

*International Geoscience Programme*

IGCP

SPANISH NATIONAL COMMITTEE



Zafarraya polje (Granada province). Post-meeting field-trip.

Annual Report for 2007

January, 2008

ANNUAL REPORT for 2007  
IGCP Spanish National Committee

1. Prof. Dr. Marcos A. Lamolda (Chairman)  
Departamento de Estratigrafía y Paleontología  
Facultad de Ciencias, Universidad de Granada, Avda. de Fuentenueva s/n, 18002 Granada, Spain.  
Tel. 34 958243347. Fax no. 34 946013500. E-mail: mlamolda@ugr.es  
Website: <http://www.ugr.es/~mlamolda/PICG>  
(since 1999, pioner website of national committees)
2. Dr. V. Gabaldón and Dr<sup>a</sup>. C. Antón-Pacheco (Instituto Geológico y Minero de España-IGME); Dr. B. Andreo (513); Dr. D. Brown (524); Dr. P. Domínguez (503); Dr. J. A. Gámez (493); Dr. Antonio García-Casco (546); Dr. A. Márquez (506); Dr. R. Mediavilla (CEICAG); D. C. Quesada (497); Dr. R. Sáez (502); Dr. J. I. Valenzuela (499); Prof. Dr. C. Zazo (495).
3. IGCP projects in which Spanish Working Groups have participated

b) Project with Spaniard project co-leader

Project no. 502: 'Global comparison of Volcanic-hosted Massive Sulphide Districts'

Dr. Reinaldo Sáez Ramos  
Depto. de Geología, Fac. de Ciencias Experimentales,  
Campus del Carmen, Universidad de Huelva  
Avda. Fuerzas Armadas s/n  
21071 Huelva

email: saez@uhu.es  
<http://www.uhu.es/igcp502>

Spaniard co-leader: Dr. Fernando Tornos, IGME, Salamanca.

**Summary:** According the guidelines of the IGCP 502, during the third year of the project, the Spanish Working Group (SWG) had addressed their research activities to the progress and international correlation on the knowledge of geological mechanisms involved in the genesis of massive sulphide deposits and their preservation in the geological record. New interpretations have been



Visit to the 'San Miguel' mine,  
Iberian Pyritic Belt.

proposed for the relationship between basin evolution and ore genesis in different massive sulphide provinces.

Concerning the geological environment in which massive sulphide deposition occurs, new progress has been realized about the magmatic and sedimentary features of the massive sulphide depositional environments. In this way new geochemical studies have been realized including samples from the Iberian Pyrite Belt (IPB) and other in the European variscan branch. The Skellefte district (Sweden) as well as deposits in Cuba, Argentina and Italy are under study as in order to account for the relationship between massive sulphides and magmatic activity.

The research of the relationships between basin evolution and massive sulphide deposition has been faced in several places of the variscan chain by means of chronostratigraphic and geochemical studies in shale hosted massive sulphide deposits. In this way, new proposals have been done about the role of local anoxic events in the genesis of massive sulphide deposits both in the Jebilet (Maroc) and the IPB.

One of the main objectives of the IGCP 502 was the definition of the geodynamic environments for massive sulphide deposition, as well as the behaviour of massive sulphide ores under active tectonic regimes. New results in this line have let some members of the SWG to propose a new structural and geodynamic framework for the IPB.

Outstanding results have been given to the scientific community by means of publications and congress communications, both national and international. The international annual meeting of the project was realized in relation with the SGA 9th Biennial Meeting, which was held in Dublin (Ireland) in August 2007. The SWG annual meeting were held in Huelva during the Spanish Geological Society Meeting. A field trip to the Iberian Pyrite Belt have been realized as a complementary activity.

Foresight for next year includes follow up on the main research objectives of the IGCP 502 and the dissemination of research results.

#### Meeting organization

- Session 16a “ *Sea-floor systems (IGCP 502)*”, by Fernando Tornos, of the SGA (Society for Geology Applied to Mineral Deposits) 9th Biennial Meeting, Dublin, August 2007.

- Field-trip to Tharsis mining district on December 1st visiting “La Corta Filón Norte”, as a postmeeting activity of the XLIIIª Sesión Científica de la Sociedad Geológica de España, which was held at Huelva University on November 30th, 2007. The field-trip was guided by Francisco M. Alonso, Elena Montero, Teodosio Donaire, Emilio Pascual and Reinaldo Sáez, and founded by the Spanish Working Group.

#### Invited participation

“Master en Geología y Gestión Ambiental de los Recursos Minerales”, Universidad Internacional de Andalucía, Spring 2007. Activities on field-trips to visit massive sulphide deposits in the Odiel river valley, “Faja Pirítica Ibérica”: Tharsis, San Miguel, Monte Romero, Las Cruces y La Zarza localities, were guided by Gabriel Ruiz de Almodovar, Manuel Toscano, Teodosio Donaire y Reinaldo Sáez, members of the Spanish Working Group.

