Part IV

News and Reports

Part IV-1 America's National Cave and Karst Research Institute 2003: the gearing up phase

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America's National Cave and Karst Research Institute, established by the U.S. Congress as a National Park Service entity, began its "gearing up phase" in December 2002 following a 2.5 year development stage. Permanent director Louise Hose has established an Institute office in Carlsbad, New Mexico. Interim Director, Zelda Bailey, continues to work on development issues from the Denver NPS office during this transition time.

The Director's current efforts include initial operational setup, recruiting staff positions (we anticipate a Science Coordinator and an Administrator this year), designing a permanent building, and developing a grant process. The Institute operates under a mandate to raise at least one-half of its funds from non-federal sources, thus fundraising constitutes major demands. We currently operate under a funding match from the state of New Mexico, which supports collaborative efforts by NM Bureau of Geology - Carlsbad Office hydrogeologist Lewis Land and NM Institute of Mines and Technology (NMT) geomicrobiologist Penny Boston.

Land is currently preparing a manuscript on variations in groundwater discharge from gypsum sinkholes at Bottomless Lakes State Park, NM. An Oklahoma Geological Survey Circular entitled "Evaporite Karst: Engineering and Environmental Problems in the United States" will publish the report this fall.

NMT created a Cave and Karst Studies Program to provide strong intellectual and educational foundations for the Institute and wider speleological community, including vigorous fundraising activities designed to enhance the NMT program and support the Institute's needs. Five new Cave and Karst graduate students will be admitted in Fall 2003 under Boston's direction.

Part IV-2 In memory of K.A.Gorbunova(1925-1996), distinguished Russian Karst Researcher

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Klara A. Gorbunova - distinguished Russian karst researcher (1925-1996), worked at Perm State University more than 45 years. She made essential contributions to the research of karst regionalization, typology, morphology, hydrogeology, hydrology, and geochemistry as well as the history of its studying. The significant part of her works is devoted to scientific speleology. Her contribution to the research of gypsum karst is especially noteworthy. She for the first time has carried out typological regionalization of karst of the USSR.

K. A. Gorbunova is the author of 333 scientific works, including 8 monographs and a number of popular scientific works. Many works are devoted to karst hydrology and hydrogeology. It is necessary to note the works devoted to lakes of carbonate and sulfate karst, and their typification and classification on conditions of recharge and discharge. In the 1950s K. A. Gorbunova was one of the first to draw attention to the problem of technogenic pollution of karst waters.

She carried out researches of hydrogeological conditions, geochemistry and mineralogy of unique karst phenomena - Kungur Ice Cave (Perm region, Russia) and their connection with conditions of its formation.

Karst areas were considered by K. A. Gorbunova as unique ecosystems having specific features and demanding the special approach at conducting economic activities on them. A number of karst objects of Ural offered by her for protection are now state-protected natural territories.

In 2002 the book about K. A. Gorbunova where aspects of her scientific activity are considered was published.

Part IV-3 The proposal to establish an International Research Center of Karst(IRCK) approved by IGCP Scientific Board

F. Wolfgang Eder, Director, UNESCO Division of Earth Sciences

During the 32nd Session of the IGCP Scientific Board your written proposal to establish an International Research Center on Karst was distributed and discussed. I reported on the proposal of IGCP 448 to establish an International Research Centre on Karst (IRCK) under the auspices of UNESCO with the support of the Karst Commissions of the International Association of Hydrogeologists (IAH), the International Geographical Union (IGU), the Union of International Speleology (UIS), the karst research institutions of many countries, the Chinese Academy of Geological Sciences, the Geological Society of China, and the Chinese Government.

