SPANISH NATIONAL COMMITTEE REPORT 2016



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1. Chairman and Secretary of the Spanish National Committee

Chairman:

Prof. Dr. José Ignacio Valenzuela Ríos Department of Botany and Geology

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2. Members of the Spanish National Committee

Dr. Roger Urgeles Esclasans (reporter 640); Dr. Javier Lario (639); Dra. Jau-Chyn Liao Chen* (596), Dr. Juan Ignacio Santisteban) (618); Dr. Javier Hernández Molina (619); Dr. Pablo G. Silva (International Board); María del Mar Corral Lledó (Geological Survey of Spain) and Santiago Martín Alfageme (Geological Survey of Spain).

*Dra. Liao is the secretary of the Spanish Working Group that was leaded by the current President. The leader of IGCP-596 was appointed as President of the National Committee, consequently Dra. Liao acts as representative of the IGCP-596.

3. IGCP Projects with participation of Spanish Working Groups

IGCP-596 "Climatic change and biodiversity patterns in the Mid-Palaeozoic (Early Devonian to Late Carboniferous)

Leader: Prof. Dr. José Ignacio Valenzuela Ríos; Secretary: Dr. Jau-Chyn Liao

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Abstract: The year 2016 the IGCP 596 was on-extended term and the project concluded. Constraint of budget limited but not stopped the activities of the Spanish Working Group (SWG); these activities have been mainly focussed on six aspects: 1) participation in the international IGCP-meetings; 2) presentation of results, both on professional meetings and in specialised papers; 3) organisation of the annual meeting in conjunction with the Spanish Palaeontological Society; 4) pro-active participation in the 40th Anniversary of the Spanish National Committee; 5) supervising a long stay of an international student that ended with the co-supervising of the successful Ph. D defence in Nanjing and 6) Organise a field workshop with Master students from six different Spanish universities.

Regarding to the first aspect, the SWG has attended the final IGCP-596 closing meeting planned for this year in Udine (Italy) with three summary contributions and the joint IGCP 591 Closing

Meeting in Ghent (Belgium) was also attended (three contributions). Besides, young members of the SWG were present in the 1st International Meeting of Early-stage Researchers in Palaeontology

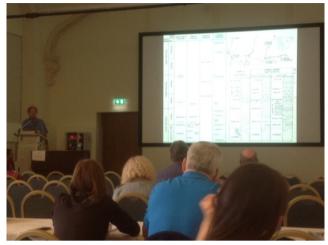


Fig. 1 Scientific presentation at Ghent (Belgium) joint IGCP 591, 596 Meeting showing different Devonian ecosystems in the Pyrenees

Fig. 2 Scientific presentation at Ghent (Belgium) joint IGCP 591, 596 Meeting demonstrating the biodiversity of conodonts

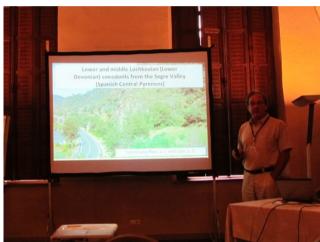




Fig. 3 Group Photo at the IGCP 596 Closing Meeting in Udine (Italy)

held in Alpuente (Spain).

As in past years, the SGW organised a Special Symposium within the frame of the XXXII Annual Meeting of the Spanish Palaeontological Society; unfortunately only one oral contribution was presented this year. At the same time, the annual business meeting of the SWG was held. This year the meeting took place in Molina de Aragón.

José Ignacio Valenzuela-Ríos and Jau-Chyn Liao (Leader and Secretary of the SWG respectively) have supervised a Chinese student from University of Nanjing (LU Jianfeng), who successfully defended his dissertation at the end of November in Nanjing. Both SPW leaders travelled to

Nanjing for the defence act and took the opportunity to strength ties of international cooperation and discuss on further joint projects.

This year the Spanish National Committee celebrated the 40th anniversary with a special meeting in the Sierras Subbéticas Geopark. The leader and the secretary of the SWG who presented an historical review of the precursor IGCP 499 and the achievements of the 596 attended the meeting. The nature of the



Fig. 4 Opening Ceremony at the Spanish National Committee 40th Anniversary in The Mycological Garden "The Truffle" (Priego de Córdoba, Spain)



Fig. 5 Guided visit to the Mycological Garden "The Truffle" (Priego de Córdoba, Spain)

meeting facilitated the public outreach of results as the multidisciplinary program attracted local people and policy-makers.



Finally, 12 students of the Master in Applied Palaeontology of the University of Valencia in the frame of Innovative teaching took part in

Fig. 6 Students hands-on activity in the Pyrenean training field workshop. Upper Devonian section at Villech

a multidisciplinary training field workshop that took place in the Devonian rocks of the Spanish Central Pyrenees.

Partial support for attending and organising the different activities outlined above has been obtained from the Spanish IGCP National Committee, the National Natural Science Foundation of China, the University of Valencia and the Nanjing Institute of Geology and Palaeontology, Chinese Academy of Sciences.

In this year the SWG was composed of 29 members (14 females and 15 males; including 4 Postdocs; 5 Ph. D. students and 1 Master Student).

Publications and contributions to congresses

<u>Peer Review Papers</u>

Cascales-Miñana, B.; Gerrienne, P., Moreno-Domínguez, R.; Jinzhuang, X.; Valenzuela-Ríos, J.I.; Díez, J.B.; Rial, G. & Steemans, P. (2016). A new highly diverse palynoflora from the Lower Devonian Nogueras Formation of the Iberian Peninsula. *Historical Biology*. **28 (8)**: 1118-1124. doi: 10.1080/08912963.2015.1111885.

Gouwy, S.; Liao, J.-C. & Valenzuela-Ríos, J. I. (2016): Graphic correlation of the upper Eifelian to lower Frasnian (Middle-Upper Devonian) conodont sequences in the Spanish Central Pyrenees and comparison with composite standards from other areas. *Palaeontologica Electronica* 19.3.40A: 1-18. palaeo-electronica.org/content/2016/1620-pyrenean-givetian-correlation.

Liao, J.-C. & Valenzuela-Ríos, J. I. (2016): Givetian (Middle Devonian) historical bio- and chronostratigraphical subdivisión base don conodonts. *Lethaia* DOI: 10.1111/let.12192.

