

Fig. 8-1 The seat of Lava Caves, the outskirts of Japan.

図 8-1 日本周辺の溶岩洞窟の所在地

Volcanic Caves in Asia

8. Japan

One hundred and eleven caves have so far been found from Mt. Fuji lava, 100 km west of Tokyo (Fig. 8-1). 69 of the Mt. Fuji caves were found in Aokigahara lava flow, erupted in 864 A.D., and 6 were found in Mishima lava flow of some 10,000 years old. (Table 8-1)

One cave was known in Izu-Oshima volcano at its summit area inside of Miharayama crater but it has been demolished by the Nov. 1986 eruption.

Three rift caves have been formed by the Oct. 1983 eruption in Miyake Island, on its southern flank at 400-500 m level.

Hachijo Island has the second longest lava cave (Fig. 8-2) and the deepest rift cave of Japan.

Daikon Island at the western tip of Honshu Island, Fukue Island and minor islands attached to it, belong to the Goto Island Group on the north-western coast of Kyushu Island, and have lava caves in alkaline suite basaltic lavas.

Volcanoes of Kyushu, Aso (SiO₂ 52-54%) and Unzen (58-66%) have caves. There is a cave in andesite somma lava of Aso caldera (Fig. 8-3).

There are vast ignimbrite fields in middle and southern Kyushu. 19 caves have been reported in the ignimbrite. Most of these caves are believed to have been formed by inner gas pressure similar to the basalt lava caves, and forming cave crusts (Table 8-2).

Miyake Island

Three rift caves have been formed by the 1983 eruption (Fig. 8-4). A-3 rift cave (Fig. 8-5) is at the upper margin of the fissure openings extended to the shore line. A 33 m vertical descent is required through the passage with the narrowest width of 30 cm to reach the bottom of it where beautiful gypsum crystals grow. B-5 rift cave (Fig. 8-6) shows a profile of ash beds of the caldera which is covered by 3-5 cm thin lava. The white pumiceous ash bed of Kozu Island erupted in 838 A.D. is seen embedded in dark coloured basaltic scoria. This cave bends in a right angle and unstable deposits threaten collapse. B-9 rift cave is actually a narrow crack thus helmets may get stuck

during the survey.

Mt. Fuji

Mitsuike-ana (ana=cave)

The longest lava cave in Japan, formed in lava flow from Inusuzumi flank opening (Fig. 8-7). The activity of it is later than the age known Namesawa lava, which is dated by ^{14}C method at 2800 ± 30 y. BP and lay beneath the Inusuzumi lava. There are large size lava stalagmites, twelve exceed 1 m and the lengthiest reaches 1.91 m, which is probably the world's longest (Fig 8-8). Lava balls are numerous and it seems they even obstruct the formation of the lava cave. Features of cavity joining, laminas and crusts, platy and columner joints on the crust, are observable.

Motosu-fuketsu No. 1. (fuketsu=cave)

Formed in the upper part of Aokigahara lava erupted from Ishizuka crater on the northern flank of Omuro-yama cone. The lava flow is likely to have filled a swamp surrounded by Omuroyama scoria and formed large blister filled by gas and steam. The scoria bed is exposed inside the cave at its upper end where the crust of the cave broke and the scoria slid inside.

The cave has two blow holes (Fig. 8-9) made up spatter cones outside. Where two cavities joined through a narrow passage, a grape bunch stalactite formed. This is formed by hollowed lava pellets sprayed in gas blow and stucked together.

Motosu-fuketsu No. 2.

This cave was found in the Aokigahara lava erupted from Ishizuka crater in 1960. The cave has the largest cavity among known Japanese lava caves, and has a typical ropy lava floor in one of the branch cave. A chip of wood with a carbonised surface has been found in the scoria at the upper stream of the cave inside. The ^{14}C dating on this wood gave 1100 and 1000 y. BP which support the 864 A. D. eruption date inferred from historical records. There is a cavity filled with ice through summer near the entrance.

Yoshida-tainai multiple tree trunk molds

There are 22 known multiple tree trunk molds in Mt. Fuji lavas, nine of which are in the Yoshida-tainai area. The lava flow erupted in 800 A. D. is too thin to have caves

but contains numerous tree trunk molds including several multiple molds large enough to enter. Charcoal collected from tree molds have been dated at 1070, 1110 and 1190 y.BP, supporting the inferred date of 800 A.D. from historical records.

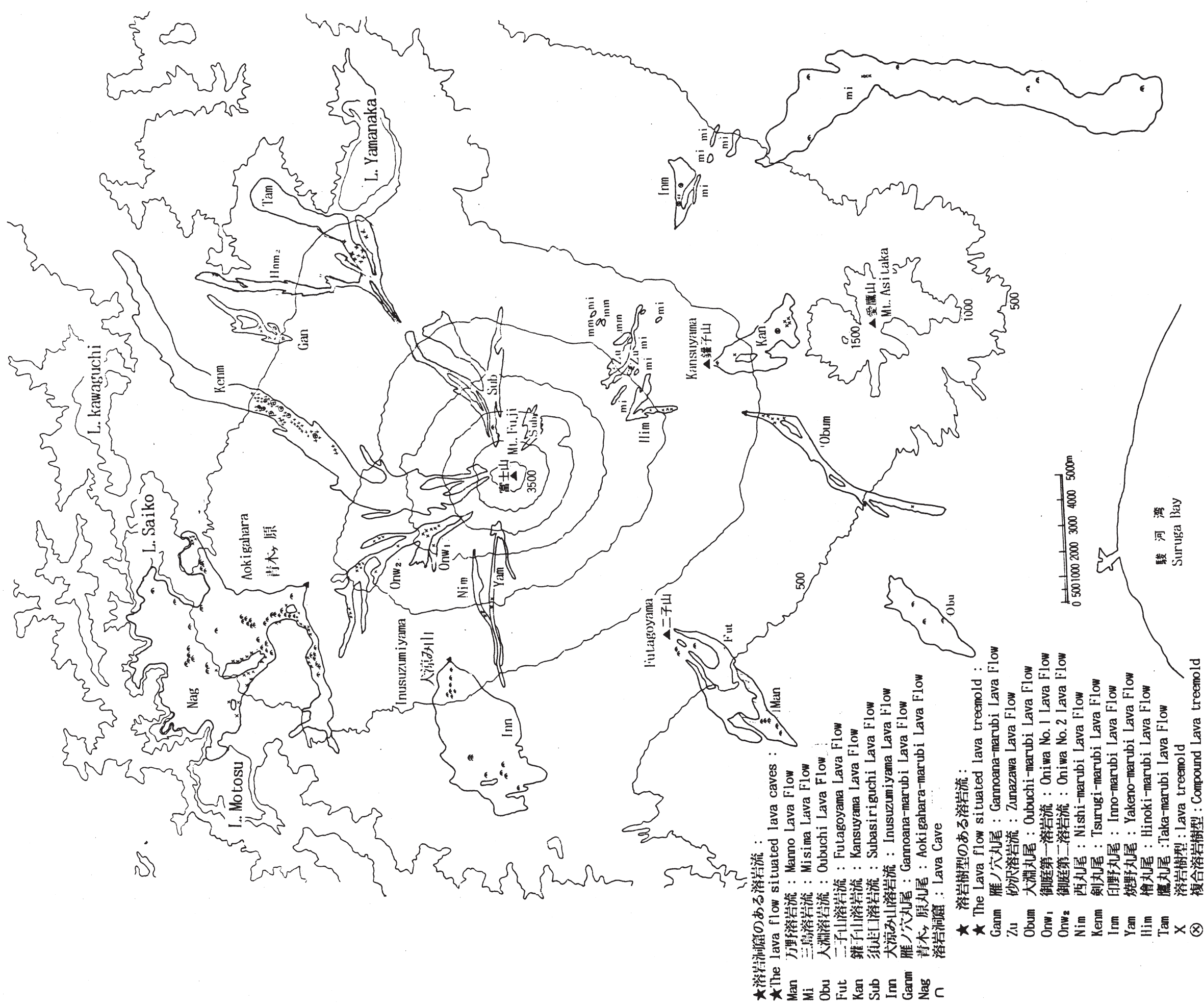
Features showing several large tree trunks piled up in the molten lava caused a large quantity of gas generation which inflate the tree mold cavity. This example of the cavity formation mechanism may be important in understanding the general cave formation mechanism. No evidence exist inside the cavity that any large size differential motion of lava has taken place.

Other caves

Karumizu-fuketsu (Fig.8-10) has grape bunch stalactites radially grown on wall.
Jinza-fuketsu No.1. (Fig.8-11) Typical joined cavities are observable.

Banba-ana (Fig.8-12) This cave has an upside down funnel shape gas blow hole which makes up the only entrance to the cave.

図 8-1 溶岩洞窟・溶岩樹型分布図
 Figure 8-1 Distribution map of Lava Caves & Lava Treemolds of Mt. Fuji.



