INTERNATIONAL UNION OF SPELEOLOGY
UNION INTERNATIONALE DE SPÉLÉOLOGIE

Commission on Volcanic Caves

29

Newsletter Jan. 2001

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

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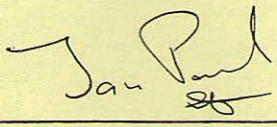
On the front page:
a French stamp depicting Haroun Tazieff, famous vulcanologist. He participated in the first expeditions in the 'Pierre-Saint-Martin' on the French/Spanish border. These were maybe the most dramatic speleologic expeditions ever. Does anybody know if he also reported about volcanic caves?

Editorial

With this isue : *The Very Best Wishes for 2001. Wishing you huge volcanic outbursts with many new tubes.*
Thanks to all who contributed with info for the newsletter.
As contends of this newsletter more discussion between Bill Halliday and Mowich Cave, a first report from Chris Wood on high-tech Icelandic expedition, and just some simple snaps.
Again:

the very best for *2001*



ThisCave & ThatCave

Stephan Kempe - from 'Mitt. deutschen H. & K. forscher'
Nr. 4/2000

The most important lavacaves on Hawaii are primary caves.
An american-german research group however discovered two tube-like lavacaves on Mauna Kea, which origin clearly is due to erosive forces by water - so secundary caves.
ThisCave is a meandering erosive formed tunnel up to 15 meters wide, which finally ends in a syphon and continues to an underground flow. This cave is just 200 meters long.
ThatCave starts with a 9 meters entrance pit, together with a waterstream. Below a roomy, water carrying passage continues with a 5 meter waterfall into another 6x7 meter big entrance. From this point several other corridors start, as a 12 meter high canyon.
ThatCave is at the moment 570 meter long, with a depth of 108 meter. There are still continuities to expect.

Dr. Ronald Greeley bestowed Honorary Membership of the NSS (National Speleological Society - U.S.A.)

It was a fantastic pleasure to hear 'Ron' Greeley was finally recognized as an important caver by the NSS. He is a renowed geologist, with reports about caves of this **and other worlds.** It is fantastic to have him as a member of this commission.

CONGRATULATIONS

Bill Halliday reports:

.... in Turkey. We got as far as a point 60 km NE of Diyarbakir before being turned back by one branche of the Turkish military almost in sight of the **Iskender-i-Birkilin Caves.** After a different branch of the military OK'd us. (Hope to hear more about this)

.... Yan Dao-xian told of a 4 km long touristic lava cave in Hainan (China). If he sends information, it will be .....

LAKI UNDERGROUND 2000

Bournemouth/Dundee Universities Joint Expedition to Iceland
- in association with the Icelandic Speleological Society
and the Shepton Mallet Caving Club

A research expedition to investigate the lava tube systems, flow morphology and structure of the 1783/4 Laki lava flow field (Icelandic: Skaftareldarhraun), southern Iceland and to experiment with near-surface geophysical methods in the detection of cavities in basaltic lava flows

21 August - 25 September, 2000

Initial Feedback Report for Funding Bodies

The Laki expedition was a great success, the results being as good as, and in some cases better than, expected. Of the 35 days spent in the field, 25 involved cave prospecting and mapping on the 1783/4 Laki flow field (Skaftareldarhraun), southern Iceland, and 10 experimenting with near-surface geophysical methods on the Hallmundarhraun, mid-west Iceland.