Murphy, M.A.; Carls, P. & Valenzuela-Ríos, J.I. (2016): *Cypriodus hesperius* (Klapper and Murphy) Taxonomy and Biostratigraphy. *University of California, Riverside, Campus Museum Contribution*, **8**: 1-21. ISSN 0147-6238

Slavík, L.; Valenzuela-Ríos, J.I.; Hladil, J.; Chadimová, L.; Liao, J-C.; Hušková, A.; Calvo, H. & Hrstka, T. (2016): Warming or cooling in the Pragian? Sedimentary record and petrophysical logs across the Lochkovian–Pragian boundary in the Spanish Central Pyrenees. *Palaeogeography, Palaeoclimatology, Palaeoecology*, **449**: 300-320.

Book-Chapters

Valenzuela-Ríos, J. I. & Liao, J.-C. (2016): El Lochkoviense inferior y medio (Devónico Inferior) de la sección Segre-5. Un nuevo registro de conodontos en los Pirineos Centrales españoles. *In* Meléndez Hevia, G., Núñez, A. & Tomás, M. (eds.) Actas de las XXXII Jornadas de la Sociedad Española de Paleontología. *Cuadernos del Museo Geominero*, **20**: 539-541.

Liao, J.-C. & Valenzuela-Ríos, J. I. (2016): The Renanué section in the Central Pyrenees (Middle to Upper Devonian). *In* Suttner, T.J., Kido, E., Königshof, P., Waters, J.A., Davis, L. & Messner, F. (eds.) *Planet Earth in Deep Time, Palaeozoic Series, Devonian and Carboniferous*: 214-215. Schweizerbart Science Publishers, Stuttgart.

Valenzuela-Ríos, J. I. & Liao, J.-C. (2016): The Compte-I section in the Central Pyrenees (Lower Devonian). *In* Suttner, T.J., Kido, E., Königshof, P., Waters, J.A., Davis, L. & Messner, F. (eds.) *Planet Earth in Deep Time, Palaeozoic Series, Devonian and Carboniferous*: 212-213. Schweizerbart Science Publishers, Stuttgart.

Valenzuela-Ríos, J. I. & Liao, J.-C. (2016): Programa Internacional de Geociencias (PICG), Proyecto PICG-596 (2011-2015) Cambio climático y patrones de biodiversidad en el Paleozoico Medio. *In* Suttner, T.J., Kido, E., Königshof, P., Waters, J.A., Davis, L. & Messner, F. (eds.) *Planet Earth in Deep Time, Palaeozoic Series, Devonian and Carboniferous*: 203. Schweizerbart Science Publishers, Stuttgart.

Abstract and Proceedings

Valenzuela-Ríos, J. I. & Liao, J-C. (2016): Lower Devonian Events in the Spanish Central Pyrenees. Preliminary results base don Conodont biostratigraphy. *Berichte des Institutes für Erdwissenschaften der Karl-Franzens-Universität Graz/Austria*, **22**: 77-82. ISSN: 1608-8166.

Slavík, L.; Hladil, H.; Valenzuela-Ríos, J. I.; Chadimová, L.; Hušková, A. & Liao, J-C. (2016): The Early Devonian sedimentary records, biostratigraphy and petrophysical logs from the key peri-Gondwanan sections and paleoenvironmental implications. *Berichte des Institutes für Erdwissenschaften der Karl-Franzens-Universität Graz/Austria*, **22**: 69-73. ISSN: 1608-8166.

Liao, J-C. & Valenzuela-Ríos, J.I. (2016): Givetian (Middle Devonian) Subdivision, Conodont biodiversity and Global Events in the Spanish Central Pyrenees. Preliminary results base don Conodont biostratigraphy. *Berichte des Institutes für Erdwissenschaften der Karl-Franzens-Universität Graz/Austria*, **22**: 51-55. ISSN: 1608-8166.

Lu, J.F.; Valenzuela-Ríos, J.I. & Chen, X.Q. (2016): Conodont biostratigraphy of the *Zdimir* bed at Nalai, Guangxi, South China. IGCP 591, The Early to Middle Paleozoic Revolution, Closing Meeting, Abstracts: 55.

Lu, J.F.; Valenzuela-Ríos, J.I.; Kuang, G.D. & Chen, X.Q. (2016): Conodont from the uppermost part of the Shizhou member to the lowest part of the Daliancun Member of he Yukiang Formation at

Shizhou, Guangxi, South China. 1st International Meeting of Early-stage Researchers in Palaeontology XIV Encuentro de Jóvenes Investigadores en Paleontología (1st IMERP-XIV EJIP), Alpuente, Spain.

Valenzuela-Ríos, J.I.; Liao, J.-C.; Gouwy, S. & Martínez-Pérez, C. (2016): The Devonian of the Noguera Ribagorzana and Segre Valleys (Spanish Central Pyrenees). IGCP 591, The Early to Middle Paleozoic Revolution, Closing Meeting, Abstracts: 87.

Valenzuela-Ríos, J.I. & Liao, J.-C. (2016): Lower and middle Lochkovian (Lower Devonian) conodonts from the Segre Valley (Spanish Central Pyrenees). IGCP 591, The Early to Middle Paleozoic Revolution, Closing Meeting, Abstracts: 86.

Meeting organisation

The Spanish Working Group (SWG) has organised a Special IGCP Symposium within the frame of the XXXII Spanish Palaeontological Meeting. Unfortunately, only one work was presented, which was published in the special book of the Meeting.

Name of organisers: José Ignacio Valenzuela-Ríos and Jau-Chyn Liao.

Date and location: Molina de Aragón, Spain, (21-23 Septiembre 2016). Spain.

Number of participants: over 100 participants of nine countries.

Funding: IGCP-National Spanish Committee.

Besides, the SWG held its annual business meeting and the interest to continue in future IGCP related projects was clearly stated.



Fig. 7 Participants in the fieldtrip of the Spanish Palaeontological Society Annual Meeting. Founding Meeting of the IGCP 632 Spanish Working Group.

Ph. D. finished

This year, on the 27th of November, Jianfeng LU presented and defended his Ph. D. with the title "Study of the Early Devonian Conodonts from Guangxi and southestern Yunnan, South China" at the University of Chinese Academy of Sciences in Nanjing (China).

Fig. 8 Successful defence of the Ph. D. candidate Jianfeng Lu (fifth from the right) in 724Nanjing (China).



Other IGCP-related activities

<u>Graduate Training</u>: Field workshop on Devonian (Bio and Chronostratigraphy), field techniques, Organiser: José Ignacio Valenzuela-Ríos. December 2016-February 2017.

The Spanish IGCP National Committee and the University of Valencia partially supported participation and organisation of the different activities outlined above.

Planned activities for 2017

As 2016 was the very last year of the project (OET), no activities can be planned for 2017.

IGCP-618: Paleoclimate information obtained from past recharged groundwater

Leader: Dr. Juan I. Santisteban Complutense University of Madrid.

