



INSIDE VOLCANOES

PROCEEDINGS
OF THE
IXth INTERNATIONAL SYMPOSIUM
ON VULCANOSPELEOLOGY
OF THE I.U.S.

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CATANIA (ITALY)

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INDEX

<i>Foreword</i>	VII
<i>Acknowledgements</i>	VIII
<i>A bet</i>	XII
<i>Organising committee</i>	XV
<i>Attendings</i>	XVI
<i>General program</i>	XVIII
<i>Schedules of topics, papers and sessions</i>	XXI
<i>Authors list</i>	XXVI
<i>Schedules of the tourist excursions</i>	XXVIII
<i>Papers</i>	XXXIII
1 - VULCANOSPELEOLOGY ON ETNA AND IN ITALY	1
R. BONACCORSO & R. MAUGERI: Ten of the most interesting caves on Mt. Etna. Cadastral files	3
S. CALVARI, M. NERI & H. PINKERTON: Formation of a complex tube network: the 1999 Etna eruption	24
R. CORSARO, S. CALVARI & M. POMPILIO: Features of Etna lava stalactites	25
A. MARINO: Secondary mineralizations inside Grotta del Fumo - Smoky Cave- (1991/93 Etna eruption)	26
G. GIUDICE & A. PRIVITERA: The System Grotta Del Fumo-Macchia Gialla- Grotta dell' Arco	31
A. LEOTTA & M. LIUZZO: Fracture caves on Mt. Etna	38
M. LIUZZO: Study on the concretions of lava tubes which were formed by the 1991-93 eruption on Mount Etna	39
J. DE WAELE & A. MUNTONI: On some volcanic caves of Sardinia (Italy)	49
P. MADONIA & A. PALMERI: The basaltic canyons of Mount Etna	55
2 - VULCANOSPELEOLOGY IN THE WORLD	63
P. FORTI, E. GALLI & A. ROSSI: Minerogenesis of volcanic caves of Kenya	65
L. GAÁL: Syngenetic volcanic caves in the western Carpathians	77
T. OGAWA, T. HONDA ET ALII: Results of survey on Ganno-ana Cave system, example of co-existence of lava caves and tree molds	84
S. S. JÓNSSON & G. LÖVE: Second speleological expedition to Surtsey	87
S. KEMPE, C. LERCH & M. OBERWINDER: Geology of the Huehue Tube (eruption 1801) and the Puhia Pele Channel system, Hualalai, Hawaii	88



S. S. JÓNSSON & G. LÖVE: Checklist and distribution of Icelandic lava caves	90
S. S. JÓNSSON & G. LÖVE: New minerals from Icelandic lava caves and selected speleothemes	91
G. J. MIDDLETON: Lava caves of Grande Comore, Indian Ocean: Further investigations, July 1998	92
J. L. MARTÍN & I. IZQUIERDO: The protection of the Viento-Sobrado Cave - A very long volcanic cave in the Canary Islands	108
3 - NEW CONCEPTS IN VULCANOSPELEOLOGY	121
T. HONDA: Classification of lava tree molds with/without remelted inner surface according to its formation process	123
S. CALVARI & H. PINKERTON: Morphology of Etna lava tubes: insights for lava flow emplacement mechanisms	125
M. COLTELLI, E. BOZZO, S. LOMBARDO, F. MERLANTI & I. TABACCO: Cross-section measurement of the 1991-93 eruption lava tube	126
W. R. HALLIDAY: Conduit flow of water in volcanic pseudokarsts	127
T. HONDA: Investigation on hydrodynamic interaction between tree and lava flow and resulting structure of tree mold	129
S. KEMPE: Mapping lava flows by surveying lava tubes. Example: Aila'au/Keauhou flows, Kilauea/Hawaii	131
S. KEMPE: The genesis of isolated lava caves on Hawaii	132
J. STEPHENSON: Emplacement and tube development in long tube-fed lavas in N Queensland. Australia	134
4 - HISTORY, ARCHAEOLOGY, ARTIFICIAL CAVES	147
A. PATTI, F. POLITANO & F. SANTONOCITO: On the ancient church of Mompilieri	149
F. POLITANO & F. SANTONOCITO: Ruins of ancient "Campanarazzu" buried by 1669 eruption	156
F. PRIVITERA: Archaeological findings in the caves of Mt. Etna	161
G. PUGLISI & G. SANTI: Studies on lava caves during the past centuries	162
G. SANTI: Ancient foreign visitors on Mt. Etna	163
F. POLITANO & G. M. LICITRA: Artificial caves in lavafloes	164
G. SANTI: Myths and legends on Etna caves	171
W. R. HALLIDAY: A short history of vulcanospeleology	172
5 - BIOLOGY	179
D. CARUSO: Etna's caves fauna - description and considerations	181



6 – CONSERVATION	183
S. CAFFO & A. MARINO: Monitoring of Grotta del Gelo	185
A. MARINO: The Ice Cave and its glaciological phenomenon	191
W. R. HALLIDAY: Volcanic show caves	197
G. J. MIDDLETON: Conserving the lava caves of Mauritius: the caves of Mauritius Project 1998	200
C. WOOD: A rationale for the protection of volcanic caves	208
J. STEPHENSON: Guided tourism at Undara caves. North Queensland	209
W. R. HALLIDAY: Speleology in volcanic parks	215
 7 - IN ABSENTIA, POSTERS	 217
C. BENEDETTO: Volcanic caves in Argentina	219
M. L. BATTIATO, G. CAPPÀ, A. FELICI, L. GRASSI, G. MECCHIA & M. PIRO: Pozzo del Diavolo of Mount Venere (Caprarola, Viterbo) - Description of the only volcanic cave in Latium (Italy)	223
J.C. SABROUX, P. RICHON & R.X. FAIVRE-PIERRET:Radon monitoring in a geothermal ice cave of Mt Erebus, Antarctica	224
A. SZAKACS: Vulcanokarst: A Romanian contribution to speleology	228
S. CALVARI & A. AMANTIA: Main morphologic features of Etna lava tubes	229
A. PATTI, F. POLITANO & F. SANTONOCITO: About the ancient church of Mompilieri	230
F. POLITANO & F. SANTONOCITO: Ruins of ancient “Campanarazzu” buried by 1669 eruption.....	231
 8 - COLLATERAL EVENTS	 233
EXCURSIONS : SOME PICTURES	235
THE EXHIBITION “DENTRO IL VULCANO”	238
THE BOOK “DENTRO IL VULCANO”	243



FOREWORD

The IX International Symposium on Vulcanospeleology was held in Catania from the 11th until the 19th of September 1999, and was organised by Centro Speleologico Etneo (C.S.E.) for celebrating the 15th anniversary of its foundation. The event was patronised by the International Union of Speleology (U.I.S.), by Società Speleologica Italiana (S.S.I., Italian Speleological Society), by Central Speleological Committee for Speleology of the Club Alpino Italiano (C.A.I., Italian Alpine Club) and by Federazione Speleologica Regionale Siciliana (F.S.R.S., Sicilian Regional Speleological Chapter), and several institutional bodies (Province and City of Catania, Regional Park of Etna, Provincial Tourist Council, National Research Centre, University, Superintendence for Cultural and Environmental estates, etc.) collaborated for its success. Over sixty people did register and attend the Symposium, coming from all over the world, including Japan and Tasman Island; a great selection of original contributes was presented during the scientific sessions, dealing with the several topics of Vulcanospeleology and its related disciplines.

Two additional and very important events were performed in connection with the main Symposium event: an exhibition and the publication of a volume, both titled «*Inside the Volcano – The Caves of Etna*». The exhibition displayed an unusual and fascinating approach to the underground environment focused on Etna volcanic caves, through an original and accurate iconographic and descriptive *excursus* supported by very rare archaeological findings, ancient books and engraved illustrations, mineral and rock samples, etc; the volume contains original papers contributed by Italian and foreign scholars of the various involved disciplines and offers an exhaustive panorama of Etna territory, though it also concerns general topics connected with Vulcanospeleology. Both activities benefited from the significant organisational and financial support of the Park of Etna.

