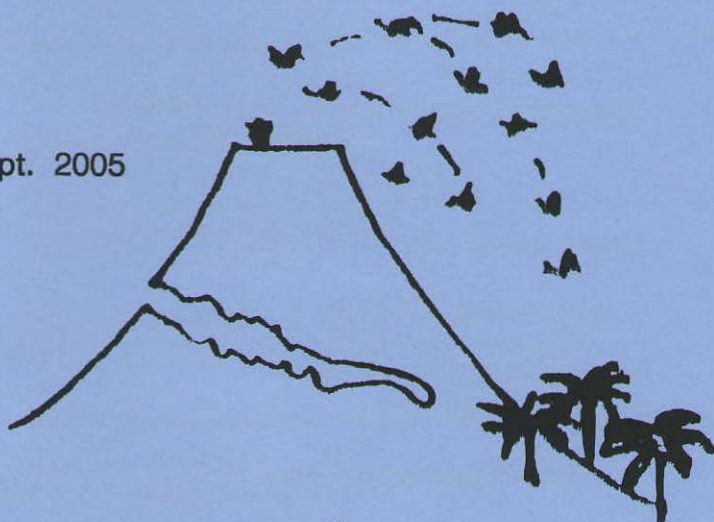


International Union of Speleology
Union Internationale de Spéléologie

Commission on Volcanic Caves

Sept. 2005



XII th International Symposium
Vulcanospeleology
Mexico July 2006 -
symposium@saudicaves.com

45

The Newsletter is sent free to members of the Commission. It is not possible to subscribe - but will be send to all interested in lava-tube caves. However: News and information is always appreciated !!

Honorary President: Dr. W.R. Halliday
bnawrh@webtv.net

Chairman & editorial address: a.i.

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Vauwerhofweg 3
6333 CB Schimmert
Netherlands

jpgvanderpas@hetnet.nl





vulcanospeleology

XII INTERNATIONAL SYMPOSIUM

TEPOZTLAN, MORELOS, MEXICO 2006

Location:

The picturesque town of Tepoztlán in the state of Morelos, 54 kms south of Mexico City and less than one hour's drive from Cuernavaca.

Dates:

July 3 to 8, 2006

Sponsors:

- International Union of Speleology (UIS) Commission on Volcanic Caves
- SMES (Sociedad Mexicana de Exploraciones Subterráneas)
- Grupo Espeleológico ZOTZ

Abstracts:

Send before March 31, 2006. *Final paper* should be submitted before April 30, 2006. Send abstracts to symposium@saudicaves.com.

Contacts:

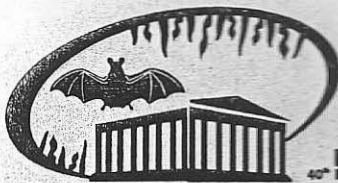
- Organizer: Dr. Ramón Espinasa (ramone@cablevision.net.mx)
- Assistant organizers:
 - Chris Lloyd (cjlloyd@prodigy.net.mx)
 - John and Susy Pint (symposium@saudicaves.com)

Program:

The latest info on what's new in the study of volcanic caves *plus* three days of field trips with Dr. Ramón Espinasa, including a visit to the longest lava tube in America (Iglesia Cave, notable for its pristine features) and a post-symposium trip to Veracruz. Hotels and camping available.

FOR MORE INFO SEE WWW.SAUDICAVES.COM





Athens - Kalamos

AUGUST 2005

40th UIS Anniversary

14th INTERNATIONAL CONGRESS of SPELEOLOGY

Some Remarks about the UIS Congress - Alamos / Greece - August 2005

Well, the 'motto' after arrival was the word 'chaos' (= a word invented by the Greeks 2000 years ago, but never changed). Three locations for the congress, and apparently a kind of shuttle bus. I myself had checked-in at a location announced as 'walking distance to the main congress'. Two things I did not know - it looked like a bombed prison camp, and the congress venue had two-weeks-before changed to a place near to the beach (oh, oh, so nice) 5 kilometers away. The shuttle bus program however was not really changed

Due to three locations the, as usual, many changes in the program are not published at each of them. I think I missed around 60% of the lectures due to mis-announcement, or being unable to move in a few minutes to a location far away.

A lecture completely depends on a sound-system (David Brison). He gets a hall without sound. Later this is changed, and I am even informed! His lecture shows pictures of Fingall's Cave. A lecture about lava-tubes in Rwanda by Michael Laumanns depends on a overhead projector. I'm standing beside him when he arranges this with the location. All is there and promised. On arrival they do NOT have such a thing, and the lecture has to be cancelled.

At the opening session the 'officials' arrive some 2½ hour too late due to traffic problems. The afternoon program is also changed, but only few participants are informed

Are there some compliments? Yes - the Erasmus travel-organization. They did their best, and could be trusted.

Of course after some time you know who resides where, and contacts are renewed and established. The amount of participants is only some 350, and I hear several times 'where are the young ones?'. Next congress in the USA - proposed by Georg Veni in the most positive way.

In your own caver magazine more complete reports about this congress will be published - for sure.

This is just my personal version (I will not even mention what happened to the luggage of my room-mate, lost during his flight to Greece

Jan Paul



Athens - Kalamos

AUGUST 2005

40th UIS Anniversary

14th INTERNATIONAL CONGRESS of SPELEOLOGY

COMMISSION MEETING - KALAMOS/GREECE 23 August 2005

Due to chaotic circumstances the meeting was at an inconvenient time, several parallel events taking place, and improper (= none) announcement at some of the locations where the congress took place.

However, 8 people attended - 4x USA, 2x Italy, 1x Poland, 1x Korea + the chairman (NL).

Due to good relations and information-exchange in the Commission not too many hard decisions had to be taken. To some outsiders the mission and operation of the Commission was explained.

Status of proceedings (Catania 1999, Iceland 2002 and Azores 2004) was explained - all available.

Future is bright for the Commission - a symposium in Mexico in 2006, and a possibility in Korea (by Prof. Son). Prof. Woo explained the problems for not having the Korea-2006 symposium. Still we have to be thankful for all the work he put into preparations.