The main objectives of IRCK are to understand karst systems on a world-wide

scale, to develop science and technology for sustainable development in karst regions, which is generally regarded as one of the most fragile environmental systems of the world. The research of the Center aims at various environmental and resource problems of karst, such as water, mineral and tourism resources, especially those related to world heritage, as well as rock desertification, water quality, surface collapse, and flood disasters in karst regions. These problems are becoming more and more pressing in the 21st Century because of population pressure, economic development and urbanization in those areas. The Center will conduct multidisciplinary research on karst and closely collaborate with karst research institutions of many countries which deal with special topics of karst science, such as karst hydrogeology, speleology, etc.

The IRCK will be located in Guilin, China, taking into account the long experience of running the Secretariat of IGCP 299, IGCP 379 and IGCP 448. The municipal government of Guilin has promised to provide land resources for its infrastructure (construction). The member organizations of IGCP 299, 379 and 448 shall support and cooperate with the Center through sending karst experts to conduct joint research there. The IRCK will have its own staff consisting of qualified experts, including the possible establishment of UNESCO Chairs, technical assistants, and managemet and secretarial personnel to realize its objectives. On the basis of up-to-date karst research, the IRCK will educate postgraduate students, scientists and engineers. It will also provide a world karst database and send karst experts through its global network to provide technical assistance.

The establishment of IRCK will actively contribute to Agenda 21 especially sustainable development of karst regions, which cover 15% of the world continental land surface, comprising a billion people. The proposal will be forwarded through the official channels of UNESCO. This would be a first "center" sponsored by the IGCP.

Decision:

The IGCP Scientific Board gave unanimous support to this idea.

It was recommended to request the additional support of the IHP, MAB and SHS-MOST. We have now to start negotiations how to proceed further in establishing the Center which is also an ideal way to cooperate with our colleagues from Hydrology in one of UNESCO's main priority areas: **'water'**.

Part IV-4 Report of the Spanish Group of IGCP 448

Bartolome Andreo-Navarro

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SCIENTIFIC ACTIVITIES AND RESULTS

During the last year, the research activities of GTE 448 have continued along several of the lines initiated in previous years. Thus, in the field of karstic hydrogeology, studies have been made of recharge in carbonate aquifers in the Betic Cordillera, which have enabled us to develop a methodology that is applicable to other aquifers of this type. The methodology in question, termed APLIS, makes it possible to calculate the mean rate of annual recharge, and also their spatial distribution, by utilising Geographic Information Systems.

Progress has been made in characterising the functioning of karstic aquifers in several provinces in Spain, namely Huesca (Sierra de Guara), Málaga (Torcal de Antequera, Sierra Blanca, Sierra Mijas, Sierra de las Nieves, Sierra Almijara) and Cádiz (Sierra de las Cabras). This work provides the foundation for a comparative study of karstic aquifers in Spain based on hydrodynamic, hydrochemical and isotopic criteria. For the above-mentioned aquifers, a series of data were obtained from springs and analysed, but for others, the data studied were obtained from boreholes. Thus, pumping test was carried out at the Sella aquifer (province of Alicante) and the chemical composition of the water was determined for the Marbella aquifer (province of Málaga) and for the Cabeço d'Or aquifer (province of Alicante).

The protection of water resources in carbonate aquifers, from the viewpoint of both quantity and quality, is a research line of great interest within GTE 448. The mapping of the vulnerability of aquifers to contamination is a highly useful tool for the protection of water resources. In this respect, it is noteworthy that the Hydrogeology Group of the University of Málaga, within the framework of IGCP 448 Project, is carrying out vulnerability mapping for various carbonate aquifers in southern Spain (Sierra de Líbar, Sierra de las Nieves, Sierra de Mijas, Sierra Almijara).

In relation to karstic cavities, during 2003 we worked on the socio-economic importance of such caves for the area in which they are situated. This significance was examined in a study carried out, as part of GTE 448, of most of the caves that have been conditioned for tourism. Studies were also made of endokarstic deposits, concerning palaeoclimatic and palaeohydrologic variations during the upper Pleistocene - Holocene.

Finally, within GTE 448, work has been advanced on karst landforms, both endokarstic (geomorphologic studies in caves) and exokarstic (karren).

