Le Karst du Massif du Falakro et la Résurgence de Maaras

Résultats des travaux hydrogéologiques et Topographiques

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GRECE du NORD

- PREAMBULE

L'objectif de cette résumé est d'établir un récapitulatif de nos investigations initiées par Me Anna PETROCHILOU en 1978. Les expéditions fut réalisé en collaboration de Mr AVALIANOS puis de Mr IANOPOULOS

Nous publierons en 2006, une étude scientifique sur le secteur du FALAKRO (Province de DRAMA Macédoine GRECE du Nord) en groupement avec nos collègues grecs

La collecte de ces données doit déboucher sur la modélisation de la dynamique hydrogéologique locale.

Nous pourrons ainsi donner une ébauche de sa restitution et une évaluation des potentialités hydrologiques.

1) History of exploratory expeditions:

Summer 1978:

Missis PETROCHILOU, who is the president of Greek caving society welcomed us in Athens and indicated us an area to study and a list of interesting caves to visit.

Missis PETROCHILOU advised us to dive in the resurging sources of Macedonia and introduced us to mister G. AVALAINOS who would later be our guide.

Photo: The first photo of the cave after siphon from CORDIER Vincent in 1978. - The story has began.

With our guide, we visited some old Greek mines near Athens. After that we were heading in the direction to northern Greece to the Macedonia. There, we visited the cave of ALISTRAS which is full of beautiful mineral concretions. From this cave, we realize a topographic map and a set of photo slides.

After this, we dove in the resurgence source of MAARAS. We went through the first eight meter long siphon. Behind this obstacle, we found a three hundred meters long free air gallery, of which we took topographic measures.

Mister AVALIANOS was accompanying us during this exploratory expedition.

Photo: 1 - CORDIER Régis et Vincent at the siphon 3
2 - REILE Pascal and CORDIER Vincent. Diving siphon 1980.

1978-1980:

The district chief of drama, and the engineer KAPAS initiate the important program concerning rock perforating and tunnel masonry at the entrance of the cave of MAARAS.

This artificial access, which is built bypasses the first eight meters long siphon.

Photo: Dynamite opening of the siphon number 2 called siphon NIKOS.

August 1981:

Thanks to the help of architect miss Anna BAZDEK, who was also our interpreters, our exploratory expeditions could progress further. We dove two siphons, one of three and the second of thirty meters. Behind these two siphons we discovered two kilometres of new gallery. We helped mister Nikos IOANINIS to go through the first siphon. In kind recognition of the courage of our friend, who was just discovering diving, this access was given his name.

Photo: The chamber called AKROPOLIS.
It was the first important discovery after the siphons.

Easter 1982:

The weather circumstances don't allowed us to dive in MAARAS. We investigate in the region looking for shafts or caves which could be connected with the underneath Karst system. A 138 meters deep shaft was discovered thanks to the help of an inhabitant hunter of OHIRON: mister CHRITOPHOS. During a farming accident he passed away So his short name CHRISTOS will be given to the shaft.

Summer 1983:

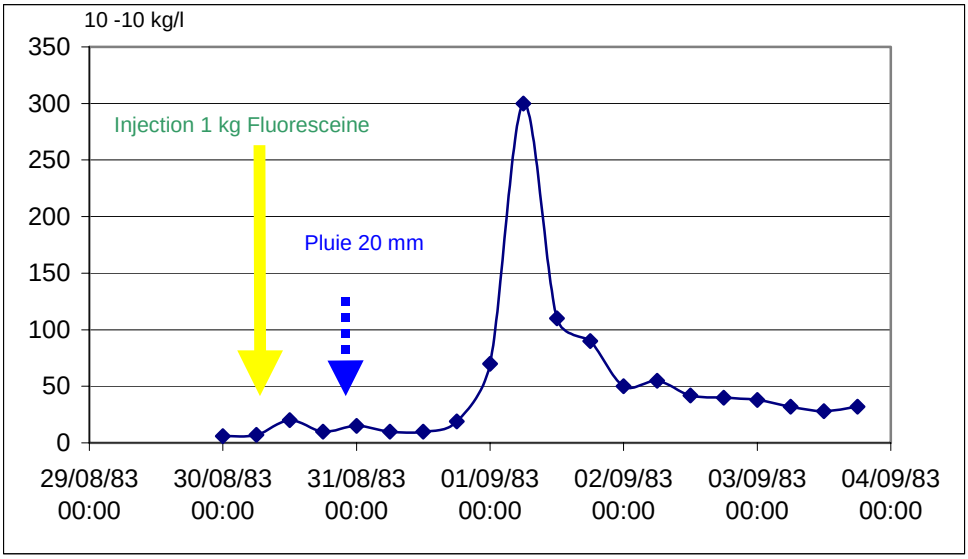
For a road a tunnel which bypasses the entrance area was built. During the works, palaeontologic layer was discovered in the gallery. This was a fossil over flood gallery of the cavity. Bones of rhinoceros were discovered there.