During this meeting Cindy Heazelit offered to produce a web-site for the commission! All who know the chairman's limits will realize this offer was taken with both hands! Arrangements have to be made

During opening- and closing-sessions of the Congress each Commission had the possibility to present their program. U.I.S. was fully happy with the work we did (although our UIS-report, sent as the first commission-report to UIS) was not published ... (too long, too early??).

News, heard from, publications and so on

Armenia,

Michael Laumanns established a contact with Armenia. Lava tubes are reported.

Rwanda,

Contact with Rwanda is still kept, but the proper authorities are silent. Michael Laumanns is working on this.

Poland (about Easter Island),

A publication - 'Polish Caving 2001-2005' - describes a visit/exploration to Easter Island. Andrej Ciszewski and Krzysztof Ruciński publish two pages about exploration, and a map - Cave R03, R04 and R05.

Korea,

A publication - 'Cave in Jeju Island, Korea' - was available at the Greece Congress. It contains a short inventory of caves at Jeju. New is 'Yongchon Cave', found in May 2005. Due to the formations it is called 'The World's Largest Pseudo Limestone-Lava Cave Discovered In Jeju Island, Korea'. 14 pages and stunning pictures.

Nicaragua,

During the congress in Greece dr. Pierre Strinati, a noted speleobiologist, reported lava-tube caves in a National Park.

Rwanda,

A new atlas of the BHB is 'supplement 1' (Band 15) reports about 20 new lavatubes mapped in December 2004. Issued by Michael Laumanns.

Mexico,

The symposium in Mexico, July 2006, was widely announced during the congress in Greece. Dozens of tear-off labels with basic data were taken.



During the U.I.S. Congress in Greece (August 2005) some lava-cave enthusiasts where met:

Mr. Roberto CONTI
Via Ippodromo, 58
20151 Milano - ITALY
rconti@bancafidivram.it

Mr. Conti reported having seen some volcanic cave entrances in the crater-wall on the island of Santorini (Greece).

Mr. and Mrs. MEDVILLE
11762 Indian Ridge Rd
Reston, VA 20191-3525
U.S.A.

medville@verizon.net

The Medville(s) are editor(s) of the Hawaiian Speleological Society Newsletter. Their interest includes also pseudo-karst.

Prof. In-Seok SON, Ph. D
Volcanogeologist / Speleologist
caveson@hanmail.net

Prof. Son promised to participate in the Mexico 2006 Symposium. He will have a look into a lava-cave symposium in Korea (2007).

**DO NOT FORGET TO LOOK
AT
www.saudicaves.com/symp06**

Request by the editor:
several times I got e-mails from
< lava-cave@yahoogroups.jp >
However, these are removed from
the PC by our virus-killer.
Someone knows the sender of this?

During the Greece UIS-Congress several lava-tube or volcanic-related lectures were announced. Here some abstracts.

- O 163. 'Stufe di Nerono' by Cigna & Middelton. Actually artificial, but interesting due to the first 'cave plan' (1546).
- W 4. 'Lava Tube Caves of Rwanda' by Michael Laumanns. This lecture had to be cancelled since the clearly promised overhead projector was not available
- P 28. 'Cave Pearls in a lava-tube' by Woo et al.
- W 1. ' ... Kipuka Kanohina Cave System, Hawai'i ... ' by Cindy Heazell.

W-4

The Lava Tube Caves of Rwanda

M. Laumanns

German Speleological Federation, Speläoclub Berlin

The principal caving area of Rwanda is located in the NW of the country (Ruhengeri and Gisenyi provinces). This region belongs to the East African Rift Valley and the Virunga Mountains form a big chain of volcanoes along the border with Uganda to the North and the Democratic Republic of the Congo to the West. The largest volcano is the Karisimbi that summits at 4,507 m. The mountains are covered by a dense jungle and are host to the last Mountain Gorillas on Earth. Most of the volcanoes belong to the Rwandean "Parc National des Volcans" (PNV) which significantly contributes to the tourist income of the country. At the foot of the mountains extensive lava flows cover the region at an elevation of between 1,900 and 2,700 metres. The known caves are entirely of volcanic origin formed in Cenozoic basaltic lava. Lava tube caves are very abundant. The main first phase of cave exploration in NW Rwanda took place between 1975 and 1977. Belgian speleologists from the Centre Routièr Spéléo Belgique visited the area in 1975. They surveyed 4 caves including Ubuvumo bwa Musanze (to a length of 1,600 metres) and 4 other caves (Grottes de Bigowe, Grotte de Salomon and Grotte des Commandos) in the Mutura region (Gisenyi province). In 1977 a Spanish team from Barcelona visited the volcanic regions of NW Rwanda. Their studies included Ubuvumo bwa Musanze at 4,560 metres and Ubuvumo bwa Nyirabadogo at approximately 1,500 metres (the latter cave remained unsurveyed). A recent phase of exploration was initiated in 2003 when a Rwandean-Swiss-German speleological project surveyed nearly 10 km of cave passages in 42 caves of the Ruhengeri province. The most significant findings were lava tube caves like Ubuvumo Nyabikuri-Ruri (Bukamba district) at 3,384 metres (unsegmented), which is currently the longest cave of Rwanda as well as Gacinyiro 2 (Kinigi district, unsegmented, 1,470 metres). Ubuvumo bwa Musanze, formerly reported to be the longest cave of Rwanda at 4,560 metres was found to be segmented with the longest segment being just 1,600 metres long. Some of the caves still contain human remains from the 1994 ethnic genocide and later conflicts. In 2004, a second international speleological expedition of cavers from the Netherlands, USA, Kuwait and Germany resulted in the exploration of 20 more caves with a total passage length of about 9.1 km both in the Ruhengeri and Gisenyi province. The most significant findings in 2004 were lava tube caves such as Ubuvumo Manjari deux (Mutobo district, Ruhengeri province) at 1,660 metres, which is currently the second longest cave of Rwanda, and Ubuvumo Cyamazera (Mutura district, Gisenyi province, 1,484 metres). Ubuvumo Nyiragihima (Mutobo district, Ruhengeri province) was explored to 1,116 metres and is currently the eighth longest cave of the country. Many caves in NW Rwanda still await exploration and the potential for further discoveries is as excellent as the co-operation with the local authorities proved to be.



