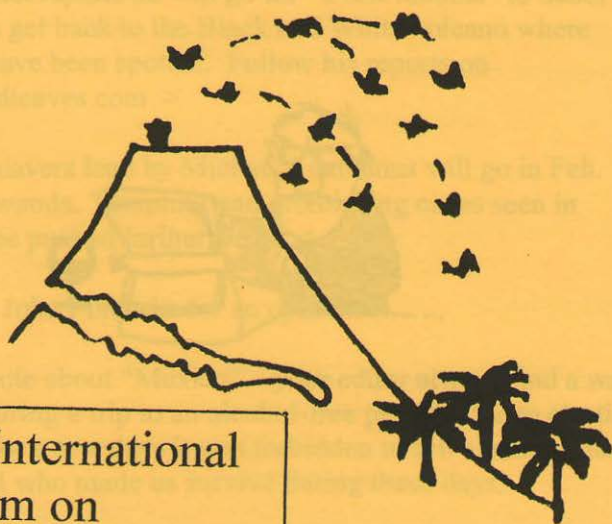


International Union of Speleology  
Union Internationale de Spéléologie

*Commission on Volcanic Caves*



The 13th International  
Symposium on  
Vulcanospeleology:  
Jeju Island,  
South Korea  
September 2008

*January 2007*

**48**

*The Newsletter is send free to members  
of the Commission, and others who are  
interested in lava-tube caves.  
It is not possible to subscribe – but news  
and information is always appreciated ...!*

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



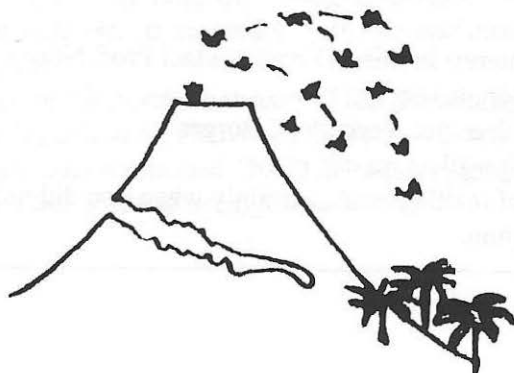
Chairman & editorial address: (a.i.)

J.P. van der PAS  
Vauwerhofweg 3  
6333 CB Schimmert  
Netherlands

jpgvanderpas@hetnet.nl

## Here finally a Newsletter

- actually two due to the enormous amount of news.
- see page 8 and 9 about the next Symposium in Korea.
- see page 6 for a report about “ Mexico 2006” ,  
and page 20/22 about the caver who organized this  
(a very good article about this symposium already in NSS-  
News (Sept. 2006) by John Pint and one in Descent (#193  
Dec. 2006) by Ed Waters).
- John Pint just reports he will go for “a few months” to Saudi  
Arabia - to get back to the Black and White volcano where  
entrances have been spotted. Follow his reports on  
< [saudicaves.com](http://saudicaves.com) >
- a group of cavers lead by Michael Laumanns will go in Feb.  
again to Rwanda. Tempting and promising caves seen in  
2004 will be pushed further.
- on page 14 John Pint asks for an opinion .....
- just a last note about “Mexico” – your editor always find a way  
to end up during a trip to an alcohol-free period. Due to elections  
in Mexico for a few days it was forbidden to sell alcohol. Many  
thanks to all who made us survive during these days.



Address changes:

Yurii Slezin (participant of Canary Islands Symposium – “our man on Kamschatka”) wishes all members of the commission a good 2007, now

< [slezin@kscnet.ru](mailto:slezin@kscnet.ru) >

Harry Marinakis – tired of spam moved to

< [harrymarin@mail.com](mailto:harrymarin@mail.com) >

Address change of the “Commission on Pseudokarst”:

< [get.to/pseudokarst](mailto:get.to/pseudokarst) >

**For Sale !!!!!** See page 13 of article “Hello, all – “ by Bill Halliday. The mentioned CO<sub>2</sub> monitors (were \$ 425.00) are for sale.

#### ABOUT THE “AZORES” PROCEEDINGS (2004).

Due to circumstances (e.g. incorrect snail-mail addresses) not all participants of the XIth International Symposium on Vulcano-speleology received the CD-rom with the proceedings.

Via a “mass E-mail” I tried to inform commission members. However, many addresses “bounced”. So here again in print.

In case of interest in this CD-rom contact Prof. Nunes

< [jcnunes@notes.uac.pt](mailto:jcnunes@notes.uac.pt) >

In case this does not work: Prof. Borges

< [pborges@mail.angra.uac.pt](mailto:pborges@mail.angra.uac.pt) >

Make sure of mailing costs, certainly when you did not participate in this symposium.

## ETHIOPIA

*In Descent 190, June/July a note by Rob Eaves about a trip into a lava tube near Nekemte/Walta Gada. He calls it a "bat-infested lava tube", length surveyed 220 meter, no open leads.*

## NICARAGUA

*In the Newsletter (#45) a lava tube was mentioned. This turns out to be the lava tube "Tzinancanostoc" (Cave of the Bats) in the National Park of Vulcano Masaya. You can ask for a guide in the parc – a light is obliged – length a few 100 meters (from "Lave # 120).*

## ICELAND

*Arni Stefánsson still works (and progresses) with the Thríhnúkagigar project. Funds are secured.*

*Björn Hróarsson published "the book" about Icelandic caves. See report in this Newsletter.*

## CHINA

*Bill Halliday reports from the 4<sup>th</sup> International Symposium on Volcanoes of the World:*

*Significant caves were mentioned in the following paper: Haiquan Wei, Yu Wang, Jinyu Jin, Ling Gao, Sung-Hyo Yun and Bolu Jim, 2006. Tianchi Volcano, its magmatic episodes and mixing-triggering regime.*

*This volcano is on the border between China and North Korea. In its flow field is a lava tube cave – 2 km long – in red Pahoeohoe. They also mentioned "the only pumice flow tube known" in the same general area, found in 2005.*



J.P. van der Pas

Already the 12<sup>th</sup> Symposium ..... And (again) a big success. Certainly if you know some of the inside preparations. Only one year in advance it was decided to have this symposium in Mexico. The first one to take action was John Pint. He told me Ramón did not even know it was going to happen, but would DO. Well, sounds great, but ....

It worked out fantastic. Ramón & Co made a fantastic program and trips. But I think it was John Pint who did the promoting. Via sites as "saudicaves.com" you were bombarded with info and tempting stories and pictures.