#### Publications and contributions to congresses

The working group has a total of 8 publications.

Project no. 513: 'Karst Aquifers and Water Resources'

Dr. Bartolomé Andreo Navarro  
Depto. de Ecología y Geología, Fac. de Ciencias,  
Campus de Teatinos, Univ. de Málaga  
29071 Málaga

email: andreo@uma.es  
http://www.hidrogeo.uma.es

Spaniard co-leader: Dr. Bartolomé Andreo Navarro

**Summary:** Concerning the investigations performed, a part of them deal on chemical composition and contamination processes of drip water in many Spanish caves located in the North (Tito Bustillo, Pindal and Herrerías caves), near of Altamira cave, in the East (Canelobre cave, caves from Majorca), in the West (Castañar de Ibor cave) and in the South of Spain (Nerja cave, Refugio cave, Cueva del Agua). Other aspects such as petrology of speleothems and the use of radiolocation to know the rock thickness above a cave have been also done (for details see <http://www.barrabes.com/tedra/video.asp>).

The hydrogeological investigations on karst aquifers focused, on one hand, on water resources assessment, so that to say, in the estimation of recharge, in aquifers from eastern Spain. Thus and specific method for groundwater resource assessment in carbonate aquifers (APLIS method), developed in the frame of GTE 513 has been applied in large carbonate aquifers from Castellón province and Majorca and Menorca islands.



Nerja Cave (Nerja, Málaga)

On the other hand, the functioning of several carbonate aquifers from south Spain (from Alicante, Murcia and Almería provinces) has been studied by means of hydrodynamic, hydrochemical and isotopic tools. Thus diffuse flow and conduit flow systems have been distinguished by application of these tools. In some aquifers from SE Spain (Alicante, Murcia, Almería provinces) the resources are scarce and the aquifers are overexploited, which have been investigated by GTE-513 members. As groundwater resources are scarce, desalinization plants are progressively increasing for water supply to the population. In the province of Huelva and in Asturias, the investigations carried out on this way focused on the potential exploitation of carbonate aquifers. The GTE-513 has worked on protection of groundwater by vulnerability mapping with the aim of its adaptation to delineate protection zones around springs and wells used for water supply. A method for contamination vulnerability mapping have been developed in the frame of GTE-513 (COP method), which has been successfully applied in carbonate (karst) aquifers from different countries (Germany, Slovenia, Ethiopia), contributing thus to groundwater protection in karst areas.

The main results obtained by GTE 513 have been presented in national and international meetings and congresses and they have been published in international journals.

#### Meeting organization

- Congreso Internacional sobre Acuíferos Costeros TIAC 2007 (A. Pulido, J. A. López Geta). In the field-trip “*Visita a los acuíferos costeros de Nerja, Cantarriján, Cerro Gordo y Punta de la Mona (Málaga–Granada)*”, it had two stops especially related to IGCP project no. 413: Cueva de Nerja, and Cerro Gordo, southern Sierra Almirante.

- The representative of the working group (Dr. Bartolomé Andreo) was requested by the chairman of the Spanish Committee to arrange the annual committee meeting in collaboration with the Cueva de Nerja Foundation, on May 4<sup>th</sup> and 5<sup>th</sup>. As associated events, had a guided visit to the Cueva de Nerja, two invited talks about karst topics, and a field-trip departing from the foundation and visiting the Zafarraya polje and El Torcal of Antequera.

#### Invited talk

“Cartografía de vulnerabilidad a la contaminación de acuíferos carbonatados” (B. Andreo), Curso de Perímetros de Protección, Ilustre Colegio Oficial de Geólogos, Madrid 25 October, 2007.

#### Publications and contributions to congresses

“*Atlas Hidrogeológico de la Provincia de Málaga*” (J. J. Durán, coord.). Diputación Provincial de Málaga, Instituto Geológico y Minero de España, and Universidad de Málaga.

In addition, the working group has 5 publications, and 6 contributions to meetings. During 2007 has been reviewed and edited a special issue of the journal *Environmental Geology*, on “*Groundwater in Mediterranean Countries*” (B. Andreo, J. J. Durán, eds.).