P-28

Origin and diagenesis of the cave corals in the lava tube of Jeju Island, Korea

K.C. Lee, D.W. Choi, K.S. Woo

Sangji University, Wonju, Korea

Kangwon University, Chuncheon, Korea

Cave corals, that have grown by groundwater seepage, can be found within the lava tubes (Jingaemot, Susan, Mosimoru and Bilaemot Caves) in Jeju Island, Korea. Unlike other speleothems in many lava tubes, these cave corals should have formed after the formation of the lava tubes. The mineralogy and formation process of these corals (commonly cited as siliceous sinter) are poorly understood. The cave corals in Jinagemot Cave are composed of opal-A, calcite and aragonite, whereas those in Susan, Mosimoru and Bilaemot Caves only consist of opal-A. Most cave corals show similar morphology to those found in many limestone caves, however, some of them show the form of anthodites in limestone caves. The internal texture of the cave corals in Jingaemot Cave show alternated layers of aragonite and calcite. Calcite crystals show isopachous fibrous texture, and aragonite crystals show spherulitic fibrous texture. Most of the terminated portion of both crystals were replaced by opal-A along growth laminae, and replacing opal-A commonly retain relic crystals of calcite and aragonite. Corroded nature of the former carbonate crystals indicate that the growth of carbonate vs. siliceous minerals should have been controlled by the pH conditions of cave water from which they precipitated. Low Mg contents in the calcite may imply that aragonite precipitated due to high CO₂ contents rather than high Mg/Ca ratio in cave water. The mineralogy in cave corals and diagenetic process appear to have close relationship with chemical conditions of cave water that seeped through overlying carbonate soils and basaltic rocks, and the chemical conditions of cave water were mainly controlled by local climatic variations in the past.

W-1

Exploration and Preservation of the Kipuka Kanohina Cave System, Ka'u Hawai'i

C. K. Heazlit

Cave Conservancy of Hawai'i, Ocean View HI USA

In 1998, members of the Cave Research Foundation and the Hawai'i Speleological Survey began a systematic exploration of Kula Kai Caverns. The Caverns lie in an ancient volcanic island of land called Kipuka Kanohina, located beneath the Mauna Loa volcano. The Kipuka also contained other caves - Poha Cave, Eli's Pit Cave, and The Maelstrom. Each cave is highly braided and mazy, with multiple levels of passage. Eventually all four caves were connected together, along with a fifth section of cave called The Cordwinder. The cave system yielded several surprises. There are several lava balls in the cave, with one lava ball over five meters tall. The cavers also found beautiful gypsum formations throughout the dry sections of the cave. Many of these secondary formations have impurities of copper or iron, coloring them brilliant red or blue. The surveyors also found that the ancient Hawaiians used and explored the cave extensively. Gourd cradles are evident in many areas of the cave, along with torch sticks, opi'i shells and charred kukui nuts. The exploration team also found sleeping platforms, fire rings, and tool making sites. The team has currently explored the cave to a length of over 32 kilometers of contiguous passage and over 38 kilometers within the flow unit. This makes Kipuka Kanohina the second longest lava tube system in the world. In 2002, several members of the exploration team formed a non-profit corporation to protect the cave. The Cave Conservancy of Hawai'i has now purchased several pieces of property over the Kanohina cave system, and is working with other landowners to protect the cave. The Conservancy is also working to protect other significant cave systems in Hawai'i.

LAVATUBES on the Island of REUNION

Ancien spéléo, j'ai aussi des intéresses pour les volcans. Pour cette raison j'ai visité quelques fois l'Ile de Reunion. Dans cette ile se trouve Le Piton de la Fournaise, un des volcans les plus actifs au monde

Aujourd'hui un article dans le Journal de l'Ile (www.clicanoo.com) d'une grotte de lave de 500 metres. Cette grotte s'est formée en aout 2004.

Dans cette ile il y a plusieurs grottes de lave. C'est aussi un haut lieu de canyoning.



This message arrived via via.

It concerns a report about a recent lava-tube, but also others.

..... I started to be interested in vulcanology, and so I visited the Island of Reunion 5 times. Today I read in a local paper about a not unimportant lava tube with a length of 500 meters. But it might soon disappear under a new eruption of Piton de la Fournaise.

There are more lava tubes on Reunion, one with a length of 1500 meters.

For more information and advise to fly cheap to the island:

semeeese@pandora.be

Other sources of information:

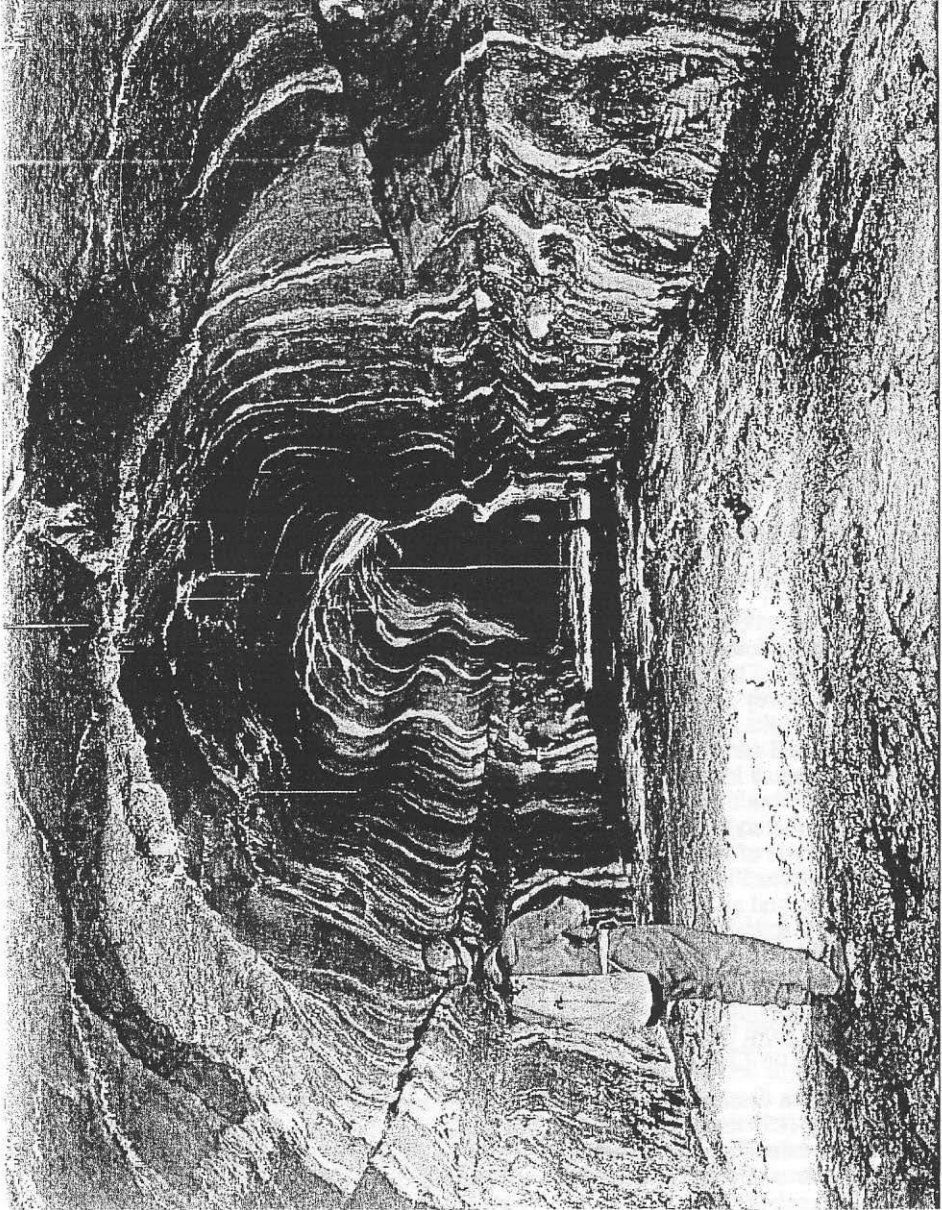
www.clicanoo.com

gabyvanholderbeke@hotmail.com

www.fournaise.info



Picture (page 9) from the 14-page booklet issued during the Congress in Greece showing the recently discovered lava-tube. (CAVE in Jeju Island, Korea - 2005.8)



▲ The inside look of Yongcheon Cave with its speleothem: soda straw, stalactite, column, stalagmite, column, stalagmite, flowstone, and etc

The text of this article was already published in # 44, but without pictures. Here the complete article. Due to the fact that issues of this publication are send-out sometimes as single issue it was repeated in the complete form.
On page 15 you will see Bill's remark/request to keep the Commission informed. Well, of course!

MOWICH CAVE, DOUGLAS COUNTY, OREGON; a report to the IUS Commission on Volcanic Caves

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Honorary President,
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After five years of negotiations between this Commission and the Umpqua National Forest, Mowich Cave was visited by speleologists in October 2004 (Nieland and Ormsbee, 2004) and April 2005 (this report).

This little-known cave has a problematical history. For many years it was one of the principal recreation features of the Umpqua National Forest, reached by its own trail (Rushin, 1978). That trail (#1441) now is obliterated, but is still shown on the US Geological Survey's 1998 Potter Mountain 7.5 minute topographic quadrangle. An outline map of the cave by US Forest Service employees was published in 1977 (Anderson, Bell and Rushin, 1977). Unfortunately the cartographer somehow produced a mirror image of its plan. This erroneously indicated that the upflow section of the cave curved away from the canyon wall into an area where its overburden could be more than 200 feet (70 meters) -- more than that of any other lava tube cave known in the world and thus a focus of international interest. In 1999, however, a team of members of this Commission found the cave closed and gated without compliance with due process requirements, and an international controversy developed. Access still is severely limited, but a science-based Cave Management Plan now is in preparation. A 2004 US Forest Service map (Nieland and Ormsbee, 2004, p. 3) documented important details of the cave, but omitted some sharply demarcated features of the cave's walls and some ceiling heights evidently were estimated rather than measured. The present map (Figure 1) is redrawn from the 1977 and 2004 maps based on field measurements on 13 April 2005.

As far has been determined, Mowich Cave is an immature unitary lava tube cave about 450 feet long (150 m). It is located east of Roseburg, Oregon in forested subalpine terrain within the Umpqua National Forest, at an altitude of about 3550 feet (1080 m). Its entrance is at the base of a vertical cliff estimated to be 80 to 100 feet high (25 to 30 meters -- [Broeker, 2004, p. 2]). If this estimate is correct, its overburden and thus the load on its ceiling is the greatest on record, anywhere in the world.

The only known entrance resulted from truncation of the cave by downcutting of the Clearwater River along the south side of the Toketee intracanyon basalt flow in which the cave is located. This basalt flow was approximately 760,000 years bp (Broeker, 2004, p. 2). In this location its central axis is from ENE to WSW.

Mowich Cave thus is the oldest lava tube cave in the conterminous United States. Several lava tube caves in Hawaii and elsewhere are older. At least one of those in Hawaii is as large or larger than Mowich Cave (e.g., Szukalski, 2002). Thus its age is of regional but not international significance. It also is of regional significance as the only lava tube cave reached by car in less than two hours from the Roseburg (OR) metropolitan area. It was gated primarily to protect a small maternity colony of *Plecotus townsendii*, at that time federally listed as a threatened and endangered species, but subsequently removed from this list. Because the gate is only a few feet from the maternity colony, protection by a fence appears preferable to a gate (Perkins, 1990, p. 10).

The cave's entrance is arched, with a ceiling height of about 12 feet (4 m). The gate is a few feet inside the indefinite overhang, at a point where the width at floor level is about 35 feet (12 m). Ten feet (3 m) inside the gate, its width at chest level is 31 feet (10m) and ceiling height is 14 feet (4.5 m). This was the observed site of the maternity colony in 1999.

The entrance room is about 150 feet long (50 m). It narrows slightly toward the rear, and the floor gradually slopes upward. 125 feet from the entrance (40 m), the ceiling height is 8 feet (2.5 m) and width is 26 feet (9 m). Its floor consists mostly of reworked clayey and sandy sediments plus some slabby breakdown primarily from frost wedging.