The scientific sessions were preceded and followed by several pre- and post-Symposium excursions to caves and areas of volcanic, speleological and tourist interest in Sicilian mainland and in the Eolian Islands; in addition a general excursion took almost all participants up to the rim of the central crater of Etna, after a coach plus 4WD minibus ride from sea level to the top through its fascinating slopes, including an exceptional visit to the Volcanology Observatory and its scientific installations. All vulcanospeleological excursions were described in detail by a 46-pages guide in Italian and English, containing also geological information on the area. Its publication and distribution was financed by the National Group for Volcanology (GNV). In addition all scientific sessions, the general Assembly of the UIS Commission for Vulcanospeleology, and the Round Table on Volcanic Parks at Symposium's end, were supported by an excellent simultaneous translation service Italian-English and v.v., supplied and financed by the Provincial Tourist Council of Catania, in order to enable all participants to attend all presentations and debates without any linguistic problem.

In conclusion, it was an event at very high level, and we immodestly rely that it was performed at its best. Alas its follow-up was not at the same level, due to the heavy delay in Proceedings fulfilment. We feel sorry and embarrassed by this mischance, and trust that this CD-ROM (that we consider an anticipation of the Proceedings volume) can at least smoothen the long wait. The responsibility for this heavy delay could be easily charged to third parties (Authors, institutions that bid themselves to print the Proceedings, etc), or we could take on ourselves the entire responsibility. Yet, the undeniable reality is that more than five years have passed by and the Proceedings have not been printed. We therefore tender to all concerned parties our sincerest apologies for this long, though involuntary delay, as well as we hope that the CD-ROM will be followed as soon as possible by its cartaceous version, which should be financed and performed by the National Institute of Geophysics and Volcanology (INGV).

We heartily thank the numerous participants, that trusted in our skill and determined the success of the event by reaching Catania from the four corners of Earth, as well as we gratefully acknowledge all financing institutions, sponsors, organisations, commercial business and individuals, whose support made the event possible.



Acknowledgements

The IX Symposium on Vulcanospeleology was patronised by:

- Union Internationale de Spéléologie (U.I.S.), International Commission on Vulcanospeleology
- Italian Speleological Society
- Italian Alpine Club, Central Speleological Commission
- Regional Sicilian Speleological Chapter.

and was sponsored by:

- Regional Province of Catania, Assessorship for the Environment;
- City of Catania, Assessorship for Culture and School Policies; Assessorship for the Environment;
- City of Linguaglossa
- City of Lipari
- City of Milo
- City of San Gregorio di Catania
- Regional Park of Etna
- Provincial Tourist Council (A.A.P.I.T.) of Catania
- International Institute of Volcanology.
- National Volcanology Group (GNV)
- Sicilian Regional Superintendence for Cultural and Environmental Estates, Archaeological Dept. of Catania.

We are indebted with the following institutions and firms, which contributed to the fulfilment of the event by their financial and/or organisational support:

- Regional Province of Catania (hosted all scientific and related sessions of the Symposium, and the exhibition, in the premises of the convention centre «Le Ciminiera», free of charge).
- Provincial Institutional Tourist Council of Catania (offered and financed the simultaneous translation [professional interpreters, technical hardware and hostess assistance] during all scientific and related sessions of the event; financed transportation [coaches and 4WD mini-buses] and tourist guide assistance for the general excursion to Mt. Etna, and offered the cocktail party during the opening ceremony of the exhibition).
- National Volcanology Group (GNV) (financed and printed the guide of the pre- and post-Symposium excursions).
- International Institute of Volcanology - CNR (IIV) (hosted the participants to the general excursion on Etna in the premises of its Volcanological Observatory at Etna North).
- Sicilian Regional Superintendence for Cultural and Environmental Estates, Archaeological Dept. of Catania (organised, financed and fulfilled the archaeological section of the exhibition).
- City of Catania, Assessorship for Culture and School Policies and Assessorship for the Environment (co-financed the exhibition; hosted, free of charge, the introduction to the public of the volume «*Le Grotte dell'Etna*» at the convention hall of the City Assessorship for Boroughs and Youth Policies, and offered the relevant cocktail party).



- City of Linguaglossa (welcomed the participants to the general excursion at the City Hall and offered a welcome drink with local pastries).
- City of Lipari (supplied a complimentary guided coach-tour of the island of Lipari to the participants of the excursion C).
- City of Milo (welcomed the participants to the excursion E – Caves of Serracozzo - at the City Hall and offered a complimentary rustic snack with local wine tasting).
- City of San Gregorio di Catania (the Mayor met the participants to the excursion B - Immacolatella Caves - at the cave area and offered a complimentary rustic snack).
- Association for Tourist Implementation of Linguaglossa (hosted the participants to the general excursion in its premises, and offered refreshment and a movie projection on Etna activity).
- Sicilian Regional Forest Service (hosted all participants and offered a rustic lunch at the Forest Refuge «Pirao», during the general excursion to Mt. Etna).
- BANCA AGRICOLA POPOLARE DI RAGUSA (financed and sponsored the participant's badges and the nylon bags containing the participants' portfolio).
- TORRISI Coffee Company of Catania (managed a coffee stand for complimentary «espresso» service during all scientific and related sessions of the event).
- CONDORELLI Pastries and Sweets factory, Belpasso (offered complimentary nougat boxes to all participants).

A special mention is deserved by the Regional Park of Etna, as its extended and considerable operational and financial support was crucial for the organisation and the implementation of the event. Besides the co-funding of the exhibition, the Park financed and printed the volume «*Le Grotte dell'Etna*», granted the funds for the printing, and posting in the whole Province of Catania, of the official poster of the Symposium; financed all printing and mailing expenses for the three circulars sent to participants, and offered the farewell banquet at a renowned pub-restaurant downtown in Catania.

We sincerely thank the following persons for their hearty and disinterested collaboration:

- Dr. Salvatore Caffo and Dr. Luciano Signorello, respectively Volcanology and Organisational Officers of the Park of Etna. They assisted us disinterestedly during the whole organisation, preparation and implementation of the Symposium like friends of ours, rather than officers of the supporting institution, met all requests of ours, though extemporary, and cooperated at their best for the success of the event.
- Dr. Francesco Privitera, Archaeologist and officer of the Regional Superintendence for Cultural and Environmental Estates, Archaeological Section of Catania. He assisted us during the organisation of the event and the preparation of the exhibition, by personally implementing its archaeological section and lending the displayed archaeological findings, and volunteered his complimentary assistance for the visit to the City Museum of Adrano, during the excursion D – railway tour of Etna.
- Prof. Paolo Forti, Director of the Italian Centre for Speleological Documentation (CIDS) “Franco Anelli” of Società Speleologica Italiana and past-President of SSI and UIS. He put at our disposal the collection of ancient volumes and engravings of the Library, dealing with Volcanology, volcanic caves of Etna and the Cave of Fingal, that was displayed in the exhibition. He also directed and moderated the Round Table on Volcanic Parks.
- Dr. Franz Riccobono, antiquarian, writer and owner of the homonymous collection of ancient volumes and engravings dealing with Etna. He lent almost his entire



IXth INTERNATIONAL SYMPOSIUM ON VULCANOSPELEOLOGY

collection, which was displayed in the section “*Travellers and Myths*” of the exhibition.

- Prof. Renato Cristofolini (Inst. of Earth Sc., Univ. of Catania); Dr. William R. Halliday (Honorary President of the UIS Commission on Volcanic Caves); Dr. Jan-Paul Gustaav van der Pas (President of the UIS Commission on Volcanic Caves); Dr. Harry Pinkerton (Dept of Environmental. Sc., Univ. of Lancaster UK); Prof. Hubert Trimmel (President Emeritus of the UIS). Directed and moderated in faultless and competent manner the various scientific sessions of the Symposium. Dr. v.d.Pas also presided at the General Assembly of the UIS Commission on Vulcanospeleology.
- Mrs Roxanne McDermott, fellow of our Group in the Seventies, now living on the Alps. She came to Catania at her own expenses and volunteered her complimentary and friendly assistance during the whole period 11-19 September, for any kind of organisational and linguistic needs: Secretary problems, unexpected translation performances, assistance to participants (even for shopping), and so on. Everybody appreciated her assistance, as she loosened many knots...

and the following institutional officers that offered us their precious assistance:

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- Mrs Tomaselli, officer of the Provincial Tourist Council (A.A.P.I.T.) of Catania.
- Dr.Francesco Vinci, Director, Regional Park of Etna.
- Dr Alfio Zappalà, officer of the Regional Park of Etna.