#### Project no. 524: ‘Arc-Continent Collision’

Dr. Dennis Brown  
Instituto de Ciencias de la Tierra “Jaume Almera”, C.S.I.C.  
c/ Sole i Sabaris s/n  
08028 Barcelona

email: [dbrown@ija.csic.es](mailto:dbrown@ija.csic.es)

Spaniard co-leader: Dr. Dennis Brown  
<http://www.ija.csic.es/gt/IGCP524>

**Summary:** We are moving along nicely with the plans for the meeting in Taiwan in January (2008). I am very pleased not only with the number of participant, but also the caliber. I should be a very interesting few days. My co-leader Chi-Yue Huang has come up with about \$3500US support from his Department for the meeting. To date, I have still not heard anything about the accion complementaria I applied for, but the resolution of these is slowly appearing on the web.

On another front, we will have a significant presence at the upcoming IGC in Oslo (August, 2008) with a preconference excursion to the Urals (excursion No. 54 Arc-continent collision and the geodynamics of mineral deposit formation in the Urals: IGCP



524 and IGC excursion) followed by a session at the meeting in Oslo (Regional Europe section).

Finally, I have just been approached by the leaders of ILP Task Force I (ERAS - accretionary orogens) to team up with them on some of their planned meetings, particularly in Australia in 2009.

Project no. 546: 'Subduction zones of the Caribbean'

Dr. Antonio García Casco  
Depto. de Mineralogía y Petrología, Univ. de Granada  
Avda. de Fuentenueva s/n  
18002 Granada

email: agcasco@ugr.es

Spaniard co-leader: Dr. Antonio García Casco  
<http://www.ugr.es/agcasco/pigc546/>

**Summary:** The diversity of P-T paths, ages and tectonic settings of high-pressure complexes in the Caribbean document a protracted Mesozoic-Tertiary history of subduction. As no clear picture exists integrating all these occurrences, clarifying the history of subduction in the region will be the fundamental aim of the present project. Through a series of workshops, field trips and meeting sessions, we will enable a systematic comparison of Caribbean high-pressure belts, constrain their thermobaric structure, establish relations between serpentinite- and gneiss-hosted eclogites, determine subduction polarity reversals in space and time, and constrain the rates of subduction-related processes by geochronology. Our findings will refine plate tectonic reconstructions for the Caribbean, offering a new view of the deep earth in the Circum Caribbean region.

Spanish members have participated in the following project activities:

- 1) Cuba 2007. 21-27 March. Field Workshop "Caribbean Geology". The event was devoted to the geological correlation between Cuba and Central America. The event was part of the "Segunda Convención Cubana de Ciencias de la Tierra, SCCCT". A field trip held on March 24-27 2007, led by M.A. Iturralde-Vinent. 12 scientists from six countries attended the field trip.
- 2) Guatemala 2007. 3-9 December. Field workshop "The Motagua suture zone of Central Guatemala". The activities included an international field trip to the Motagua suture zone and an international conference on Caribbean subduction zones (Guatemala City). Approximately 40 scientists and 20 undergraduate-postgraduate students from 14 countries.
- 3) San Francisco 2007. 10-14 December 2007. AGU Fall Meeting. Session "T29 Caribbean Subduction Zones - Past and Present". The event consisted in oral and poster sessions held on December 10th. 8 presentations (3 of them invited) were selected for the Oral Session, in addition to 26 ones in the poster session, by researchers from 10 countries.

During 2007 a total of three papers have been published by Spaniard projects members.

Besides other five manuscripts have been submitted to international journals. For year 2008 there are organized several activities: a symposium and field-trip in Hispaniola Island, a short course at Granada (Spain), and short course and field-trip in western Cuba. It is intended to organize a session with project topics at the Geological Society of America 2008 Joint Meeting, Houston, Texas, USA.

c) Projects with active working groups

Project no. 493: 'The Rise and Fall of the Vendia Biota'

Dr. José Antonio Gámez Vintaned  
Area y Museo de Paleontología  
Facultad de Ciencias,  
Univ. de Zaragoza  
c/ Pedro Cerbuna, 12  
50009 Zaragoza

email: [gamez@unizar.es](mailto:gamez@unizar.es)

**Abstract:** In 2007, the IGCP project 493 arrived to its originally-scheduled final year. Nevertheless, an extension of the project for 2008 has been approved, without financial support. The main international activity in 2007 was the Fifth International Annual Meeting, held in Russia in August 20-30th. This consisted of: 1) an eight-days scientific field excursion to the Winter Coast of the White Sea (Archangel'sk region, NW Russia), for studying Middle and Vendian rocks and biotas; 2) fifth plenary session and two days of scientific sessions celebrated at the Geological Institute of the Russian Academy of Sciences in Moscow, with the attendance of 54 scientists from eight countries who presented a total of 23 contributions; 3) one day of examination of macropalaeontological collections of the Vendian of the White Sea, housed at the Palaeontological Institute and Museum of the Russian Academy of Sciences in Moscow. During the plenary session, the main objectives achieved during the period of the project were highlighted (edition of divulgation books and specialized monographs, issue of stamps with palaeontological motives, onset of a travelling exhibit about the Vendian world). As for the Spanish Working Group, the main activity in 2007 was the celebration of a symposium in Caravaca de la Cruz (Murcia province), including a scientific session and the annual meeting. Scientific results from the SWG appeared in 2007 refer to two main lines of research: 1) taxonomic studies on skeletal microfossils from