At a point about 125 feet (40 m) from the entrance is an angled break-in-slope about 25 feet long (8 m) with a rise of about 6 feet (2 m). Near its base is a short narrow stream channel with a pothole about 2 feet (0.6 m) in depth and diameter. Nearby are several large remnant mounds of clay fill up to about 3 feet high (1 m). Traces of similar fill high on the walls and ceiling indicate that most or all of this room originally was filled with sediment. Presumably most of it has been removed by piping or by erosion by swirling backwaters of the Clearwater River or a major tributary, during downcutting. On both margins of the break-in-slope are remnants of a complex sequence of thinbedded sediments with individual beds 0.2 to about 2 cm in thickness. The north side of the break-in-slope is vertical to overhanging. Here erosion has exposed a cross-section of a large sediment mound. Its layers appear to be disconformable with those nearby. Some cross-bedding is present. Thick sequences of thin-bedded sediments are uncommon in lava tube caves. A lesser sequence was present in Gremlin Cave, Mount St. Helens, WA during post-eruption mudflows of the 1980s (Halliday, 1985).

The remainder of the cave is a slotted crawlway 8 to 26 feet wide (2.5 to 8 m), with only two short chambers as much as 5 to 7 feet high (2 m). This entire section of the cave is notable for thinbedded deposits, some of which are as much as 3-4 cm thick. No charcoal was observed at any point. They are only slightly compacted. Their longitudinal slope could not be traced over distance, but they appear to have been deposited by backflooding. Some very small soil pipes are present, and locally the deposits have been eroded by dripping, trickling and running water. This has produced some additional stratification, and several irregular pockets up to three or four feet (1 m) in diameter extending laterally as far as the cave wall. The largest drip complex has carved a remnant of stratified fill into a free-standing horizontally striped likeness of the Rock of Gibraltar or a medieval fortress ("The Castle"). Also, a persistent current produced a rounded channel up to 3 feet deep (1 m), offset from the center line of the passage toward the convex side of each sinuosity of the cave. This channel gradually enlarges from the rear of the cave to the break-in-slope.

Morphologically it resembles the channels commonly seen in clay fills of karstic caves of the eastern United States. At its lower end, its curved bottom is replaced by a flat bottom consisting of reworked sediments. A few small fragments of transported bedrock and cohesive clay also have been deposited here. It was not possible to determine whether this channel was initiated under phreatic or vadose conditions.

The far end of the cave is at an ill-defined point where the fill nearly touches the ceiling and the channel is too small for further crawling. One of the higher sections of the crawlway passage is just downstream from this point and just upslope from an animal (? feline) den containing splintered mammalian bones (? rabbit). The den is within a low but spacious drip slot complex on the north wall of the cave. On April 13, 2005 this chamber was perceptibly warmer than the rest of the cave (the entrance chamber was estimated at about 3 degrees Celsius). On October 15, 2004 its temperature was recorded as 13.5 degrees Celsius (Nieland and Ormsbee, 2004, p. 5). The remainder of the crawlway passage was perceived as homeothermic and cooler than this terminal chamber. The higher air temperature here may be due (1) to its being the highest point in the cave (ceiling about 8 feet (2.5 m) higher than that of the entrance (Nieland and Ormsbee, 2004, p. 3), (2) to residual summer heat of the nearby canyon wall, or (3) to decomposition of the considerable pile of bat guano on its floor. Although the gnawed bones, animal droppings and nest material suggest the presence of an additional orifice here, no confirmatory air movement was detected. Studies of temperatures throughout the cave are ongoing.

The outer part of the entrance room is an important maternity roost for a small but relatively constant population of *P. townsendii*, and this bat also uses the east end of the crawlway passage as a hibernaculum. *Myotis* spp. also utilizes this cave; their usage is less clearcut and may include seasonal swarming (Moore, 1993, p. 81). A larger population may have existed until a predator began to inhabit the den near the rear of the cave. This den was not investigated for bat bones.

The entrance room also hosts cave moths and harvestmen, and a small guano-based ecosystem exists in the crawlway segment including very small web-dwelling spiders and a brown and yellow surface centipede. On 13 April 2005 rodent-transported green leaves were observed on a ledge in the entrance room and on the floor of the crawlway channel.

At no point in the cave is the original lava floor exposed. The amount of breakdown elsewhere in the cave is unexpectedly scant for a cave with loading by so great an overburden. The ceiling and walls were searched carefully to determine if it is concealed by subsequent sediment deposition. This is not the case. Nowhere are the surfaces of the ceiling and walls disrupted for more than a very few square feet and I estimated that approximately 98% of these surfaces are intact. Gypsum and presumably other white secondary minerals are scant and have not contributed significantly to breakdown. Some of the larger breakdown areas near the rear of the cave reveal considerable nonhomogeneity of the country rock and this should be studied. No congealed tube lining was identified at any point.

The cross-section of the entrance room is roughly rectangular. That of the crawlway area is irregularly arched, with occasional poorly defined cupolas. No rheogenic features were observed at any point of the lava walls or ceiling. The ceiling characteristically is irregularly pocketed, with minimal glazing and with only a few, poorly developed stubby lava stalactites. Glazing is minimal, but has partially welded a few small slabs back in place after they had partially separated from the ceiling.

Mowich Cave thus contains many features of unusual scientific and popular interest. On a scale of 1 (lowest) to 5 (highest), I found its resources and values to be as follows:

Geological	5
Biological	3
Recreational	3
Cultural	2

If requested by the Commission, I will continue to monitor the development of a science-based environmentally and socially just Cave Management Plan.