The result: participants from more than 8 countries, only continent missing was Africa. Also missed were participants from Japan or Iceland. A big group however from the Azores, and a large contingent from Korea. They promoted the next symposium in Jeju, Korea in 2008, which was unanimously accepted.

Already some nice articles were published in NSS News and Descent about all which happened. A book about the area was introduced (see further in this Newsletter) which tells all about the caves visited.

The symposium took place in Tepoztlan, a very scenic village some 60 km's south of Mexico City. Lectures were held in a convent, and next door a lot of pubs and restaurants made breaks very pleasant.

Too much to mention all the lectures. From Stephan Kempe we learned "lava-tubes" is wrong: should be pyroducts.

The first field-trip was just geologic with small caves, to see if participants could cope with the altitude – 3000 meters a.s.l. Actually one of the group had troubles. Later field trips involved only walking, climbing (ladders up and down which apparently was new for one of the group) and typical lava-tube (sorry – pyroduct) work.

Interesting: an USA couple with their dogs. The dogs are used to caving and have their own lights. And explore. Later Ramón tells us he has also used dogs for exploration.

So, many thanks to Ramón and all the other Mexican cavers who helped with making this event so remarkable.

# 9th International Symposium on Pseudokarst

“Pseudokarst forms – scientific, natural and cultural importance, evaluation and protection”

Bartkowa, Beskidy Mts. (Poland), 24-26<sup>th</sup> May 2006

Excursion guide book & abstracts of lectures:

ISBN: 83-918914-5-3



This symposium was held on two locations: it started in the Ojców National Park with fantastic geologic formations, and continued in the Beskidy Mountains.

Participants from 13 countries, all Europe, but stretching from Russia to Spain to Finland.

One of the first lectures was by Prof. Jerzy Glazek, an expert on speleology and geology in central Europe, with “The problem of proper Nomenclature”. The name “pseudokarst” is wrong, but are there suggestions for something else? The audience is silent ... no answer ... No one has an idea for a better name. All agree that despite the wrong name all know what is meant. And it might be better to continue with it. As always – many lectures. Very fascinating – as “The Pseudokarst Formations in Finnish Folklore” by Eetu Kejonen to “Pseudokarst and Geoconservation in Russia” by Marina Vdovets, a project to make a database of all interesting geologic features. A small discussion starts since in this lecture vulcanospeleology is in Russia defined as “Volcanokarst”.

Excursions included the “Crystal Caves” in the Wieliczka Salt Mine. Legend has it in the old days women were not allowed over there because they get problems. In our company is one lady – believe it or not (she is an experienced caver) but she faints.

Several visits to caves. Mostly very narrow. So people laugh at me since I have a warm speleo-suit. But, during another trip we end up in a cave with much ice on the bottom of the cave.

Plans for next symposia are suggested and fixed. In 2007 “only a workgroup meeting” in Spain (Vigo Sept. 2007). In 2008 the 10<sup>th</sup> Symposium in Italy, and the 11<sup>th</sup> in 2010 in Dresden (Germany).

Of one of the caves we visit the exact day of origin is known – it was originated by a landslide. And as with all groups, commissions or just persons: at least three propose their database.

A fascinating symposium – certainly due to all work done by Jan Urban (and his crew)!

J.P. van der Pas



The 13th International  
Symposium on  
Vulcanospeleology:  
Jeju Island,  
South Korea  
September 2008

During the Commission Meeting  
in Mexico (July 2006) the  
proposal for Korea 2008 was  
unanimous accepted.  
A website will be established  
summer 2007, a temporarily  
information point will be

< [wooks@kangwon.ac.kr](mailto:wooks@kangwon.ac.kr) >





# The 13th International Symposium on Vulcanospeleology 2008

Venue: Jeju Island, South Korea

Date: September 2008

Organizer: Jeju Island Cave Research Institute

Supporting Organizations:

Jeju Special Self-governing Province

Jeju Environment Research Institute

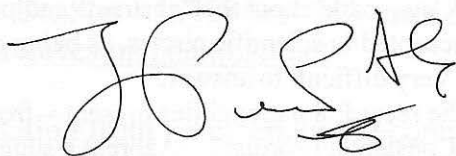
Korea Cave Research Institute

Korea Cave Environment Research Society

The Graduate School of Interpretation, Cheju National University

And other related organizations

International Union of Speleology (UIS) Commission  
Volcanic Caves Chairman

A handwritten signature in black ink, appearing to read 'In Seapson', written in a stylized, cursive script.

President of Jeju Island Cave Research Institute

INSEAPSON

Some points from the U.I.S. Commission meeting on  
“Volcanic Caves” during the symposium in Mexico 2006

During the symposium in Mexico (July 2006) a commission-meeting was held. Some points of interest:

- about proceedings (1999, 2002, 2004 and 2006) – Catania 1999 was issued,
- Iceland 2002: very few of the lectures were sent to be published. Whatever was sent is collected by John Pint and will be included in the Mexico 2006 proceedings.
- Azores 2004. See note on page
- Mexico 2006. These will be sent to participants, but are all the postal addresses known ?
- About next symposia: a large group from Korea promoted “Korea 2008”, which was accepted unanimously. So see you there in Sept. 2008. See page
- Australia made a bid for 2010. No one against this ..... (all respect to Greg Middleton) !
- A remark was made about the “abstracts and proceedings” not always accepted in scientific circles, as being not important enough. Very difficult to answer.
- Just for the record: 8 nationalities present – from 4 continents.
- By Joao Constantia (Portugal – Azores) a suggestion (and during the symposium a lecture) for a “world date base” of the most important volcanic caves. Supported by all participants. Some scientific advisors were asked for – Dr. Chris Wood, Prof. Borges and Dr. Woo agreed to do this, and also (as far as I understand also Prof. Forti).



Our Commission is a part of U.I.S., and supposed to report at certain intervals. Last report (in Newsletter # 44) was forwarded on request to the U.I.S., but never published ..... The new elected Joint Secretary, Carlos BENEDETO from Argentina, introduced a new system. Each Commission should report each 6 months, which sounds very good indeed. This is the report issued to U.I.S. (March 2006).

### **Activity Report “Commission on Volcanic Caves” August 2005 – March 2006**

1. Preparations for the 12<sup>th</sup> Symposium on Volcanic Caves (Mexico – July 2006) finished. Info:  
[www.saudicaves.com/sympo6](http://www.saudicaves.com/sympo6).
2. Three Newsletters (total about 60 pages) were published.
3. Bill Halliday completed a more than 10-years mapping and exploration project in the Kilauea Caldera (Hawaii).
4. Two books on volcanic caves of Jeju Island (Korea) were published by Dr. Son – in Korean. Information in Newsletter or [caveson@hanmail.net](mailto:caveson@hanmail.net)
5. Much information from members of the commission.