We also thank the following institutions and commercial enterprises, for the supply of excellent services at very low rates and tariffs:

- COUNCIL FOR UNIVERSITY SERVICES, Catania (exceptionally hosted the requesting participants at the Student’s College # 1 of Catania University, in the town centre, at student’s rates).
- VALGIULIA Ltd. (prepared and printed all photographic and descriptive panels of the exhibition «Inside the Volcano – the Caves of Etna»).
- STAR Company Inc., Linguaglossa (supplied complimentary alpine guide’s service and granted ultra-reduced 4WD mini-bus fares for the general excursion to the top of Etna).
- P.A.M. Inc., Coach Company, Mascalucia (supplied all coach and mini-bus transportation during the various tourist and speleological excursions at very low rental rates).
- LA BUCA INN, Taormina (supplied at reduced price an excellent lunch to the participants to excursion J – Cyclopes Riviera and Taormina).
- LA PAGLIA INN, Catania (supplied at reduced price an excellent typical lunch to the participants to excursion K – Monumental tour of Catania).



- Restaurant SCRIBANO, Randazzo (supplied at reduced price an excellent lunch to the participants to excursion D – Railway tour of Etna).
- Restaurant-Pizzeria KASBAH, Lipari (supplied all bag lunches for the whole excursion C at discounted price).
- Cafeteria WUNDERBAR, Taormina (supplied an almost complimentary aperitif party, in *open-bar* style, to the participants to excursion J – Cyclopes Riviera and Taormina).
- Cafeteria EUROPA, Catania (supplied an excellent and very cheap cocktail service for the inauguration of the exhibition and for the introduction of the volume «Le Grotte dell’Etna»).
- MANU Viaggi, Travel Agents in Catania (supplied tourist assistance to foreign participants: reservations, ticketing, etc, before and during the Symposium, and the mandatory technical assistance for the tourist excursions).

In addition, we willingly acknowledge the friendly and collaborative mood that inspired the following suppliers during their professional performances:

- Mrs. Vanna Laura Scalia and Mrs. Alessandra Perricone, professional interpreters. They performed an excellent and appreciated simultaneous translation (Italian-English and v.v.) of all scientific sessions of the Symposium, Commission’s Assembly and Round Table, far beyond their job duties and our expectancies.
- Mrs Giusi Belfiore, professional tourist guide, led in excellent way and friendly mood the excursion J to Riviera dei Ciclopi and Taormina, and the Catania City tour K.
- Mr Ermanno Spampinato, professional tourist guide, led the excursion D, railway tour of Etna, at full participants’ satisfaction.
- Mrs Elisabeth Curie, professional tourist guide in Lipari, led an accurate rove to Volcano’s crater rim in Vulcano Island, and the tourist visit to the citadel and Archaeological Museum of Lipari, beyond any participants’ demand, and volunteered complimentary off-duty tourist assistance to Anna and Sigg, solving their flight problems for their trip back to Iceland.

Last but not least, almost all C.S.E. fellows and friends (a great deal indeed) deserve a hearty acknowledgement for their voluntary and disinterested cooperation for a soft and regular progress of the numerous scheduled events and a successful implementation, fulfilment and conclusion of *«the last vulcanospeleological event of the Millennium»*. We are reluctant to mention any of them, as all of us knew that the event involved C.S.E.’s imagine itself and willingly cooperated, and don’t want to forget anyone, whose personal support was an invaluable brick for the success of the Symposium. Yet it is impossible to not mention the basic support given by the Organising Committee members: Renato Bonaccorso, Giuseppe M. Licitra, Giuseppe Puglisi and Giancarlo Santi, as no event could have been performed without their irreplaceable cooperation. And the Organising Committee as a whole is deeply grateful and indebted with all fellows and friends that cooperated in the several organisational phases and during the implementation of the event, which could not be performed without their support.

Nicola Barone
Chairman of the Organising Committee
Of the IX International Symposium
On Vulcanospeleology



THE IX SYMPOSIUM ON VULCANOSPELEOLOGY A BET

History of the ninth century reports that the tyrant of Kairouan, Zjiadet Allah, manned an army of one hundred thousand soldiers for invading and conquering Sicily, which, for the time being, was ruled and defended by the Byzantines. The army, led by the old Zjiadet's advisor Ased Ibn-el-Furat, nicknamed "*the Lion*", disembarked at Ras el Belat (Cape Granitola, near Mazara del Vallo) on the night of 16 June 827 a.D. As well as the last soldier put his foot ashore, Ased commanded to set the whole fleet on fire. «*We don't need any escape means*», the Lion said: «*we'll settle here, or die, that's a must!* ». The Arabs conquered Palermo in 831 and ruled Sicily until 1072, when Roger the Norman defeated them and conquered the island back on behalf of the Christian community.

The organisation of the IX Symposium on Vulcanospeleology was an actual bet. We had already scored more than a decade of intense activity, from the establishment in 1984 of our Centro Speleologico Etno, perhaps the most active group in Europe, for Vulcanospeleological researches and explorations. When the fifteenth anniversary came into sight, we started discussions on how to celebrate this important target, and the idea of a Symposium began to sprout and tickle our minds. «*A hard engagement*», said someone, «*involving a lot of experience and knowledge!...*». «*We already organised two such Symposia, in 1975 and in 1983*», I replied, «*therefore we have more than the experience we need: the label was different, but people and minds are unchanged, we are still the same guys*». «*A well organised event involves a lot of money*», someone added, «*and today swarms of competitors in the naturalistic field challenge for increasingly scanty grants and sponsorships*».

I reported to my fellows the anecdote of Ased the Lion, and closed my argumentation: «*Let's approve a Symposial celebration, as a starting point, and the whole balance will follow*». It was the year 1996. A restricted committee was formed: Nicola Barone, CSE chairman, was appointed as Symposium Committee chairman, in charge for general coordination and for finding any kind of sponsorship and grant; Renato Bonaccorso, treasurer, had to coordinate all Secretary, bureaucratic and technological work, whereas I myself – the official "*graphomaniac*" of the Group – was committed with the scientific aspect of the event: my task was to get in touch and carry on contacts with all possible contributors throughout the world, to plead for original contributes on Vulcanospeleology and related topics, and arrange same into a symposial schedule. In addition, I planned and assembled all scientific, recreational and technical steps of the whole event into an organic framework, thanks to my professional expertise in the tourist and convention field. Anyone of us, in addition, had to cooperate with his fellows in their respective tasks. The Committee also benefited by the collaboration of our fellows Giuseppe Puglisi (Volcanology researcher at the National Research Council), who liaised with the local scientific environment, and of Giancarlo Santi (journalist), who took care of all press and editorial problems. Two additional and very important events must be mentioned, organised by our group in connection with the Symposium and coordinated by Nicola Barone with Renato Bonaccorso's and Luciano Signorello's (Park of Etna) collaboration: the publication, after more than one year work of the entire group, of the volume «*Le Grotte dell'Etna*» (The Caves of Etna), edited by our fellow Giancarlo Santi and published by the Park of Etna, and introduced to the public at the eve of the scientific sessions; and the very successful Exhibition on the same topic, inaugurated two days before the Symposium, and open to the public until mid January 2000.