MEETINGS AND CONGRESSES

The Spanish Representative of GTE 448 attended the meeting of the Spanish IGCP Committee held in Madrid on 10 July 2003, where reports were heard of results obtained to date and of planned activities.

The annual meeting of IGCP 448 Project (World Correlation of Karstic Ecosystems), at an international level, corresponding to the year 2003, was held in Kentucky (U.S.A.) in the framework of the "International Conference on Karst Hydrogeology and Ecosystems". This meeting was attended by two members of GTE 448: Francisco Carrasco and Iñaki Vadillo (both from the University of Málaga).

Another international event that is closely related to Project 448 was the International Symposium on "The Karst Record III", held in Montpellier (France), where a large number of communications related to climatic change during the Pleistocene were presented. Two members of GTE 448 attended this Symposium (Bartolomé Andreo and Pablo Jiménez).

The GTE 448 meeting for 2003 was held in Huesca (Spain) on 18/19 July, and was organised by José Antonio Cuchí and José Luis Villarroel. During the first day, communications were presented at the Instituto de Estudios Altoaragoneses. On the second day, a field trip was organised to Sierra de Guara, visiting the following locations: the spring of San Julián de Benzo, the *trop plein* of Solencio de Bastarás, the Chaves cave and the Mascún gorge. The papers presented at this meeting have been published in the 2004, *Boletín Geológico y Minero*, Vol. 2.

The GTE 448 meeting for 2004 was held in Oviedo (Spain) on 20 and 22 May, and was organised by Montserrat Jiménez. On the first day, communications were presented at the Science Faculty of the University of Oviedo, and the second day was spent visiting two caves in northern Spain, those of Tito Bustillo (Ribadesella) and of Pindal (Pimiango).

PUBLICATIONS AND COMMUNICATIONS TO CONGRESSES

Andreo, B.; Liñán, C.; Carrasco, F.; Jiménez de Cisneros, C.; Caballero, F. and Mudry, J. (2003): Influence of rainfall quantity on the isotopic composition (18O and 2H) of water in mountainous areas. Application for groundwater research in the Yunquera-Nieves karst aquifers (S Spain). Applied Geochemistry 19: 561-574.

Batiot, Ch.; Liñán, C.; Andreo, B.; Emblanch, Chr.; Carrasco, F. and Blavoux, B. (2003): Use of TOC as tracer of diffuse infiltration in a dolomitic karstic system: the Nerja Cave (Andalusia, southern Spain). Geophysical Research Letters, 30(22), 2179.

Martín-Algarra, A.; Martín-Martín, M.; Andreo, B.; Juliá, R. and González C. (2003): Sedimentary patterns in perched spring travertines near Granada (Spain) as indicators of the paleohydrological and paleoclimatological evolution of a karst massif. Sedimentary Geology, 161: 217-228.

Vías, J.M.; Andreo, B.; Perles, M.J.; Carrasco, F.; Vadillo, I and Jiménez, P. (2003): The COP method. In: Vulnerability and risk mapping for the protection of carbonate aquifers. Action COST 620, 163-172.

Andreo, B.; Goldscheider, N.; Vadillo I.; Vías, J.M.; Neukum, C.; Brechenmacher, J.; Carrasco, F.; Hötzl, H.; Jiménez, P.; Perles, M. J. and Sinreich, M. (2003): Sierra de Líbar, Southern Spain. In: Vulnerability and risk mapping for the protection of carbonate aquifers. Action COST 620, 183-200.

Jiménez, P.; Andreo, B. and Carrasco, F. (2003): Caracterización hidrodinámica e hidroquímica de la Fuente Grande de Alfacar (Sierra de la Alfaguara, Granada).

Geogaceta, 35 (in press).

Pérez, I.; Jiménez, P.; Andreo, B. y Carrasco, F. (2003): Estudio de la descarga de la vertiente meridional de Sierra Tejeda (Málaga) mediante el análisis correlatorio y espectral. Geogaceta, 35 (in press).