Email: juancho@ucm.es.

Website: http://www.igme.es/ProPaleoTD/default.htm

Spanish Working Group activities during 2016 focused on the understanding of the relationships at short scale among groundwaters, climate and humans (Aguilera et al., 2016; Celis et al., 2016) and the analysis of the environmental changes due to long-term groundwater oscillations (Santisteban et al., 2016; Höbig et al., 2016) and their influence on human settlements (Santisteban et al., 2016).

In these papers, members of the Spanish Working Group interpret that environmental changes recorded in wetland/lake deposits are not only due to fluctuations on the surface water supply/ evaporation but the water table depth controls the base level of the sedimentary systems being possible to reconstruct the changes in such position from the sedimentary record.

In addition, up to recent times, these changes conditioned the settlement of the region or forced the building of water management structures to adapt to such changes (Projects 1, 3).

Two PhD Thesis have been presented during this year, supervised by members of the Spanish Working Group.

The first one (Mediato, 2016) establishes the relations between the terrestrial groundwater and the marine wedge (related to sea level position) in the coast as a controlling factor on the evolution of coastal wetlands evolution in the Mediterranean coast of Spain. Furthermore, uses the sedimentary record of these wetlands to determine the fluctuations of such water masses during the Late Pleistocene up to the Holocene.

The second one (Höbig, 2016) focuses in the climate evolution during the Late Quaternary in the Mediterranean region from lake deposits interpreting these changes, among other factors, in relation to the position of the terrestrial groundwaters.

The activities of the group have been presented to the general public in the Geolodía16. This is a scientific fieldtrip open to the general public in which the knowledge about the geology of a region is presented. In this case, the Geolodía16 in Ciudad Real took place in Las Tablas de Daimiel National Park where members of the Spanish Working Group presented the interactions among water (surface and groundwater), environment and man in the present and through the Quaternary. These activities also comprise the publication of a guide about the region for the general public (Project 2).

In addition to papers now published in 2017 dealing with the interaction between water and humans during historical times (Celis et al., 2017) and the subsurface structure of the Las Tablas de Daimiel wetland (Rey et al., 2017), during 2017, members of the Spanish Working Group will continue cooperating with researchers of German Universities about the hydrological changes and their relation to groundwater during the Quaternary in South Spain. Preliminary results will be presented in the EGU meeting in May, 2017. Also, the longer-scale studies about the paleohydrological evolution of central Spain will be presented in the PAGES OSM meeting in May, 2017.

Publications

Celis, A., Mediavilla, R., Santisteban, J.I., Castaño, S., De la Losa, A. (2017) La desecación de Las Tablas de Daimiel (1750-1987). Cambios agrarios e impactos medioambientales a partir de la interpretación del registro sedimentario. *Historia Agraria*, 71, 79–109.

Rey, J., Martínez, J., Mediavilla, R., Santisteban, J.I., Castaño, S., De la Losa, A. (2017) Structure and sediment fill obtained from electrical resistivity imaging and ground penetrating radar: the Holocene of Las Tablas de Daimiel (Southern-Central Spain). *Journal of Applied Geophysics*, 136, 387-399.

Aguilera, H.; Moreno, L.; Wesseling, J.G.; Jiménez-Hernández, M.E.; Castaño, S. (2016) Soil moisture prediction to support management in semiarid wetlands during drying episodes. *Catena*, 147, 709–724.

Santisteban, J.I.; Mediavilla, R.; Celis, A.; Castaño, S.; De la Losa, A. (2016) Millennial aridity cycles as a driver of human occupation in central Spain? *Quaternary International*, 407, 96–109.

Höbig, N., Mediavilla, R., Gibert, L., Santisteban, J.I., Cendón, D. I., Ibáñez, J., Reicherter, K. (2016) Palaeohydrological evolution and implications for palaeoclimate since the Late Glacial at Laguna de Fuente de Piedra, southern Spain. *Quaternary International*, 407, 29-46.

Celis Pozuelo, A.; Castaño Castaño, S.; Mediavilla López, R.; Santisteban Navarro, J.I.; De la Losa Román, A. (2016): Un conflicto entre intereses privados y dominio público en el Guadiana: El molino del Navarro en Daimiel (S.XVIII-XIX). *Il Congreso Nacional Ciudad Real y su Provincia (Alía, F.; Anaya, J.; Mansilla, L.; Sánchez-Lillo, J.; eds.), pp.* 513-533. Instituto de Estudios Manchegos.

Ph. D. Thesis

02/02/2016. José Francisco Mediato. Oscilaciones del nivel del mar desde el Pleistoceno superior en el sector costero Sagunto-Benicasim (Valencia-Castellón). Registro sedimentario, geoquímico e histórico. Fac. Geological Sciences, Complutense University of Madrid. Supervisors: Cristino J. Dabrio (UCM), Rosa Mediavilla (IGME), Juan I. Santisteban (UCM).

29/04/2016. Nicole Höbig. Late Quaternary climate variability from western Mediterranean lake archives by multi-proxy data. Fak. Georessourcen und Materialtechnik, RWTH Aachen. Supervisors: Klaus Reicherter (RWTH Aachen), Juan I. Santisteban (UCM).

Forthcoming events

Past Global Changes 5th Open Science Meeting (Zaragoza, Spain, 9-13 May, 2017). Session: 14.-Hydroclimate variability through the ages: Data, models, mechanisms.

Santisteban, J.I., Mediavilla, R., Galán, L., Mediato, J.F., del Moral, B. Palaeohydrological fluctuations for the last 25000 years as recorded in fluvial sediments of the Guadiana River (central Spain).

European Geosciences Union General Assembly 2017 (Vienna, Austria, 23–28 April 2017). Session: SSP3.6 Limnogeology - reading the geological record of lakes.

Höbig, N., Santisteban, J., Mediavilla, R., May, M., Klasen, N., Brückner, H., van't Hoff, J., Melles, M., Reicherter, K. Late Quaternary stratigraphy of the La Janda Basin (SW Spain) - first results and palaeoenvironmental significance.

Granted Projects related to the IGCP

Project C3 "Climatic and Environmental Changes in the Upper Pleistocene – Middle Holocene of the Iberian Peninsula". Collaborative Research Center 806: "Our Way to Europe: Culture-Environment Interaction and Human Mobility in the Late Quaternary". Deutsche Forschungsgemeinschaft (CRC-806). IPs: Martin Melles (U Köln), Helmut Brückner (U. Köln), Klaus Reicherter (RWTH Aachen). Spanish participants: Rosa Mediavilla, Juan I. Santisteban, Silvino Castaño.