One only nugget threatened the gear of our programs: Jim Simons, CEGEA's Chairman, submitted to Bill Halliday (Commission's chairman at that time) his proposal for a Symposium, the VIII one, to be held in Nairobi in 1998 Spring, just a handful of days before us, and he was absolutely prevented from shifting his event to the next century, due to financial, organisational



and strategic reasons, whereas the year 1999 was a must for us. We therefore announced our proposal to organize our Symposium, the IX one, in the second half of 1999, regardless of the short interval between the two events. September 1999 came on and passed by, and I immodestly believe that the IX Symposium was perhaps the most successful and well-organised event in the history of the Symposia on Vulcanospeleology. I do not want to report the feverish days that preceded the event, the sessions, the excursions, the thousand things that had to be checked and implemented. All participants remind and can witness the success of our Symposium, whereas no subsequent description can render the enthusiastic atmosphere, that all of us breathed in those days, to who missed the event. Alas the brief interval after the Nairobi Symposium involved some inconvenient. Several contributors to the VIII Symposium, that had announced further papers for the IX one, plead additional time for arranging their written presentations, after the symposial discussion.

The follow-up, for getting the final papers, took lots of time, and several contributors did never submit their final written work. Someone replied to our reminders, and declared that he withdrew the presentation or missed the time, or the... concentration, for preparing a written presentation, someone else simply disregarded our repeated pleads. Moreover, the formats (if any – some were simply written...) of all submitted contributes were different one from another, regardless of the submitting directions in our 2nd circular, and we had to work hardly – up to a few days ago – to homogenise everything in the same format. In addition, the Area della Ricerca of CNR, that had officially sponsored the publication of the Proceedings (and for this reason had been adequately mentioned in all Symposium communications and prints), withdrew its sponsorship abruptly and without any explanation or reason whatsoever. Last but not least, the subsequent INGV's (National Institute for Geophysics and Volcanology) proposal to fund the Proceedings, repeatedly delayed, remained an ineffective rather than generous proposal, which only added further delay to the publication. Maybe the INGV will actually materialise a cartaceous version of the Proceedings in a more or less next future; yet we may not waste additional time.

Today we recognise that no reasons at all can be put forth for further delaying the publication of the received papers: we owe it to all people who entrusted us. The X Symposium in Iceland and the XI one in the Azores approached and already passed by, and we are unwilling to face any further – and fully justified – recrimination. Therefore we... unearthed our "*Proceeding funds*", wisely sat aside at the end of the event, and a digital edition of the Proceedings is coming to light at our own expenses and care, and since technology is rapidly evolving day by day, the CD-ROM issue we are presenting is fully justified. All contributes mentioned in the pre-prints are reported. The simple abstracts produced by the authors replace the missing papers, regardless of the reason for which the original paper was not produced (once more I beg to point out that no paper at all was lost at our side, as rumoured during the X Symposium. I only suggested a possible loss in the mail, in my last urging communication to contributors, just to avoid an impolite and disrespectful request like *«time has been consumed to the bottom, don't add further delay and rush your paper!»*), whereas some local contribute appears only in Italian instead of English, since the author(s) did never produce the relevant English version.

More than five full years have passed by from September 1999, and at last these Proceedings are coming to light. We cannot but sincerely apologise for this very long, though involuntary delay, and rely that our efforts for a deeper knowledge in Vulcanospeleology will be appreciated by the most of our readers. It is not my job to thank who supported the success of the Symposium and made possible the publication of the Proceedings, Nicola will do it, and I support his acknowledgements. Though, I cannot but mention the invaluable contribute that two individuals gave to the event and to the Proceedings as a whole: Nicola Barone, chairman of C.S.E. and of the Organising Committee, coordinator of the Exhibition and editorial coordinator of the volume *«Le*



IXth INTERNATIONAL SYMPOSIUM ON VULCANOSPELEOLOGY

Grotte dell'Etna», and Renato Bonaccorso, Committee member. Nicola completely disregarded home, family, job, and yearly vacations for almost three years, and entirely devoted his energies to do, press, plead, coordinate, and solve the hundreds of needs and problems we met during the organisation, and to flatten any unforeseen nugget that menaced the regular course of the Symposium. Only his steady determination and smooth mode succeeded and crushed even the hardest obstacles, by ascending staircases, knocking at doors, closing agreements... Well, a detailed description of all Nicola's operations would be a hard, almost impossible task. Let me only say that I myself first promoted the organisation, and then planned the Symposium; all of us worked hard, but Nicola's action was irreplaceable for implementing and fulfilling it. As to Renato... His attitude and expertise and patience was determinant in coordinating and managing all bureaucratic tasks before, during and after the event, as well as his personal unselfish work for assembling, formatting and paging up all Proceedings material was determinant for the Proceedings issue. No publication could have been possible without his irreplaceable contribute. Now our task has almost come to an end. The IX Symposium on Vulcanospeleology was an actual bet, a damned fascinating bet, and now we can say that we fulfilled it.

Giuseppe M. Licitra
Member of the International Commission
on Vulcanospeleology of the U.I.S. and
member of the Organising Committee of the
IX Symposium on Vulcanospeleology



Organising Committee

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Giancarlo Santi

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Giuseppe Calcagno
Silvia Carciotto
Giuseppe Conti
Alessandra Di Salvo
Maria Letizia Gagliano
Giuseppe Garozzo
Gaetano Giudice
Gino Gulli
Francesco Leone
Angelo Leotta
Giulia Li Destri
Marco Liuzzo
Antonio Marino
Carmelo Marino
Roberto Maugeri
Margherita Mirone
Francesco Petralia
Franco Politano
Angela Privitera
Laura Saitta
Fabio Santonocito
Francesca Santonocito



ATTENDINGS

s.n.	Surname	Name	Group or Institution	Town	Country
1	Antognini	Marco	Società Svizzera di Speleologia - Sezione Ticino	Ponte Capriasca	Svizzera
2	Bani	Marco	Sezione Speleologica CAI SSI Città di Castello	Città di Castello	Italia
3	Barone	Nicola	Centro Speleologico Etno	Catania	Italia
4	Bonaccorso	Renato	Centro Speleologico Etno	Catania	Italia
5	Brettschneider	Hans-Helmut		Bad Homburg	Germania
6	Buzzini	Roberto	Società Svizzera di Speleologia - Sezione Ticino	Locarno	Svizzera
7	Caffo	Salvatore	Parco dell'Etna	Nicolosi	Italia
8	Calvari	Sonia	Istituto Internazionale di Vulcanologia CT	Catania	Italia
9	Caruso	Domenico	Università degli Studi di Catania Dipartimento di Biologia	Catania	Italia
10	Coltelli	Mario	Istituto Internazionale di Vulcanologia CT	Catania	Italia
11	Corsaro	Rosanna	Istituto Internazionale di Vulcanologia CT	Catania	Italia
12	Cristofolini	Renato	Università di Catania Dip. Scienze della Terra	Catania	Italia
13	Cucuzza Silvestri	Salvatore		Catania	Italia
14	De Swart	Dick	Speleo Nederland	Schoonhoven	Holland
15	De Swart	Herman	Speleo Nederland	Leiden	Holland
16	De Waele	Jo	Dipartimento Scienze della Terra Università di Cagliari	Monserato	Italia
17	Forti	Paolo	Istituto Italiano di Speleologia	Bologna	Italia
18	Gaál	Ludovit	Slovak Environmental Agency	Rimavska Sobota	Slovakia
19	Girelli	Luca	Sezione Speleologica SSI - CAI Città di Castello (PG)	Città di Castello	Italia
20	Giudice	Gaetano	Centro Speleologico Etno	Catania	Italia
21	Groenendijk	Ton	Speleo Nederland	Delft	Holland
22	Halliday	William R.	Hawaii Chapter, National Speleological Society	Nashville	USA
23	Honda	Tsutomu	Mt. Fuji Vulcanospeleological Society	Tokyo	Japan
24	Iommarini	Fania	Società Svizzera di Speleologia - Sezione Ticino	Leontica	Svizzera
25	Jonsson	Siggi	Icelandic Speleological Society	Reykjavik	Iceland
26	Kashima	Naruhiko	College of Agriculture, Ehime University	Matsuyama City	Japan
27	Kempe	Stephan	Hawaii Speleological Survey	Dieburg	Germania
28	Kueppers	Ulrich		Waakirchen	Germania
29	Laprocina	Enrica		Monfalcone	Italia
30	Leotta	Angelo	Centro Speleologico Etno	Catania	Italia
31	Licitra	Giuseppe	Centro Speleologico Etno	Catania	Italia
32	Liuzzo	Marco	Centro Speleologico Etno	Catania	Italia



