



FEDERAZIONE SPELEOLOGICA SARDA
Ex Direzione Mineraria San Giovanni
09016 IGLESIAS
CF: 92011470926

Short Scientific report on
SECOND INTERNATIONAL SYMPOSIUM ON MINE CAVES
Iglesias April 26th-29th, 2012

The symposium

The Second International Symposium on Mine caves (perfectly organized by the Speleological Federation of Sardinia (FSS)) was held in the prestigious location of the former Direction building of the Monteponi Mine (now managed by AUSI, Association for the University of Sulcis Iglesiente). During the whole Symposium a efficient simultaneous translation (Italian-English and vice versa) was supplied, which resulted extremely important not only during the presentations but also during the discussions of the papers, which resulted particularly lively and interesting.

The Symposium was attended by over 80 scientists and cavers, half of them coming from abroad (from 12 Countries of 3 Continents): among them there were some of the best experts on mine caves in the world.

32 scientific communications were presented during the two days of presentations, covering different fields: from biology to mineralogy, from preservation to valorization of the cave mines all over the world.

It is impossible here to mention all the presented papers, all of which of noticeable scientific level.

Anyway their abstracts have been already printed in the *Abstract book and Program*, which was given to all the participants at the beginning of the Symposium.

The relevance and/or originality of a few talks make them worth to be here just cited: the study of the extremophile micro-organisms (Boston et al. *Crunchy on the Outside, Tender on the inside: the permanence of micro-organisms in geological materials*), or the description of mine caves or mined caves in countries far away (Dublyansky et al. *Complex epigenetic/hypogene U-V ore bearing karst in Tyuya-Muyun, Kyrgyzstan* and Filipov et al. *Kan-i-Gut mined cave in Kyrgyzstan*), and also importance of the new discovered cave minerals (Onac *Minerals in mine caves and mined caves of Romania* e Baldoni et al. *Mineralogy and Speleogenesis in Corona sa Craba Quartzite cave (Carbonia, SW Sardinia)*), and lastly important as proxy for materials which may be found outside our planet (Gazquez et al. *Gypsum speleothems of mine caves as potential Martian analogues*).

During the symposium a fantastic photographic display on several mine caves around the world was organized by La Venta Esplorazioni Scientifiche. The participants had the possibility to visit the building of the Associazione Mineraria Sarda, where they were gifted some volumes dealing with the mining activities in Sulcis-Iglesiente, and the mine galleries made by the students of the Mining Institute of Iglesias during their learning activities.

At the end of the symposium, a full day of excursion allowed all the participants to visit the renown St. Barbara Cave in the San Giovanni Mine, thank to the co-operation of the IGEA. The participants enjoyed so much this cave although, at the end of the visit they regretted the short time dedicated to the visit, which did not allow to discuss the different scientific questions on the cave thoroughly.

Immediately after a short visit to the building hosting the Federazione Speleologica Sarda and the International Documentation Centre on Mine caves, which started just now its activity, was done.

In the afternoon, after a short visit to the museum settled up inside the coal mine of Carbonia and to the paleontological museum of the same town, the participants, thanks to the Gruppo Grotte Fluminense, visited one of the most important epigenic caves of the region: the Su Mannau cave.

At the end of the symposium 6 foreign scientists were guided 5 days more to visit the main Iglesiente mine caves and start a multidisciplinary research on them together with several Italian colleagues.

In conclusion the Symposium had a considerable success from the point of view of the participants and of the scientific level of the communications, resulting the most important speleological reunion of the year in Italy.

Participants (paying and visiting)

Over 150 people participated in the Symposium, almost half of which did not pay a registration fee (participating only in some of the scientific sessions as audience/visitors).

Almost 60 of paying participants were Italian, 11 from Spain, 4 Russians, 3 Romanians, 3 Americans, 2 Austrians, 1 Slovenian, 1 French, 1 Swiss, 1 Norwegian, 1 Belgian and 1 German.

Among the non paying participants there were many Italians, but also 3 Slovenians, 2 Austrians, and 3 Germans.