- ★溶岩洞窟のある溶岩流：
 ★The lava flow situated lava caves：
 Man 万野溶岩流：Manno Lava Flow
 Mi 三島溶岩流：Misima Lava Flow
 Obu 大淵溶岩流：Obuchi Lava Flow
 Fut 二子山溶岩流：Futagoyama Lava Flow
 Kan 鐘子山溶岩流：Kansuyama Lava Flow
 Sub 須走口溶岩流：Subsiriguchi Lava Flow
 Inn 犬原山溶岩流：Inusuzumiyama Lava Flow
 Gann 雁ノ穴丸尾：Gannoana-marubi Lava Flow
 Nag 青木原丸尾：Aokigahara-marubi Lava Flow
 溶岩洞窟：Lava Cave
- ★溶岩樹型のある溶岩流：
 ★The Lava flow situated lava treemold：
 Gann 雁ノ穴丸尾：Gannoana-marubi Lava Flow
 Zu 砂沢溶岩流：Zunazawa Lava Flow
 Obu 大淵丸尾：Obuchi-marubi Lava Flow
 Onw1 御庭第一溶岩流：Oniwa No.1 Lava Flow
 Onw2 御庭第二溶岩流：Oniwa No.2 Lava Flow
 Nim 西丸尾：Nishi-marubi Lava Flow
 Kenm 剣丸尾：Tsurugi-marubi Lava Flow
 Inn 印野丸尾：Inno-marubi Lava Flow
 Yam 焼野丸尾：Yakeno-marubi Lava Flow
 Ilim 檜丸尾：Hinoki-marubi Lava Flow
 Tam 鷹丸尾：Taka-marubi Lava Flow
 X 溶岩樹型：Lava treemold
 ⊗ 複合溶岩樹型：Compound Lava treemold

Table 8-1 Chemical composition of lavas
 図 8-1 溶岩の化学分析表

Country	China	Korea	Japan								
			Pyosonri	Miyake	Mishima	Inusuzumiyama	Aokigahara	Hachijou			
Lava	Laoheishan	Pyosonri									
SiO ₂	47.96	48.79	53.93	49.18	49.09	51.30	49.97				
TiO ₂	2.83	2.14	1.32	1.03	1.44	1.43	1.14				
Al ₂ O ₃	13.24	15.21	14.57	16.74	16.95	18.74	18.80				
Fe ₂ O ₃	2.93	1.71	14.11	4.00	3.68	1.83	2.16				
FeO	7.87	9.25	----	8.48	9.20	8.34	9.68				
MnO	0.02	0.15	0.25	0.15	0.29	0.28	----				
MgO	7.48	8.98	3.83	5.28	5.50	4.80	3.83				
CaO	8.02	8.48	9.01	10.42	9.74	9.76	10.99				
Na ₂ O	3.79	3.12	2.23	2.42	2.42	2.55	2.53				
K ₂ O	4.89	0.83	0.55	1.16	1.16	0.71	----				
H ₂ O +	0.42	0.41	----	0.17	0.57	0.22	----				
H ₂ O -		0.41	----	0.19	0.07	0.06	----				
P ₂ O ₅	1.13	0.35	0.07	0.54	0.48	0.29	----				
Total	100.48 (1)	100.02 (2)	99.87	99.76 (3)	100.53 (3)	100.31 (3)	----				

Analysts:

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- 2) M. W. Lee
- 3) S. Nakajima

Fig. 8 - 8 (A) The Stalagmites in Mitsuike - Ana Cave.
the longest one is 191cm.



Fig. 8 - 8 (B) The beautiful lamina in Mitsuike - Ana Cave.

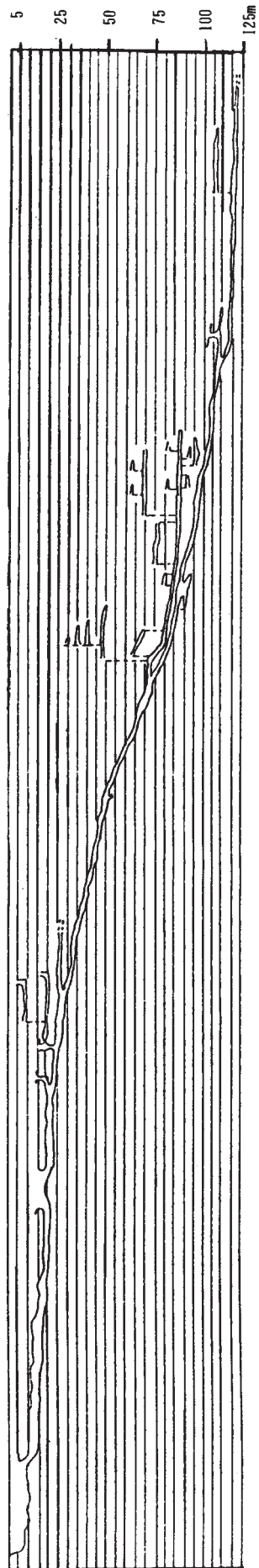
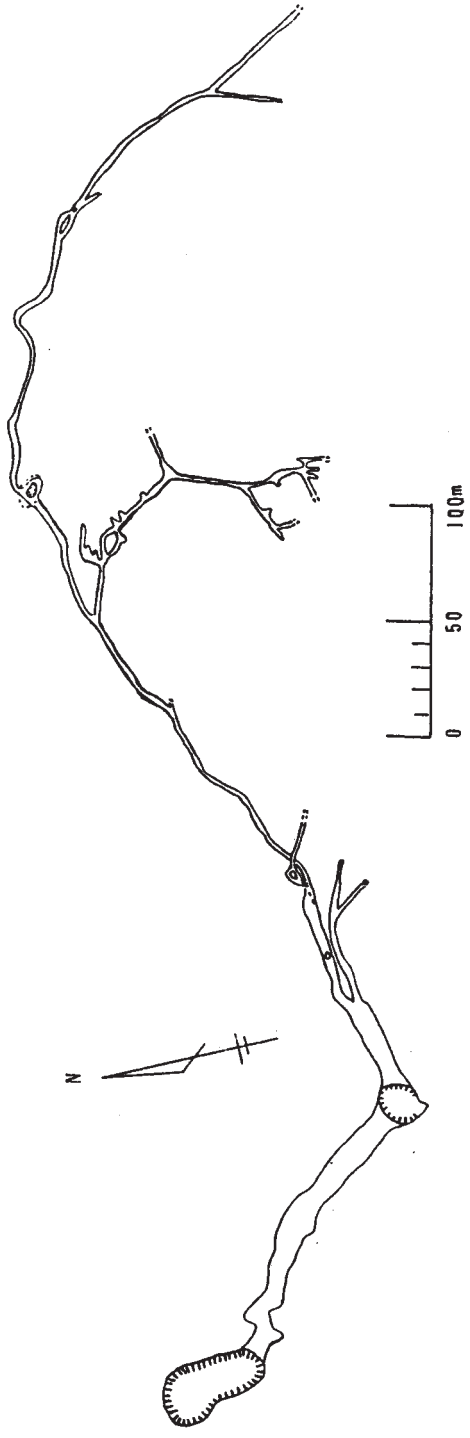
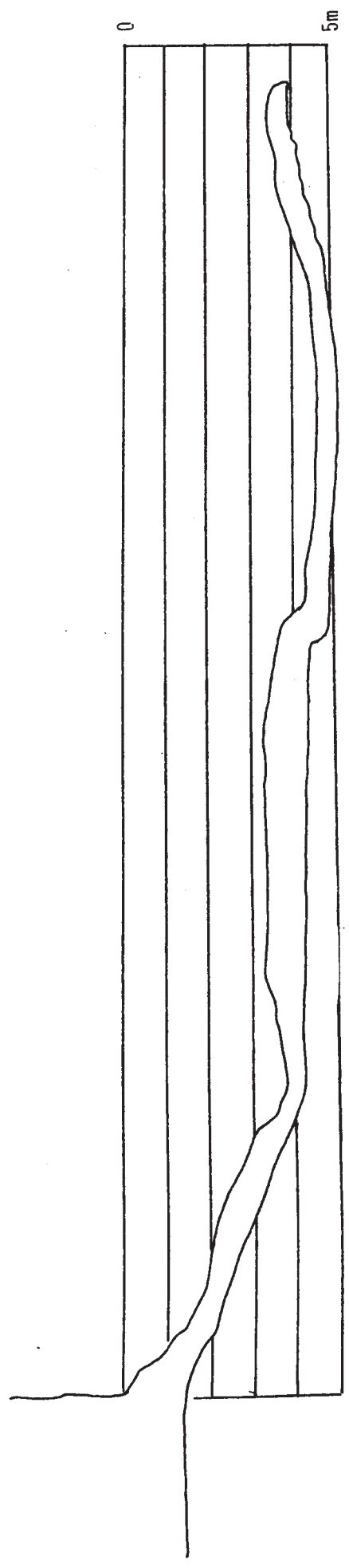
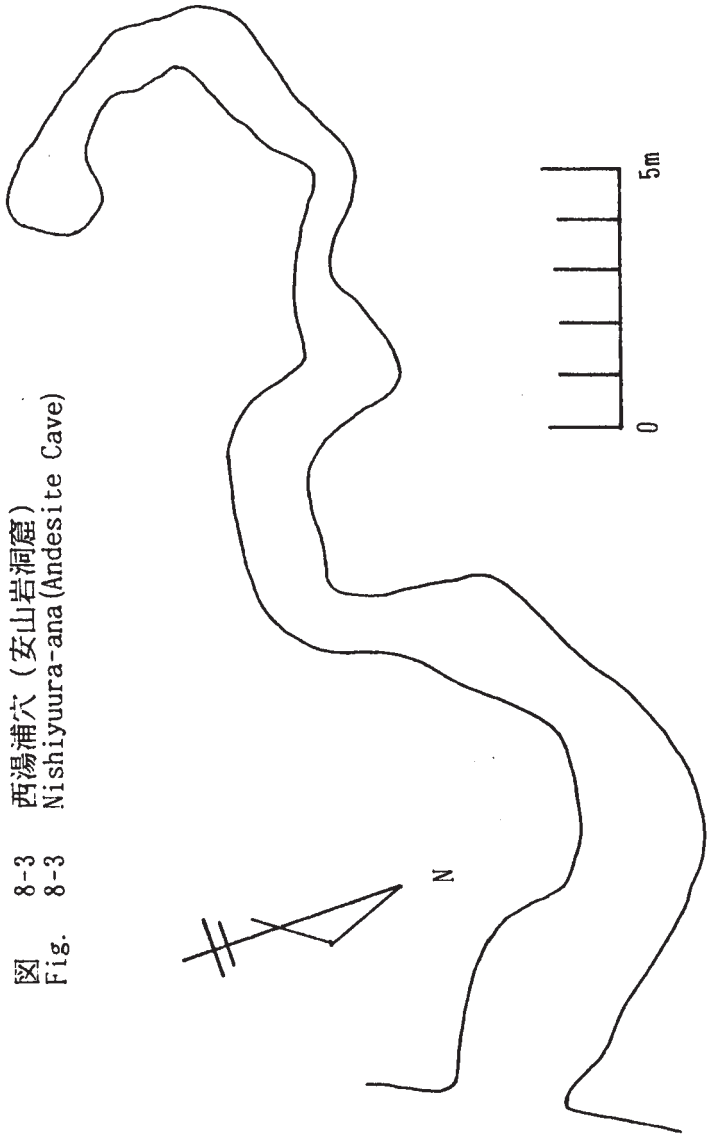