Encomienda de Gestión para la realización de material divulgativo de contenido geológico relacionado con la red de Parques Nacionales. Organismo Autónomo de Parques Nacionales

(Ministerio de Medio Ambiente y Medio Rural y Marino). IP: Luis Roberto Rodríguez Fernández (IGME). Participants from the IGCP 618: Rosa Mediavilla, Juan I. Santisteban.

Análisis geoarqueológico y estudios topográficos en la Motilla del Azuer (Ciamiel, Ciudad Real). Viceconsejería de Cultura Castilla-La Mancha. IP: Miguel Torres Mas (Ayto Daimiel). Participants from the IGCP 618: Rosa Mediavilla, Juan I. Santisteban, Silvino Castaño, Alberto Celis.

Outreach activities

03/05/2016: Interview to Rosa Mediavilla in Radio Daimiel to introduce the Geolodía 16 at the

National Park of Las Tablas de Daimiel.

08/05/2016: Geología16: Ciudad Real. Open activity to the general public to disseminate the knowledge about the geological and paleohydrological history of the Las Tablas de Daimiel wetland. Authors of the information: Rosa Mediavilla, Almudena de la Losa, Juan I. Santisteban, Silvino Castaño, Alberto Celis, José F. Mediato, José L. Gallardo, Pedro Rincón.





Fig. 9 Outreach activity in Las Tablas de Daimiel National Park.

Fig. 10 Poster for the outreach activity of IGCP 618 in connection with "The Day of Geology" in Spain.

IGCP 632 Continental Crisis of the Jurassic

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Secretary: Rafael Royo-Torres,

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Abstract: The "Spanish Working Group", within the framework of the IGCP632 project, was established the 22nd of September of 2016 with the following audience: Eleuterio Baeza Chico, Diego Castanera Andrés, Alberto Cobos, Graciela Delvene, Rafael P. Lozano, Carles Martín-Closas, Josep Antón Moreno Bedman, Jordi Pérez Cano, Laura Piñuela Suárez, Rafael Royo-Torres, Aixa Toscal Alcobé y José Ignacio Valenzuela during the celebration of the annual meeting of the Spanish Palaeontological Association, which was celebrated in Molina de Aragón, Guadalajara (Spain). The Coordinator and secretary of the group were elected. The group comprises people from different universities and Public Researching Centres of Spain, Germany, United Kingdom, Mexico and USA. The objectives of this group are to establish common research projects and discussion forums, which could lead to future collaborations. The group will meet, at least, once a year, within the framework of the Spanish Palaeontological Association Annual Meeting.

Spanish Working Group (IGCP 632) members in January of 2017

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Aixa Tosal Alcobé Facultat de Geologia, Universitat de Barcelona, Barcelona (España) atosal@ub.edu

<u>Publications and contributions to congresses</u>

Alcalá, L., Delvene, G., Munt, M., Royo-Torres, R. 2016. Investigating bivalves in the paleontological park in Galve (Maestrazgo Unesco Global Geopark) International Conference on Unesco Global Geopark, 27th-30th September, Abstract book, p. 118.

Cobos, A., Royo-Torres, R., Alcalá, L., Loewen, M., Kirkland, J.I., 2016. Dinosaurs as biochronological markers in the European Tithonian-Berriasian transition, 76th Annual Meeting of the Society of Vertebrate Paleontology, Program and Abstracts, 119.

Delvene, G., Royo-Torres, R., Lozano, R.P., Munt, M., Alcalá, L. 2016. Los bivalvos y microbialitas asociadas de la sección de Las Zabacheras (subcuenca de GAlve, Teruel, España). Actas de las XXXI Jornadas de la Sociedad Española de Paleontología, *Cuadernos del Museo Geominero*, 20: 241-226.

Lozano, R, Delvene, G., Piñuela, L. y García-Ramos, J.C. 2016. Troncos fósiles mineralizados con cubiertas trombolíticas en el Jurásico Superior de Asturias (Norte de España). IX Geológico de España, *Geo-Temas* 16 (1): 275-278.

Piñuela, L., Delvene, G. y García-Ramos, J.C. 2016. Dinosaur footprints and bivalve trace fossils in a point-bar deposit. Lastres Formation (Kimmeridgian) of Asturias, North Spain. *Ichnia 2016, abstracts book*, Baucon, A., Neto de Carvalho, C., Rodrigues, J. (edits): 126-127.

Royo-Torres, R., Upchurch, P., Kirkland, J.I. Deblieux, D., Foster, J., Cobos, A., Rey, G., Alcalá, L. 2016. Systematics of a new sauropod from the basal Yellow Cat member (Early Cretaceous) from Doelling's Bowl (Eastern, Utah, USA). 76th Annual Meeting of the Society of Vertebrate Paleontology, Program and Abstracts, 215.

Delvene, G., Munt, M. C., Piñuela, L., and García-Ramos, J.C. "New Unionida (Bivalvia) from the Kimmeridgian (Late Jurassic) of Asturias, Spain, and their palaeobiogeographical implications." *Papers in Palaeontology* 2.1 (2016): 1-21.

Lozano, R.P., Delvene, G., Piñuela, L., García-Ramos, J.C. "Late Jurassic biogeochemical microenvironments associated with microbialite-coated unionids (Bivalvia), Asturias (N Spain). *Palaeogeography, Palaeoclimatology, Palaeoecology* 443 (2016): 80-97.

Forthcoming events

<u>Spanish Working Group IGCP632 workshop (Cádiz, Spain, September, 2017)</u>: The next meeting will be hold in Cádiz (South of Spain) during the celebration of the XXXIII Annual Meeting of the Spanish Palaeontological Society, 27-30 September 2017.

The objectives of this meeting are to develop a workshop, to establish a discussion about extinction events at the end of Jurassic, impact (or not) on marine and/or terrestrial groups, and their relationships with the Jurassic-Cretaceous boundary.

IGCP-639: Sea Level Change from Minutes to Millenia

Leader: Dr. Javier Lario

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The Spanish Working Group was formally set in 2016 and consists of more than 30 researchers.

During 2016 the first international meeting took place in Oman (9-14 November). None Spanish member attended due to lack of financial support.

Forthcoming events

European Geosciences Union General Assembly 23-28 April 2017 Vienna, Austria Geological records of extreme wave events (co-organized IGCP 639). Two abstracts submitted.

2nd International IGCP 639 Meeting. Durban, South Africa.