Jan-Paul van der Pas  
Commission Chairman

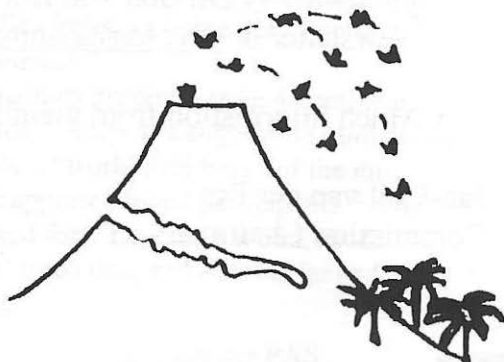


## Activity Report "Commission on Volcanic Caves"

### March 2006 – February 2007

1. 12<sup>th</sup> Symposium on Volcanic Caves Mexico 2006 was a great success with more than 30 participants from 4 continents.
2. Preparations for the 13<sup>th</sup> Symposium on Volcanic Caves started. Location and dates: Jeju Island, Korea, September 2008. Website in preparation, temporarily info: [wooks@kangwon.ac.kr](mailto:wooks@kangwon.ac.kr)
3. Future symposium proposed by Australia for 2010.
4. Two Newsletters issued with a total of 50 pages.
5. Several books on volcanic caves published, the most impressive by Björn Hroársson, with 672 pages and a weight of 5,5 kgs!
6. From all projects coming: A trip (the 3<sup>rd</sup>) to Rwanda by an international team led by Michael Laumanns.

Jan-Paul van der Pas  
Commission Chairman



Hello, all -

During (and before ...) Bill's work in the Kilauea Caldera (Hawai'i) many officials made problems. Many people helped in many ways to solve this. Here an answer by Bill to all these .....

I am deeply grateful and most appreciative of the tremendous help provided by concerned individuals literally around the world, in my finally obtaining permission to complete my 12 year study of 200+ caves in Kilauea Caldera. I am convinced that, without this help, I would never have been allowed to perform the final 5 field days of my project. I have no way to know the identity of everyone who helped. In sending this message of profound thanks, I hope that I have included everyone who did help even if I am also thanking a few who did not. Even more, I hope that I am not missing anyone I should be thanking.

To keep everyone informed, these last few days were under a research permit which still ignored basic principles of medical geology and the federal standards established by the National Commission on Risk Assessment and Risk Management. On very short notice, the new Superintendent of Hawaii Volcanoes National Park required me to order (from New Hampshire!) two "approved" CO<sub>2</sub> monitors @ \$425.00 each. The stated purpose was to insure that we spent no more than 15 minutes in CO<sub>2</sub> concentrations between 0.5% and 1.5%, and no time at all in CO<sub>2</sub> higher than 1.5%.

The monitors (and another model owned by the USGS and carried by Don Swanson of the USGS) work fine in buildings and vehicles, but clearly had not been tested in any of the caves where the Superintendent required us to carry them at all times. As devices relying on infra-red technologies, they all proved intolerant to mere wisps of steam and apparently even to high concentrations of water vapor. Thus they provided us with truly bizarre read-outs in some of the volcanic caves included in my study. One of them even read out the body temperature of Ric Elhard when he was rappelling in a deep normothermic crevice cave.

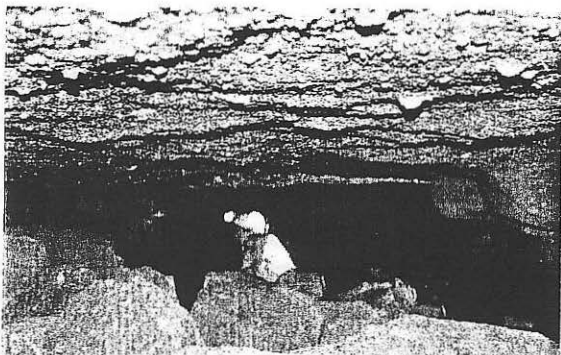
Needless to say, we found no cave with a reliable CO<sub>2</sub> level as high as 0.5%. We finished on the last possible day before returning to the mainland. We left uninvestigated only three little, newly-discovered caves (unlike the old "Cave Permits", the research permit did not allow us to investigate new discoveries).

The permit requires an annual report, and it will take nearly that long to process data. Again my profound thanks.

William R. Halliday, M.D., F.C.C.P.  
Honorary President,  
UIS Commission on Volcanic Caves

This facinating message/  
question arrived end 2006.  
Sorry for bad picture, but  
the description is clear.  
Have an answer?

Contact John Pint!



Hello Jan Paul, Stephan and Paolo,

First, we send you warm greetings from Mexico on a sunny Christmas day!

We think you guys are the big experts who can tell us if our latest volcanic cave (Zurdo) is unusual or maybe even unique. It is is tuff and pumice and our geologist Chris Lloyd says it was formed by phreatic action. And of course, there is the obsidian ceiling. By the way, I have samples of those obsidian fragments which I would be happy to send to you Paolo, if you are interested. There is brown stuff intermingled with the obsidian bits, probably iron as Chris says the flows from Sanganguey volcano are famous for having 9% of iron in the obsidian.

The story and pictures are at [www.ranchopint.com](http://www.ranchopint.com) and we are now working on improving the draft map that is on the web site. If you guys think this cave is unusual, we can go back and do some more studies... perhaps you can suggest what sort of studies need to be done. We hope we could make a presentation on this cave in Korea if we can save up enough \$\$ to go there. (That is one reason I will go back to work in Saudi Arabia in February).

Please, please take a look at the story and let us know what you think!

Hola Bep! Merry Christmas! We hope you will make sure Jan Paul reads this!!!

John and Susy





During the Symposium in Mexico (2006) Gespea from the Azores announced via a poster this "Catalogue". Not seen yet.