図 8-2 八丈風穴第一
Fig. 8-2 (Hachijou Fuketsu No. 1)

図 8-3 西湯浦穴 (安山岩洞窟)
Fig. 8-3 Nishiyuura-ana (Andesite Cave)



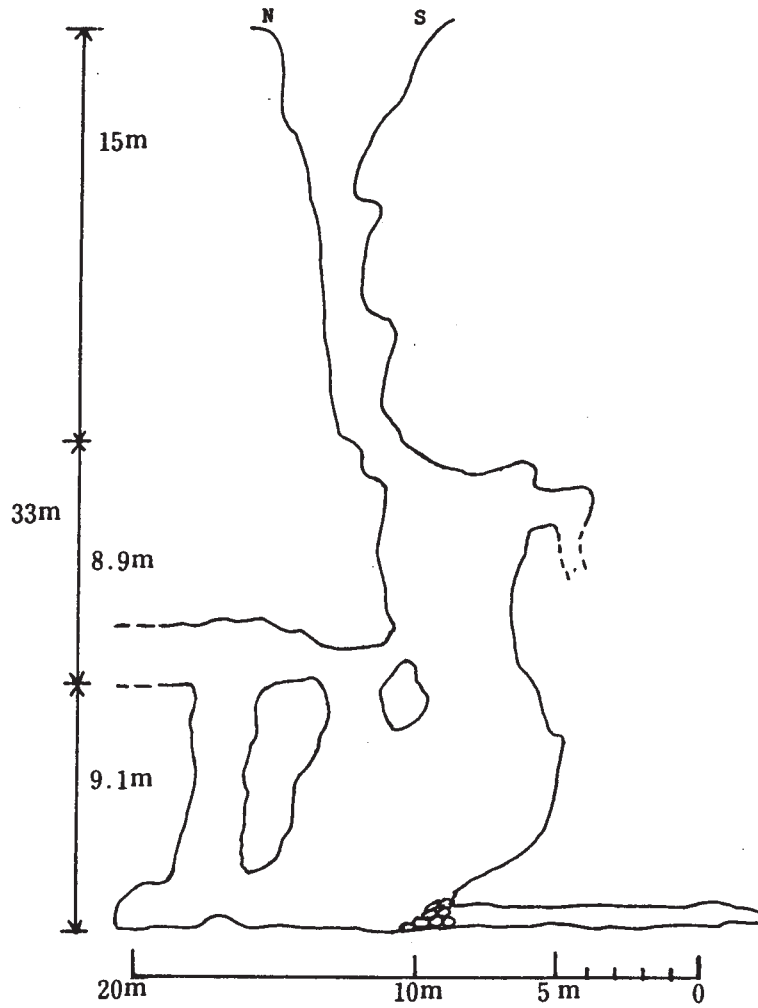


図 8-5 A-3 Lift Cave (縦断面図)
Fig. 8-5

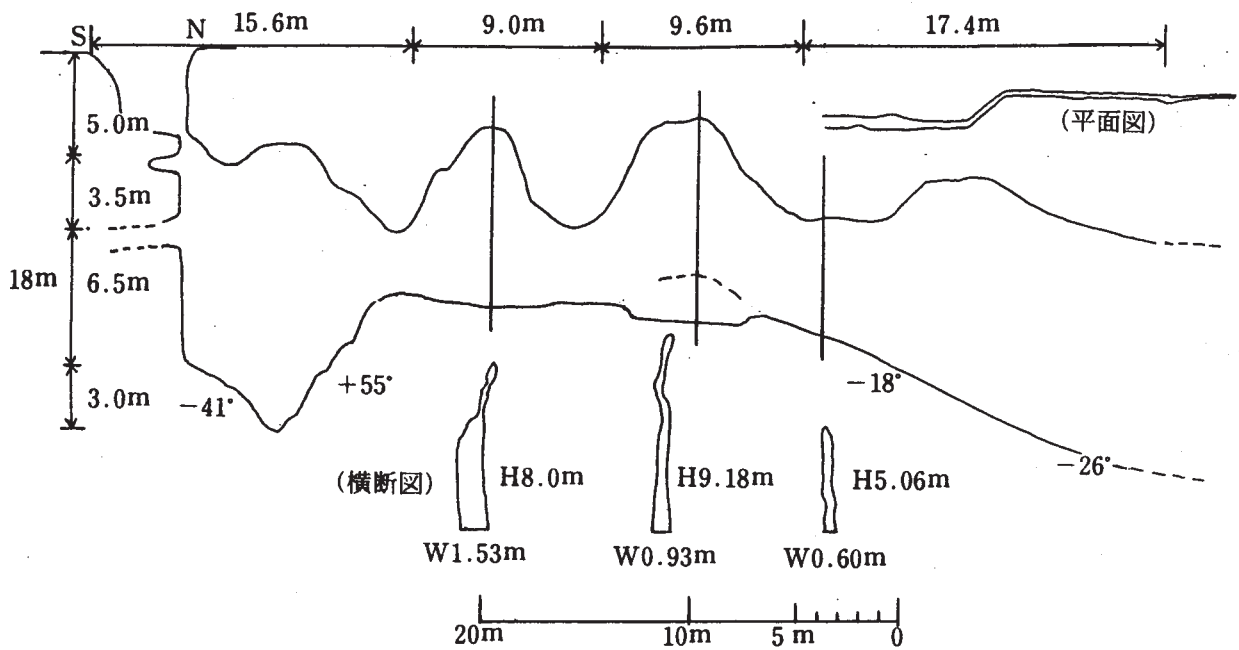


図 8-6 B-5 Rift Cave (縦断面図)
Fig. 8-6

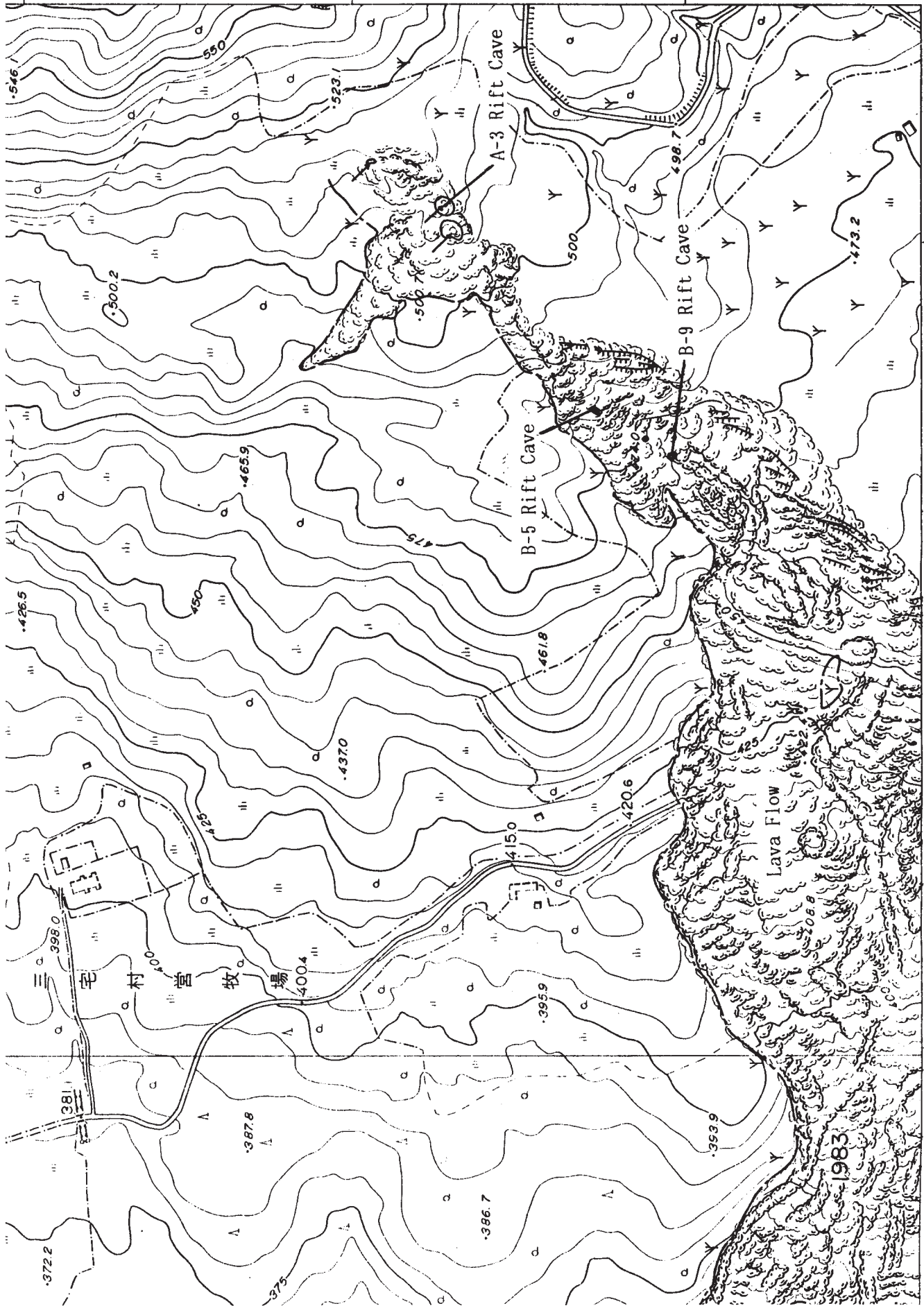


図 8-4: 三宅島のRift Cavesの位置図。
Fig. 8-4: The position map of Rift Caves at Miyake Island.