IGCP-640: S4LIDE Significance of Modern and Ancient Submarine Slope Landslides

Dr. Roger Urgeles (reporter)

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Abstract: In 2015 a new IGCP proposal was launched and approved. It represents the continuation of IGCP-585 and the leader Dr. Urgeles has step down but actively contributed to the new proposal. Currently a small group of Spanish participants (6) are known to us, two of them Ph. D. students. Spanish participation commented below corresponds to Dr. Urgeles activities in the project.

Publications and contributions to congresses

Biain, A., León, R., Urgeles, R., Somoza, L., Medialdea, T., Ferrer, M., Gonzalez, F.J. (2016): Onshore and Offshore Geomorphological Features of the El Golfo Debris Avalanche (El Hierro, Canary Islands). In Lamarche, G., Mountjoy, J., Bull, S., Hubble, T., Krastel, S., Lane, E., Micallef, A., Moscardelli, L., Mueller, C., Pecher, I., Woelz, S. (Eds.): Submarine Mass Movement and Their Consequences, Advances in Natural and Technological Hazards Research, 41, Springer, Dordrecht (The Netherlands), pp. 83-92

Cameselle, A.L., Urgeles, R. (2017): Large-scale margin collapse during Messinian early sealevel drawdown: The SW Valencia Trough, NW Mediterranean. Basin Research, 29: 576–595.

Horozal, S., Bahk, J.J., Lee, S.H., Urgeles, R., Kim, S.P., Kim, G.Y., Cukur, D., Lee, G.H., Ryu, B.J., Kim, J.H. (2016): Late Neogene–Quaternary submarine mass wasting along the margins of the Ulleung Basin, East Sea: Geomorphologic controls and geohazard potential. Quaternary International, 392: 69-98.

Horozal, S., Bahk, J.J., Urgeles, R., Kim, G.Y., Cukur, D., Kim, S.P., Lee, G.H., Lee, S.H., Ryu, B.J., Kim, J.H. (2016): Potential impact of gas hydrates and related fluid seepage on submarine slope failures in the Ulleung Basin, East (Japan) Sea. Marine and Petroleum Geology, 80: 171-191.

León, R., Somoza, L., Urgeles, R., Medialdea, T., Ferrer, M., Biain, A., García-Crespo, J., Mediato F., Galindo, I., Yepes, J., González, F.J., Giménez-Moreno, I. (2016): Multi-event ocean island collapses: new insights from El Hierro Island, Canary Archipelago. Marine Geology, in press, http://dx.doi.org/10.1016/j.margeo.2016.07.001.

Horozal, S., Bahk, J.-J., Urgeles, R., Kim, G.Y., Cukur, D., Lee, G.H., Lee, S.H., Kim, S.P., Ryu, B.-J., Kim J.-H. (2016): Impact of gas hydrate and related fluid seepage on submarine slope failures along the margins of the Ulleung Basin, East (Japan) Sea, American Geophysical Union 2016, December 12-16, 2016, San Francisco CA, USA, POSTER

Hübscher, C., Urgeles, R. (2016): Salt Tectonics, Fluids and Geohazards in the Mediterranean Sea – an Overview, COST-ANR MEDSALT Symposium, October 24-26, 2016, Palermo, ITALY, ORAL.

Llopart, J., Urgeles, R., Camerlenghi, A., Lucchi, R., Rebesco, M. (2016): Late Quaternary development of the Storfjorden and Kveithola Trough Mouth Fans, northwestern Barents Sea, European Geosciences Union General Assembly 2016, Viena, AUSTRIA, April 17-22, 2016, Abstract EGU2016-6431; POSTER.

Madrussani, G., Rossi, G., Rebesco, M., Picotti, S., Urgeles, R., Llopart, J. (2016): Depositional patterns of submarine landslides using seismic tomography, glaciated margin of the NW Barents Sea, 12th International Symposium on Landslides, Naples, ITALY, June 12-16, 2016, ORAL.

Rui, L., Rebesco, M., Caburlotto, A., Casamor, J.L., Lucchi, R., Camerlenghi, A., Urgeles, R., Andreassen, K., Hanebuth, T., Ozmaral, A., Accettella, D. (2016):Downslope and alongslope sedimentary processes on a high latitude continental margin: NW Barents Sea, 4th PAST-Gateways International Conference, May 23-27, 2016 Trondheim, NORWAY. POSTER.

Urgeles, R., Camerlenghi, A. (2016): Magnitude and Recurrence of Submarine Landslides: Active vs. Passive Margins, European Geosciences Union General Assembly 2016, Viena, AUSTRIA, April 17-22, 2016, Abstract EGU2016-6194; ORAL.

Urgeles, R., Llopart, J., Vanneste, M., Forsberg, C.F., Camerlenghi, A., Rebesco, M. (2016): Slope instability of Arctic Trough Mouth Fans: An example off Storfjorden, NW Barents Sea. 2016 International Symposium on Marine Engineering Geology, October 21-23, 2016, Qingdao, CHINA, KEYNOTE.

Meetings organization

COST-ANR Uncovering the Mediterranean salt giant (MEDSALT) Symposium, Palermo (ITALY) October 24-26/16.

R. Urgeles Scientific Committee (with V. Aloisi, A. Camerlenghi, H.Ch. Hübscher, J. Lofi, V. Manzi, R. Urgeles, H. Smailhodzic, D. Garcia-Castellanos, A. Moscariello, F. Petrera, M. Zebre, R. Kacic, S. Komatina)

Fig. 11 Announcing the MEDSALT Meeting in Palermo (Italy)

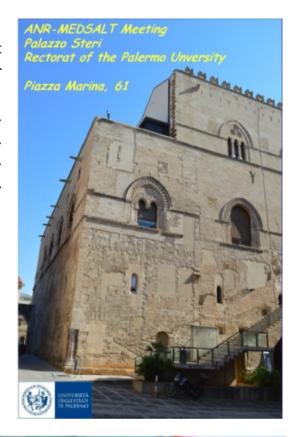




Fig. 12 Group photo of the 2016 International Symposium on Marine Engineering Geology in Qingdao (China).

2016 International Symposium on Marine Engineering Geology (ISMEG2016), Qingdao (China), October 21-24/16.

R. Urgeles Scientific committe (with S. Wang, M. Cassidy, D.J. Degroot, T. Mörz, M. Vanneste, F. Wang, R. Wang, M. Bogdanov, S. Ceramicola, A. Chan, G. Chen, P. Dong, D.M. Duc, F. Gao, Y. Gao, Y. Huang, D.-S. Jeng, Y. Jia, M. Jiang, C.H. Juang, A.J. Kopf, R. Leyland, X. Li, X. Ling, B. Liu, J.T. Liu, J.P. Liu, Y. Liu, D. Romero-Faz, M. Strasser, C.-C. Su, Q. Sun, Y. Sun, D. Wang, L. Wang, S. Williams, N. Wu, J. Xiong, J. Xu, Q. Yang, S. Yang, S. Yang, Z. Yue, F. Zaniboni); Chair of session "Regional Engineering Geology and Offshore Geohazards"

Forthcoming events

8th International Symposium on Submarine Mass Movements and Their Consequences (2018) - Institute of Ocean Sciences / British Columbia, Canada - Abstract submission deadline with intent to publish in the "Submarine Mass Movements and Their Consequences" volume, produced by the Geological Society of London (GSL) 15th February 2017.