References:

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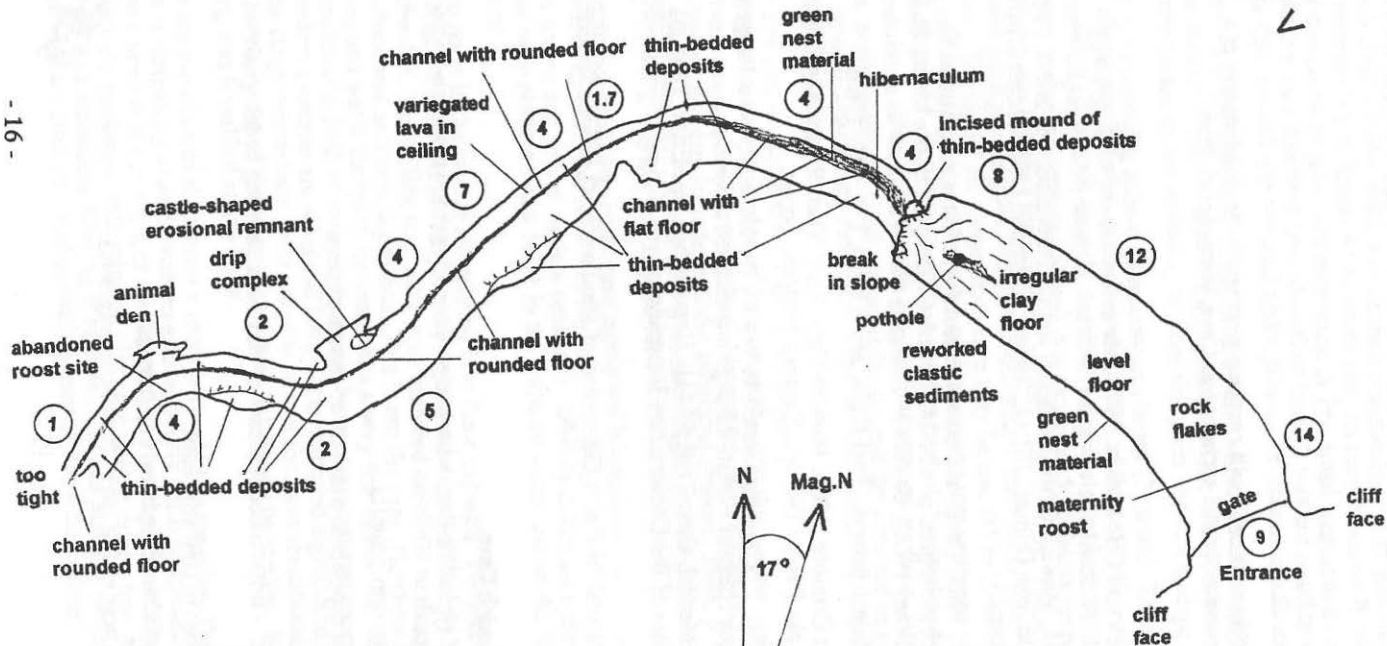
Illustrations:

- Figure 1: Map of Mowich Cave.
- Figure 2: Section of typical ceiling, with wedge-shaped breakdown scar and white secondary mineral deposit.
- Figure 3: Typical large drip complex.
- Figure 4: Thin-bedded deposits at west end of entrance room.
- Figure 5: Closeup of same.
- Figure 6: "The Castle" - drip-eroded remnant of clay bank showing bedding. Glove shows scale.
- Figure 7: Tiny soil pipes in clay/sand bank.
- Figure 8: Lower end of channel in crawlway passage.
- Figure 9: Animal den near end of cave. Note bone fragments.



Ceiling heights in feet

general slope
of lava flow



- 16 -

MOWICH CAVE
DOUGLAS COUNTY, OREGON
 Redrawn from 2004 US Forest Service
 map by J. Nieland and G. Gunderson
 and 1977 US Forest Service map by
 D. Anderson, K. Bell and C.J. Rushin.
 2005 ceiling heights and widths
 by steel tape.

5

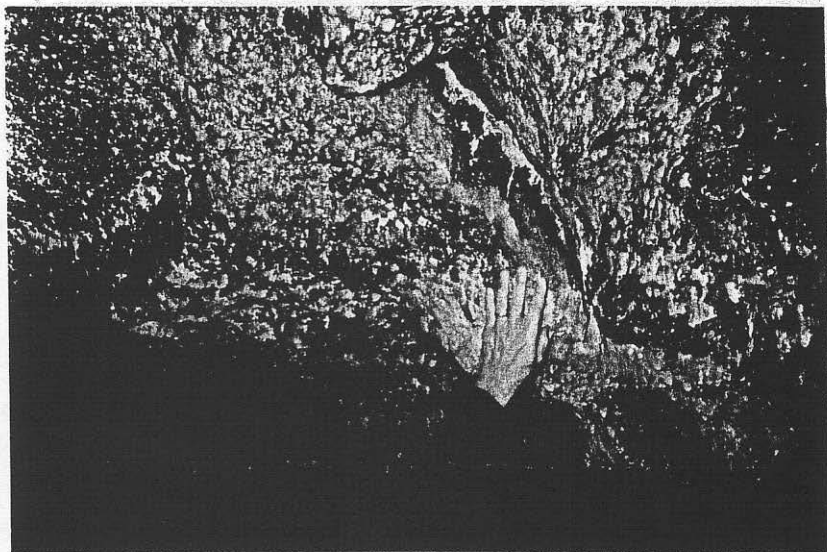


Figure 2. Section of typical ceiling, with wedge-shaped breakdown scar and white secondary mineral deposit.

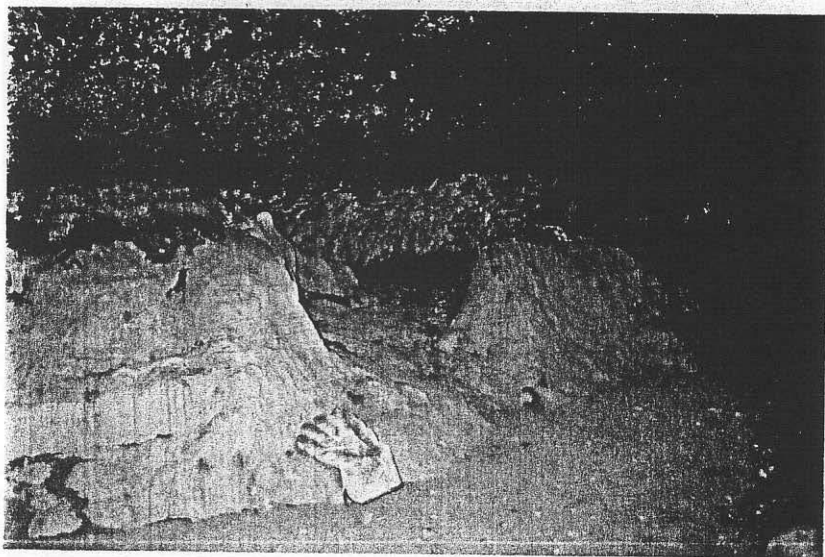


Figure 3. Typical large drip complex.