Table 8 - 2 The List of all Volcanic Caves in Japan (1988.8.30)

The Lava Caves at Mt. Fuji

No.	Lava Flow & Cave Name	Location	Length	Elevation	Latitude(N)	Longitude(E)	Note
Subashiri & Gotenba Lava Flow							
1	Subashiri Tainai	5-goume Aza Fujisan Subashiri Suruga Oyama-chou Sunto-gun, Shizuoka	* 20.0m	2,630m	35° 22' 01"	138° 45' 33"	
Mishima Lava Flow							
2	Ouno Fuketsu NO.1	Kanubanchi Suyama Susono-shi, Shizuoka	*	480m	35° 15' 35"	138° 53' 05"	Buried
3	" NO.2	"	375.4m	480m	35° 15' 34"	138° 53' 05"	
4	Komakado Fuketsu	69 Komakado Gotenba-shi, Shizuoka	625.3m	355m	35° 14' 49"	138° 55' 02"	
5	Ivanami Fuketsu	109-1 Toukaido Susono-shi, Shizuoka	219.7m	260m	35° 12' 56"	138° 55' 25"	
6	Susono Fuketsu NO.1	527-7 Chabatake Susono-shi, Shizuoka	116.0m	115m	35° 09' 52"	138° 54' 59"	
7	" NO.2	1059 Sano Susono-shi, Shizuoka	120.8m	125m	35° 10' 16"	138° 54' 36"	
8	Mishima Fuketsu	1-9-14 Bunkyo-chou Mishima-shi, Shizuoka	298.9m	42m	35° 07' 29"	138° 54' 52"	
Zunazawa Lava Flow							
9	Suyama Tainai Cave	2878-1 Nanzan Aza Fujisan Gotenba-shi, Shizuoka	40.0m	1,485m	35° 19' 00"	138° 46' 56"	
Oubuchi Lava Flow							
10	Fudou Ana	3465-3 Aza Anagahara Oubuchi Fuji-shi, Shizuoka	124.5m	201m	35° 12' 32"	138° 40' 39"	
11	Hachiman Ana	1253-1 Aza Okubo Kuzawa Fuji-shi, Shizuoka	187.3m	150m	35° 12' 23"	138° 39' 59"	
12	Atsuhara Fuketsu	1461-6 Atsuhara Fuji-shi, Shizuoka	88.9m	110m	35° 11' 49"	138° 39' 51"	
Kansuyama Marubi Lava Flow							
13	Kaminari Ana	2427 Aza Fujiwara Suyama Susono-shi, Shizuoka	35.0m	1,210m	35° 16' 58"	138° 47' 06"	
Futagoyama Lava Flow							
14	Banba Ana	3760-6 Aza Banno Yamamiya Fujinomiya-shi, Shizuoka	621.2m	675m	35° 17' 23"	138° 39' 23"	
15	Koumori Ana NO.1	3763-63 Aza Sasayama Yamamiya Fujinomiya-shi, Shizuoka	68.0m	685m	35° 17' 41"	138° 39' 09"	
16	" NO.2	"	* 127.0m	675m	35° 17' 40"	138° 39' 05"	

No.	Lava Flow & Cave Name	Location	Length	Elevation	Latitude(N)	Longitude(E)	Note
Manno Lava Flow							
17	Yashiki Ana	2408 Aza Shimokamazawa Yamamiya Fujinomiya-shi, Shizuoka	238.8m	305m	35° 15' 56"	138° 37' 26"	
18	Koubou Ana	2191 Aza Nagaana Yamamiya Fujinomiya-shi, Shizuoka	* 40.0m	285m	35° 15' 45"	138° 37' 20"	
19	Mado Ana	2142 Aza Suteishi Yamamiya Fujinomiya-shi, Shizuoka	510.1m	270m	35° 15' 37"	138° 37' 17"	
20	Ginga Fuketsu	2179 Aza Nagaana Yamamiya Fujinomiya-shi, Shizuoka	185.8m	250m	35° 15' 31"	138° 37' 00"	
21	Dainichi Ana	"	908.3m	253m	35° 15' 30"	138° 37' 11"	
22	Chikushou Ana	2204 Aza Togami Togami Fujinomiya-shi, Shizuoka	71.6m	235m	35° 15' 26"	138° 37' 00"	Buried
Inusuzumiyama Lava Flow							
23	Inusuzumiyama Fuketsu NO.1	15-1 Hitoana Fujinomiya-shi, Shizuoka	91.5m	1,140m	35° 22' 42"	138° 38' 28"	
24	Muzina Ana	"	118.2m	1,095m	35° 22' 45"	138° 38' 18"	
25	Inusuzumiyama Fuketsu NO.2	"	130.0m	1,070m	35° 22' 49"	138° 38' 11"	
26	" NO.3	"	* 50.0m	1,000m	35° 23' 04"	138° 37' 42"	
27	" NO.4	"	*120.0m	995m	35° 22' 56"	138° 37' 39"	
28	" NO.5	"	701.0m	970m	35° 22' 51"	138° 37' 31"	
29	" NO.6	"	*250.0m	985m	35° 22' 49"	138° 37' 48"	
30	" NO.7	"	93.7m	975m	35° 22' 41"	138° 37' 37"	
31	" NO.8	"	76.3m	980m	35° 22' 41"	138° 37' 40"	
32	" NO.9	"	49.0m	985m	35° 22' 42"	138° 37' 40"	
33	" NO.10	"	85.0m	1,100m	35° 22' 41"	138° 37' 47"	
34	" NO.11	"	35.0m	1,000m	35° 22' 49"	138° 37' 47"	
35	" NO.12	"	*	1,150m	35° 22' 34"	138° 38' 35"	
36	Mitsuike Ana	777 Aza Nishiogidaira Hitoana Fujinomiya-shi, Shizuoka	2,165.0m	815m	35° 22' 30"	138° 35' 56"	
37	Uba Ana	851-15-22 Aza Ouhatakedaira Hitoana Fujinomiya-shi, Shizuoka	123.0m	750m	35° 22' 03"	138° 35' 45"	
38	Uzura Ana	744 Aza Nishiogidaira Hitoana Fujinomiya-shi, Shizuoka	820.1m	733m	35° 21' 32"	138° 36' 15"	

(1988.8.30)

No.	Lava Flow & Cave Name	Location	Length	Elevation	Latitude(N)	Longitude(E)	Note
39	Shin Ana	205-12 Aza Zechouzuka Hitoana Fujinomiya-shi, Shizuoka	149.7m	720m	35° 21' 40"	138° 35' 50"	
40	Hito Ana	206 Aza Ishitsubo Hitoana Fujinomiya-shi, Shizuoka	83.3m	700m	35° 21' 31"	138° 35' 41"	
41	Mamashita Ana	168 Aza Mamashita Hitoana Fujinomiya-shi, Shizuoka	154.6m	665m	35° 21' 15"	138° 35' 26"	Buried
Aokigahara-marubi Lava Flow (864 Lava Flow)							
42	Karumizu Fuketsu	8536 Aza Zinza Karumizu Hoka 10 Narusawa-mura Minamitsuru-gun, Yamanashi	432.8m	1,250m	35° 26' 17"	138° 40' 16"	
43	Zinza Fuketsu NO.1 & Kamaboko Ana	"	443.1m	1,245m	35° 26' 19"	138° 39' 52"	
44	Zinza Fuketsu NO.2	"	28.0m	1,245m	35° 26' 20"	138° 39' 53"	
45	Megane Ana	"	51.3m	1,240m	35° 26' 21"	138° 39' 50"	
46	Zinza Fuketsu NO.4	8533 Aza Karumizu Karumizu Hoka 10 Narusawa-mura Minamitsuru-gun, Yamanashi	154.5m	1,210m	35° 26' 28"	138° 40' 00"	
			*100.0m	1,165m	35° 26' 45"	138° 40' 25"	
47	" NO.5	"	105.3m	1,160m	35° 26' 48"	138° 40' 25"	
48	" NO.6	"	42.3m	1,160m	35° 26' 45"	138° 40' 22"	
49	Zinza Raleigh Fuketsu	"	61.8m	1,150m	35° 26' 52"	138° 40' 15"	
50	Zinza Fuketsu NO.7	"	* 80.0m	1,150m	35° 26' 54"	138° 40' 16"	
51	" NO.8	"	*100.0m	1,150m	35° 26' 54"	138° 40' 20"	
52	" NO.9	"	*	1,145m	35° 27' 07"	138° 40' 11"	
53	Oumuro Fuketsu NO.1	8536 Aza Zinza Karumizu Hoka 10 Narusawa-mura Minamitsuru-gun, Yamanashi	170.3m	1,190m	35° 26' 32"	138° 40' 02"	
54	" NO.2	"	40.0m	1,170m	35° 26' 38"	138° 39' 58"	
55	Shoiko Fuketsu NO.1	"	230.0m	1,160m	35° 26' 41"	138° 39' 57"	
56	" NO.2	"	55.3m	1,145m	35° 26' 44"	138° 39' 53"	
57	" NO.3	"	35.0m	1,140m	35° 26' 45"	138° 39' 51"	
58	" NO.4	"	32.1m	1,130m	35° 26' 46"	138° 39' 48"	
59	" NO.5	"	* 30.0m	1,125m	35° 26' 49"	138° 39' 46"	