We went on exploring and we could pass through the S4 siphon which much difficulties. At this point, 4280 meters gallery were discovered at all.. An injection of fluoresce in co
lour was realized in the area of OHIRON at the point where the water is going under the earth.

- COLOUR TRACING RÉSULTAT DU TRAÇAGE DE LA KATAVOTHRE DE OHIRON

Le traçage a été réalisé à l'aide de 1 kg de fluorescéine en Aout-Septembre 83.

Courbe de restitution



Result : Time : 26 H 40 Km : 9000 metres
Déniv : 376 m Speed 341 m/heure

1992:

Works GREEK of tunnel building. Discovering of archeologic and paleontologic layers.

Building of the tunnel. Beginning of public visits.

Summer 1995:

During a short visit, we could see that our discovery was revalorised by local community and that arrangements were made to enable every public to access a part of the cavity. An exploration until S4 siphon gave us opportunity to find a violent current of air at this point . This passing awake our curiosity and would be a goal of a new exploratory expedition.

Photo : Pascal REILE in the siphon 7

Summer 1997:

We requested to be authorized to explore one more time the cavity. But the matter is connected with archeology and so the university and the ministry dont give us easily the
permission. At the end a contact with professor XEIDAKIS and the culture ministry representative Mrs IANOPOULOS, allowed us to receive a restricted permit under Mrs XEIDAKIS responsibility.

We began new explorations. The water stream was very low, of one cubic meter each second. The clearing of a bypass of the fourth siphon gave a good result. This bypass is a only five meter long little lake. It enable to short cut the sixty meters long siphon. After that, we could find one more time the already discovered gallery that continue to the point 4280 meter from the entrance.

Photo

In the futur the siphon would be more easy to cross after digging out the sand which obstruct near the roof of it. After that we explore until the

point 5871 meters, where the main gallery divide in two. Both ends with siphons. The first one is situated 6076 meters from the entrance . And the second 7791 meters. During this year, the topographic measures, at all 8544 meters long was totally achieved. Mister Nikos IOANINIS did explore the all gallery during the works of topography.

We received help from the representative of the district mister LEFTERI, who is the mayor of KOKINOIA.

Chemistry and temperature water studies would complete the colour tracing which we had previously done.

CHEMESTRY WATER ANALYST

Résultats des mesures du 06/08/97 à 5871 m de l'entrée.

Full Flow in the spring : **1.029 m3/seconde**

Temp .: 12.9°C

Cond. : 356 p siemens

pH : 7.6

Paramètres	**ZESTO POTAMOS** Affluent chaud	**KRIO POTAMOS** Affluent froid
Q	150 litres /seconde	60 litres /seconde
Temp	16,5 °C	12°c
Cond	389 µ siemens	320 µ siemens
PH	7,53	7,50
Po4	0,140 mg/l	0,469 mg/l
Carbonates	320,86	241,26
Sulfates	10,40	8,99
Chlorures	2,12	1,44
Nitrates	**7,8**	2,5
Fluor	0,69	0,56
Sodium	4,2	3.8
Potassium	2,7	1,9

Le zesto potamos est influencé par des drainages de bordure du polje ou l'agriculture se développe de manière notoire.