Info via < [montanheiros@montanheiros.com](mailto:montanheiros@montanheiros.com) >

## CATALOGUE OF THE AZOREAN CAVES (LAVA TUBES, VOLCANIC PITS AND SEA-EROSION CAVES)

Fernando Pereira<sup>1,2,3</sup>, Paulo A. V. Borges<sup>1,2,3</sup>, Manuel P. Costa<sup>2,4</sup>, João P. Constância<sup>2,5</sup>, João C. Nunes<sup>2,5,6</sup>, Paulo Barcelos<sup>1,2</sup>, Tédilo Braga<sup>5</sup> and Rosalina Gabriel<sup>3</sup>

In this contribution we present the first catalogue of the currently known Azorean caves, namely lava tubes, volcanic pits and sea-erosion caves. This was possible due to: i) the wealth of information compiled by several Azorean environmental association's (e.g. "Os Montanheiros", "Amigos dos Açores" and Speleological group of CAIP – Circulo dos Amigos da ilha do Pico) and ii) to the development of the IPEA Database and classification system by GESPEA Working Group, created by the Regional Government of the Azores in 1998. A total of 250 structures (185 lava tubes, 23 volcanic pits, 8 pit-caves, 18 sea-erosion caves, and 6 other type of structures) are described in the Catalogue, and for each of them is included information about: name, name synonyms, location (island, locality), length/depth, general description, main geological features, biological interest, main references and a map with the location of the cave/pit in the island. When available, a detailed topography or sketch is also provided. The catalogue also includes comprehensive lists of the fauna and flora known for each cave and the main speleological and biospeleological literature from the Azores. Several of these volcanic caves harbour great geological and biological diversity. Together, they provide a diversified geological, biological and aesthetic patrimony that must be protected and promoted according to the specificities of each structure. It is hoped that the present catalogue may help to achieve a better management of the Azorean caves.

In this contribution we present the first catalogue of the currently known Azorean caves, namely lava tubes, volcanic pits and sea-erosion caves. This was possible due to: i) the wealth of information compiled by several Azorean environmental association's (e.g. "Os Montanheiros", "Amigos dos Açores" and Speleological group of CAIP – Circulo dos Amigos da ilha do Pico) and ii) to the development of the IPEA Database and classification system by GESPEA Working Group, created by the Regional Government of the Azores in 1998. A total of 250 structures (185 lava tubes, 23 volcanic pits, 8 pit-caves, 18 sea-erosion caves, and 6 other type of structures) are described in the Catalogue, and for each of them is included information about: name, name synonyms, location (island, locality), length/depth, general description, main geological features, biological interest, main references and a map with the location of the cave/pit in the island. When available, a detailed topography or sketch is also provided. The catalogue also includes comprehensive lists of the fauna and flora known for each cave and the main speleological and biospeleological literature from the Azores. Several of these volcanic caves harbour great geological and biological diversity. Together, they provide a diversified geological, biological and aesthetic patrimony that must be protected and promoted according to the specificities of each structure. It is hoped that the present catalogue may help to achieve a better management of the Azorean caves.



### General aspect of a cave file in the Catalogue

Nome	GRUTA DAS ANELARES
Nome oficial	Gruta de Juncal
Outro	Gruta
Coordenadas	48° 45' 00" N, 12° 45' 00" W
Região	Castelo Branco (Lombegia)
Altitude	100 m
Compr.	35 m
Prof.	10 m

#### SUMMARY

Small lava-tube located at Castelo Branco (Lombegia), with the length of 35,50 m, 2,50 m wide and 3,70 m high. The most important feature is the presence in the ceiling of stalactite structures. This is one of the best lava-tubes where the troglodipnism feeding and Citrus variegatus (Ichneumonidae) occurs (Jorge & Gram, 2006).

#### DESCRIÇÃO

Tubo de lava situado na ilha do Faial, freguesia de Castelo Branco (Lombegia) e concelho de Horta. Com apenas 35,50 metros de comprimento, altura máxima de 3,70 metros e com largura máxima de 2,50 metros, mas com uma particularidade: trata-se de grutas azorianas, ou seja, a presença de estalactites em forma de anel, regularmente dispostas, dá o nome "Anelares" (Ichneumon, 1993). O pavimento da gruta é do tipo "tau". Além das estalactites acima referidas o tecto desta gruta encontra-se coberto totalmente por finas estalactites aciculiformes em forma de lâminas. A única entrada é feita por um abutimento do tecto e fica situada perto de um tramo de carro de bois no lugar da Lombegia nome pelo qual esta cidade é igualmente conhecida.

#### RELEVÂNCIA GEOLÓGICA

Presença de estalactites em forma de anel





At this very moment several people/organizations are working on data bases. Per country, just for (world-wide) length or depth, or importance.

Already announced/proposed in Iceland, the Azoreans worked on a list of "the most outstanding volcanic caves". A most fascinating project. It was a lecture during the Mexico 2006 symposium – and again proposed during the 'Commission Meeting', where it was unanimously accepted. However, there was a request for a group of advisors. There were some on the spot volunteers:

Dr. Chris Wood (UK), Prof. Borges (Pt) and Dr. Woo (Korea). Prof. Forti (Italy – not present) was suggested, and later agreed. The man behind this:

Dr. João P. Constância

Edifício do Museo Carlos Machado

Apartado 258

9503 Ponta Delgada

Açores – Portugal

< [constancia@sapo.pt](mailto:constancia@sapo.pt) >

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## **A WORLD DATA BASE FOR THE MOST OUTSTANDING VOLCANIC CAVES: A FIRST PROPOSAL**

or

## **[A DATA BASE FOR THE MOST OUTSTANDING VOLCANIC CAVES OF THE WORLD: A FIRST PROPOSAL]**

João P. Constância<sup>1</sup>, João C. Nunes<sup>1</sup>, Paulo A.V. Borges<sup>1</sup>, Manuel P. Costa<sup>1</sup>, Fernando Pereira<sup>1</sup>, Paulo Barcelos<sup>1</sup> & Teófilo Braga<sup>2</sup>

1- GESPEA- Grupo de Estudo do Património Espeleológico dos Açores. Edifício Matos Souto, Piedade, 9930 Lajes do Pico, Açores, Portugal.

2- "Amigos dos Açores", Avenida da Paz, 14, 9600-053 Pico da Pedra, S. Miguel. Açores. Portugal.



**Abstract:** At the aim of the XI International Symposium on Vulcanospeleology yielded at Pico Island (Azores) in 2004, the Commission on Volcanic Caves (CVC) of the UIS recognized the interest of a world database for the most important volcanic caves. At that time it was suggested that the Azorean speleological group GESPEA ought to present a proposal to accomplish this task. Following the challenge of the CVC, the GESPEA designed a proposal, as follows:

### **1- Aim**

Assemble in a database, the world most relevant volcanic caves, grouped into 3 major classes, and selected by dimensions, geological exceptionality and biological exclusivity.

### **2- Methodology**

#### **Main Tool**

A database (WoMOVOC - World Most Outstanding Volcanic Caves) will be available in the internet, having a non complex structure, but comprising a set of fields that enable an accurate characterisation of the volcanic cave, namely: cave's name, location (e.g. country/region), geographic coordinates, length/depth, main geological features, biological singularity, general description, main references, location map, topography and photos.

