspondents and Council Members (eventually including visitation) before advising the IAS Bureau for final decision. Additional funds made available by the recipient's University are considered as a plus.

Items listed in the application will be bought through the Office of the IAS Treasurer and shipped to the successful applicant. By no means will money be transferred to the grant recipient.

IAS STUDENT GRANT APPLICATION GUIDELINES

Application

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

- Research proposal (including Introduction, Proposal, Motivation and Methods, Facilities) – max. 750 words
- Bibliography – max. 125 words
- Budget – max. 125 words
- Curriculum Vitae – max. 250 words

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.

Recommendation letter (by e-mail) from the PhD supervisor supporting the applicant is mandatory, as well as recommendation letter (by e-mail also) from the Head of Department/ Laboratory of guest institution in case of laboratory visit.

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

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 the IAS by e-mail before the application deadline.

Application Form

Research Proposal (max. 750 words)
Title: ....
Introduction (max. 250 words): .....

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.

Methods (max. 125 words): ....

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.

Facilities (max. 125 words): ....

Briefly list research and study facilities available to you, such as field and laboratory equipment, computers, library.

Bibliography (max. 125 words)

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).

Budget (max. 125 words)

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.

The IAS will support field activities (to collect data and samples, etc.) and laboratory activities/analyses. Laboratory activities/analyses that consist of training by performing the activities/analyses yourself will be considered a plus for your application as they will contribute to your formation and to the capacity building of your home institution. In this case, the agreement of the Head of your Guest Department/Laboratory will be solicited by automated e-mail.

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.

Supervisor's name: ....

Supervisor's e-mail: ....

If you apply for laboratory analyses/activities, please carefully check analysis prices and compare charges of various academic and private laboratories as prices per unit might differ considerably. Please first check whether analyses can be performed within your own University. If your University is not in a position to provide you with the adequate analysis tools, visiting another lab to conduct the analyses yourself strengthens your application considerably as it contributes to your formation and to capacity building of your home University. Please check with the Head 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: ....

E-mail address of Head of Guest Department/Laboratory: ....

Finally, before submitting your application, you will be asked to answer a few informative questions by ticking the appropriate boxes.

- 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)

CALENDAR

11th Swiss Geoscience Meeting «Cycles and Events in the Earth System»

15th-16th November 2013
Lausanne, Switzerland

Karl Föllmi and Pierre Dèzes
karl.foellmi@unil.ch, pierre.dezes@scnat.ch
http://geoscience-meeting.scnatweb.ch/sgm2013/index.html

2014 Ocean Sciences Meeting*

23rd-28th February 2014
Honolulu, Hawaii USA

http://www.sgmeet.com/osm2014/default.asp

Mid-Mesozoic: The Age of Dinosaurs in Transition

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

James I. Kirkland Ph. D.,
jameskirkland@utah.gov
http://www.utahpaleo.org/mid-mesozoic-conference.html

19th International Sedimentological Congress*

18th -24th August 2014
Geneva, Switzerland

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

6th International Symposium on Lithographic Limestone and Plattenkalk*

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

Christina Ifrim
ISLLP2014@geow.uni-heidelberg.de
http://isllpsaltillo.uni-hd.de

5th International MAAR Conference*

17th -21st November 2014
Querétaro Mexico

Gerardo Carrasco Nuñez
gerardoc@dragon.geociencias.unam.mx

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This Newsletter has been designed by
Proedex s.l. Francisco Silvela 27
28028 Madrid, Spain
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Contributions to be sent to:
Vincenzo Pascucci
IAS General Secretary
Dip. to Scienze della Natura
e del Territorio
Università di Sassari
Via Piandanna, 4
07100 Sassari, Italy
Tel.: +39 079228685
pascucci@uniss.it

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