Fish in the Krio potamos : in 5871 m of the Entrance

Line of Manganese in the Cave

Summer 2000:

We brought the diving equipment in the cave of MAARAS to the old S5 siphon and where after the gallery is divided in two. We reached the siphon number six. The water is muddy because of the storm of the previous days. In all the cave the level of the water is very low, that is to say about ten centimetre less than three years ago. And this level continue to lower in spite of rains.

The siphon number six is thirty meters long. It is muddy. And after that we discovered and topographic measures of 1500 meters galleries. The river gallery follow its course until a siphon again at point 7500 meter distance from the entrance. This gallery become parallel with a large fossil gallery during about 500 meters This fossil gallery is collapsed at a point of it. We dove into the siphon number seven at 7800 meters far from the entrance, but without success. Water is muddy and we could explore until point 15 meter deep. The siphon goes probably deeper, and is almost filled with sand. We explored also both of the starts of galleries at the point where outside the water disappear under the earth. The first one gives access to a little siphon 25 meters long and 10 meters deep. The second one , after a short digging out and descending a 10 meters shaft is occupied by water at this point.

We tried colour tracing in this area where water goes under the earth. We wanted to know which part of the Maaras cave this water feeds. But it was difficult to realize because it was not raining since a week and water was pumped to irrigate the agricultural fields of the polje (= a kind of dry valley). Nevertheless we demanded to have a necessary volume of water to the mayor administration.

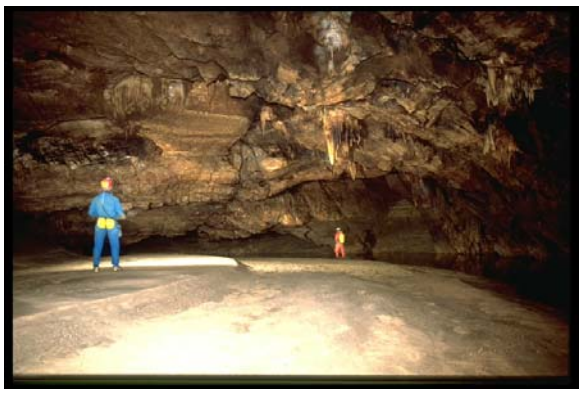


Photo Marbles and Manganese litho logy

So finally we could experiment the colour tracing with five cubic meters of water delivered by a firemen truck and a kilogram of fluoresceine colour. In the previous exploration such a tracing was a success, but now it was not the case. The transit was slow and it is difficult to make use of the restitution of the colour, because organic material contaminate it.

Diving in the last two siphons in Maaras cave has added 1500 meters of topographied galleries. Then now totality of developed galleries are 10 040 meters. In the Maaras cave, today nobody has dove the 'Krio potamos'. And may be it is possible with a better equipment to obtain success at the siphon number 7 that's to say with more air bottle and a Fenzy buoy.

Summer 2003:

We did a set of exploration in the area, but water conditions don't allow us to full fill all our planified program. The team of Greek and French cavers keep on exploring the area. A lot of rains and inundations over flooded the disappearance points of the river in the mountain.

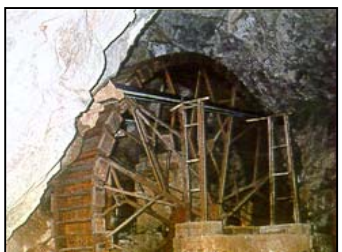
The Greek team a week in advance in the program has dove one more time the ending siphon . The diver went a few meters more and reach the depth of 30 meters. A cave situated Drama north east is promising a lot.