No.	Lava Flow & Cave Name	Location	Length	Elevation	Latitude(N)	Longitude(E)	Note
60	Motosu Fuketsu NO.1	151 Aza Ishizuka Motosu Kamikuishshiki-mura Nishiyatsushiro-gun, Yamanashi	494.3m	1,140m	35° 26' 35"	138° 39' 10"	
61	" NO.2	"	235.7m	1,155m	35° 26' 31"	138° 39' 00"	I.C.
62	" NO.3	"	94.8m	1,135m	35° 26' 43"	138° 39' 09"	
63	" NO.4	514 Aza Aokigahara Shouji Kamikuishshiki-mura Nishiyatsushiro-gun, Yamanashi	32.0m	1,125m	35° 26' 46"	138° 39' 13"	
64	" NO.5	"	49.0m	1,140m	35° 26' 40"	138° 39' 02"	
65	Motosu Hyouketsu	151 Aza Ishizuka Motosu Kamikuishshiki-mura Nishiyatsushiro-gun, Yamanashi	68.1m	1,145m	35° 26' 39"	138° 39' 08"	I.C.
66	Fuji Fuketsu NO.1	8533 Aza Karumizu Karumizu Hoka 10 Narusawa-mura Minamitsuru-gun, Yamanashi	582.0m	1,110m	35° 26' 49"	138° 39' 19"	I.C.
67	" NO.2	"	57.0m	1,110m	35° 27' 04"	138° 39' 46"	
68	" NO.3	"	52.0m	1,110m	35° 27' 05"	138° 39' 50"	
69	" NO.4	"	118.0m	1,110m	35° 27' 06"	138° 39' 50"	
70	" NO.5	"	143.0m	1,110m	35° 27' 06"	138° 39' 53"	
71	" NO.6	"	60.0m	1,110m	35° 27' 07"	138° 39' 53"	
72	" NO.7	"	130.0m	1,105m	35° 27' 10"	138° 39' 54"	
73	Aokigahara Fuketsu NO.1	"	61.0m	1,065m	35° 27' 51"	138° 39' 58"	
74	" NO.2	514 Aza Aokigahara Syouji Kamikuishshiki-mura Nishiyatsushiro-gun, Yamanashi	141.5m	1,060m	35° 28' 02"	138° 39' 34"	
75	Fugaku Fuketsu	"	258.7m	1,000m	35° 28' 27"	138° 39' 37"	I.C.
76	Narusawa Hyouketsu	8533 Aza Karumizu Karumizu Hoka 10 Narusawa-mura Minamitsuru-gun, Yamanashi	155.7m	1,025m	35° 28' 17"	138° 40' 12"	I.C.
77	Syoujioana-Nichidou	514 Aza Aokigahara Syouji Kamikuishshiki-mura Nishiyatsushiro-gun, Yamanashi	160.6m	990m	35° 28' 04"	138° 38' 29"	
78	" -Gatsudou	"	247.3m	985m	35° 28' 04"	138° 38' 26"	
79	Syouji Fuketsu NO.1	"	47.1m	960m	35° 28' 27"	138° 38' 29"	
80	Shounin Ana	"	46.5m	960m	35° 28' 26"	138° 38' 29"	
81	Syouji Fuketsu NO.2	"	46.4m	960m	35° 28' 28"	138° 38' 24"	
82	" NO.3	"	53.3m	960m	35° 28' 29"	138° 38' 27"	

(1988.8.30)

No.	Lava Flow & Cave Name	Location	Length	Elevation	Latitude (N)	Longitude (E)	Note
83	Syouji Fuketsu NO.4	514 Aza Aokigahara Syouji Kamikuishiiki-mura	*103.0m	960m	35° 28' 30"	138° 38' 20"	
84	Katabuta Ana	Nishiyatsushiro-gun, Yamanashi 216 Aza Ousaka Motosu Kamikuishiiki-mura	* 30.0m	1,195m	35° 25' 44"	138° 39' 08"	
85	Gyoujya Ana	"	* 94.0m	1,195m	35° 25' 45"	138° 39' 07"	
86	Kazuhiito Ana NO.1	"	253.6m	1,190m	35° 25' 54"	138° 38' 58"	
87	" NO.2	"	44.2m	1,185m	35° 25' 56"	138° 38' 55"	
88	" NO.3	"	* 30.0m	1,175m	35° 25' 53"	138° 38' 51"	
89	" NO.4	"	101.5m	1,060m	35° 25' 51"	138° 38' 45"	
90	" NO.5	"	* 60.0m	1,135m	35° 25' 50"	138° 38' 39"	
91	Narusava Koumori Ana NO.1	8532-26 Aza Chirakonno Narusava-mura Minamitsuru-gun, Yamanashi	69.2m	1,005m	35° 28' 20"	138° 41' 13"	
92	" NO.2	"	70.2m	1,005m	35° 28' 20"	138° 41' 15"	
93	" NO.3	"	40.0m	1,005m	35° 28' 19"	138° 41' 17"	
94	" NO.4	"	48.0m	1,005m	35° 28' 20"	138° 41' 17"	
95	Ryuguu Ana	2068 Aza Aokigahara Ashiwada-mura Minamitsuru-gun, Yamanashi	95.9m	965m	35° 28' 52"	138° 41' 17"	I.C.
96	Saiko Fuketsu NO.1	"	72.3m	945m	35° 28' 59"	138° 40' 07"	
97	" NO.2	"	31.7m	950m	35° 28' 59"	138° 40' 03"	
98	" NO.3	"	41.4m	945m	35° 29' 00"	138° 40' 05"	
99	" NO.4	"	114.0m	960m	35° 28' 58"	138° 39' 54"	
100	" NO.5	"	142.0m	965m	35° 28' 59"	138° 39' 55"	
101	" NO.6	"	32.0m	965m	35° 28' 58"	138° 39' 54"	
102	" NO.7	"	42.3m	975m	35° 28' 52"	138° 39' 49"	
103	Saiko Koumori Ana	"	386.3m	925m	35° 29' 21"	138° 40' 34"	
106	Jinza Toukai Fuketsu	8533 Aza Karumizu Karumizu Hoka 10 Narusava-mura Minamitsuru-gun, Yamanashi	40.0m	1,150m	35° 26' 54"	138° 40' 16"	

(1988.8.30)

No.	Lava Flow & Cave Name	Location	Length	Elevation	Latitude(N)	Longitude(E)	Note
107	Jinza Fuketsu NO.10	8533 Aza Karumizu Karumizu Hoka 10 Narusawa-mura Minamitsuru-gun, Yamanashi	50.0m	1,166m	35° 26' 45"	138° 40' 10"	
108	Jinza Kawagoe Fuketsu	"	85.0m	1,163m	35° 26' 47"	138° 40' 09"	
109	Jinza Fuketsu NO.11	"	*	1,162m	35° 26' 49"	138° 40' 09"	
110	" NO.12	"	*	1,159m	35° 26' 50"	138° 40' 10"	
111	" NO.13	"	*	1,160m	35° 26' 48"	138° 40' 12"	
Gannocana Marubi Lava Cave							
104	Kuzure Ana	5606 Aza Ganno-ana Kamiyoshida Fujiyoshida-shi, Yamanashi	* 130.0m	1,010m	35° 26' 37"	138° 47' 41"	
Narusawa Lava Flow							
105	Heijibara Fuketsu	6463-1 Aza Heijibara Narusawa-mura Minamitsuru-gun, Yamanashi	106.9m	980m	35° 28' 34"	138° 42' 16"	

* = Approximately

L = Length

I.C. = Ice Cave

The Lava Cave at Oushima Island

(54)

No.	Lava Flow & Cave Name	Location	Length	Elevation	Latitude(N)	Longitude(E)	Note
1951 Lava Flow							
1	Mihara Fuketsu	Muban Aza Harano Nomasu Oushima-chou, Tokyo	26.94m	675m	34° 43' 39"	139° 23' 54"	Buried

The Lava & Lift Caves at Hachijou Island

1	Hachijou Fuketsu NO.1	5429-1 Mitsune Hachijou-machi Hachijou-Island, Tokyo	1,404.0m	136m	33° 07' 59"	139° 47' 28"	
2	" NO.2	"	* 100.0m	125m	33° 07' 56"	139° 47' 31"	
3	Gokuraku Ana	Mubanchi Mitsune Hachijou-machi Hachijou-Island, Tokyo	* 200.0m	10m	33° 08' 01"	139° 47' 59"	
4	Shin Gokuraku Ana	"	676.0m	20m	33° 08' 07"	139° 47' 52"	
5	NO.20 Bokku Fuketsu	5627-3 Ouga-go Hachijou-machi Hachijou-Island, Tokyo	35.0m	513m	33° 07' 38"	139° 45' 54"	
6	NO.21 Bokku Fuketsu	5627-2	45.0m	528m	33° 07' 41"	139° 45' 55"	
7	Eigo Rift Cave NO.1	6290 Mitsune Hachijou-machi Hachijou-Island, Tokyo	-65.0m	85m	33° 09' 07"	139° 45' 23"	Rift Cave
8	" NO.2	"	-12.0m	115m	33° 09' 06"	139° 45' 22"	"
9	" NO.3	"	130m -12m	125m	33° 09' 05"	139° 45' 21"	"
10	Nazumado Rift Cave	5449-4 Ouga-go Hachijou-machi Hachijou-Island, Tokyo	* 30.0m	110m	33° 08' 33"	139° 44' 49"	"
11	Hachijou Fuji Fuketsu	6440-2 Mitsune Hachijou-machi Hachijou-Island, Tokyo	* 300.0m	780m	33° 08' 13"	139° 46' 02"	"