ATTENDINGS

s.n.	Surname	Name	Group or Institution	Town	Country
33	Madonia	Paolo	Nisida	Palermo	Italia
34	Marino	Antonio	Centro Speleologico Etno	Catania	Italia
35	Martin Esquivel	Jose	Canary Government	Tenerife	Espana
36	Martinaglia	Floriano	Società Svizzera di Speleologia - Sezione Ticino	Cadro	Svizzera
37	Maugeri	Roberto	Centro Speleologico Etno	Catania	Italia
38	Middleton	Gregory J.	Sydney Speleological Society, IUS Commission on Vulcanospeleology	Sandy Bay	Australia
39	Ogawa	Takanori	Speleological Society of Japan	Chiba City	Japan
40	Panzica La Manna	Marcello	Assessorato Regionale Territorio e Ambiente	Palermo	Italia
41	Patti	Andrea	Agharti	Pedara	Italia
42	Pinkerton	Harry	Environmental Science Dept. Lancaster England	Lancaster	United Kingdom
43	Politano	Francesco	Centro Speleologico Etno	Catania	Italia
44	Privitera	Angela	Centro Speleologico Etno	Catania	Italia
45	Privitera	Francesco	Soprintendenza ai BB. CC. AA. CT	Catania	Italia
46	Puglisi	Giuseppe	Istituto Internazionale di Vulcanologia CT	Catania	Italia
47	Renghi	Silvia	Sezione Speleologica SSI - CAI Città di Castello (PG)	Città di Castello	Italia
48	Santi	Giancarlo	Centro Speleologico Etno	Catania	Italia
49	Santonocito	Fabio	Centro Speleologico Etno	Catania	Italia
50	Stephenson	Jon	James Cook University	Townsville	Australia
51	Trimmel	Hubert	Federation of Austrian Speleologist - UIS (Past-President)	Wien	Austria
52	Van Der Pas	Jan-Paul	Speleo Nederland	Schimmert	Holland
53	Watts	Robert		Talbot Campus Poole	United Kingdom
54	Wood	Christopher	Bournemouth University	Bournemouth	United Kingdom
	ADHERENTS				
55	Barcelos	Paulo	Os Montanheiros S.E.E.		Azzorre (Portogallo)
56	Benedetto	Carlos	Instituto Argentino de Investigaciones Espeleologicas	Malargue	Republica Argentina
57	Comar	Maurizio	Società di Studi Carsici "A. F. Lindner" - Fogliano (GO)	Pieris	Italia
58	Grassi	Lorenzo	Gruppo Grotte Roma Niphargus		Italia
59	Muntoni	Alberto	Dipartimento Scienze della Terra Università di Cagliari	Cagliari	Italia
60	Perna	Giuliano		Villazzano	Italia
61	Piciocchi	Alfonso			Italia
62	Sabroux	Jean-Christophe	Institut de Protection et de Surete Nucleaire	Gif-sur-Yvette cedex	France
63	Szakacs	Alexandru	Institutul Geologic al Romaniei	Bucaresti	Romania



IXth INTERNATIONAL SYMPOSIUM ON VULCANOSPELEOLOGY

INSIDE VOLCANOES

IX INTERNATIONAL SYMPOSIUM ON VULCANOSPELEOLOGY OF THE I.U.S.

**UNDER THE PATRONAGE OF THE
*INTERNATIONAL UNION OF SPELEOLOGY***

**ROUND TABLE DISCUSSION
ON
«SPELEOLOGY AND ENVIRONMENTAL CONSERVATION IN VOLCANIC PARKS»**

SEPTEMBER 11-19, 1999
CATANIA (ITALY)

***GENERAL
PROGRAM***



PRE-SYMPOSIUM

CONVENTION AND FAIR CENTER «*le Ciminiera*» (Piazzale Asia)

-
- 10 SEP (fri)** 09:00 - 12:00 – Opening of the Secretary; arrivals and registrations.
15:00 - 18:00 – Opening of the Secretary; arrivals and registrations.
21:00 - 23:00 – Registration of late arrivals at CSE's seat, via Cagliari 15
- 11 SEP (Sat)** 07:00 – departure of the optional vulcanospeleological excursion **A** (Grotta Cutrona in Valle del Bove)
09:00 - 12:00 – Opening of the Secretary; arrivals and registrations.
15:00 - 18:00 – Opening of the Secretary; arrivals and registrations.
18:30 - 20:00 - The President and the Prefect of the Province of Catania inaugurate the Exhibition «Le Grotte dell'Etna», which will be open to the public until 31/10/99. Refreshment.
- 12 SEP (Sun)** 08:30 – Departure for the optional vulcanospeleological excursion **B** (Caves of Piano Immacolatella, in the territory of San Gregorio di Catania)
09:00 - 12:00 – Opening of the Secretary; arrivals and registrations.
15:00 - 18:00 – Opening of the Secretary; arrivals and registrations.

MEETING HALL OF THE CITY ASSESSORSHIP FOR BOROUGHS AND YOUTH POLICIES - VIA TOMASELLI 29

19:00 - 20:00 - Presentation to the public of the volume «Le Grotte dell'Etna», produced by Centro Speleologico Etneo and published by the Park of Etna. The Mayor of Catania and the Alderwoman for Culture will attend to the event. Refreshment.

SIMPOSIUM

- 13 SEP (Mon)** 09:00 - 12:00 – Opening of the Secretary; arrivals and registrations.
15:00 - 18:00 – Opening of the Secretary; arrivals and registrations.
09:00 - 10:40 – Lectures in the Conference Hall
10:40 - 11:10 – Coffee break
11:10 - 13:00 – Lectures in the Conference Hall
13:00 - 15:00 – Interval
15:00 - 16:40 – Lectures in the Conference Hall
16:40 - 17:00 – Coffee break
17:00 - 18:50 – Aula; presentazione lavori
20:30 - Slide projection on «Etna eruption 1991-93», by Dr. Romolo Romano, volcanologist and researcher of the I.I.V.

Accompanying persons, 08:30: Departure for the optional tourist excursion **J** (Ciclopes' Riviera, Acireale and Taormina)

- 14 SEP (Tue)** 09:00 - 12:00 – Opening of the Secretary; arrivals and registrations.
15:00 - 18:00 – Opening of the Secretary; arrivals and registrations.
09:00 - 10:40 – Lectures in the Conference Hall
10:40 - 11:10 – Coffee break
11:10 - 13:00 – Lectures in the Conference Hall
13:00 - 15:00 – Interval
15:00 - 16:40 – Lectures in the Conference Hall
16:40 - 17:00 – Coffee break
17:00 - 19:00 – Aula; presentazione lavori
20:30 – Optional social pizza at some restaurant downtown.



IXth INTERNATIONAL SYMPOSIUM ON VULCANOSPELEOLOGY

Accompanying persons, 10:00-13:00: Complimentary excursion **K** (on foot), offered by the Organising Committee in collaboration with the Superintendent of the Province of Catania for Cultural, Archaeological and Environmental Estates (guided visit to the historic centre of Catania). Optional lunch at a typical Sicilian «puttìa» (inn) in the fish market (Trattoria La Paglia).

15 SEP (Wed) 08:45 - Departure for the **general excursion** to the northern flank of Etna: meeting with the Mayor of Linguaglossa and complimentary drink; visit to the Ethnologic Museum of Linguaglossa, where the Chairman of Pro-Loce will offer a complimentary wine tasting with roasted chick-peas; stop at Rifugio Pirao, where the Forest Dept. will host the party and collaborate for a rustic lunch with local specialties; excursion to the crater area by STAR Co.'s 4WD mini-buses and guided visit to Etna Volcanologic Observatory at Monte Pizzi Deneri. Expected return back to Catania at about 21:00.

16 SEP (Thu) 09:00 - 12:00 – Opening of the Secretary; arrivals and registrations.
15:00 - 18:00 – Opening of the Secretary; arrivals and registrations.
09:00 - 10:40 – Lectures in the Conference Hall
10:40 - 11:10 – Coffee break
11:10 - 11:30 – Slide projection «Glimpses of Etna», by H. Mueller
11:30 - 13:00 – General Assembly of the IUS Commission; debate, motions, conclusion.