100th Anniversary American Association of Petroleum Geologists 2 - 5 April, 2017 Hoston, Texas - S4SLIDE Session: Non-turbidite deepwater units as reservoirs, seals, and trap elements: Towards a paradigm shift.

European Geosciences Union General Assembly 23-28 April 2017 Vienna, Austria / Abstract Submission Deadline: 11 Jan 2017, 13:00 CET

Submarine landslide hazard and marine paleoseismology: Regional and global implications

Subaquatic sediment gravity flow processes and products

EVAN Conference 12-15 September 2017, Southampton, UK - Statistics of Natural Hazards Hackathon (link) - Abstract submission will open in December 2016 and close 12th May 2017

9th International Conference on Geomorphology 6th-11th November, 2017 Vigyan Bhawan, New Dehli-S4SLIDE Session: S30 Submarine Geomorphology (IAG-WG) (Link) The deadline for submitting abstracts is 23:59 (Indian Standard Time) on 30th April, 2017

Ph.D. connected to IGCP 640:

Jaume Llopart Serra, PhD Thesis, Universitat de Barcelona, Storfjorden Trough Mouth Fan (Western Barents Sea): slope failures in polar continental margins; significance of stress changes and fluid migration induced by glacial cycles. 2016.

Visiting Researchers

Sueng-Won Jeong, Korea Institute for Geoscience and Mineral Resources, Korea, 2016

Finn Løvholt, Norwegian Geotechnical Institute, Oslo, Norway, 2016

Sara Lafuerza, Université Pierre et Marie Curie, France, 2016

Granted Projects related to the IGCP

Project name and acronym: Uncovering the Mediterranean salt giant (MEDSALT).

Ref. number: CA15103 Period: 2016-2020 Financing Institution: COST Association

Program: COST Actions

Principal Investigator: Angelo Camerlenghi (Istituto Nazionale di Oceanografia e di Geofisica; OGS)

400.000,00€

Project name and acronym: ImagiNg large SeismogenIc and tsunamiGenic structures of the Gulf of

Cadiz with ultra-High resolution Technologies (INSIGHT).

Ref. number: CTM2015-70155-R

Period: 2016-2018

Financing Institution: Ministerio de Economía y Competitividad

Program: Ciencias y Tecnologías Marinas (CTM-MAR).

Principal Investigator: Roger Urgeles Esclasans & Eulàlia Gràcia Mont (CSIC)

203.000,00€

4. National Committee activities

The President has participated in the Spanish Conference of Deans of Geology and briefly outlined the IGCP. The President of the Ilustre Colegio Oficial de Geólogos (ICOG, Spanish National Geological Association) also attended the Conference. The Chairman informed on the five main themes of the program and the current projects under each theme, and outlined the YES program as well. He explained that the intention to visit each University in Spain with Geological studies to lecture on the Program keeps alive, but he could not render any visit because no a single euro was released from the initially approved, already limited, budget; in fact he has to support most of the activities by himself waiting for some return, which partially came in December 2016, but was not enough to even support the limited activities of the Committee. This year, the Chairman will try again to visit some of the universities and the Deans would like to receive such a visit.

The President attended the 1st Annual Session of the new joint IGGP in Paris. He paid a visit to the Spanish Permanent UNESCO delegate D. Jaime Rodriguez Ponga and explained the actions of the Committee during the past year, informed on the relevance and need of the Spanish Government in supporting the program, which is not the case yet, and invited him to the 40th anniversary celebration of the Spanish National Committee.

The SNC "turned" 40 years old in 2015. On occasion of this "Event" we organized a special meeting in one of the Spanish UNESCO Global Geoparks, Sierras Subbéticas in April 2016. The SNC and especially the Chairman, strongly supported the new IGGP; consequently the celebration of the 40th IGCP-SNC in one Geopark was a practical action demonstrating the entire support to the program and a desire of strength ties between the two sister programs.

The meeting took place in April 15th and 16th. The first day was devoted to Plenary Conferences and presentations, ending with a guided visit to the Mycological Garden "The Truffle" (Priego de Córdoba) and the second day to a Fieldtrip in the Geopark. A special volume will be published in 2017 in one of the Geological Survey of Spain Series. This meeting was open to the public and besides the directly IGCP-related matters a special reference to the Geodiversity as a tool for the sustainable development was addressed in a press conference published by local newspapers.

D. Francisco Javier Madrid Rojo, General Director for the Management of Natural Environment and Protected areas (CMAOT); D. Francisco de Paula Algar Torres, Territorial Delegate (CMAOT) Córdoba; Prof. Jorge Civis Llovera, Director of the Spanish Geological Survey and President of the Geology National Commission (represented by Dra. Rosa Mediavilla, Secretary of the Spanish National Committee and of the Scientific Subcommission of IGCP-UNESCO); Prof. José Pedro Calvo Sorando, IUGS General Secretary; Prof. José Ignacio Valenzuela Ríos, President of the Spanish National Committee and of the Scientific Subcommission of IGCP-UNESCO participated in the opening ceremony.

After the opening session, Prof. José Ignacio Valenzuela Ríos lectured the Inaugural Conference on Evolution of the Spanish National IGCP-Committee, past and present. The inaugural Conference was followed by a presentation on the Andalusian Strategy for and integral management of Geodiversity by D. Francisco Javier Madrid Rojo. Before lunch, Dr. Luis Alcalá lectured on the 15 years history of Spanish Geoparks. The afternoon sessions continued with specific presentations on different IGCPs. Dr. Cecilio Quesada (IGME) presented the development and breakthroughs on Geodynamics in Spain thanks to participation in several IGCPs. Dr. Consuelo Sendino (London Natural History Museum) presented the development and results of the Spanish Working Group for the IGCP 503 (as she could finally not make the trip, the presentation was given by the President of the SNC). Dr. Silvio Castaño presented the ongoing research of the IGCP 618 Spanish Working Group focused on the palaeoclimatic information from groundwater recharges in the past. Dra. Rosa Mediavilla presented the Web page of the Spanish National Committee that was transferred in 2015 from University of Granada to the server in the Geological Survey of Spain. Dra. Jau-Chyn Liao (Secretary of the IGCP-SWG 596) gave two consecutive presentations on two related projects, the IGCP 499, which deals with the Devonian marine-terrestrial interactions and the evolution of climate and ecosystems, and the successor, and currently ongoing (OET) IGCP 596 on Climatic Change and biodiversity patterns in the Middle Paleozoic (Devonian-Carboniferous). Prof. José Pedro Calvo Sorando, IUGS General Secretary lectured the Closing Conference on the historical evolution of the IUGS with emphasis on the contributions to the Geosciences.