Exploration, geology and speleology

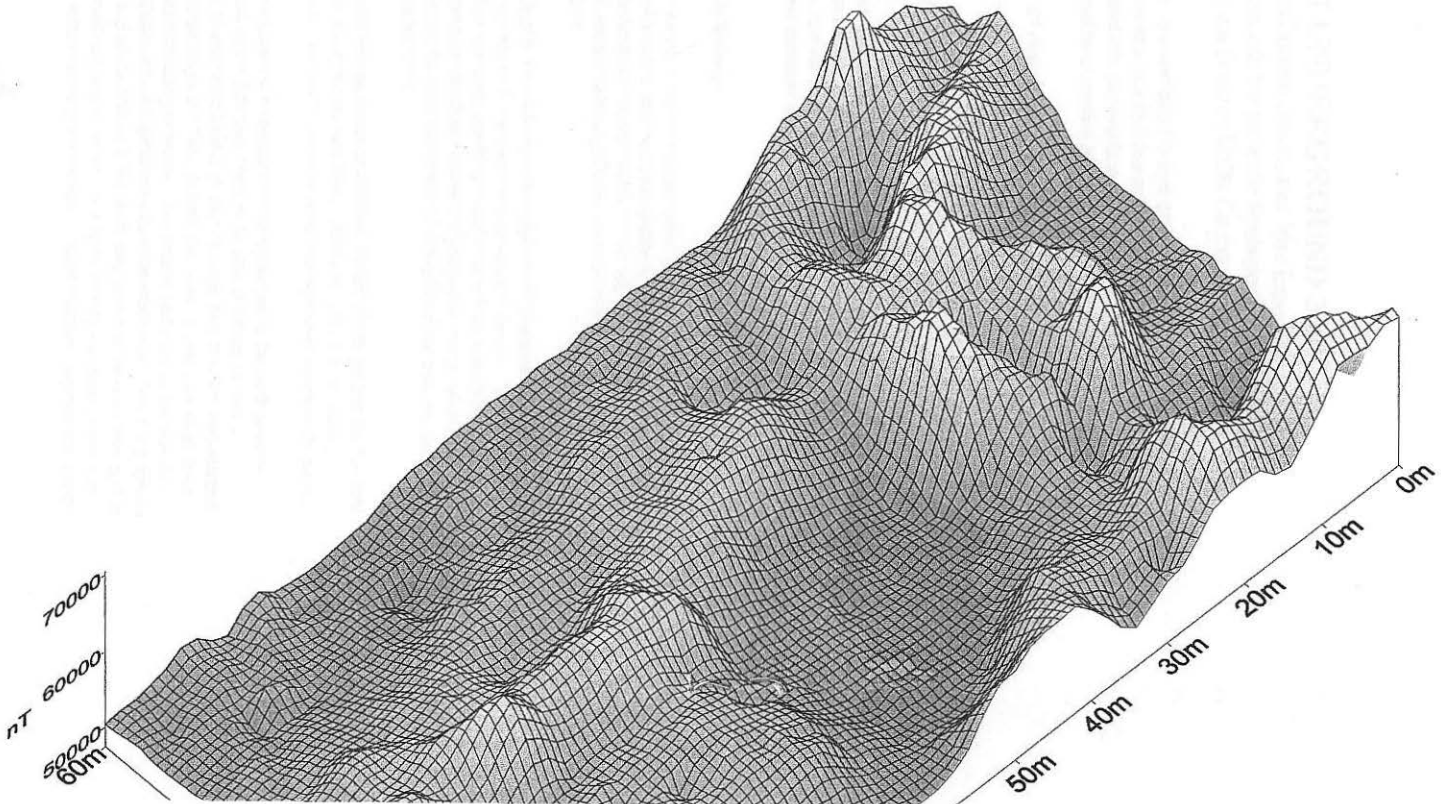
A principal question the expedition set out to resolve was the extent to which the Skaftareldarhraun, the world's largest-known historic basalt lava flow field, had been emplaced by the tube-fed effusive volcanic process. The method of investigation was to search for and map lava tube caves (the drained parts of a former lava tube system) and the surface landforms indicative of flow inflation caused by the internal transfer of fluid through tubes.