The Rift Caves at Miyake Island

1983 Lava Flow							
1	Miyake A-3 Rift Cave	221 Aza Oyama Miyake-mura, Tokyo	-33.0m	505m	34° 04' 26"	139° 31' 03"	Rift Cave
2	Miyake B-5 Rift Cave	"	152m -18m	475m	34° 04' 20"	139° 30' 55"	"
3	Miyake B-9 Rift Cave	"	-14.0m	470m	34° 04' 19"	139° 30' 54"	"

The Lava Caves at Daikon Island

1	Yuuki Do	1323-3 Osoe Yatsuzuka-machi Yatsuzuka-gun, Shimane	* 200.0m	5m	35° 29' 40"	133° 10' 41"	
2	Ryusei Do	246-8 Teratsu Yatsuzuka-machi Yatsuzuka-gun, Shimane	* 80.0m	16m	35° 29' 21"	133° 11' 13"	

The Lava Caves at Mt. Aso

No.	Lava Flow & Cave Name	Location	Length	Elevation	Latitude(N)	Longitude(E)	Note
Kometsuka Lava Flow							
1	Kometsuka Fuketsu	2391-7 Aza Kometsuka Nagakusa Aso-machi Aso-gun, Kumamoto	20.0m	870m	32° 54' 11"	131° 02' 37"	
2	Ougawara Fuketsu	2045-2 Aza Ougawara Kurokawa Aso-machi Aso-gun, Kumamoto	*	645m	32° 55' 15"	131° 03' 29"	Buried
3	Nagaobane Fuketsu NO.1	2395-5 Aza Nagaobane Nagakusa Aso-machi Aso-gun, Kumamoto	44.3m	750m	32° 54' 34"	131° 02' 22"	
4	" NO.2	"	* 20.0m	750m	32° 54' 35"	131° 02' 23"	
5	Mizonokuchiue Fuketsu	2115-1 Aza Mizonokuchiue Otohime Aso-machi Aso-gun, Kumamoto	* 25.0m	600m	32° 55' 20"	131° 02' 51"	
6	Mizonokuchiue Koumori Ana	"	* 15.0m	600m	32° 55' 21"	131° 02' 52"	
7	Inuotoshi Fuketsu	2391-14 Aza Inuotoshi Otohime Aso-machi Aso-gun, Kumamoto	* 40.0m	640m	32° 55' 02"	131° 02' 24"	
8	Kaninome Fuketsu	2398-4 Aza Kaninome Otohime Aso-machi Aso-gun, Kumamoto	*	635m	32° 55' 23"	131° 03' 12"	
9	Jano-0 Fuketsu	Aza Shimo-Jano-0 Nagakusa Aso-machi Aso-gun, Kumamoto	*	522m	32° 55' 17"	131° 01' 39"	
The Somma of Mt. Aso (Andesite)							
1	Nishiyuura Ana	Aza Nishiyuura Uchimaki Aso-machi Aso-gun, Kumamoto	32.3m	800m	32° 59' 27"	131° 01' 03"	
Aso Welded Tuff (Pyroclastic)							
1	Takenoedao-no Ana	1986 Aza Takenoedao Oukawachi Shiiba-mura Higashiusuki-gun, Miyazaki	9.7m	500m	32° 26' 17"	131° 07' 52"	
2	Yanaibara Do	1673-1 Aza Satonouchi Haebaru Tougou-chou Higashiusuki-gun, Miyazaki	47.5m	70m	32° 25' 07"	131° 30' 31"	
3	Togava-Sakenotani Do	7202-2 Aza Tashita Nanaore Hinokage-machi Nishiusuki-gun, Miyazaki	106.83m	240m	32° 41' 10"	131° 23' 58"	
4	Oni-no-Iwaya	577-5 Aza Yakushiwaki Ohya Kikusui-machi Tanana-gun, Kumamoto		50m	33° 00' 33"	130° 38' 14"	

No.	Lava Flow & Cave Name	Location	Length	Elevation	Latitude(N)	Longitude(E)	Note
5	Anahachiman-no-Ana	621-1 Aza Endaiji Endaiji Ueki-machi Kamoto-gun, Kumamoto		110m	32° 52' 54"	130° 39' 22"	
6	Nanathuzako-no-Ana	156 Aza Takakege Soyou-machi Aso-gun, Kumamoto		700m	32° 40' 02"	131° 08' 27"	
7	Shiraishi-no-Ana	"		670m	32° 40' 05"	131° 08' 28"	
8	Anamori-no Ana	1431 Aza Kunigata Kanbara Takeda-shi Naoiri-gun, Ouita		510m	32° 51' 07"	131° 22' 49"	
9	Ouiwaya Fuketsu	813 Ouaza Kami-madama Madama-machi Nishikunisaki-gun, Ouita		110m	33° 35' 33"	131° 31' 53"	

The Lava Caves at Fukue Island

1	Sakishirazuno I Ana	1637 Notari Dakego-shimo Tomie-chou Minami -Matsuura-gun, Nagasaki	397.0m	17m	32° 35' 23"	128° 46' 38"	System
2	Tourinuke I Ana	"	85.0m	17m	32° 35' 21"	128° 46' 38"	System
3	No-Ana	"	413.0m	23m	32° 35' 30"	128° 46' 19"	System
4	Toushi Ana	"	* 40.0m	25m	32° 35' 38"	128° 46' 16"	System
5	Shishikomankuchino Ana	"	* 30.0m	28m	32° 35' 38"	128° 46' 10"	System
6	Yurunkuchino Ana	"	41.0m	25m	32° 35' 33"	128° 46' 19"	
7	Ipponmatsu Ana	"	105.0m	32m	32° 35' 40"	128° 46' 17"	
8	Kichiga Ana	"	.	25m	32° 36' 01"	128° 46' 30"	
9	Kuroseno Ana	Aza Amayasu Kurose Tomie-chou Minami-Matsuura-gun, Nagasaki	* 20.0m	28m	32° 35' 51"	128° 45' 28"	
10	Iyano Ana	"	* 30.0m	18m	32° 35' 53"	128° 45' 07"	
11	Furuzutsumino Ana	"	* 5.0m	18m	32° 35' 53"	128° 45' 06"	
12	Iankawano Ana	"	* 60.0m	18m	32° 35' 53"	128° 45' 05"	

The Lava Cave at Ouitabe Island

1	Ouitabe Ana	Ouitabe-chou Fukue-shi Minami-Matsuura-gun, Nagasaki	* 70.0m	10m	32° 35' 02"	128° 54' 12"	
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(1988.8.30)

The Lava Caves at Oujima Island

No.	Lava Flow & Cave Name	Location	Length	Elevation	Latitude(N)	Longitude(E)	Note
1	Jyouno Ana	1209 Oujima-chou Fukue-shi Minami-Matsuura-gun, Nagasaki	* 131.2m	5m	32° 33' 31"	128° 54' 26"	
2	Unnashi Ana	"	54.6m	5m	32° 33' 39"	128° 54' 31"	

The Lava Caves at Mt. Unzen-dake

1	Fuketsu	552 Aza Ryunobaba-kanoe Onsenmyou Shimabara-shi Minamitakagi-gun, Nagasaki		1,300m	32° 45' 37"	130° 17' 50"	
2	Hato Ana	1205 Aza kaedegi-kou Kizakimyou Shimabara-shi Minamitakagi-gun, Nagasaki		1,195m	32° 45' 49"	130° 18' 08"	

(1988.8.30)

The list of the Pumice & Welded Tuff Caves at Kyushiu

No.	Lava Flow & Cave Name	Location	Length	Elevation	Latitude(N)	Longitude(E)	Note
Ata Welded Tuff (Pumice)							
1	Kimino Gongen Ana	3185 Aza Gongendani Kamiyama Kavanabe-machi Kavanabe-gun, Kagoshima	39.8m	150m	31° 21' 21"	130° 20' 17"	
2	Sakashita Ana	3617 Aza Sakashita Kamiyama Kavanabe-machi Kavanabe-gun, Kagoshima	30.4m	100m	31° 20' 36"	130° 20' 37"	
Aira Welded Tuff (Pumice)							
1	Kuronida Ana	6875 Aza Kuronida Daizaka Kinpou-chou Hioki-gun, Kagoshima	53.6m	230m	31° 28' 33"	130° 26' 17"	
2	Kurokava Douketsu	9185 Aza Sunahashiri Nagayoshi Fukiage-chou Hioki-gun, Kagoshima	57.7m	84m	31° 33' 00"	130° 24' 11"	
3	Iwa Ana NO.1	2752-1 Aza Iwaida Shimono Yokogawa-chou Aira-gun, Kagoshima	* 25.0m	190m	31° 51' 00"	130° 42' 40"	
4	Iwa Ana NO.2	1769-1 Aza Iwaida Shimono Yokogawa-chou Aira-gun, Kagoshima	* 18.3m	170m	31° 51' 04"	130° 42' 50"	
5	Kumaso Ana Douketsu	4382-9 Myouken Kareigawa Hayato-machi Aira-gun, Kagoshima	28.0m	70m	31° 48' 34"	130° 45' 26"	
6	Mizonokuchi Douketsu	5783 Otsu-no 2 Otsukahara Shimo-Takarabe Takarabe-chou So-0-gun, Kagoshima	213.0m	230m	31° 46' 34"	130° 57' 47"	
7	katano Do	2634 Aza Miyamae Uchinokura Shibushi-machi So-0-gun, Kagoshima	84.9m	80m	31° 31' 47"	131° 09' 41"	
8	Hyakudou Ketsu	1669 Aza Iwado Anraku Shibushi-machi So-0-gun, Kagoshima	69.7m	30m	31° 29' 21"	131° 04' 57"	
9	Monju Iwaya	6530 Aza Houman Chou " " "	98.0m	10m	31° 28' 37"	131° 06' 42"	
10	Obirano Do	3400-1 Aza Yasuhisa-chou Miyakonojou-shi Kitamorokata-gun, Miyazaki		220m	31° 38' 08"	131° 08' 24"	