After the lectures and presentations, members of the Geopark guided a tour through the Mycological Garden "The Truffle".

The 16th of April, the Geopark Geologist Alicia Serna together with the Geopark Director Antonio García Jiménez and the Geopark Guards leaded a fantastic fieldtrip through the Geopark.

The SNC also partially supported several scientists to attend (with contributions) the 40th Anniversary of the IGCP Spanish National Committee held in the UNESCO Global Geopark Sierras Subbeticas.

The President and the Secretary (Dra. Rosa Mediavilla) are involved in editing the 40th Anniversary Commemorative Book of the Spanish National Committee.

The year 2016 coincides with the 90th Anniversary of the unique International Geological Congress held in Spain (1926). In 1926, one of the fieldtrips of the XIV International Geological Congress took place in the Sierra de Cabra (Córdoba Province), and one of the highest points was the hiking up to the "Picacho de Cabra". The visit to this point by the participants in the XIV International Geological Congress, known as "Los sabios" (The wise men), supported the proposal made by the

Eldest Brother of the Archconfraternity of the Virgen de la Sierra and by the City Council of Cabra of naming this point as Natural Site of National Interest. Then a commemorative plaque stating the names of the "Honored Sages" and the reference to the International Geological Congress was installed on the wall of the Sanctuary. One of the persons who pushed hard this action to happen

was the Geologist Juan Carandell, who leaded the fieldtrip and was a teacher at the High school of Cabra. On the occasion of the 90th Anniversary the Fundation Aguilar y Eslava, the City Council of Cabra, the Archconfraternity of the Virgen de la Sierra and the UNESCO Global Geopark Sierras Subbéticas organized a commemorative activity of this relevant event for Spain.



Fig. 13 Commemorative plaque of the 1926 XIV International Geological Congress held in Spain. The plaque is on the main wall of the Sanctuary Virgen de la Sierra (Cabra, Córdoba)



Fig. 14 Explanatory Panel of the "Picacho de Cabra" Geology. Referent Point (National Monument) in the Sierras Subbéticas Global UNESCO Geopark.

This celebration consisted in the climbing to the Picacho de Cabra following the path the "Sabios" made in 1926. At the peak, the current flags of the participating countries were flying in the wing. After a geological explanation we entered the Sanctuary where a commemorative plaque remembering this 2016 event was installed close to the former one (1926). There the President of the IGCP-Spanish National Committee made a

short speech about the relevance for Spain and for the world of the XIV International Geological Congress, and especially of the fieldtrip to the Picacho de Cabra. After climbing down to Cabra, the participants paid a visit to the Interpretation Center "Cabra Jurásica", which exhibits many fossils donated by locals.

In the evening a ceremony in the High School Aguilar y Eslava, where Juan Carandell taught, was organized. In the hall ("Patio de Cristales") the original flags of participant countries, which were, then, locally woven, presided the commemorative act. The ceremony started with short speeches by D. Francisco Ortíz (High School Director), Salvador Guzmán (President of the Foundation Aguilar y Eslava), Juan Ramón Pérez Valenzuela (Mayor Deputy of Cabra) and José Ignacio Valenzuela Ríos (President of the IGCP-Spanish National Committee) who glossed on the figure of Juan Carandell, his relevance for Cabra and for the XIV International Geological Congress. The dinner banquet reproduced the menu that was served that night in 1926 to the "Sabios" and we had the opportunity to see also the original porcelain service where the dinner was served.



Fig. 15 Original flags of the 1926, XIV International Geological Congress, hanging in the Hall of "Patio de Cristal" of the Aguilar and Eslava High School (Cabra, Córdoba). They are kept in Cabra where they were initially woven by local women.

I want to warmly thank all the details, effort and friendship of the many people involved in the perfect organization and development of this 90th Anniversary commemoration, and especially to the High School and Foundation Aguilar y Eslava, the City Council of Cabra, the Arch confraternity of the Virgen de la Sierra and the UNESCO Global Geopark Sierras Subbéticas.

The President assisted to the first meeting of the Geoparks Spanish Committee held in Madrid (June, 2016, Spanish Geological Survey).

The President participated and assisted in the founding meeting of the Spanish Working Group of the IGCP 632 in Molina de Aragón concurrently with the Annual Meeting of the Spanish Palaeontological Society (September 2016).

The President of the SNC gave a supporting letter to the following projects: 1) "Geoparks in Iberoamerica"" presented by África de la Hera and collaborators. 2) "Reading geologic time in Paleozoic sedimentary rocks: the need for an integrated stratigraphy" presented by Anne-Christine da Silva and collaborators. 3) "International Platform on Earthquake Early Warning Systems" presented by Elisa Buforn and collaborators and 4) "Toarcian Oceanic Anoxic Event: Impact in marine carbon cycle and ecosystems" presented by Matías Reolid and collaborators.

This year a total of five working groups are active in Spain: 596, 618, 632, 639 and 640.

As a result of the activity the numerous papers and contributions to meetings aforementioned were published.

IGCP Spanish National Committee Web page: http://www.igme.es/CNG/subcomisiones/PICG.htm

- 5. IGCP Meetings held during the year 2016 in Spain
- Annual Meeting of the Spanish Working Group-IGCP 596 and Special Symposium 21st-23rd September, Molina de Aragón.
- Foundation Meeting Spanish Working Group-IGCP 632, 21st-23rd September, Molina de Aragón
- 6. IGCP meetings planned for the next year (2017)
- Annual Meeting of the Spanish National Committee.
- IGCP Special Symposium in Cádiz (September)
- Annual Meeting and Special Symposium of the Spanish Working Group IGCP-632 during the XXXIII Meeting of the Spanish Paleontological Society to be held in September in Cádiz.
- 7. Forthcoming events in connection with IGCPs
- Past Global Changes 5th Open Science Meeting (Zaragoza, Spain, 9-13 May, 2017). Session: 14.-Hydroclimate variability through the ages: Data, models, mechanisms.
- European Geosciences Union General Assembly 2017 (Vienna, Austria, 23–28 April 2017). Session: SSP3.6 Limnogeology reading the geological record of lakes.
- European Geosciences Union General Assembly 23-28 April 2017 Vienna, Austria Geological records of extreme wave events (co-organized IGCP 639).
- 2nd International IGCP 639 Meeting. Durban, South Africa.
- XXXIII Meeting of the Spanish Paleontological Society, September 2017, Cádiz, Spain.
- 8th International Symposium on Submarine Mass Movements and Their Consequences (2018) Institute of Ocean Sciences / British Columbia, Canada.