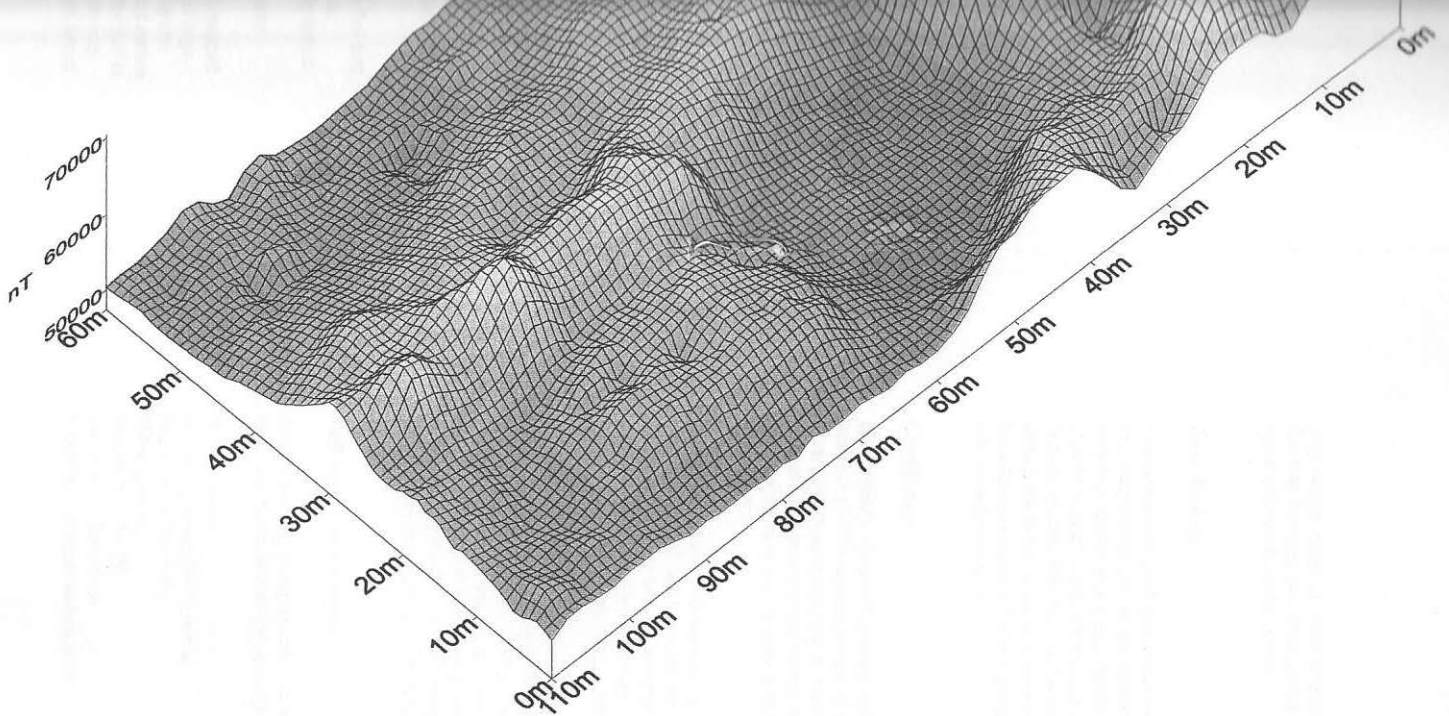
There had been no previous investigation for evidence of lava tubes in the Skaftareldarhraun, although one known lava tube cave - Ufsi - was known to the Icelandic Speleological Society. Due to the very large area of the flow field, much time was taken travelling to and reconnoitring areas thought most likely to hold caves. These sites had been identified from aerial photographs prior to departure from the UK. Navigation to selected sites and the accurate location of all significant features was undertaken with the use of hand-held GPS (Garmin CX12).

While nearly all of the nominated sites showed evidence from their surface landforms that the flow field had been inflated/deflated by the tube-fed process, and many outstanding (and in some cases, unusual) flow surface landforms were discovered, access to large cave systems was generally denied.

The one exception to this was the discovery of many caves in the higher part of the north eastern branch of the flow field, known locally as the Eldhraun. Here, in an area of approx 12 square kilometres, the expedition explored an estimated 6.5kms of cave passage, 5km of which were mapped. The longest single cave had a traverse length of 1.7km. In form, the caves ranged from single large-diameter pasasages, to complex interconnecting networks. The surface landscape of the area also displayed spectacular evidence of inflationary and deflationary lava flow processes. Caves and surface landforms were especially well-related one to another in the south-west corner of the study area (just to the east of the lake known as Laufbalavatn) and some time was spent making a detailed terrain map, so that the position of the caves in relation to surface channels, collapse trenches, depressions, tumuli