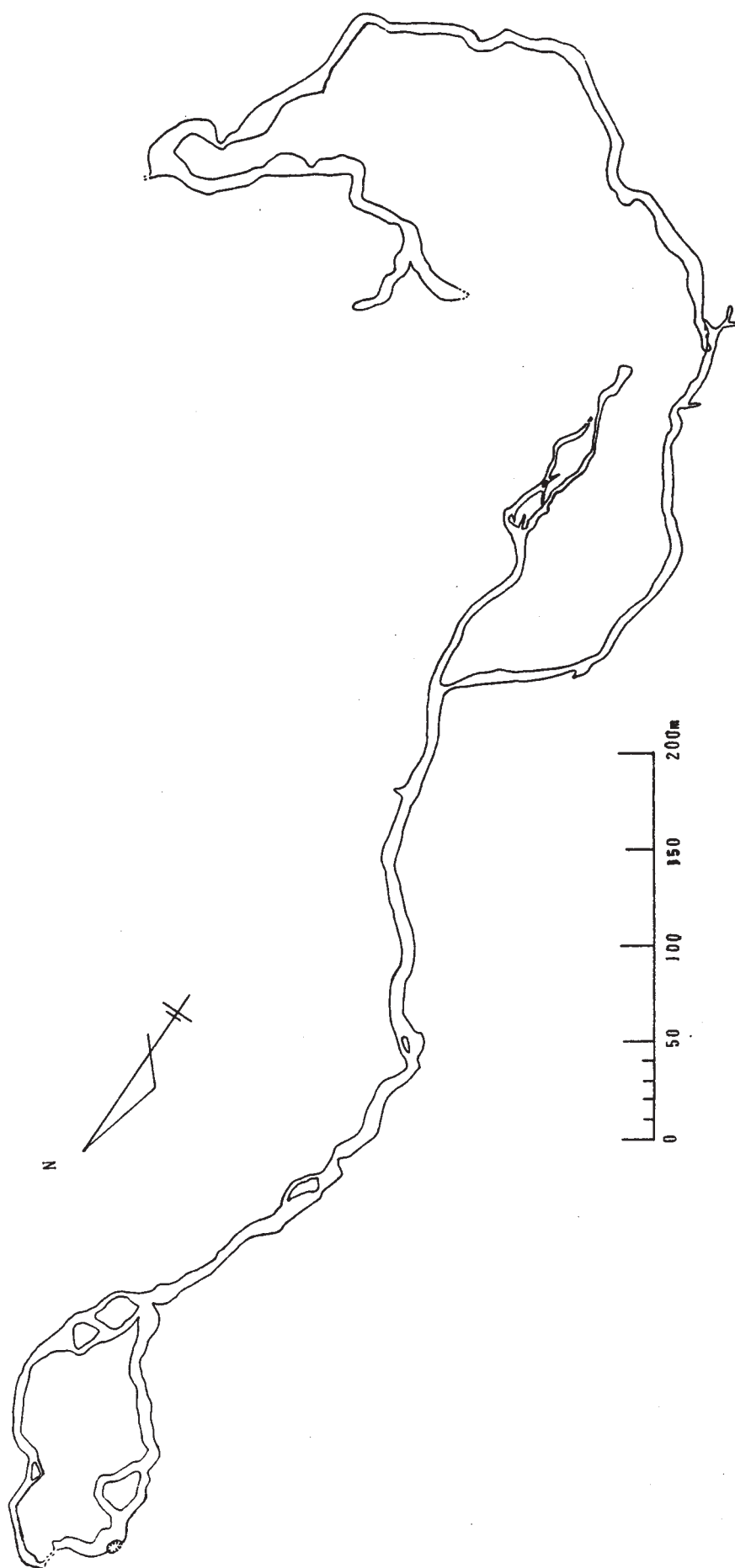


図 8-7 ミツ池穴

Fig. 8-7 (Mitsuike Ana)

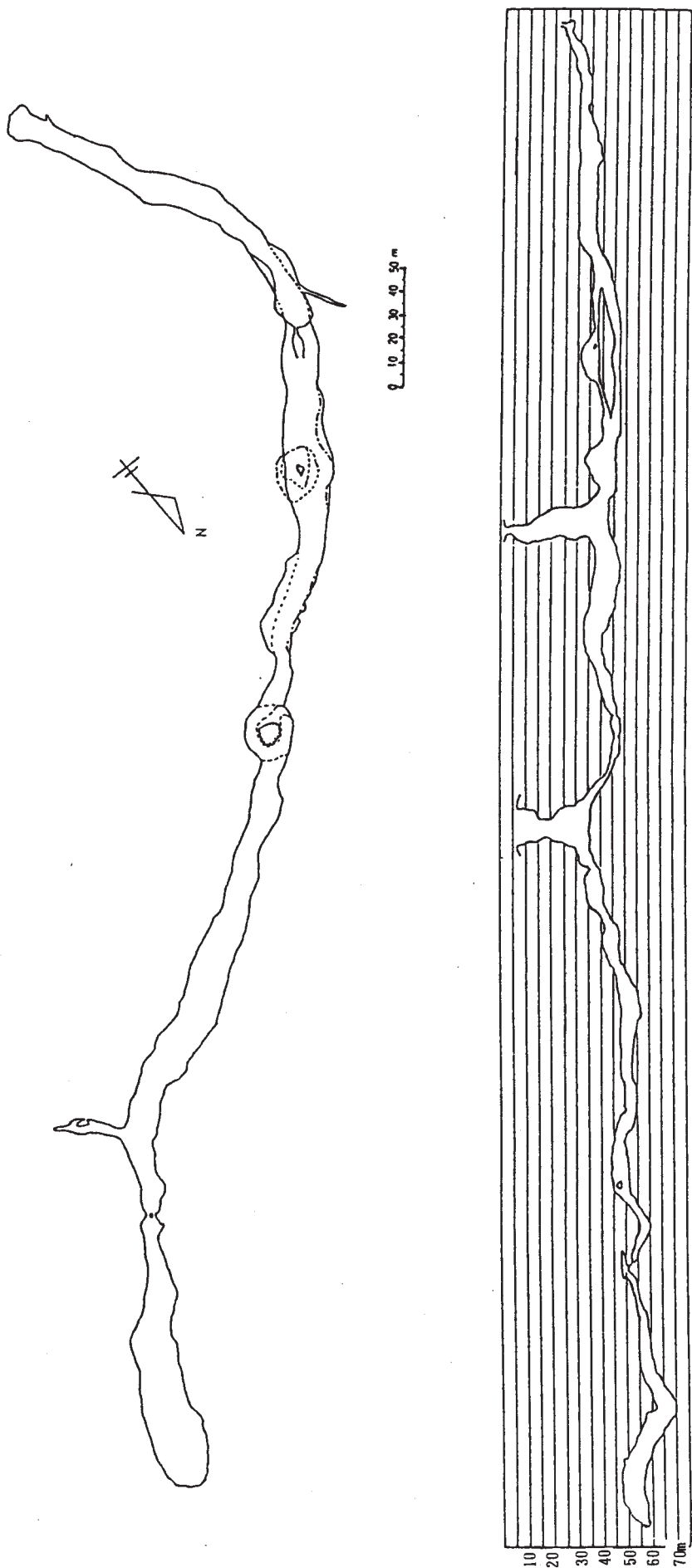


図 8-9 本栢風穴第一
Fig. 8-9 (Motosu Fuketsu Cave No.1)