Andreo, B.; Goldscheider, N.; Vadillo I.; Vías, J.M.; Neukum, C.; Brechenmacher, J.; Carrasco, F.; Hötzl, H.; Jiménez, P.; Perles, M. J. and Sinreich, M. (2003): Application of the Pan-European approach for the protection of carbonate aquifer in the pilot site of Sierra de Líbar (South Spain). International Conference on Karst Hydrogeology and Ecosystems, Bowling Green (U.S.A.), Abstract, p. 23.

Jiménez, P. Andreo, B. and Carrasco, F. (2003): Análisis de la descarga del Sector Nororiental de la Unidad Hidrogeológica de Líbar (Provincias de Málaga y Cádiz, Sur de España). I Jornadas Luso-Españolas As Águas Subterrâneas no sul da Península Ibérica, Faro (Lisbon), in press.

Andreo, B.; Durán, J.J.; Carrasco, F.; López-Martínez, J.; Jiménez de Cisneros, C.; Caballero, E.; Vadillo, J.M.; Laserna, J.J.; Julià, R.; Richards, D.; Hodge, E. and Fairchild, I.: Holocene climate and hydrological variations as reconstructed from a speleothem in Nerja Cave (South Spain). Climate Changes: the karst record III. 3rd International Conference, Montpellier, France. Abstract, p. 40.

The following communications, all presented by members of GTE 448 at the annual meeting held in Huesca, are included in Volume 2, corresponding to the year 2004, of the *Boletín Geológico y Minero*:

T. Rodríguez Estrella, J. L. Quintana and V. Mora: El acuífero kárstico eocénico de Sella (Alicante). Explotación intensiva transitoria y correlación entre piezometría y caudales de manantiales.

J.J. Durán, J. López Martínez and M. A. Mancheño: Dos registros de espeleotemas pleistocenos de gran potencia en la Península Ibérica: primeros resultados isotópicos.

J. M. Andreu, A. Pulido-Bosch, J. C. Cerón, A. Estévez and E. García-Sánchez: Características hidrogeoquímicas de un acuífero kárstico sobreexplotado: el caso del Cabeçó d'Or (SE España).

P. Jiménez, F. Carrasco, J.J. Durán, B. Andreo and J.A. López-Geta. Análisis de la karstificación funcional de acuíferos carbonáticos del Sur de España a partir de su respuesta hidrodinámica.

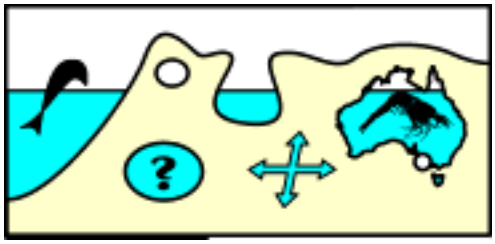
B. Andreo, J. Vías, J.A. López-Geta, F. Carrasco, J.J. Durán and P. Jiménez.: Propuesta metodológica para la estimación de la recarga en acuíferos carbonáticos.

J.J. Durán, B. Andreo, J. Vías, J.A. López-Geta, F. Carrasco and P. Jiménez: Clasificación de acuíferos carbonáticos de la Cordillera Bética según la tasa de recarga.

I. Vadillo, F. Carrasco and B. Andreo. Modelización hidrogeoquímica del sistema calcocarbónico durante la mezcla lixiviado-agua en el acuífero carbonatado del sistema de Marbella (Sur de España).

M. Jiménez, S. Anadón, P. Farias, J. García-Sansegundo y N. Canto Toimil: Gemorfología de la Cueva de Tito Bustillo y del macizo kárstico de Ardines (Ribadesella, costa cantábrica, Norte de España)

Part IV-5 Limestone Coast 2004: IGCP 448 Meeting in Naracoorte, Australia, OCT 10-17, 2004, 3rd Circular



Limestone Coast 2004

The closing workshop of IGCP 448 - Global Karst Correlation, and
The First International Workshop on RAMSAR Subterranean Wetlands
10-17th October 2004

http://www.environment.sa.gov.au/parks/naracoorte/events.html
Scroll down to Limestone Coast 2004,
then at the bottom of the page you will see the list of available documents.