Magnetic anomalies at Surthellir, mid-west Iceland





The visualisation of total field magnetic data utilising a Scintrex SmartMag SM4 Caesium sensor instrument over a branch off the main cave passage of Surthellir. The survey has detected a partially filled lava cave passage, running bottom left to top right, that is intersected by the greater response of a larger passage entering from the bottom right and then running on to the line of the previously mentioned passage. Note that the passages produce the classic positive edged and negative trough response of a void within a much more magnetised basement.

and pressure ridges, etc, could be worked out. A further, most unusual feature, was the sinking into the flow field of a major river (outlet for the Laufbalavatn), offering the opportunity to explore lava tube caves which carried large streams.

Cave Biology

Two caves on the Skaftareldarhraun were monitored for evidence of plant and animal life. Plant cover was examined visually and arthropods were monitered using pitfall traps and water traps. Traps were left out for several days at each location and were checked daily for insects and other arthropods. A number of plants (mainly mosses and lichens, with some higher plants) and some arthropods (largely dipteran species) were found on the lava flow surface. Within the caves all signs of life disappeared within a few meters of the cave entrances. Whilst this was disappointing, it was not altogether unexpected, because of the very young age of the flow field and the extreme environmental conditions suffered within the caves.

Geophysics

Magnetometry, Ground Penetrating Radar and Electrical Resistivity Profiling were used in an experiment on the Hallmundarhraun flow field, mid-west Iceland, to evaluate the relative effectiveness of each technique in detecting the presence of underground caves from the surface. The Hallmundarhraun was chosen for this work because it had known, mapped, cave systems. It also had a low surface relief over the area of the caves, and the proposed experimental site was accessible by 4WD vehicles.

Each geophysical method was used across common transect areas that overlay known passages of the caves Surthellir and Stephanshellir. The relevant cave passages were surveyed underground and their lines plotted on the surface of the flow. Cave passage ceiling heights were measured at 2m intervals relative to the survey traverse line using a Leica Disto Pro laser distance measurer. Surface positions and topographical details were mapped with a Leica GPS SR530

The work was very successful, proving that all methods could effectively detect and accurately locate cave passages. It also showed that total field magnetometry was the most effective methods for detailed surface mapping of shallow caves (see attached image), the work on the Hallmundarhraun proving, for example, that the cave Stephanshellir continues as an open void beyond the upstream lava seal that terminates the known cave. Further analysis of the geophysical data will enable the checking of the validity of depth estimations provided by the techniques, and establish the response signatures of the differing cave passage morphologies surveyed.

Full report and contact

A report detailing the full scientific results of the expedition will be published in the New Year. In the mean time, further information about the work of the expedition may be gained from:

Dr Chris Wood,
School of Conservation Sciences,
Bournemouth University,
Talbot Campus,
Poole BH12 5BB, UK
Tel: +44 (0)1202 595134
E-Mail: cwood@bournemouth.ac.uk

30 October, 2000

United States Department of Agriculture
Forest Service
Umpqua National Forest
Diamond Lake Ranger District
2020 Toketee Ranger Station Road
Idleyld Park, OR 97447
(541) 498-2531
FAX (541) 498-2515

File Code: 2670

Date: September 13, 2000

William R. Halliday
6530 Cornwall Court
Nashville, TN 37205

Dear Mr. Halliday,

On August 28th the Diamond Lake District Office received your letter dated August 23rd in which you requested access to Mowich Cave. The procedure for considering your request was conducted as outlined in our earlier correspondence (June 29th, 2000). I directed an interdisciplinary panel of archeological, geological and biological specialists to evaluate the benefits and risks of your proposal.

While geologic and archeological resources are important components of Mowich Cave, the results of the evaluation determined that the biological resources have been, and continue to be the overriding resource issue. In this review process, our Forest Wildlife Biologist consulted Bat Conservation International and a species expert from Southern Oregon State University. The information and recommendations we received supported the concerns and recommendations of Forest wildlife specialists regarding impacts to Townsend's big-eared bats.