Figure 4. Thin-bedded deposits at west end of Entrance Room.

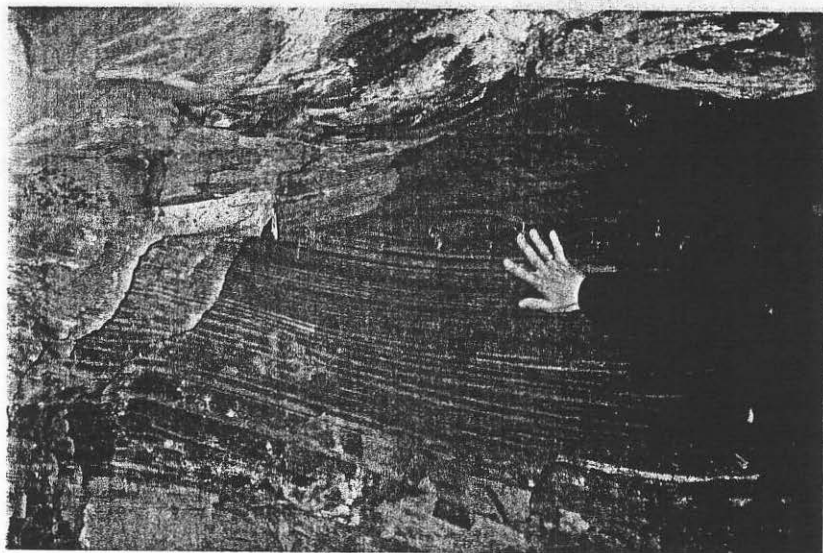


Figure 5. Closeup of same.

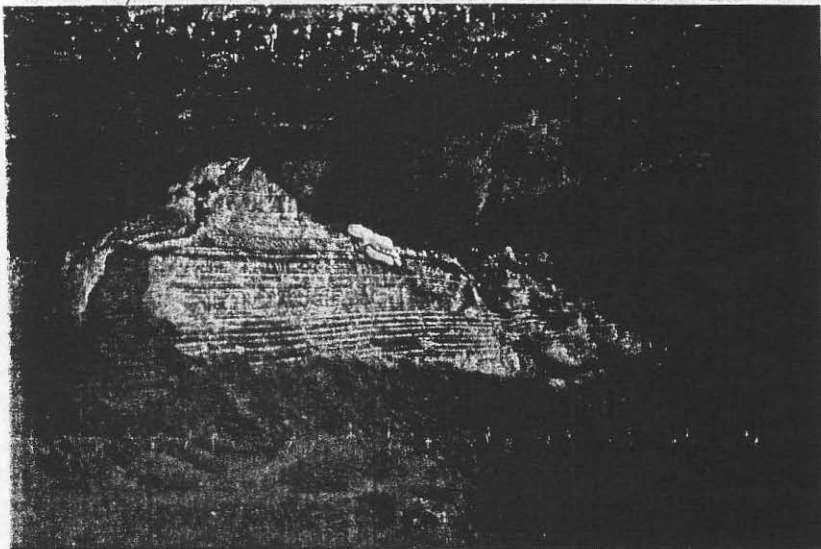


Figure 6. "The Castle" - drip-eroded remnant of clay bank showing bedding. Glove shows scale.



Figure 7. Tiny soil pipes in clay/sand bank.

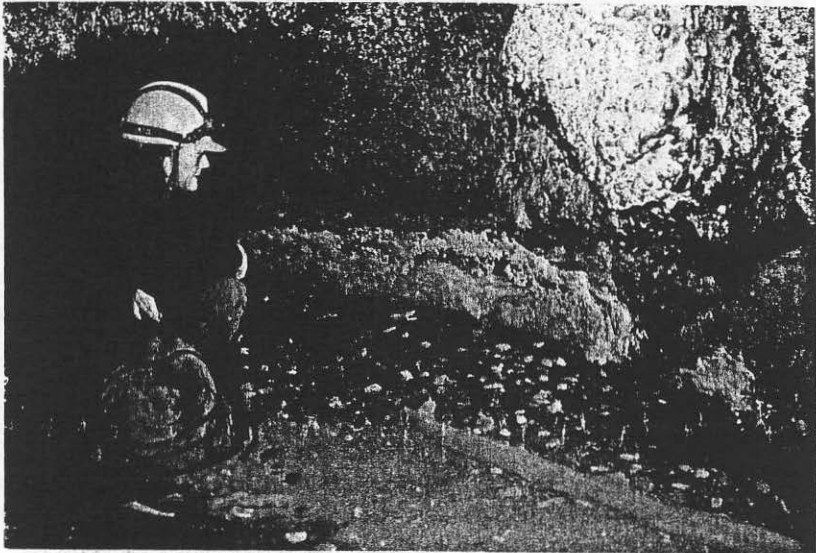


Figure 8. Lower end of channel in crawlway passage.

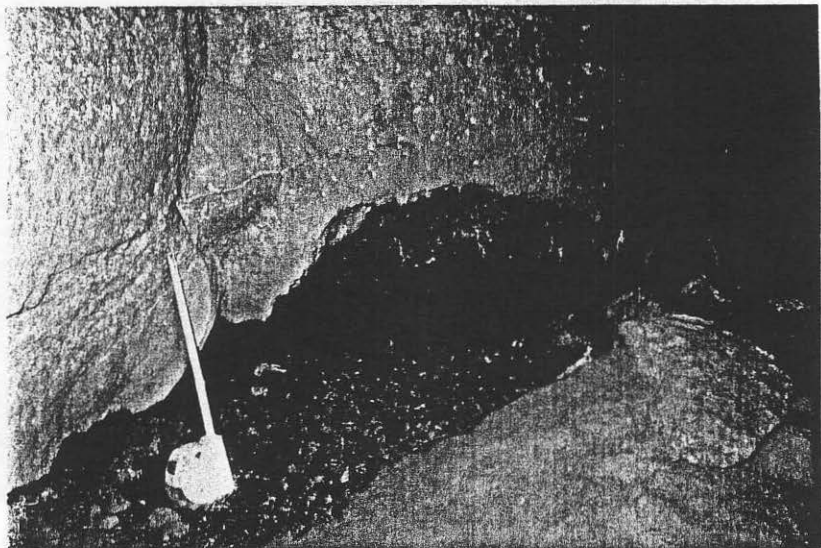


Figure 9. Animal den near end of cave. Note bone fragments.