ROUND TABLE DISCUSSION

CONVENTION AND FAIR CENTER «*le Ciminiere*» (Piazzale Asia)

15:30 - 19:00 – Round Table discussion on «SPELEOLOGY AND ENVIRONMENTAL PROTECTION IN VOLCANIC PARKS». Official lectures, replies, debate conclusion.

21:00 - Farewell banquet at the restaurant-pub «al 17», Piazza Duca di Genova (Porto borough).

POST-SYMPOSIUM

CSE'S SEAT, VIA CAGLIARI 15 – PH./FAX 095437018

17 SEP (Fri) 07:15 – Departure for the optional excursion **C** (3dd - Islands of Lipari and Vulcano),
07:40 – Departure for the optional excursion **D** (1d - Tourist tour of Etna by Circumetnea train)
08:00 – Departure for the optional excursion **E** (1d - Visit to Grotta di Serracozzo)
18 SEP (Sat) 07:00 – Departure for the optional excursion **F₁** (1d - Grotta dei Tre Livelli, Grotta KTM)
19 SEP (Sun) 08:00 – Departure for the optional excursion **H** (1g - Grotta dell'Intraleo).



**SCHEDULES
OF
TOPICS, PAPERS AND
SESSIONS**



SCHEDULE OF TOPICS AND PAPERS

VULCANOSPELEOLOGY ON ETNA AND IN ITALY	VULCANOSPELEOLOGY IN THE WORLD	NEW CONCEPTS IN VULCANOSPELEOLOGY	HISTORY, ARCHÆOLOGY, ARTIFICIAL CAVES
A) Bonaccorso R., Maugeri R. - Top ten caves on Mt. Etna. Cadastral files	J) Forti Paolo et al. - Minerogenesis in some volcanic caves of Kenya	S) Honda Tsutomu - Classification of lava tree molds wit/without remelted inner surace...	AA) Patti A. et al. - On the ancient Mother Church of Mompilieri, Etna, Italy
B) Calvari S. et al. - Formation of a complex tube network: the 1999 Etna eruption	K) Gaál Ludovit - Syngenetic volcanic caves in the West Carpathians	T) Calvari S., Pinkerton H. - Morphology of Etna lava tubes: insights for lava flow emplacement mechanisms	AB) Politano F., Santonocito F. - The Ruins of the ancient "Campanarazzu", buried...
C) Corsaro R. et al. - Features of Etna Lava Stalactites	L) Honda Tsutomu et al. - Results of survey on Ganno-ana system: example of co-existence...	U) Coltelli M. et al. - Cross-section measurement of 1991-93 eruption lava tube	AC) Privitera F.sco - Archeological findings in the caves of Mt Etna
D) Marino Antonio - Secondary mineralizations at Grotta del Fumo	M) Jönsson S. et al. - 2nd Speleological expedition to Surtsey	V) Halliday William R. - Conduit flow of water in volcanic pseudokarsts	AD) Puglisi G., Santi G. - Studies on volcanic caves during the past centuries
E) Giudice G., Privitera A. - The Grotta del Fumo-Macchia Gialla-Grotta dell'Arco system	N) Kempe Stephan et al. - Geology of the Huehue Tube (eruption 1801) and the Puhia Pele channel...	W) Honda Tsutomu - Investigation on Hydrodynamic interaction between tree and lava...	AE) Santi Giancarlo - Etna caves and XVIII century visitors
F) Leotta A., Liuzzo M. - Fracture caves on Mt. Etna	O) Jönsson S. et al. - Checklist and distribution of Icelandic lava caves	X) Kempe Stephan - Mapping lava flows by surveying lava tubes; example: Aila'au...	AF) Politano Franco - Artificial caves in lava flows
G) Liuzzo Marco - Study on volcanic cave concretions formed during the 1991-93 eruption of Mt. Etna	P) Jönsson S. et al. - New minerals from Icelandic lava caves and selected...	Y) Kempe Stephan - The Genesis of isolated lava caves on Hawai'i	AG) Santi Giancarlo - Myths and legends on Etna caves
H) De Waele J., Muntoni A., - On some volcanic caves of Sardinia, Italy	Q) Middleton Gregory - Lava Caves of Grande Comore, Indian Ocean: further investigations...	Z) Stephenson Jon - Emplacement of tube fed lavas and tube development...	AH) Halliday William R. - A short history of Vulcanospeleology
I) Madonia P., Casamento G. - Basaltic canyons on Mt. Etna	R) Martin Esquivel J. - The Viento Cave. A volcanic lava tube of Canary Islands		



SCHEDULE OF TOPICS AND PAPERS

BIOLOGY	CONSERVATION	<i>IN ABSENTIA, POSTERS</i>
AI) Caruso Domenico - Fauna of Etna caves: description and considerations	AJ) Caffo S., Marino A. - Monitoring of Grotta del Gelo (Frost Cave)	AP1) Benedetto Carlos - Volcanic Caves in Argentina <i>IN ABSENTIA</i>
	AJ1) Marino A. - Grotta del Gelo and its glacial phenomenon	AP2) Grassi L. et al. - Devil's Pit at Monte Venere, the only Latial volcanic cave... <i>IN ABSENTIA</i>
	AK) Halliday William R. - Volcanic Show Caves in the World	AP3) J.C.Sabroux et al. - Radon monitoring in a geothermal ice cave of Mt. Erebus ... <i>IN ABSENTIA</i>
	AL) Middleton Gregory - Conserving the Lava Caves of Mauritius: the Caves of...	AP4) Szakacs Aleksandru - Vulcanocast: a Romanian contribution to Speleology, <i>IN ABSENTIA</i>
	AM) Wood Christopher - A rationale for the protection of volcanic caves	AP5) Calvari S. et al. - Main morphologic features of Etna lava tubes <i>POSTER</i>
	AN) Stephenson Jon - Guided tourism at Undara caves. North Queensland.	AP6) Patti A. et al. - On the ancient Mother Church of Mompilieri, Etna, Italy <i>POSTER</i>
	AO) Halliday William R. - Speleology in volcanic parks	AP7) Politano F., Santonocito F. - The Ruins of the ancient "Campanarazzu", buried... <i>POSTER</i>
		AP8) Perna G. - Marine caves in basalts 1: Fingal's Cave in the Island of Staffa, Hebrides, Scotland <i>- POSTER</i>
		AP9) Perna Giuliano - Marine caves in basalts 2 - <i>POSTER</i>



SCHEDULE OF SESSIONS, LECTURERS AND ROUND TABLE DISCUSSION

SESSION	MONDAY 13/09/99	TUESDAY 14/09/99
morning 1	Chairman: Prof. Hubert TRIMMEL	Chairman: Dr. Harry PINKERTON
	<i>Topic: Vulcanospeleology on Etna and in Italy</i>	<i>Topic: New concepts in Vulcanospeleology</i>
	09:00 A) Maugeri Roberto	09:00 S) Honda Tsutomu
	09:25 B) Calvari S. + Pinkerton H.	09:25 T) Calvari Sonia
	09:50 C) Corsaro Rosanna	09:50 U) Coltelli Mauro.
10:15 D) Marino Antonio	10:15 V) Halliday William R.	
10:40 / 11:10	COFFEE BREAK	
morning 2	Chairman: Prof. Hubert TRIMMEL	Chairman: Dr. Harry PINKERTON
	<i>Topic: Vulcanospeleology on Etna and in Italy</i>	<i>Topic: New concepts in Vulcanospeleology</i>
	11:10 E) Giudice Gaetano	11:10 W) Honda Tsutomu
	11:35 F) Leotta Angelo	11:35 X) Kempe Stephan
	12:00 G) Liuzzo Marco	12:00 Y) Kempe Stephan
12:20 H) De Waele Jo	12:20 R) Martin Esquivel José	
12:35 I) Madonia Paolo	12:50 / 13:00 - Time left for discussion	
13:00 / 15:00	BREAK	
afternoon 1	Chairman: Dr. William R. HALLIDAY	Chairman: Prof. Renato CRISTOFOLINI
	<i>Topic: Vulcanospeleology in the World</i>	<i>Topic: History, Archæology, Artificial caves</i>
	15:00 J) Forti Paolo	15:00 AA) Patti Andrea
	15:25 K) Gaàl Ludovìt	15:25 AB) Santonocito Fabio
	15:50 L) Honda Tsutomu	15:50 AC) Privitera Francesco
16:15 M) Jònsson Sveinn Sigurður	16:15 AD) Puglisi Giuseppe	
16:40 / 17:00	COFFEE BREAK	
afternoon 2	Chairman: Dr. William R. HALLIDAY	Chairman: Prof. Renato CRISTOFOLINI
	<i>Topic: Vulcanospeleology in the World</i>	<i>Topic: History, Archæology, Artificial caves</i>
	17:00 N) Kempe Stephan	17:00 AE) Santi Giancarlo
	17:25 O) Jònsson Sveinn Sigurður	17:25 AF) Politano Franco
	17:40 P) Jònsson Sveinn Sigurður	17:50 AG) Santi Giancarlo
18:00 Q) Middleton Gregory J.	18:15 AH) Halliday William R.	
18:25 Z) Stephenson Jon	<i>Topic: Biology in volcanic caves</i>	
(*) Paper lectured by GRASSO Rosario, on behalf of CARUSO Domenico		18:40 AI) Caruso Domenico (*)