Stratum surface with *Yoldia waggoneri* and ichnofossils. Dr. Andrey Yu. Ivantsov found it.

the Vendian (Ediacaran) of Spain, entailing a worth increase of the global biodiversity known for this key interval in the history of life; 2) ichnofossil biozonation around the Proterozoic/Phanerozoic transition in Spain, as a basis for future chronostratigraphic and geochronological proposals at this interval.

Publications and contributions to congresses

The working group has a total of 4 contributions to meetings.

Project no. 495: 'Quaternary Land-Ocean Interaction'

Dr. Caridad Zazo

Museo Nacional de Ciencias Naturales, C.S.I.C.

c/ José Gutiérrez Abascal, 2

28006 Madrid

email: mcnzc65@mncn.csic.es

**Abstract:** The general theme of the project is to investigate vertical changes of the sea level and the lateral displacements of the coastline, analyzing the mechanisms causes of these variations. The scales used are: geographical (including local, regional, and global data), and temporal (from years to thousands of years).

The GTE (Spanish Working Group) investigate mainly sea level changes along the Spanish – Portuguese coasts, North Africa, and the Cabo Verde Islands. The chronological framework, is focused not only in the Present Interglacial (last 11,500 years), but also in the last quaternary interglacials (until ca. 400.000 years) with possibilities of use precise dating methods.

Various scientific works on superficial oceanic and atmospheric circulations are being carried out by means of data obtained from marine macrofauna migrations, and their isotopic composition variability (mainly on molluscs and corals). Moreover mineralogical and textural data on sediments are been used to deduced the “dust content” from African sources in sediment from Cabo Verde and Canary Islands. The research area is centred in Subtropical North-Atlantic Gyre and Azores High Pressure Center, with special interest in its modifications regarding intensity, morphology, and location, during different Quaternary interglacial periods.

Related with Natural Hazards the effects, characterization and recurrence of high energy episodes on the coasts are also a mainly research objective, particularly Tsunamis and Storms events affecting the SW Iberian coast.

Meeting organization

Symposium SP1 “Registros ambientales y climáticos cuaternarios: palinología, paleoecología, secuencias litorales, lacustres y eólicas” (C. Zazo coord.)

Session S3 “Ambientes, secuencias litorales y cambios del nivel del mar” (T. Bardají, A. Alonso)

both of them in the XII Reunión Nacional del Cuaternario, Ávila 21 – 23 June, 2007.

Invited talks

“Actividad humana y medio ambiente: su registro en los sedimentos. El registro en la costa”, (C. J. Dabrio), in session 2<sup>nd</sup>, I Congreso Nacional sobre Cambio Global, Getafe (Madrid), 25 – 27 April, 2007.



Invited talk by J. Rodríguez-Vidal in the Internacional Conference on *Human adaptation to the changing geomorphological face of Gibraltar*, Calpe, 27 – 30 September, 2007.

Publications and contributions to congresses

The working group has a total of 13 publications, and 17 contributions to meetings.

Project no. 499: 'Devonian land-sea interaction: Evolution of Ecosystems and Climate in the Devonian'

Dr. José Ignacio Valenzuela  
Depto. de Geología,  
Facultad de Biología  
c/ Dr. Moliner, 50  
46100 Burjasot

email: Jose I. Valenzuela@uv.es



The Silurian/Devonian transition at Birch Creek.  
Nevada

**Abstract:** Members of the Spanish Working Group have been working in four large areas with excellent outcrops of Devonian rocks that allow detailed studies aiming at the IGCP main goals. These areas are 1) the Cantabrian Mountains, 2) the Spanish Central Pyrenees, 3) the Iberian Chains and 4) the Obejo-Valsequillo Domain in the Ossa Morena Zone. The studies are mostly multidisciplinary and comprise several palaeontological groups such as conodonts, braquiopodos, corals, stromatoporoids, fish remains and ostracods. Some of the results have already been published (four papers, three in SCI Journals and one in the *Revista Española de Paleontología* and 18 contributions to Professional Meetings), and most of them will be published soon. Although conodont and biostratigraphic studies are dominant, it is remarkable that this year, several aspects of Lower Devonian reefal facies in the Cantabrian Mountains and in Ossa Morena represent almost a 25% of the published contributions.