Well, on the previous pages the result of a many-year-long struggle with authorities are shown. A cave investigated - finally. However, Bill Halliday ran into another problem After many, many years of investigation of the Kilauea Caldera caves (Hawaii) suddenly this was stopped due to a measurement of CO2 levels in the area. This humble publication is too small to reproduce the already by Bill supplied documentation about the subject (many, many pages) to prove authorities to be wrong and get permits to continue the research. Only a few documents are shown here

**6530 Cornwall Court
Nashville, TN 37205**

**Freedom of Information Officer
Hawaii Volcanoes National Park
PO Box 52,
Hawaii Volcanoes National Park, HI 96718**

by Certified Mail, Return Receipt

4 September 2005

Dear Sir or Madam:

re: FOIA request

Under the provisions of the Freedom of Information Act, I hereby request legible photocopies of the following documents, to be sent to me at the above address by Certified Mail, within the time constraints specified in that Act.

1) photocopies of all records documenting carbon dioxide and oxygen measurements in Kilauea Caldera, by any person or agency, which were utilized in the Superintendent's risk management decision of 28 July 2005 as documented in her letter of 1 August 2005 (copy enclosed for your easy reference), together with all interpretations of these measurements by any staff person of Hawaii Volcanoes National Park.



- 2) photocopies of all records documenting all carbon dioxide and oxygen measurements in Kilauea Caldera in 2005 which were not used in formulation of that decision, together with all interpretations of these measurements by any staff person of Hawaii Volcanoes National Park.
- 3) photocopies of all records documenting locations of each of the above measurements.
- 4) photocopies of all carbon dioxide and oxygen measurements at these locations which any staff person of Hawaii Volcanoes National Park ~~which were~~ used to establish the pre-June 2005 baselines of these gases at each location, whether or not the measurements were made by staff persons of Hawaii Volcanoes National Park.
- 5) photocopies of all records documenting location and text of all signs emplaced in Kilauea Caldera in 2005 by staff persons of Hawaii Volcanoes National Park prohibiting entry because of elevated carbon dioxide levels and/or reduced oxygen levels, together with the date of emplacement of each such sign
- 6) photocopies of all records made by Hawaii Volcanoes National Park "Dispatch" office staff concerning the biologists who performed cave studies in Kilauea Caldera on 25 June 2005, including but not limited to handwritten notes and other contact memoranda, and all subsequent written communications by Hawaii Volcanoes National Park staff about this incident.
- 7) photocopies of all records documenting human entries into the Kilauea Caldera seismograph vault since 2 June 2005, excluding only those supplied to Hawaii Volcanoes National Park by myself.
- 8) photocopies of all records describing, referring to or mentioning the ventilation system installed in the Kilauea Caldera seismograph vault and subsequently removed, sometime prior to 2005, whether or not these records were made by staff persons of Hawaii Volcanoes National Park.
- 9) photocopies of all records documenting senior staff instructions to Park interpreters during a meeting on Thursday, August 18, 2005.

Sincerely yours,

William R. Halliday, M.D., F.C.C.P.

cc: Ron Kerbo et al

Attachment (1)





United States Department of the Interior

Hawaii Volcanoes National Park
P. O. Box 52
Hawai'i National Park, HI 96718-0052
808/985-6000
808/967-8186 (FAX)

In Reply Refer to:

H26 (HAVO)

August 1, 2005

William Halliday
101 Aupuni St. #911
Hilo, HI 96720

Dear Dr. Halliday:

This will document our conversation and meeting of July 28, 2005, in which you requested a cave research permit for your final year of research in the caves of Hawaii Volcanoes National Park. As you had previously been advised, extremely high levels of carbon dioxide (CO₂) have been found to be present in the vicinity of your project. In that regard your permit cannot be approved at this time.

As we discussed however, I am committed to ensuring that should CO₂ emissions return to acceptable levels and remain constant, I will reconsider your current permit or future permit requests. Such request should include an approved study plan to finish the field work portion of this project, as well as a list of the caves to be visited and the inventory tasks to be completed. The approval may also require personal monitoring equipment that meets OSHA standards to assure your health and safety.

We appreciate all of the effort you have put into this eleven year project and look forward to working with you as you complete your final report.

Sincerely,

Cynthia Orlando
Superintendent

Cc: PWR-Jarvis
PWR-(Seattle) Larry Nolan
WASO-Powell
WASO-Kerbo
HAVO-Supt.
HAVO-RM
HAVO-Safety Officer
HVO - J. Kauahikaua

Aan: <jimk@usgs.gov>
CC: "William Halliday" <williamrhalliday@mailstation.com>
Verzonden: zondag 14 augustus 2005 11:35
Onderwerp: letter to Mr. Jim Kauahikaua

COMMISSION ON VOLCANIC CAVES
Internation Union of Speleology

To: Mr. Jim Kauahikaua

- 24 -
The Commission on Volcanic Caves is highly concerned about the closure of Kilauea Caldera caves on the basis of your flawed conclusions. Volcanic caves characteristically are excellently ventilated, and a high CO2 level nearby should never be considered proof of a high CO2 level in a volcanic cave. Only actual CO2 measurements in volcanic caves should be a basis for assessment of risk within them.

This Commission is an integral part of the International Union of Speleology which is meeting in Greece later this month. Remediation of this matter will be discussed there. The IUS is a member of UNESCO.

Jan Paul van der Pas
Chairman of the Commission on Volcanic Caves
Vauwerhofweg 3,
6333 CB SCHIMMERT
The Netherlands
jpgvanderpas@hetnet.nl