Registered people

- 1 Luis Jorda Bordehore Spain
- 2 Laura Sanna Italy
- 3 Michael Brust Germany
- 4 Fernando Gázquez Sánchez Spain
- 5 Manuel Naranjo Morales Spain (Canary Islands)
- 6 Cristóbal González Betancor Spain (Canary Islands)
- 7 Sonia Martín de Abreu Spain (Canary Islands)
- 8 Marcos Andrés Hunt Ortiz Spain
- 9 Barbara Wielander Austria
- 10 Silviu Constantin Romania
- 11 Andrei Filippov Russia
- 12 Spilde Michael USA
- 13 Arrigo Cigna Italy
- 14 Franco Cucchi Italy
- 15 Merlak Enrico Italy
- 16 Otonicar Bojan Slovenia
- 17 Dublyansky Yuri (bonifico da Univ Innsbruck) Russia/Austria
- 18 Maria Pilar Orche Spain
- 19 García-Dils Sergio Spain
- 20 Alberto Muntoni Italy
- 21 Mauro Villani Italy
- 22 Paolo Forti Italy
- 23 Antonio Vernier Italy
- 24 Moldovan Oana Romania

25 Melis Maria Rita (ProLoco Iglesias) Italy
26 Manuel Guerrer Manzano Spain
27 Franco Frau Italy
28 Guglielmo Caddeo Italy
29 Eleonora Baldoni Italy
30 Giovanni Badino Italy
31 Luca Buschetti Italy
32 Piero Cera Italy
33 Sergio Serra Italy
34 Riccardo De Luca Italy
35 Serra Eleonora Italy
36 Madeddu Mariano Italy
37 Macri Marta Italy
38 CISSA (Giorgio Pusceddu) Italy
39 GASAU (Salvatore Cabras) Italy
40 GSAS (Pierpaolo Dore) Italy
41 SCOR (Sandro Corona) Italy
42 USC (Roberto Cossu) Italy
43 CAI (Ughetta Bogliolo) Italy
44 GEA (Giorgio Ferdinando Marellò) Italy
45 Salvatore Buschetti (SCOR) Italy
46 Eleonora Dallochio (GSAS) Italy
47 Cogoni Roberto (USC) Italy
48 Roberto Piras (GEA) Italy
49 Carlo Pusceddu Italy
50 GG Fluminese Italy
51 Soc Su Manau Grotte Italy
52 SCD Antonio Podda Italy
53 GGN (Francesco Murgia) Italy
54 GRS A. Martel (Giampaolo Merella) Italy
55 Mauro Messina (SCD) Italy
56 Bogdan Onac Romania/USA
57 Tamas Tudor
58 Furlani Stefano Italy
59 Penelope Boston USA
60 Philippe Audra France
61 Lundberg Joyce Canada
62 Josè Maria Calaforra Spain
63 Alberto Marini Italy
64 Durrani Hayatullah Khan Durrani Pakistan
65 Stein-Erik Lauritzen Norvegia
66 Alexandrova Ekaterina Russia

- 67 Natalia Filippova Russia
- 68 Cédric Duchene Svizzera
- 69 Francesco Usalla Parco Geominerario (Direttore Parco)
- 70 Gianpaolo Atzei AMS
- 71 Mauro Buosi IGEA
- 72 Algisi Pietro Angelo IGEA
- 73 Fulvio Bordignon Prov. CI
- 74 Vittorio Uras Prov. CI
- 75 Giovanni Tocco Prov. CI
- 76 Salvatore Cherchi Prov. CI
- 77 Madeddu Emanuele Prov. CI
- 78 Gianfranca Mannu Assessore Ambiente Comune Iglesias
- 79 Carla Cicilloni Assessore Ambiente Prov. CI
- 80 Giorgio Paolucci Servizio attività estrattive Assessorato INDUSTRIA
- 81 Sergio Milia Servizio attività estrattive Assessorato INDUSTRIA
- 82 Jo De Waele Belgium/Italy
- 83 Erika Portas Italy
- 84 Sergio Pillai Italy
- 85 Nicola Ibba Italy
- 86 Daniela Pani Italy
- 87 Isacco Curreli Italy
- 88 Naseddu Angelo Italy

Pre- and Post-Symposium scientific fieldtrips

Participants

- Philippe Audra (Polytech'Nice – Sophia, Université de Nice - Sophia Antipolis - Biot France)
 - Penelope Boston – Michael Spilde (New Mexico Institute of Mining and Technology – Socorro USA)
 - José Maria Calaforra, Fernando Gazquez, Laura Sanna (University of Almeria - Almeria Spain)
 - Yuri Dublyansky (Leopold Franzens Universität – Innsbruck Austria)
 - Stein Erik Lauritzen (Bergen University - Bergen Norway)
 - Bogdan P. Onac (Univ. South Florida - Tampa USA)
 - Jo De Waele (Univ. Bologna, Italy)
 - Angelo Naseddu (Fed. Spel. Sarda)
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Scope

The four days post-symposium field trip was organised to investigate in detail some of the most relevant mine caves and underground habitats. Therefore a multidisciplinary team of international scientists has been invited, in order to tackle some of the most intriguing mysteries from multiple expert points of view.