Finally the following relevant aspects stand out: Participation in the IGCP international meeting hold in Nevada, USA (five contributions). Organization of the Spanish Working Group Symposium in Caravaca de la Cruz (seven contributions); Participation in the X *International Congress on Fossil Cnidaria and Porifera* host in Saint Petersburg, Russia (four works); participation in the Annual Meeting of the IGCP-IUGS Spanish National Committee. Besides, one contribution was sent to an international IGCP meeting that took place in San Juan, Argentina.

Publications and contributions to congresses

The working group has a total of 4 publications, and 18 contributions to meetings.

Project no. 503: 'Ordovician Palaeogeography and Palaeoclimate'

Dr. Patricio Domínguez  
Depto. de Paleontología, Facultad de CC Geológicas  
Ciudad Universitaria

28040 Madrid

email: [patricio@geo.ucm.es](mailto:patricio@geo.ucm.es)

**Abstract:** The participation of the Spanish Working Group of IGCP project 503, guided in the sedimentological, stratigraphical, palaeoclimatological and biodiversity studies in the Ordovician. During this year it has been present in eight scientific meetings with 39 participations, and has published 62 works (one more in press). It has organized a specific Ordovician meeting (*IGCP Project 503 Regional Meeting and Field-trip*, held in Zaragoza, from 17 to 19 September).



The Rebosilla Member stratotype.

Several members have participated in the summer courses of the University Complutense of Madrid. It has carried out field works in the Peruvian Cordillera Oriental Ordovician (regions of Junín and Ambo), and is collaborating with five more projects. From the participations to congresses stand out: *First International Palaeobiogeography Symposium*, held in Paris, from 10 to 13 July, 2007; *Tercentenary Celebration of the Linnean Society*, held in the NHM of London, from 18 to 19 June, 2007; *IX Simposio de Zoología de Guadalajara México* held in Universidad de Guadalajara, from 15 to 19 October, 2007; and *I Congreso Nacional sobre Cambio Global*, held in Getafe (Madrid), from 25 to 27 April, 2007.

The research has been carried out in Spain, Portugal, Colombia, Peru, Morocco, France and Bulgaria with conodonts, graptolites, echinoderms, trilobites, brachiopods, conulariids, crinoids, ichnofossils, reef bioaccumulations, palaeogeographical and palaeoclimate studies and mainly correlation of Ordovician stratigraphy between Colombian Cordillera Central and Peru. There are some papers that are remarkable in these research ways: study of conodonts of lower Ordovician from Montagne Noire (France), and the palaeontological and stratigraphic studies of Arouca (Portugal). Concerning to Iberian Peninsula, the stratigraphic study of Barrios Formation stands out.

#### Meeting organization

The South European regional field meeting (J. J. Alvaro, E. Villas), IGCP project no. 503, Zaragoza and the Iberian Ranges, 17-19th September, 2007.

#### Publications and contributions to congresses

The working group has a total of 14 publications, and 19 contributions to meetings.

#### Project no. 506: 'Marine and Non-marine Jurassic'

Dr. Ana Márquez Aliaga  
Depto. de Geología, Facultad de Biología  
c/ Dr. Moliner, 50  
46100 Burjasot

email: Ana.Marquez@uv.es

**Summary:** During the 2007 year, researches of the Spanish Working Group of the IGCP project no. 506 have been engaged on several topics, which are directly related to the different working areas of the Triassic and Jurassic basins in the Iberian Peninsula (Iberian Chains, Betic Chains, Catalanian Coastal Ranges, and Pyrenean Basin). All these areas have been studied from palaeontological and stratigraphical viewpoints, with mayor focus on the Triassic/Jurassic boundary. Regarding this point, main efforts have been devoted to fieldwork, as it is an essential basis for solving the biostratigraphical problems previously identified. In attaining this task, it is necessary to make progress in the knowledge of the different taxonomic groups that have to be analysed within their biostratigraphical, taphonomic and paleobiological context. This analysis will help to characterize the model, as well as the processes, that took place around the biotic Triassic recovery, the Triassic/Jurassic biotic extinction crisis and the Jurassic recovery.

Our annual meeting was on the 5<sup>th</sup> of October in Caravaca de la Cruz (Murcia) during the “XXIII<sup>a</sup> Jornadas de Paleontología” congress, organised by the Spanish Palaeontological Society, the presence of numerous members of de group, mostly young research people, let us an interesting talk about the future research projects in our programme. A symposium was coordinated by Dr. Ana Márquez-Aliaga, Spanish representative of this national working group. Five communications about Triassic and



Hettangian bivalves from Colunga (Asturias).  
First biota after the end-Triassic extinction

Jurassic topics have been presented and discussed in this forum.