Although your request is important, the Forest Service has an over-riding obligation to protect the viability of the Townsend's big-eared bat colony and it's year around use within the cave. I have therefore concluded that any additional human activity in Mowich Cave will have an adverse effect to the Townsend's big-eared bat. It is for this reason that I have decided to deny your request to access Mowich Cave.

I hope you understand that we have conscientiously considered your request, including a meeting between myself, the Forest Geologist and Forest Wildife Biologist. At this meeting we discussed the merits and potential consequences of your proposal. Ultimately, federal law that requires the maintenance of species viability and protects cave resources guided my decision. If you have any questions about my decision, you may call me at the District Office.

Sincerely,

John Ouimet
Diamond Lake District Ranger

In the previous issue of this newsletter (# 28) already the argument between Dr. Halliday and 'Mowich Cave' was reported on page 4 .. 14. It is still going on - see letters on these pages 6. and 7.

Address until 6 January 2001:
6530 Cornwall Court
Nashville, TN 37205 **by Certified Mail**

Mr. John Ouimet, Diamond Lake District Ranger
Umpqua National Forest
2020 Toketee Ranger Station Road
Idleyld Park, OR 97447

6 October 2000 **Re: Notice of Appeal**

Dear Mr. Ouimet:

I received your letter of 13 September 2000, File Code 2670, two days ago upon my return from Istanbul and Anatolia. This letter of 6 October 2000 is formal notice of timely appeal of the following decisions indicated in your letter of 13 September:

1) denial of my request to conduct studies in Mowich Cave.

2) consulting your interdisciplinary panel of archaeological, geological and biological specialists withut permitting me to supply them with relevant information as I had requested.

3) consulting this panel without supplying me with the names and addresses of its members as I had requested.

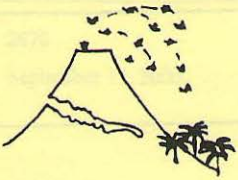
Please send me appropriate forms and standard instructions for details of your current appeals procedure. Please also send me a copy of all communications on these subjects with the members of your interdisciplinary panel and with Bat Conservation International.

Very sincerely yours,

W.R. Halliday

William R. Halliday

cc: Bat Conservation International (Kennedy)
National Speleological Society (Veni, Horrocks, Werker, Hood, Larson, Carlson)
International Union of Speleology (van der Pas)
U,S. Forest Service (Trout, Ostby, Dombeck)



MISSION STATEMENT

of the UIS Commission on Volcanic Caves

The Commission on Volcanic Caves is an integral unit of the International Union of Speleology and upholds the high standards of its parent organization. It meets during international congresses of speleology, during international and regional symposia and all appropriate occasions. It solicits and approves sites for such symposia, held to date in the USA (2x), USA-Hawaii, Italy (3x), Japan, Spain (Canary Islands) and Kenya.

The basic mission of the Commission is to advance the scientific exploration, study, and preservation of lava tube caves and related features in volcanic rock, throughout the world. It seeks to bring together all persons, organizations, and agencies with legitimate concerns with volcanic caves, their features, and their environments. Its members are leading vulcano-speleologists from each country or area with especially important lava tube caves or related figures. Members are expected to keep the Commission informed about progress and problems in vulcano-speleology and to disseminate vulcano-speleological information to other speleologists in their country or study area.

The Commission collects and disseminates information through its Newsletter, through sponsorship of internal symposia and conferences and through exchange visits, through meetings of its Chairman/President with individual Commision members and cooperators, and through data compilation in a world data base on lava tube caves at Arizona State University (USA). Currently this world data base contains information on more than 2000 lava tube caves in 40 countries. Further, the Commission provides reports and recommendations to national and regional organizations as the American Geological Institute. Its Newsletter is published at least two or three times each year. In addition to current information it contains reports and abstracts. It is archived at two U.S. Geological Survey libraries, in the UIS library (Switzerland and is abstracted in Volcano Quarterly.

The Commission intends to continue and expand all current projects. Especially it intends to expand its cooperation (as requested by the UIS Committee during the XII-th International Congress of Speleology in Switzerland - 1997) with other Commissions and Working Groups of the International Union of Speleology and with national and regional speleological organizations working in the field of vulcano-speleology.