SCHEDULE OF SESSIONS, LECTURERS AND ROUND TABLE DISCUSSION

SESSION	THURSDAY 16/09/99	
morning 1	Chairman: Dr. Jan Paul VAN DER PAS	
	<i>Topic: Conservation</i>	
	09:00	AJ, AJ1) Marino Antonio
	09:25	AK) Halliday William R.
	09:50	AL) Middleton Gregory J.
	10:15	AM) Wood Christopher
10:40 / 11:10	COFFEE BREAK	
morning 2	Chairman: Dr. Jan Paul VAN DER PAS	
	11:10	Müller's slides on Mt. Etna
	from 11:30 - General Assembly of the Commission on Volcanic Caves of the IUS, under Chairman Van Der Pas' direction. Debate, Motions, Conclusion	
13:00 / 15:00	BREAK	
afternoon	ROUND TABLE DISCUSSION ON SPELEOLOGY AND ENVIRONMENTAL CONSERVATION IN VOLCANIC PARKS	
	Chairman: Paolo FORTI	
	Official speakers:	
	Francesco VINCI (Etna Park)	
	Nicola BARONE (Centro Speleo. Etno)	
	Alfonso PICIOCCHI (Vesuvius Park)	
	William R. HALLIDAY (Hon.Ch.Comm.IUS))	
	Christopher WOOD (Conservation Teacher)	
	Time per Speaker: 20 minutes	
	Time per debater: 10 minutes	
	Debate, Conclusion	
Starting time 15:30 - Expected end 19:00		



AUTHORS LIST

s.n.	Author	presented papers				
1	Amantia A.	7 - AP5				
2	Battiato M.L.	7 - AP2				
3	Benedetto C.	7 - AP1				
4	Bonaccorso R.	1 - A				
5	Bozzo E.	3 - U				
6	Caffo S.	6 - AJ				
7	Calvari S.	1 - B	1 - C	3 - T	7 - AP2	
8	Cappa G.	7 - AP2				
9	Caruso D.	5 - AI				
10	Coltelli M.	3 - U				
11	Corsaro R.	1 - C				
12	De Waele J.	1 - H				
13	Faivre-Pierret X.R.	7 - AP3				
14	Felici A.	7 - AP2				
15	Forti P.	2 - J				
16	Gaàl L.	2 - K				
17	Galli E.	2 - J				
18	Giudice G.	1 - E				
19	Grassi L.	7 - AP2				
20	Halliday W.R.	3 - V	4 - AH	6 - AK	6 - AO	
21	Honda T:	2 - L	3 - S	3 - W		
22	Izquierdo I.	2 - R				
23	Jönsson S.S.	2 - M	2 - O	2 - P		
24	Kempe S.	2 - N	3 - X	3 - Y		
25	Leotta A.	1 - F				
26	Lerch C.	2 - N				
27	Licitra G.M.	4 - AF				
28	Liuzzo M.	1 - F	1 - G			
29	Lombardo S.	3 - U				
30	Love G.	2 - M	2 - O	2 - P		



AUTHORS LIST

s.n.	Author	presented papers				
31	Madonia P.	1 - I				
32	Marino A.	1 - D	6 - AJ	6 - AJ1		
33	Martin J.L.	2 - R				
34	Maugeri R.	1 - A				
35	Mecchia G.	7 - AP2				
36	Merlanti F.	3 - U				
37	Middleton J.C.	2 - Q	6 - AL			
38	Muntoni M.	1 - H				
39	Neri M.	1 - B				
40	Oberwinder M.	2 - N				
41	Ogawa T.	2 - L				
42	Palmeri A.	1 - I				
43	Patti A.	4 - AA	7 - AP6			
44	Perna G.	7 - AP8	7 - AP9			
45	Pinkerton H.	1 - B	3 - T			
46	Piro M.	7 - AP2				
47	Politano F.	4 - AA	4 - AB	4 - AF	7 - AP6	7 - AP7
48	Pompilio M.	1 - C				
49	Privitera A.	1 - E				
50	Privitera F.	4 - AC				
51	Puglisi G.	4 - AD				
52	Richon P.	7 - AP3				
53	Rossi A.	2 - J				
54	Sabroux J.C.	7 - AP3				
55	Santi G.	4 - AD	4 - AE	4 - AG		
56	Santonocito F.	4 - AA	4 - AB	7 - AP6	7 - AP7	
57	Stephenson J.	3 - Z	6 - AN			
58	Szakacs A.	7 - AP4				
59	Tabacco I.	3 - U				
60	Wood C.	6 - AM				



**SCHEDULES
OF THE
TOURIST EXCURSIONS**



EXCURSION «C» - ÆOLIAN ISLANDS (LIPARI and VULCANO)

FRIDAY 17 SEPTEMBER 1999

- 07:00 Meeting at Piazza Abramo Lincoln; delivery of lunch-bags.
- 07:15 Departure toward Milazzo by private coach.
- 10:00 Arrival to Milazzo.
- 10:15 Embarkation on the SIREMAR «ISOLA DI STROMBOLI» hydrojet ferry.
- 10:30 Departure toward Lipari.
- 11:40 Arrival to Lipari, disembarkation at Marina Lunga port and delivery of luggage to the hotel van. Transfer on foot to the hotel and accommodation. Time at leisure.
- 14:20 Meeting with the guide, Mrs Helga Jung.
- 14:30 Departure by coach for the complimentary island tour, offered by Lipari Municipality. The tour will touch the fishermen's villages of the western coast, San Calogero's Spas, dating back to Micenean age (3500 ybp), the pumice quarries at Canneto.
- 17:30 Return to the hotel, and transfer on foot to the City Hall.
- 18:00 Meeting with the Mayor of Lipari, who will welcome the party in the island and will offer a drink and complimentary brochures concerning the Æolian archipelago.
- 19:00 Time at leisure for a stroll downtown, an ice cream, an optional dinner or pizza in the numerous inns of Æolian headtown. Overnight.

SATURDAY 18 SEPTEMBER 1999

- 08:00 Transfer on foot to Marina Corta port, and meeting with the licensed guide, Mrs Elisabeth Curie (*); delivery of lunch-bags.
- 08:30 Embarkation on SIREMAR's hydrofoil to Vulcano.
- 08:40 Disembarkation at Vulcano, Porto Levante, and guided visit to the large crater named «*la Fossa*» (the Hole); visit to the numerous phenomena of minor volcanism (fumarolic emissions of sulphur and water steam, submarine boiling water-springs, boiling mud springs) and to the small Grotta dell'Allume, hosting secondary mineralizations. Time at leisure for the lunch.
- 15:00 Meeting at SNAV's hydrofoil wharf at the port of Vulcano.
- 15:15 Embarkation toward Lipari.
- 15:25 Arrival to Lipari, Marina Corta port. Transfer on foot to the hotel. Time at leisure for rest, individual activities and/or optional excursions, shopping. Optional dinner, overnight.