Research lines about extinction events and its posterior biotic recovery are growing up in the present science community, but studies about the Triassic Jurassic boundary have a special high level in this moments, because this had not much attention in last times, it is one of the big five extinction events and we have no many fossil details. In the Iberian Peninsula, there is some outcrops with Rhaethian and Hettangian fossil record. The aim of our SWG is actually focussed in this problem. Over this point, a review about events around the Triassic–Jurassic boundary in northern and eastern Spain has been produced. This work was made after the palynological characterisation of the Rhaetian and Hettangian facies in Asturias. (see Barron *et al*, 2006. *Review of Paleobotany & Palynology* 138,187-208). At the moment, the mollusk characterizations is in preparation by Márquez-Aliaga, Damborenea and Goy.

We must not forget that some members were former members of the IGCP project no. 467 Spanish Working Group, therefore we get this year some results focussed in Spanish Triassic geological problems: Pérez López, A. and Pérez-Valera, F. 2007. Palaeogeography, facies and nomenclature of the Triassic units in the different domains of the Betic Cordillera (S Spain) *Palaeogeography, Paleoclimatology, Palaeoecology*, 254, 606-26.

Our working group is very active with near 30 contributions as a product of our research, and with 25 members. At last, the group have been informed about the next International Symposium IGCP 506 in Hammamet (Tunez), from 28 to 31 of March 2008. Some members would like attend it but to get funds is difficult and it is, always, our big problem. I would like to have some solution to this “classical” trouble and, by the moment, I am asking for your attention to get a normal financial solution.

#### Visiting professor

Dr. Susana F. Damborenea, CONICET and Universidad de la Plata (Argentina), is a visiting professor in the UNESCO Chair Studies for the Development, Universidad de Valencia Estudio General, during October and November, 2007. Project granted by the Patronato Sur-Norte Solidaridad y Cultura, Fundación General de la Universidad de Valencia.

#### Publications and contributions to congresses

The working group has a total of 18 publications, and 11 contributions to meetings.

#### 4. National Committee activities

The Spanish National Committee (SNC) annual meeting was held at Nerja (Málaga) on May 4<sup>th</sup> and 5<sup>th</sup>, Fundación Cueva de Nerja headquarters with Prof. M. A. Lamolda in the chair. This meeting was attended by 11 participants, who were welcome by the Gerente of the Cuerva de Nerja Foundation, D. Angel Ramírez Doña. The Sudirector General de Programas y Organismos Internacionales of the Spanish Ministry of Education and Sciences, Dr. Luis M. Delgado Martínez, attended the meeting, gave us his support, and described the ministry politic plan to enhance the role of Spaniard representatives in international organizations. This meeting was granted by Fundación Cueva de Nerja.

On May 4th afternoon two invited talks were addressed to participants, related to the geological setting of the region:

\* *Investigaciones geológicas en la Cueva de Nerja y su entorno*, by Dr. Francisco Carrasco Cantos. Universidad de Málaga.

\* *Utilización de registros geoquímicos en sedimentos recientes (fundamentalmente espeleotemas) para reconstrucciones paleoclimáticas*, by Dra. Concepción Jiménez de Cisneros. Estación Experimental del Zaidín, C.S.I.C. Granada.

Later, participants visited the Cueva de Nerja guided by Cristina Liñán Baena and Yolanda del Rosal Padiá, both researchers of the foundation.

On Saturday 5th a field-trip guide by Dr. Francisco Carrasco, depart from the Cueva de Nerja to the Zafarraya polje (Granada province), and finally to the Torcal de Antequera (Malaga province).

All these general activities were attended by several High School teacher (Natural Sciences) from Málaga province, as a mean to do available IGCP Spanish Committee research to the society.

The committee reviewed the projects newly adopted by the IGCP Scientific Board during its last session in middle February 2007 at Paris. Two proposals were provisionaly approved: project no. 524 "Arc-Continent Collision", project no. 546 "Subduction zones

of the Caribbean", both projects have Spaniard co-leaders, Drs. Dennis Brown and Antonio García-Casco, respectively.

This year there are a total of 10 working groups, but only 9 are active: GTEs project no. 493, 495, 499, 502, 503, 506, 513, 524 and 546, according to reports received by this chairman.

As results of working group activities, three monographies have been published or edited:

\* *IGCP project 503. Regional Meeting and Field-trip, Zaragoza 2007* (J. J. Alvaro & E. Villas, eds.) Publicaciones Universidad de Zaragoza.

\* *Atlas Hidrogeológico de la Provincia de Málaga* (J. J. Durán, coord.). 2007. Diputación Provincial de Málaga-Universidad de Málaga.

\* *Groundwater in Mediterranean Countries* (B. Andreo & J. J. Durán, eds.). *Environmental Geology* special issue (in press).

The Spanish National Committee, IGCP, was represented by Cecilio Quesada in the 35th Session of the IGCP Scientific Board, held in the UNESCO headquarters at Paris, and presented this chairman short report for 2006.