- 100th Anniversary American Association of Petroleum Geologists 2 5 April, 2017 Hoston, Texas -S4SLIDE Session: Non-turbidite deepwater units as reservoirs, seals, and trap elements: Towards a paradigm shift.
- European Geosciences Union General Assembly 23-28 April 2017 Vienna, Austria
- Submarine landslide hazard and marine paleoseismology: Regional and global implications
- Subaquatic sediment gravity flow processes and products
- EVAN Conference 12-15 September 2017, Southampton, UK -> Statistics of Natural Hazards Hackathon (link) -
- 9th International Conference on Geomorphology 6th-11th November, 2017 Vigyan Bhawan, New Dehli -> S4SLIDE Session: S30 Submarine Geomorphology (IAG-WG) (Link)
- 8. Suggestions relating to conduct and improvement of the Program.

In spite of the good intentions of the Board, it seems that, for some reasons that are not clear to us, the International Board cannot paid any attention to the feed-back that National Committees provided each year and this is a serious limitation for improving communication between the National Committees and the International Board. The following paragraphs are just an exact duplication of last year suggestions. As nothing has changed, these suggestions are still valid.

The President of the Spanish National Committee acknowledges the "good feeling" and intentions regarding further cooperation of the Board with the National Committees. However, it is estrange that again no information on the new projects, their founding, current status, numerical reference, title, web page, coordinators,... was provided. This lack of transparency and effective communication of the Board is a major handicap towards an active cooperation and fluid transference of ideas and information that is needed in improving the program.

By surveying the web page of the Program, the President of the Spanish National Committee became aware of that some projects could be of interest to potential Spanish participants, and in some projects Spanish scientists were involved. After contacting some of them, the President realized that they didn't know the existence of a National Committee, neither the need (and possibility) of forming a National Working Group.

A suggestion to improve this situation has already been proposed and it is easy to apply and survey. By approving a new project, the Board should inform the leaders the need to contact and inform the respective National Committees of the countries involved in the project. At the same time, the leaders should inform potential participants to contact their respective National Committees. At the end of the year, these actions shall form part of the evaluation list and the (economic) renewal support be affected in case these simple actions have not been followed.

After contacting with some previous participants in IGCP projects, even former leaders, we realized that many workers don't see the need of creating a National Working Group that form part of the National Committee, and they think there is no need to create such working groups. Obviously, National Working Groups are an important part of the National Committees and

therefore, I suggest that International Board and National Committees shall work together in promoting the constitution of such groups.

It is inconceivable that Spanish Co-Leaders of IGCP projects do not contact the National Committee, or even worse, when the Spanish National Committee learns about them and contact them, they never reply. We have denounced this aspect to the Board, and even suggested that those projects (not only in Spain but worldwide) that do not report to the respective national committees shall not be granted, or the funding be affected, the following year. As you can imagine, this greatly concerns the annual reports that continuously will be incomplete. Therefore, the IGCP is funding and supporting actions that are out of control because the responsible do not care to report them to the National Committees.

An additional problem is the lack of control (which is impossible, of course) on the information provided by the different IGCP-projects web pages. Recently, I learn about a long list of Spanish participants in an IGCP project. The National Committee never was informed of such huge amount of participants, nobody contacted the National Committee to inform or report on this project, and the last by no least surprising fact is that people who is listed as participant never was contacted neither informed of his/her wish (first) or enrollment in such project. We have to find ways of dealing with effective communication and transference of ideas and proposals between National Committees and International Board. The lack of such adequate National Committee-International Board correspondence creates a feeling of desperation and frustration that does not benefit the needed cooperation. We hope that the International Board acknowledges this situation and seeks for a joint solution. I want to remember here the Spanish National Committee loyalty to the Program; the National Committee has always supported the IGCP by participating, sending reports and making comments for improving collaboration and we will continue this way.

I want also comment on the role of the National UNESCO Delegations and the apparent lack of real interest in the Program. I'm not convince they believe or understand that IGCP is in connection with the aims and goals of UNESCO, or at best, we have not been able to explain these officials our contribution to improve the world and serve the society (as our *motto* states). I think, this is another aspect National Committees and International Board shall address soon and I, personally, offer my time and energy to make progress in this matter.

I have the impression that some UNESCO Delegations and National Agencies for Cooperation with UNESCO see IGCP-National Committees only as "one mark more in the check list of Committees for the annual reports", but they don't care much about the particularities of this Program and, consequently, they don't see the need of effectively supporting the program neither the demand of exploring new ways of opening a special funding program to which National Committees can apply and submit proposals. This is another issue that National Committees and International Board can work together for improving the visibility of the program and augmenting financial sources.

As a last suggestion, I believe that having a special session with enough time for National Committees to exchange ideas, experiences, intentions and difficulties will help to strength relations between committees and foster further inter-committees cooperation.

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

The Geological Survey of Spain partly supported the activities of the Spanish National Committee.

The supported activities were:

- Participation of the President of the Spanish National Committee in the annual meeting of the IGCP Scientific Board, Paris, February 25th-26st, 2015.
- Participation in the 40th Anniversary Celebration (partly).
- The University of Valencia (Dpto. de Botánica y Geología) provided partly support for attending an IGCP-596 meeting and general services that allowed to the President of the Committee to carry out their duties appropriately.

Other financial sources that supported activities related to the Spanish Working Groups were:

The Global UNESCO Geopark Sierras Subbeticas and the Cabra City council. They supported the following activities:

• Participation of the National President in the 90th Anniversary of the XIV International Geological Congress..

The Chinese Academy of Sciences (Nanjing Institute of Geology and Palaeontology) supported the training at University of Valencia (Spain) of one Chinese Ph. D. Student from October 2015 to September 2016.

The Chinese Academy of Sciences (Nanjing Institute of Geology and Palaeontology) supported the trip and stay in Nanjing of the President of SNC and of the Secretary of IGCP 596.

Valencia, February 19th, 2017

José Ignacio Valenzuela Ríos President, Spanish National Committee, IGCP

Lacho Valenzueta