Samples have been taken by all participants, and laboratory analyses, to be carried out in the next months (and years) will allow to reach significant scientific results, to be published in appropriate international scientific journals in the years to come.

Future sampling campaigns might be organised in the near future to make complementary analyses and observations.

Thursday 26 april 2012

Visit of the Corona sa Craba cave (Philippe Audra, Stein-Erik Lauritzen, Jo De Waele, Laura Sanna). Sampling of secondary cave minerals related to guano decomposition and sulphuric acid interaction. Also observations on cave morphology and speleogenesis have been carried out.

Friday 27 april 2012

Visit of the Corona sa Craba cave (Bogdan Onac, Yuri Dublyanky, Mauro Messina, Bojan Otonicar). Sampling of secondary minerals, also for fluid inclusion analyses (Dublyanksy).

Friday 27-Sunday 29 april 2012

Mine cave symposium

Monday 30 april 2012

Visit of Perda Niedda mine tunnels and the Monte Guisi mine cave.

The Perda Niedda mine is a hematite (iron) mine. Carbonates are nearby, but in fact it is not a typical karst environment. The tunnels, however, are full of secondary mineral deposits and bacterially controlled snottites and slimy speleothems. An ideal spot to study the connection between biological and mineralogical world. Samples have been taken especially by Penny Boston and Michael Spilde for geomicrobiological studies.

Monte Guisi is a small artificially enlarged cave in metasomatised carbonate rocks (marble). The entrance is a small shaft. A closeby contact with granitic rocks has created a rich mineralogical environment. The small cave was used by miners for exploitation of copper rich ores, and some galena and sphalerite. The secondary mineralisation have not yet been studied seriously.

Samples have been taken for mineralogical analyses (Bogdan Onac) and for stable isotope studies (Yuri Dublyansky). Geomorphological observations have been carried out also (Philippe Audra and José Maria Calaforra).

Tuesday 1 May 2012

Visit for mineralogical and geomorphological studies to the Quarziti cave, Ricchi Argento cave, and Crovassa Azzurra.

Quarziti and Ricchi Argento cave are in the same mineralised body. They consist in large bell-shaped rooms with interesting calcite dogtooth spar and speleothems. In the first there is an opaline flowstone and a hemimorphite flowstone, stalactites and stalagmites. Morphologies and cave minerals (speleothems) are of great interest.

Crovassa Azzurra is a small cave intercepted in a nearby mine tunnel, and is characterised by large blue aragonite-calcite speleothems. There is also calcite spar and some strange minerals (aurichalcite etc.).

Many samples have been taken in all caves, for mineralogical and fluid inclusion analyses. Some geomorphological observations have also been carried out.

Microbiological samples have been taken only in the Crovassa Azzurra cave and mine adits.

Wednesday 2 May 2012

Visit to the Albert-Massa Riccardo caves with several interesting caves and minerals.

The Massa Riccardo and Albert caves are bell-shaped hypogenic caves with hydrozincite speleothems, calcite spars and several other interesting things to be seen and discussed.

Mineralogical, fluid inclusion and microbiological samples have been taken in the Massa Riccardo cave and the mine adits.

In the afternoon a tour on the plateau has been done to visit several mine areas and open pit quarries with interesting palaeokarst deposits and outcrops of the Mt. San Giovanni mineralisations. Here also mineralogical, petrographical and fluid inclusion samples have been taken.

Thursday 3 May 2012

Visit to the Su Zurfuru Pb-Zn mine in carbonate rocks, but with no appreciable caves. The tunnels, however, is full of drips and the water is forming biologically mediated speleothems of various colours, ranging from rust to green and blue. Extremely interesting samples for microbiology have been taken by Penny Boston and Michael Spilde.

In the afternoon visit to the Campu Crabas cave, Fluminimaggiore. Here samples of fluorite and cave minerals have been taken.