The Secretary General of the IUGS, Dr. Peter Bobrowsky, requested a list of possible members of the Scientific Board IGCP, with their affiliation and curricula vitae. This chairman asked to Spanish Working Group representatives to propose expertises on earth science topics, and nominated 14 Spaniard researchers on hydrogeology, tectonic, petrology, mineralogy, paleontology, stratigraphy, oceanography and marine geology.

The Secretary of the IUGS invited to this chairman to be a member of a group of experts according to the agreement signed by the IUGS and the IUCN (The World Conservation Union), to provide geological assistance in the review and evaluation of geological sites that have been nominated for World Heritage site designation of UNESCO. It was effective on July 24<sup>th</sup> 2007.

The Spanish Committee, IGCP, has been a co-organizer of the *I Congreso Nacional sobre el Cambio Global*, organised by the Comité Español de Investigación en Cambio Global. This chairman was invited to present a contribution about the role of the Spanish Committee, IGCP, and its working groups on Global Change. It was presented a poster contribution titled:

*"Investigación y algunas aportaciones del Comité Nacional Español, Programa Internacional de Geociencias, al Cambio Global"*

by Marcos A. Lamolda, with collaboration of SWGs related to sea level changes during the Quaternary, water resources and karst aquifers, and global bioevents at the end of the Cretaceous and the end of the Paleocene. All of them are recent or past situations as examples for both the future of humankind and our planet.

It had a master lecture about:

*Actividades humanas y medio ambiente: su registro en los sedimentos. "El registro en la costa"* by Cristino J. Dabrio, a contribution of the GTE project no. 495, and two posters:



*“Cambio climático y su registro en sedimentos paleozoicos”*

by M<sup>a</sup> Consuelo Sendino, a contribution of the GTE IGCP project no. 503

*“Análisis de series históricas de datos de lluvia y de caudal. Región de Sierra Tejeda-Almijara (Sur de España)”*

by Isaac Pérez and Bartolomé Andreo, a contribution of the GTE project no. 513.

This chairman attended the XXIII<sup>rd</sup> Jornadas de Paleontología (annual meeting of the Spanish Paleontological Society), held at Caravaca de la Cruz (Murcia) in early October, with a symposium on IGCP projects no. 393, 499 and 506 topics.

#### International Year of Planet Earth

The chairman was invited to be a member of the Spanish Committee of the International Year of Planet Earth (IYPE), which held its first meeting on September 21st at Madrid. Its activities will follow two ways: a scientific programme centered around the ten main topics of the IYPE, and a programme of relation with society. This second programme has the following actions (underlined those just made or in preparation):

Information leaflet

Didactic CD with geologic pictures

Information to media

Public presentation to media (November 2007)

Formal presentation in the Parliament (January 2008)

Itinerary Exposition “Planeta Tierra” (2008–2009), which will visit 40 Spanish localities.

Propaganda DVD

#### 5. IGCP meetings held during the year in your country

IGCP project no. 503 *Ordovician Palaeogeography and Palaeoclimate*. The South European regional field meeting of the IGCP 503 was held on 17-19th September, at Zaragoza and the Iberian Ranges. The Spanish Working Group of this project had his annual meeting, too. The meeting was held in collaboration with the Spanish National Committee, IGCP, and the French Palaeozoic Working Group (GFP), which organized its annual meeting during the IGCP 503 conference. The scientific sessions were mainly focused on the *Palaeogeography and Palaeoclimate of the northern and western Gondwana margins during the Ordovician*. Consequently, contributions dealing with southwestern Europe, North Africa and South America were particularly welcome. A total of 16 contributions and an invited talk were presented. Two field-trip were held on September 18<sup>th</sup>: Upper Ordovician of the eastern Iberian Chain, and on September 19<sup>th</sup>: The Ordovician–Silurian transition of the Palaeozoic inliers in the Teruel and Guadalajara provinces, Spain.

A symposium with topics of IGCP project no. 493 *The Rise and Fall of the Vendian Biota*, no. 499 *Devonian land-sea interaction: Evolution of Ecosystems and Climate in the Devonian*, and no. 506 *Marine and Non-marine Jurassic*, was organized in the XXIII<sup>rd</sup> Jornadas de Paleontología, held at Caravaca in early October. A total of 14 contributions were presented.

## 8. Forthcoming events available in connection with the Programme

\* The SWG of IGCP project no. 495 annual meeting will be held during the VII Congreso Geológico de España, Las Palmas de Gran Canaria, July 2008. Members of the SWG will organize a Field-trip: Vulcanismo, geomorfología y niveles marinos en Lanzarote y Fuerteventura, guided by C. Zazo et al.