SUNDAY 19 SEPTEMBER 1999

- 08:30 Delivery of luggage to the hotelkeeper, and transfer on foot to Piazza Mazzini; meeting with the licensed guide, Mrs Elisabeth Curie (*).
- 09:00 Guided visit to the Citadel of Lipari and to the Archæological Æolian Museum.
- 11:30 Transfer on foot to Lipari, Marina Lunga port, through the characteristic Via Meligunis.
- 11:45 Withdrawal of luggage (carried to the port by the hotel van) and delivery of lunch-bags; embarkation on SIREMAR's «ISOLA DI STROMBOLI» hydrojet ferry.
- 12:00 Departure toward Milazzo.
- 13:10 Arrival to the port of Milazzo, disembarkation, transfer to the private coach.
- 13:30 Departure toward Messina.
- 14:15 Arrival to Piazza della Repubblica in Messina (Central State Railway Station; Bus Terminal). Prosecution of individual journey by train, or by Ditta Cavalieri's liner coach for those departing from Reggio Calabria airport. The remainder party reaches Catania by the private coach.
- 16:00 Arrival to Catania, Piazza Abramo Lincoln. End of the excursion.

(*) Mrs Curie will describe in Italian, French and German language, the itinerary at Vulcano, and the visit to the Citadel and to the Æolian Museum; no licensed English speaking guide is available on Saturday 18 and Sunday 19.

Suggested restaurants in Lipari: «Kasbah» (Via Maurolico), «al Vicoletto» (Vicolo at Via V. Emanuele), «Filippino» (Piazza Mazzini); average cost 40.000 to 60.000 ITL for fish based menu (without wine or with local lose wine).



EXCURSION «D» - RAILWAY TOUR OF ETNA BY CIRCUMETNEA TRAIN

FRIDAY 17 SEPTEMBER 1999

- 07:40 Meeting with the licensed English speaking guide, Mrs Giovanna Farruggia, at the Cafeteria of the FCE Railway Station «BORGO».
- 07:50 Departure toward Adrano by the train Catania-Randazzo.
- 08:55 Arrival to Adrano Station, and meeting with the Superintendence Archæologist, Mr. Francesco Privitera. Transfer to the Norman Castle and visit to the Ætnean Archæological Museum, with prehistorical findings of Hybla Mayor and the territory of Etna.
- 12:15 Departure toward Randazzo.
- 13:10 Arrival to Randazzo.
- 13:20 Lunch at Scrivano Restaurant, with pore fungus and grill based courses. Non-subscribers for lunch will re-join the party at the Railway FCE Station. Those wishing to join the party for lunch may apply the guide for the vouchers (ITL 30.000 per person).
- 14:00 Visit on foot to the medieval borough with its churches of St Maria (Norman), St. Nicholas (Greek) and St. Martin (Lombard), the City Hall (a XVIII century monastery and cloister), the Castle with Museo Vagliasindi, the Royal Palace, Clarentano Mansion, the narrow stone paved lanes, the cosy courts.
- 16:30 Departure by FCE train toward Giarre.
- 17:30 Arrival to Giarre. Time at leisure for a cup of coffee.
- 18:10 Departure toward Catania by FS Railways train # R.12765.
- 18:45 Arrival to Catania Central Railway Station. End of the excursion.

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EXCURSION «J» to the CICLOPES' RIVIERA, ACIREALE and TAORMINA

MONDAY 13 SEPTEMBER 1999

- 08:15 Meeting with the licensed guide, Mr Giacomo Mazza, at Piazza Abramo Lincoln.
- 08:30 Departure from Catania by mini-bus. Slow ride along the seaside road with stop at Aci Castello (Norman Castle) and Aci Trezza (the Cyclopes' Faraglioni).
- 09:15 Arrival to Acireale. Visit to the Cathedral, the Biblioteca (library) Zelantea, further remarkable monuments and highlights.
- 12:00 Arrival to Taormina, Porta Messina. A stroll on foot through the Corso will bring the party to Piazza IX Aprile, for admiring the panorama of Etna and the God's Bay, while sipping a complimentary drink at Wunderbar's, the most traditional cafeteria and tea-room downtown.
- 13:00 Lunch at the garden of "la Buca", with excellent fish-based courses prepared by the Chef Antonino Intelisano. Participants that don't want to attend to the restaurant lunch, will meet the party again at Piazza Santa Caterina (Palazzo Corvaja corner) at 14:30. The non-subscribers wishing to join the party may apply the guide for the vouchers (ITL 35.000 per person).
- 14:30 Guided visit to Taormina monuments: the Roman-Greek Theatre, the Odeon, the medieval Palazzo Corvaja, St. Catherine's Church, the Roman Gymnasium (improperly named "le Naumachie"), the City Hall, the XV century Cathedral. Time at leisure for a cup of ice cream, resting at some downtown cafeteria, or for shopping or strolling along the Corso.
- 17:30 Meeting at Porta Messina with the mini-bus and departure toward Catania.
- 18:20 Arrival to Catania, Piazza Abramo Lincoln. End of the Excursion.



EXCURSION «K» - GUIDED VISIT TO CATANIA HISTORIC CENTRE

TUESDAY 14 SEPTEMBER 1999

09:30 Meeting with the English speaking licensed guide, Mrs Giovanna Farruggia, and the Superintendence Archaeologist, Mr. Francesco Privitera, at Piazza Duomo (Palazzo dei Chierici corner at Porta Uzeda.

The visit (on foot) will start from the Cathedral of St. Agate, a baroque realisation on medieval remains survived to the 1693 earthquake (Norman transept and apses); then the Central University Palace, and many more highlights (Roman Amphitheatre, Church of St. Francis, Roman-Greek Theatre, Odeon, Benedictine Monastery at Piazza Dante, Via Crociferi, Terme (Spas) della Rotonda, the Castle, Terme dell'Indirizzo, the Fish Market.

12:45 The walk ends at the Fish Market, where subscribers will have a fish based lunch, Catania style cuisine, at the old typical inn «Trattoria La Paglia». Those wishing to join the party may apply the guide for the vouchers (ITL 40.000 per person).

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VULCANOSPELEOLOGICAL EXCURSION «E» - GROTTA DI SERRACOZZO

FRIDAY 17 SEPTEMBER 1999

18:00 ON ITS WAY BACK TO CATANIA, THE PARTY WILL BE HOSTED BY THE CITY ADMINISTRATORS OF MILO, FOR A WELCOME SPEECH AND A RUSTIC WINE TASTING.

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TOUR LEADERS OF THE PLANNED (VULCANOSPELEO & TOURIST) EXCURSIONS

EXCURSION "A" - SAT. 11/09/99	- Marco LIUZZO (Vulcanospeleologist)
EXCURSION "B" - SUN. 12/09/99	- Angelo LEOTTA (Vulcanospeleologist)
EXCURSION "J" - MON. 13/09/99	- Giacomo MAZZA (Licensed tourist guide)
EXCURSION "K" - TUE. 14/09/99	- Giovanna FARRUGGIA (Licensed tourist guide); - Francesco PRIVITERA (Archæologist)
EXCURSION "GEN" WE 15/09/99	- The whole Centro Speleologico Etneo
EXCURSION "C" - Fri/Sun 17-20/09	- Giuseppe M. LICITRA (Tour leader) - Helga JUNG (Tourist guide) - Elisabeth CURIE (Licensed tourist guide)
EXCURSION "D" - FRI 17/09/99	- Giovanna FARRUGGIA (Licensed tourist guide); - Francesco PRIVITERA (Archæologist)
EXCURSION "E" - FRI 17/09/99	- Marco LIUZZO (Vulcanospeleologist)
EXCURSION "F ₁ " SAT 18/09/99	- Giuseppe GAROZZO (Vulcanospeleologist) - Sonia CALVARI (Volcanologist)
EXCURSION "H" - SUN 19/09/99	- Angelo LEOTTA (Vulcanospeleologist)

The excursions "F₂" and "G" were cancelled for lack of subscriptions.