#### **New Proposals**

Each proposal must be submitted using an electronic form, available in the web site, complied the instructions and the accepting criteria.

To be accepted, the cave must obey the criteria for each main class of relevance:

Class: Relevant Dimensions – caves more than 3 km long and pits more than 100 m depth.

Class: Geological Exceptionality – one or more rare speleotheme.

Class: Biological Singularity – one or more troglobic, endemic or rare specie.

#### **Selection**

The proposal evaluation will be done by a scientific committee, composed by 5 or 7 individuals, assign by the CVC-UIS. The selection of the volcanic caves will be according to the accepting criteria and having in mind other important aspects, as the information accuracy and conservation status. The committee might accept other geological and biological features, if very well documented and if it is a relevant and unambiguous case of uniqueness.

### **3- Data Incorporation**

After approval by the scientific committee, the new cave will be added to the database by an executive committee, which can be the GESPEA group.

With this paper we fulfil the CVC desideratum, hoping that the proposed methodology might be a first step to gather worldwide information of the most significant volcanic caves, and, by that, a broader recognition of the value of this geological heritage.



Lava Tubes of the Suchiooc  
Volcano, Mexico  
by Ramón Espinasa-Pereña

During the "Mexico 2006" symposium this book was introduced. Lava Tubes of the Suchiooc Volcano. Issued as AMCS bulletin. #17, and at the same time as SMES bol. #6 (2006).

80 Pages, 76 figures, maps, photo's, 2 pictures in color, rest B/W. It gives the results of the work from 1992 to 2006. The area is some 70 km's south of Mexico City, near to Topoztlán, Morelos.

Additional information, including tables of contents, on all publications is available at [www.amcs-pubs.org](http://www.amcs-pubs.org). Questions: email [sales@amcs-pubs.org](mailto:sales@amcs-pubs.org).

**Ordering Information:** Prices are in U.S. dollars. A discount of 10 percent is offered on orders of \$100 or more. Add for United States surface shipping \$3 for first book or CD, \$1 each additional. Foreign surface shipping \$6 first, \$2 additional. Pay by check or money order in U.S. dollars. Credit-card orders using PayPal may be placed at our web site [www.amcs-pubs.org](http://www.amcs-pubs.org).

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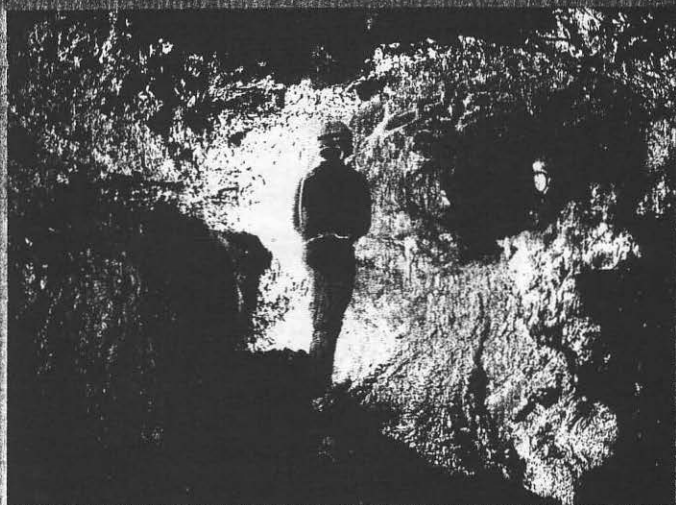
## Abstract

Over 28 km of lava tubes have been surveyed in the Suchiooc volcano lava flow. Their morphology allowed their classification into simple lava tubes formed in unitary lava flows under high discharge and/or steep slope conditions; complex anastomosing tube systems formed in multiple flows originated as overflows from the unitary tubes, under low discharge and/or shallow slope conditions; and Master Tubes, with canyon shaped passages and/or superposed tubes. Tube growth through thermal erosion is considered responsible for the formation of canyon shaped master tubes, while inner levee growth is seen to be responsible for the subdivision of a canyon shaped tube into several superposed tubes. Master tube evolution in an anastomosing tube system is considered to begin with the coalescence of smaller tubes to form a larger one, which captures the lava flowing in the smaller tubes as it grows by thermal erosion. Surges in the discharge rate overflow the evolving master tube and may reoccupy the higher lying anastomosing lava tubes, refilling them. The final master tube is indistinguishable from a master tube evolved in a unitary lava flow.



# Lava Tubes of the Suchitoc Volcano, Mexico

Ramon Espinosa Pereda



AMCS BULLETIN 17



SME BULLETIN 6





**Saudicaves:**

A fascinating man: Ramón .....  
Organizer of the symposium in Mexico .....  
Here an interview by John Pint.



**HOW DID YOU BECOME A CAVER?**

**Ramón Espinasa:**

It all started when I visited Mexico's Cacahuamilpa Show Cave... at the age of three. However, I don't remember that trip too well, so instead I'll give the credit to my father. He got interested in caves when he spotted guys with helmets coming out of Las Grutas de Carlos Pacheco, which has a big, beautiful entrance. He then found a map of the Cacahuamilpa System, showing 13 caves in the area. He started exploring these and was hooked. By the way, today we know there are actually thirty caves in that area.

**Saudicaves:**

**I UNDERSTAND YOU HAD A FEW HAIR-RAISING EXPERIENCES WHILE CAVING WITH YOUR FATHER.**

**Ramón Espinasa:**

Definitely the scariest of all took place at Hoya San Miguel, near Taxco. This cave is 455 meters deep. My father—Ramón Espinasa senior—tossed a rope down the first pitch, which is an 80-meter freefall, but the rope got snagged just at the edge of the drop. So he crawled down to un snag it. Of course, he was not attached to any kind of line, because back in those days we hadn't heard about safety rules like "Always belay people working near the edge of a pit." Well, he slipped and fell, but he was falling slowly enough to be able to grab onto the rope, even though he knew it was attached to nothing up at the top. The miracle here is that at the very same instant, I saw what was happening and I also grabbed the rope. And there I was holding on to one end of the rope while my father was dangling from the other. We finally managed to get him out of there, but this is an incident my family will never forget.

**Saudicaves:**

**WHO ELSE DID YOU CAVE WITH IN THE EARLY DAYS?**

**Ramón Espinasa:**

I did a lot of exploration with Carlos Lazcano. For the first five years, he was the President of SMES (Mexican Society for Subterranean Exploration). Mauricio and Pablo Tapie were also very active in those days. Together with Ruth Diamant, who is now my wife, we explored the unforgettable pits of Terrero in Jalisco's Cerro Grande, and, of course, Toxin River Cave. Later we found another beautiful river cave in Guerrero. That was Aclala Cave which has twenty short pitches and requires a lot of swimming.