\* The SWG of IGCP project no. 499 will held its annual meeting in the Museo del Jurásico de Asturias, Colunga (Asturias), October 2008, during the XXIV<sup>a</sup> Jornadas de Paleontología. A special session will be organized by the SWG with topics of this project.

\* A IGCP 503 Special Session in the 4th International Trilobite Conference, which will be held at Toledo, June 16-24, 2008.

\* Some members of the SWG of IGCP project no. 503 will attend the 3<sup>rd</sup> Meeting on Taphonomy and Fossilization Taphos'08, Granada June 2008.

\* The SWG of IGCP project no. 506 will held its annual meeting in the Museo del Jurásico de Asturias, Colunga (Asturias), October 2008, during the XXIV<sup>a</sup> Jornadas de Paleontología. A special session will be organized by the SWG with topics of this project.

\* The SWG of IGCP project no. 513 will held its annual meeting in Mallorca, organized by Dr. Pedro Robledo, IGME. Some members will attend the X<sup>th</sup> Reunión de Geomorfología, Cádiz September 2008. Members of the SWG will organize a Field-trip about the geomorphology and hydrogeology of the Sierras de Grazalema and Líbar, guided by J. J. Durán, B. Andreo, F. Carrasco and P. Jiménez.

\* The SWG of IGCP project no. 546 is organising a Short Course on “Thermobarometry and P-T-t paths”. The event shall be co-organized by IGCP 546 and the Postgraduate School in Earth Sciences, University of Granada (Spain), May 5<sup>th</sup> to 16<sup>th</sup>, 2008.

### Spanish National Committee

- Annual Meeting at Madrid, Spring 2008.
- Collaboration with the Spanish Committee International Year of Planet Earth.

## 9. Suggestions relating to the conduct and improvement of the Programme

Colaborations between National Committees and proposers of new project has to be improved. New proposals should be sent in advance to those National Committee chairpersons whose countries would be involved in such a project. Just ask for support, it is not enough. Frequently this chairman have no news about national colleagues interested in such a proposal. The leaders of project have to send regular information to National Committee chairpersons, especially those with a participation in their respective projects and/or where activities will be organized. It is important getting a balance between project activities and National Working Group inputs.

This is a trouble to enhance the role of IGCP, and its relationship with the National Committees.

It would be appreciate a regular information from the IGCP Secretariat to chairmans of National Committees, especially when new information is or will be available in the IGCP website.

Actually, the regular contact of IGCP Secretariat with this chairman is just to request reports or other kind of information.

10. Financial support received for the activities of this National Committee, and given to IGCP projects and their activities

Basic activities have been financed by the Instituto Geológico y Minero de España (Spanish Geological Survey) with an amount of 2314 €, for the following actions:

- Visit of Chairman to the Fundación Cueva de Nerja, with Dr. Bartolomé Andreo to arrange the annual meeting with foundation officials, on 9th February 2007.
- Spanish National Committee meeting at Nerja (Málaga), April.
- A representative of the Spanish Working Group, project no. 493, participation in the *V<sup>th</sup> International Annual Meeting* of this project at Moscow.
- A representative of the Spanish Working Group, project no. 503, participation in the *Regional Meeting and Field-trip* of this project at Zaragoza and Iberian Ranges.
- A representative of the Spanish Working Group, project no. 513, participation in the *I Congreso Nacional sobre el Cambio Global*, Getafe (Madrid).

The Spanish Working Group of project no. 502 got an “Acción Complementaria” of the Ministry of Education and Science granted with 6000 € for the period Autumn 2006 to December 2007. It allows to finance the field-trip to “La Corta Filón Norte”, in the Tharsis mining district, southwestern Spain as a postmeeting activity of the XLIII<sup>a</sup> Sesión Científica de la Sociedad Geológica de España, on December 1<sup>st</sup> 2007.

The printing cost of the "*Boletín Informativo*" no. 31. January 2007, was financed by the Instituto Geológico y Minero de España.

The Cueva de Nerja Foundation, financed a part of costs of this committee annual meeting. It allowed to arrange the SNC meeting at Nerja, and organize a special session and field-trip on karst geology.

Most of the activities related to Spanish Working Groups have been financed directly by research projects of the participants, granted by the Spanish government, Regional governments and other institutions.

The Ministry of Education and Science has provisionally approved an Acción Complementaria Internacional (ACI) for the activities of this National Committee. It is expected that the ACI will finance 2008 activities, allowing participation in main national and international IGCP meetings. It would be a similar financial situation to the year 2005 one, when the committee had the financial support of the Comisión Española de Cooperación con la UNESCO (Spanish representative of UNESCO).

Granada, January 14<sup>th</sup> 2008

Marcos A. Lamolda  
Chairman, Spanish National Committee, IGCP