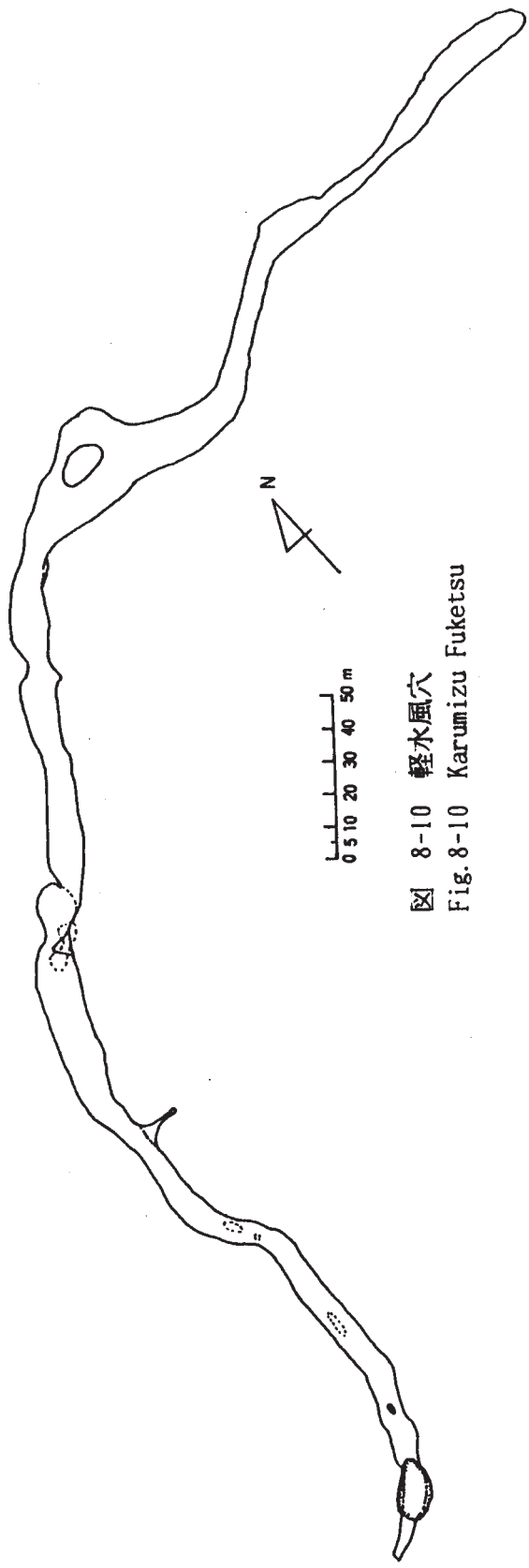
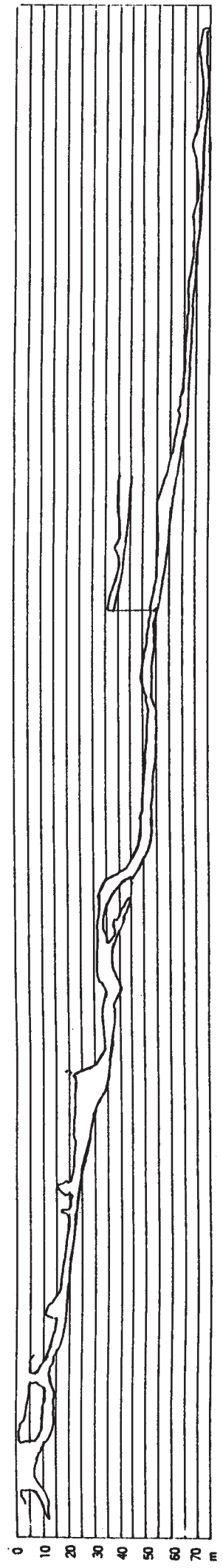


図 8-10 輕水風穴
 Fig. 8-10 Karumizu Fuketsu



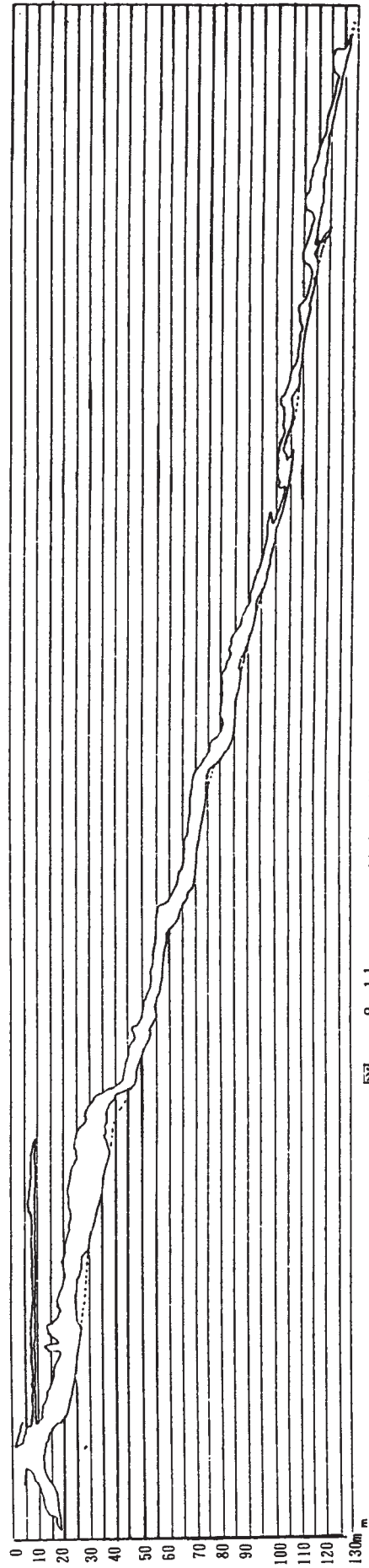
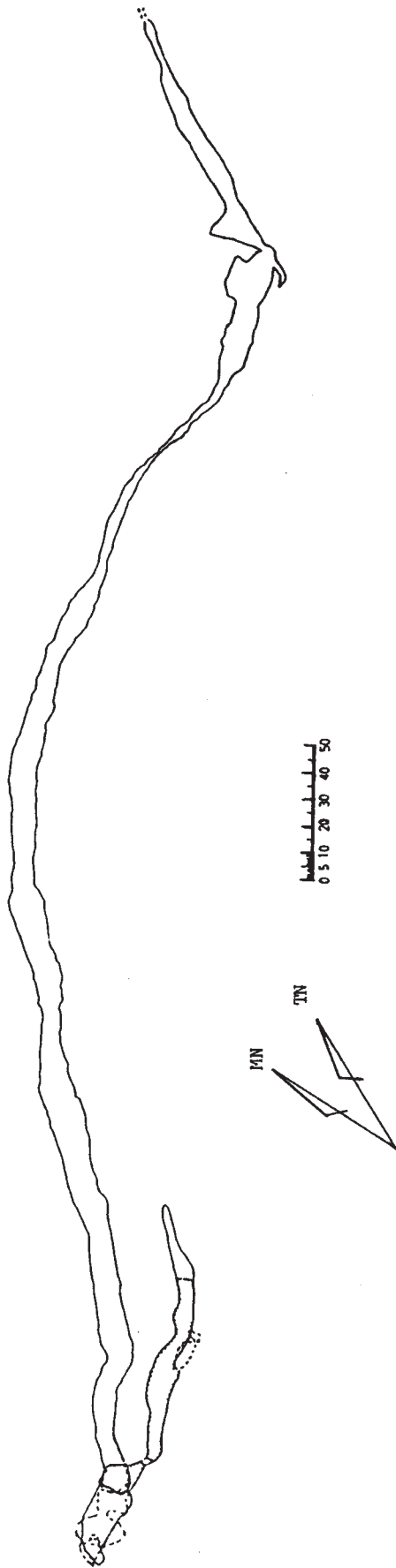


図 8-11 神座風穴第一
Fig. 8-11 (Zinza Fuketsu Cave No. 1)

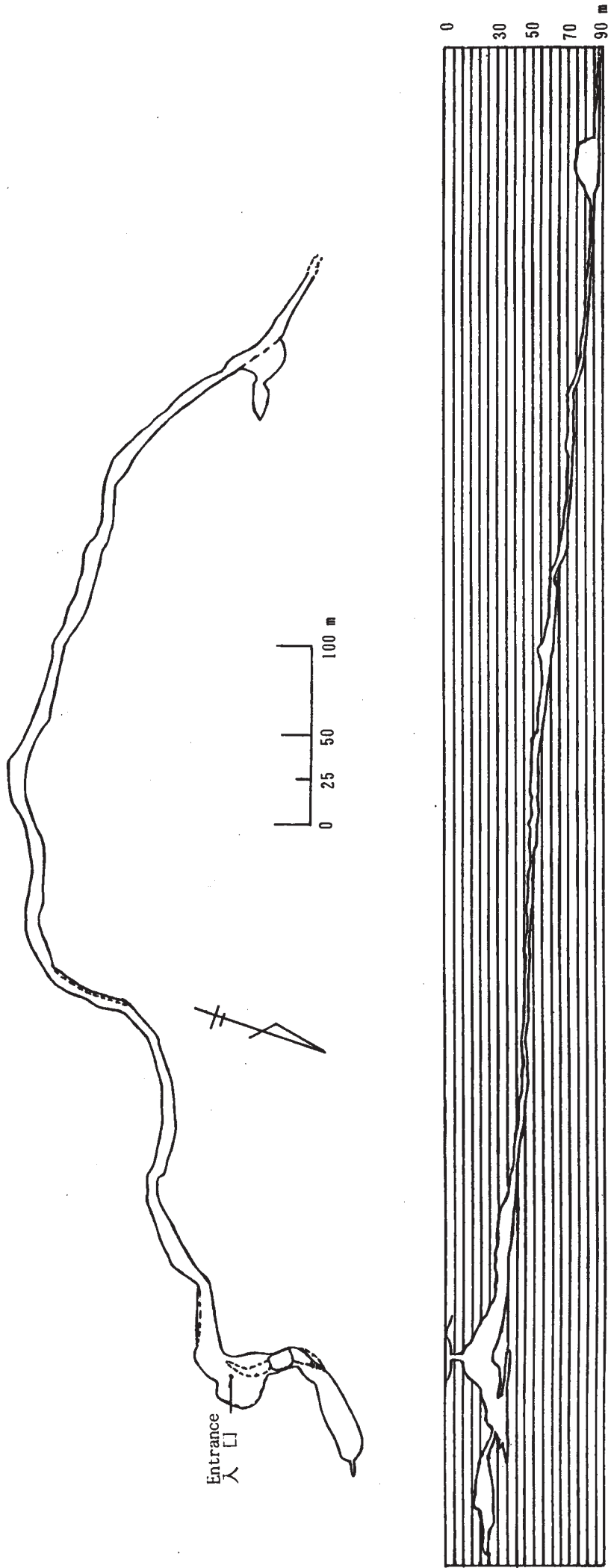


Figure 8-12 Banba Ana Cave

図 8-12 婆々穴