**Saudicaves:**

ARE THERE ANY OTHER CAVES YOU WOULD CALL "UNFORGETTABLE"?

**Ramón Espinasa:**

Well, we were the first to explore El Sótano de Ahuihuitzca, the deepest cave in the Zongolica area, which has since become a classic because it appeared in Carlos Lazcano's book. The entrance is 60 meters wide, perfectly cylindrical and 200 meters deep. It has big rooms and a river with blind fish and it goes to 515 meters deep where it ends in a stream sink.

**Saudicaves:**

I HEARD THAT SOMEBODY GOT A BAD SCARE AT THAT CAVE.

**Ramón Espinasa:**

Ah, yes, it was my father again, but this time he was up at the top and I was down in the pit, on rope. It was the very first descent into Ahuihuitzca. Now, I should mention this rope was what we used to call "Chiclemex," a very stretchy nylon cord we had to use before static ropes were available. Well, I got about halfway down when I discovered that most of the rope was bunched up in a big knot. I had no problem untying it, but the moment the knot was undone, about 100 meters of rope went whizzing down from where I was hanging. What I didn't realize, however, was that up at the top, what my father heard was "Oop!" followed by "ZZZZZZZZZZzip" and then nothing. I understand he and the guy next to him just gulped and looked at each other in silence. So it was a hairy moment for them, until they found out I was still alive, but it wasn't scary for me. Sad to say, however, a caver did eventually die in Ahuihuitzca, some years later.

**Saudicaves:**

WEREN'T YOU ALSO THE ONE WHO EXPLORED THE CAVES AT TOLANTONGO THERMAL SPA? WHAT WAS THAT LIKE?

**Ramón Espinasa:**

Hot! The water flows along at three cubic meters per second and it feels like you are in a Turkish bath the whole time. The cave is 300 meters long and 100 meters deep, with high ceilings. It's very technical, so it took us eight hours to travel those 300 meters.

**Saudicaves:**

WHAT WAS YOUR MOST DISGUSTING CAVE?

**Ramón Espinasa:**

I would say it was a cave we found in Dos Aguas, in Michoacán, la Cueva del Río Durazno. It features a crawlway through semi-liquid mud, above which there is only a 50-centimeter space. I turned to Chris Lloyd and asked him what he thought we should name this cave. He replied, "Well, it's certainly not the tunnel of love." And so, now the cave is named Not the Tunnel of Love.

**Saudicaves:**

YOU'RE ORGANIZING A RATHER UNUSUAL SYMPOSIUM IN MEXICO, FOR THE SUMMER OF 2006. CAN YOU TELL US A LITTLE ABOUT IT?

**Ramón Espinasa:**

Yes, it is a bit unusual. The Mexpeleo gatherings I held in the past were for people interested in exploring limestone caves. This one is actually the twelfth international symposium on lava caves, held under the auspices of the International Union of Speleology (UIS). In the last few years, this event took place in some rather exotic locations like Kenya, Iceland and the Azores... places where you find extraordinary lava tubes. What many cavers don't realize is that Mexico is not only famous for huge limestone systems like Purificación or dramatic freefalls like Golondrinas, it's also home to some of the most complex lava tubes in the world, and among them we have the longest lava cave in the Americas.

**Saudicaves:**

SO, WHAT WILL PEOPLE SEE IF THEY GO TO THE LAVA-CAVE SYMPOSIUM?

**Ramón Espinasa:**

Well, we're going to visit a very curious site called Cuescomates which has seven small volcanoes, one of them only one meter high. And we'll spend an entire day inside Iglesia Cave which is really pristine, with most of its primary structures perfectly preserved. It has gorgeous stalactites, very funny stalagmites, gutters, lava dribbles, calcite formations (even gourds!), lava balls stuck in the floor, the ceiling, everywhere!... and it's easy walking because there's almost no breakdown. We'll be alternating a day of presentations by the world's greatest experts on lava caves with a day of hands-on visits to lava structures and caves. And, of course, there are three Post-Symposium field trips, including a visit to the longest and most complex lava tube in the Americas, as well as an excursion to several mind-boggling caves in Veracruz. Anyone who wants to know more about lava flows and how lava caves are formed is going to learn a lot. The dates for the Symposium are, by the way, July 2-7, 2006 and the location is Tepoztlán, a picturesque little town surrounded by more lava tubes than you can count.

**Saudicaves:**

WHERE CAN PEOPLE GO TO REGISTER?

**Ramón Espinasa:**

There's lots of information on registration, abstracts, hotels, camping, travel to Tepoztlán, etc.—plus some unforgettable pictures—at [www.saudicaves.com](http://www.saudicaves.com). Just click on the SYMPOSIUM banner.

**Saudicaves:**

AND IF YOU WANT A FEEL FOR WHAT THE TEPOZTLAN LAVA CAVES ARE LIKE, READ MEXICO'S MARVELOUS LAVA TUBES.



Here another "list of the longest lava tubes (pyroducts)".  
Björn Hróarsson from Iceland asked (also) this Newsletter for updates  
of this list. The editor could add some Rwanda tubes which were not  
always noticed yet. Just for your information. For reactions

< [www.ritverk.is](http://www.ritverk.is) >

## LENGSTU HRAUNHELLAR JARÐAR

Upplýsingarar í listann hér að neðan eru teknar héðan og þaðan og allsstaðar þar sem  
til þeirra náðist. Ugglást er hann ekki réttur að öllu leyti. Nefndir eru þeir hraunhellar  
á jörðinni sem eru kílómetri eða lengri. Eru þeir um 110 talsins. Íslensku hellarnir eru  
feitletraðir.