Circular 3: Update on Conference Arrangements

Let us know what you are doing:

If you intend to present either a paper or a poster, please send title and abstract (no more than 350 words) urgently by 31st July
Sue White S.White@latrobe.edu.au for the IGCP program
Mia Thurgate miat@tpg.com.au for the Subterranean Wetlands program
Kent Henderson kenthen@optushome.com.au for all bookings – Workshop and Associated Events fees and accommodation bookings.

Associated Events:

1. Pre-workshop specialised symposium and excursion October 2-9. *Multi-phase, multi-process speleogenesis: impounded palaeozoic karst of New South Wales* led by Dr. Armstrong Osborne a.osborne@edfac.usyd.edu.au The final cost for this excursion is now set at $AU840. See Circular 2 on the Web site.

2. Post-workshop specialised field trip October 17-19. *Subterranean Wetlands of the Limestone Coast* led by Mia Thurgate miat@tpg.com.au. The cost is expected to be approximately $300, including transport, accommodation, breakfast and lunches. Again, see the website for both Circular 2 and a detailed outline of the excursion program.

3. Post-workshop short course for karstland managers October 17-23. *Living on Karst: dealing with the potential environmental and sustainability issues in karstlands* led by Prof Elery Hamilton-Smith elery@alphalink.com.au, Charles Sturt University.

This is a unit within the university's post-graduate program in Cave and Karst Management but can also be undertaken as a free-standing short course.

If you undertake the short course, you may complete the normal assignments for our enrolled students and in this case, you could then claim credit for the course as a subject unit within the post-graduate program in Cave and Karst Management. This would be a valuable opportunity for previously enrolled students or for those who may decide in 2005 to enter the course. The fee of $AU500 covers all costs.

4. Post-workshop Field trip to the Forested Karst of Tasmania. 18-24th October, led by Ian Houshold and colleagues.

This excursion will take place in the forested areas adjacent to or within the Tasmanian Wilderness World Heritage Area. Day one will be in the Florentine Valley with its evidence of Pleistocene glaciation, caves with evidence of both extinct megafauna and Aboriginal occupation and the opportunity to examine the relationship between land protection and production forestry. The second day will start with a drive through the Valley of the Giants – *Eucalyptus regnans*, the world's tallest flowering plant. The remainder of the day will focus upon newly discovered cave systems with an important Aboriginal art site, and a discussion led by Brian Mansell of the Tasmanian Aboriginal Land Council on Aboriginal land management and the protection of ancient rock art.

On the third day, the restoration and the important palaeokarst deposits of the Lune River quarry will be inspected and delegates will visit either Mystery Creek Cave or Exit Cave – both of which are truly grand systems. Then on the fourth day, the tour will move to Hastings Caves – a fascinating dolomite area with thermal springs and an extremely well-developed tourist program.

All transport, accommodation and meals are included in the excursion fee of approximately $650. Bring clothing and caving equipment (if practicable) for horizontal stream caves with a temperature of about 9^{o} C.

See the excursion description on the Web site for further details.

Program for accompanying persons

We know some delegates are planning to bring their wives or other companions. We will arrange special day outings within the limestone coast region. Do let us know if you have any special interests or preferences that we might include.

Booking for Associated Events

Inquiries can be directed to the excursion leaders as above. Fees should be paid, as with all other payments, to Secretary-treasurer Kent Henderson
kenthen@optushome.com.au.

Payment Concessions

We already have some funds (from the UNESCO IGCP program) to support participants from developing countries and shortly will also be examining the question of reduced fees for Australian full-time students or those attending only for 1 or 2 days.