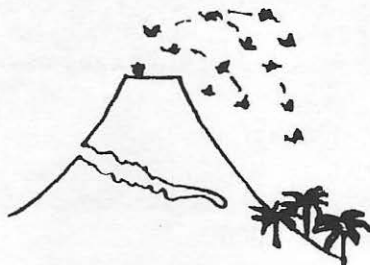
Nafn .....	staðsetning .....	lengd_ dýpt
1 Kazumura Cave .....	Hawaii, Bandaríkjunum .....	65500 1101.5
2 Kipuka Kanohina (Kula Kai) .....	Hawaii, Bandaríkjunum .....	21147 204.2
3 Emesine Cave (1881 System) .....	Hawaii, Bandaríkjunum .....	20744 436.8
4 Cueva del Viento-cueva del Sobrado Kanaríeyjar (Tenerife), Spáni .....	.....	17032 518.0
5 Hualalai Ranch Cave .....	Hawaii, Bandaríkjunum .....	16093 0.0
6 Pahoa Cave(s) .....	Hawaii, Bandaríkjunum .....	16000 350.0
7 Hue Hue Cave .....	Hawaii, Bandaríkjunum .....	10800 494.6
8 Leviathan (longest segment) .....	Chyulu Hills, Kenýa .....	9152 408.0
9 Bilemot .....	Jeju, Suður-Kóreu .....	9020 ?
10 Keala Cave .....	Hawaii, Bandaríkjunum .....	8707 186.0
11 Manjang .....	Jeju, Suður-Kórea .....	7416 ?
12 Cueva de Don Justo .....	Kanaríeyjar (Lanzarote), Spáni .....	6315 143.0
13 Ferrocarril-Mina Inferior .....	Morelos, Mexíkó .....	6197 72.0
14 Cueva de los Verdes .....	Kanaríeyjar (Lanzarote), Spáni .....	6100 230.0
15 Upper Kaupulehu System .....	Hawaii, Bandaríkjunum .....	5547 188.0
16 Gruta das Torres Pico .....	Azoreyjar, Portúgal .....	5439 ?
17 Iglesia-Mina Superior .....	Morelos, Mexíkó .....	5145 54.0
18 Kaupulehu System .....	Hawaii, Bandaríkjunum .....	4952 ?
19 Catacomb Cave .....	Hawaii, Bandaríkjunum .....	4881 ?
20 Susan Gul .....	Jeju, Suður-Kóreu .....	4520 ?
21 Bendwi .....	Jeju, Suður-Kóreu .....	4481 ?
22 Under the Wall Cave .....	Hawaii, Bandaríkjunum .....	4403 141.4
23 Deadhorse Cave .....	Skamania, Washington, Bandaríkjunum .....	4402 58.6
24 Gypsum Cave .....	Lincoln, Idaho, Bandaríkjunum .....	4316 42.0
25 John Martin Cave .....	Hawaii, Bandaríkjunum .....	4158 ?
26 Kalmanshellir .....	Hallmundarhraun, Íslandi .....	4012 ?
27 Ape Cave .....	Skamania, Washington, Bandaríkjunum .....	3983 182.3
28 Umi'i Manu System .....	Hawaii, Bandaríkjunum .....	3887 569.7
29 Dynamited Cave .....	Skamania, Washington, Bandaríkjunum .....	3763 99.2



30	Duck Creek Lava Tube .... Kane, Utah, Bandaríkjunum	3674	91.4
31	Big Red Cave ..... Hawaii, Bandaríkjunum	3606	231.6
32	14-18 Series ..... Mt.Susua, Kenýa	3500	?
33	<b>Surtshellir-Stefánshellir .Hallmundarhrauni, Íslandi</b>	<b>3490</b>	<b>?</b>
34	Ubuvumo Nyabikuri-Ruri Ruhengeri, Rwanda	3384	144.0
35	"D" Road Cave ..... Hawaii, Bandaríkjunum	3182	43.0
36	Sochon Gul ..... Jeju, Suður-Kóreu	3099	?
37	Cueva del Cascajo ..... Galapagoseyjum, Ecuador	3010	?
38	Pango ya Moshi (Cloud Cave) -- Chyulu Hills, Kenýa	3000	?
39	Rainbow's End Cave ..... Mt.Susua, Kenýa	3000	?
40	Cueva de Felipe Reventon Kanaríeyjar (Tenerife), Spáni	3000	?
41	Ka'eleku Caverns ..... Hawaii, Bandaríkjunum	2852	224.9
42	Lower Uilani Cave ..... Hawaii, Bandaríkjunum	2804	?
43	Falls Creek Cave . .... Skamania, Washington, Bandaríkjunum	2797	126.0
44	Gruta Dos Balcoes ..... Azoreyjum (Terceira), Portúgal	2713	?
45	Mammoth Cave ..... Modoc, Kaliforníu, Bandaríkjunum	2490	?
46	Yongchon ..... Jeju, Suður-Kóreu	2450	?
47	Black Pellet Cave ..... Hawaii, Bandaríkjunum	2378	?
48	Lava River Cave ..... Deschutes, Oregon, Bandaríkjunum	2370	?
49	Post Office Cave ..... Siskiyou, Kaliforníu, Bandaríkjunum	2357	?
50	Cueva de Gallardo ..... Galapagoseyjum, Ecuador	2250	?
51	Cueva de los Naturalistas . Kanaríeyjar (Lanzarote), Spáni	2250	?
52	Pot O' Gold ..... Lincoln, Idaho, Bandaríkjunum	2250	?
53	Chubby Bunny Cave..... Skamania, Washington, Bandaríkjunum	2205	49.5
54	Mitsuike-Ana ..... Fujinomiya, Shizuoka, Japan	2202	?
55	Kaumana Cave ..... Hawaii, Bandaríkjunum	2198	?
56	New Cave..... Skamania, Washington, Bandaríkjunum	2179	41.8
57	Outlaw Cave..... New Mexico, Bandaríkjunum	2134	4.6
58	Cueva de San Marcos ..... Kanaríeyjum (Tenerife), Spáni.	2130	?
59	Catacombs Cave..... Siskiyou, Kaliforníu, Bandaríkjunum	2103	?
60	Pukalani Cave..... Hawaii, Bandaríkjunum	2048	?
61	Cueva de la Finca Kastdal.Galapagoseyjum (Santa Cruz), Ecuador	2000	?
62	Catwalk Cave-Gaping Holes ---- Siskiyou, Kaliforníu, Bandaríkjunum	1950	?
63	<b>Iðrafossar.....Skaftáreldahraun, Íslandi</b>	<b>1913</b>	<b>?</b>
64	Caverne Bateau ..... Ile de la Reunion, Indlandshafi	1910	34.0
65	Mathaioni Cave ..... Chyulu Hills, Kiboko, Kenýa	1900	?
66	Pickings Cave..... Skamania, Washington, Bandaríkjunum	1844	29.2
67	Michon..... Jeju, Suður-Kóreu	1714	?
68	Ole's Cave ..... Skamania, Washington, Bandaríkjunum	1714	?
69	Wahul..... Jeju, Suður-Kóreu	1610	?
70	Ambigua Cave..... Hawaii, Bandaríkjunum	1609	286.5
71	Ubuvumo bwa Musanze ...Ruhengeri, Rwanda	1600	70.0
72	<b>Viðgelmir.....Hallmundarhraun, Ísland</b>	<b>1585</b>	<b>?</b>
73	Ubuvumo bwa Nyriabadogo ---- Gisenyi, Rwanda	1500	?
74	Handeul..... Jeju, Suður-Kóreu	1500	?
75	Ubuvumo Gacinyiro 2 .....Ruhengeri, Rwanda	1470	40.0
76	Prairie Dog Cave .....Hawaii, Bandaríkjunum	1452	?



77	Hachijo-fuketsu no.1 .....	Hachijo-jima, Tokyo, Japan-----	1404	?
78	Kimikia/Ithundu Cave .....	Chyulu Hills, Kenya-----	1400	?
79	Raufarhólshellir .....	Leitahraun, Íslandi-----	1360	?
80	Bayliss Cave (Undra System) . --	Undara V.N.P., North Queensland, Ástralíu	1350	25.0
81	Hercules Leg-Juniper System . --	Siskiyou, Kaliforníu, Bandaríkjunum -----	1314	?
82	Cody Borehole .....	Deschutes, Oregon, Bandaríkjunum -----	1284	177.0
83	Folger's Cave .....	Skamania, Washington, Bandaríkjunum -----	1264	42.6
84	Government Cave .....	Coconino, Arizona, Bandaríkjunum -----	1250	13.0
85	Beer Bottle Cave .....	Klickitat, Washington, Bandaríkjunum -----	1239	52.4
86	James Brothers Cave .....	Siskiyou, Kaliforníu, Bandaríkjunum -----	1230	?
87	Coffee Cave .....	Hawaii, Bandaríkjunum -----	1135	?
88	South Labyrinth Cave .....	Siskiyou, Kaliforníu, Bandaríkjunum -----	1134	?
89	Pe'apa'a .....	Upolu, Samoa, Kyrrahafi-----	1110	?
90	Völundur .....	Skaftáreldahraun, Íslandi-----	1108	?
91	Youngs' Lave Tube .....	Oregon, Bandaríkjunum -----	1107	?
92	Flóki .....	Tvíbollahraun, Íslandi -----	1096	?
93	Skin Mites .....	Skamania, Washington, Bandaríkjunum -----	1090	11.4
94	Oozing Red Puka .....	Hawaii, Bandaríkjunum -----	1090	0.0
95	Skmaniac Cave .....	Skamania, Washington, Bandaríkjunum -----	1074	26.2
96	Dead Bear Cave .....	Klickitat, Washington, Bandaríkjunum -----	1063	19.7
97	Jar Cave .....	Skamania, Washington, Bandaríkjunum -----	1043	28.5
98	Lava Brook-Thunderbolt ..	Siskiyou, Kaliforníu, Bandaríkjunum -----	1042	?
99	Resurrection Cave .....	Skamania, Washington, Bandaríkjunum -----	1039	18.4
100	Little Red River Cave .....	Skamania, Washington, Bandaríkjunum -----	1032	123.7
101	Mouflon Cave .....	Hawaii, Bandaríkjunum -----	1015	30.0
102	Seong .....	Jeju, Suður-Kóreu -----	1010	?
103	ThisCave/ThatCave System . ---	Hawaii, Bandaríkjunum-----	1002	104.0
104	Octapuka .....	Hawaii, Bandaríkjunum -----	1002	?
105	Pauahau Civil Defence Cave . ---	Hawaii, Bandaríkjunum-----	1001	50.0
106	Banda-ana .....	Fujinomiya City, Shizuoka, Japan -----	1001	?
107	Caverne de la Riviere des Remparts. -----	Ile de la Reunion, Indlandshafi	1000	
108	ABC Cave .....	Mt. Susua, Chyulu Hills, Kenýa -----	1000	?
109	Sentinel Cave .....	Siskiyou, Kaliforníu, Bandaríkjunum -----	1000	?
110	Búri .....	Leitahraun, Íslandi-----	1000	?



A Most Impressive Work .....

Very heavy .....

Many pages .....

For some time rumors had it Björn was working on a gigantic book about "all Icelandic volcanic caves". End last year an invitation came from Iceland to be present at the "launch" of this book. Sorry, I couldn't make it. But I saw "the book". Here a description ....

This is a most impressive work. Already by the weight: 5,5 kg (= 12 lbs). Size (part 1 and part 2 in a container) 23x35x7 1/2 cm (11x13.7x 3 inch).

Part 1 has 318 pages, over 1000 color pictures and dozens of cave plans.

Part 2 continues with the same, and ends at page 672.

It contains many pictures of exploration – clearly taken year(s) around – snow and ice and beautiful country.

Six pages listing caves per area (this might need some work from foreigners to locate this areas). This names (as all text!) is in Icelandic, "hrauns" are lava flows.

Nine pages of references, 6 pages of locations, 7 pages of cave-index.

Islenskir Hellar (2006)

ISBN 9979-2-1972-6 /

9789979219729

® Björn Hróarsson 2006





Í S L E N S K I R  
HELLAR

GNARÐ HEGARBERN





# HELLAR



Íslensk náttúra kemur okkur stöðugt á óvart í fjölbreytni sinni og stáandi fegurð. Í þessu mikla verki er lýst undravörld hrauhellanna á Íslandi sem hingað til hefur verið flestum hulin. Með stórfenglegum myndum og uppráttum er lýst á fimmta hundráð hellum og um fæsta þeirra hefur verið fjallað á prenti fram til þessa. Bókin færir lesendum gróðarlega viðbót við lýsingu landsins því hellarnir eru samanlagt líðlega hundráð kílómetrar að lengd.



Hellafræðin er kynnt ítarlega til sögunnar og tilurð hrauhella útskýrð á glöggan og aðgengilegan hátt. Fjallað er um hraunrennsli og þær ónatæðu myndanir sem íslenskir hrauhellar geyma og gerð grein fyrir hellafræðisöknun, hellamennsku og umgengni í hellum. Þá er í verkinu að finna nákvæma staðsetningu flestra hellanna. Með hjálp tæplega þúsund stórfenglegra ljósmynda er huliðni svipt af heilandi veröld og lesendum boðið í ferðalag sem seint gleymist.



Höfundur verksins, Björn Hróarsson, er jarðfræðingur og hellafræðingur sem stundað hefur rannsóknir á hrauhellum í aldarfjórðung. Hann hefur notið aðstoðar fjölmargra hellamanna og aðræðinga á ýmsum sviðum við að draga upp þessa ítarlegu lýsingu – til dæmis eiga um 40 ljósmyndarar, innlendir og erlendir, myndir í bókinni. Allt leggst hér á eitt við að ljúka upp ásvintýralögum leynislóðum sem fáir hafa kynnst og vitjað.



ISBN 9979-2-1972-6



VAKA-HELGAPELL