Photo : Greek team an terminal cave

PROSPECTIVES

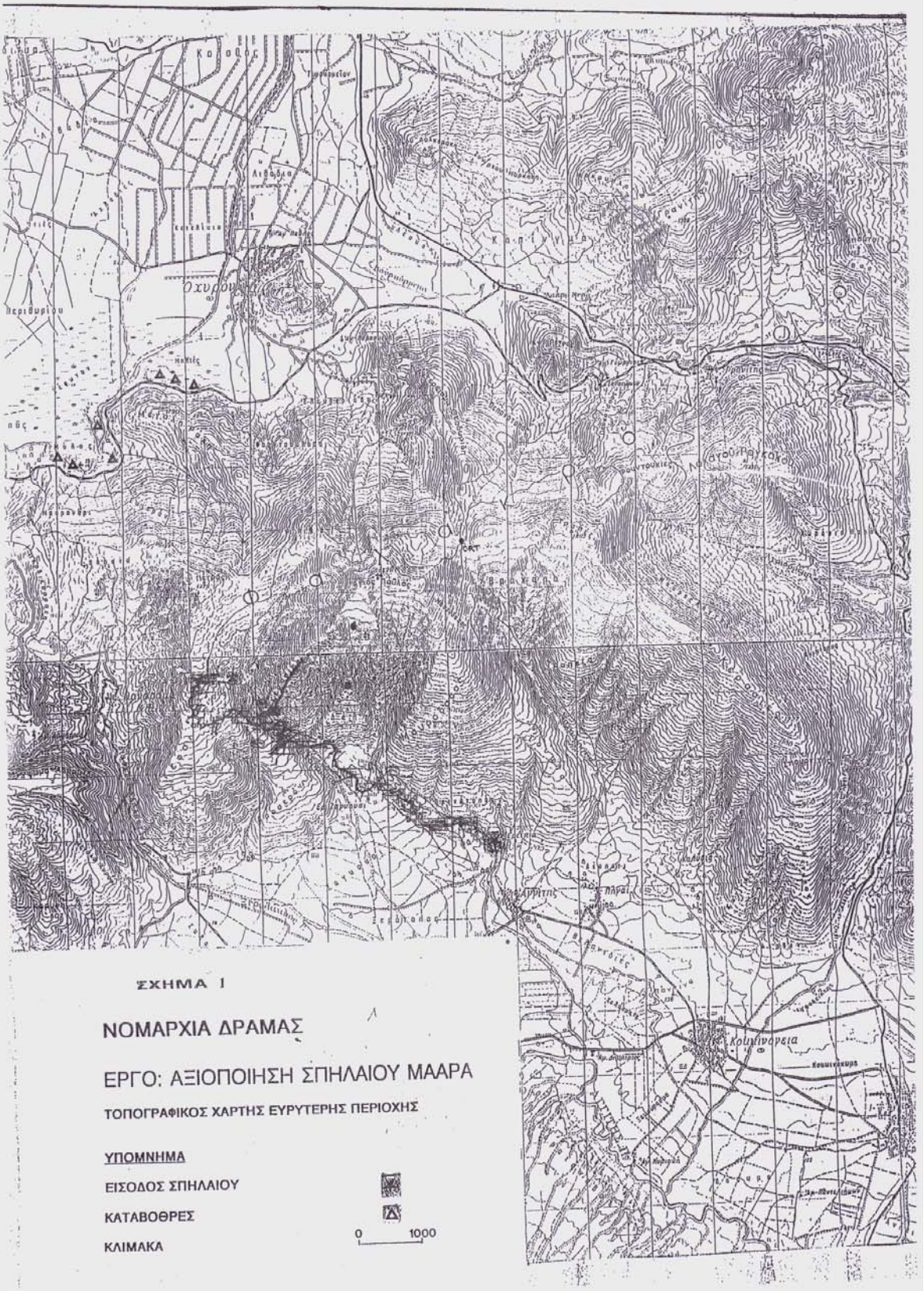
In the future , the work of the team Greek et French will be focused on the study and revalorisation of the 3 great sources of the Falakro mountain :

- Maras,
- Milopotamos,



- Drama sources.

And the polje of Katonevrocopi/Ohiron



ΣΧΗΜΑ 1

ΝΟΜΑΡΧΙΑ ΔΡΑΜΑΣ

ΕΡΓΟ: ΑΞΙΟΠΟΙΗΣΗ ΣΠΗΛΑΙΟΥ ΜΑΑΡΑ

ΤΟΠΟΓΡΑΦΙΚΟΣ ΧΑΡΤΗΣ ΕΥΡΥΤΕΡΗΣ ΠΕΡΙΟΧΗΣ

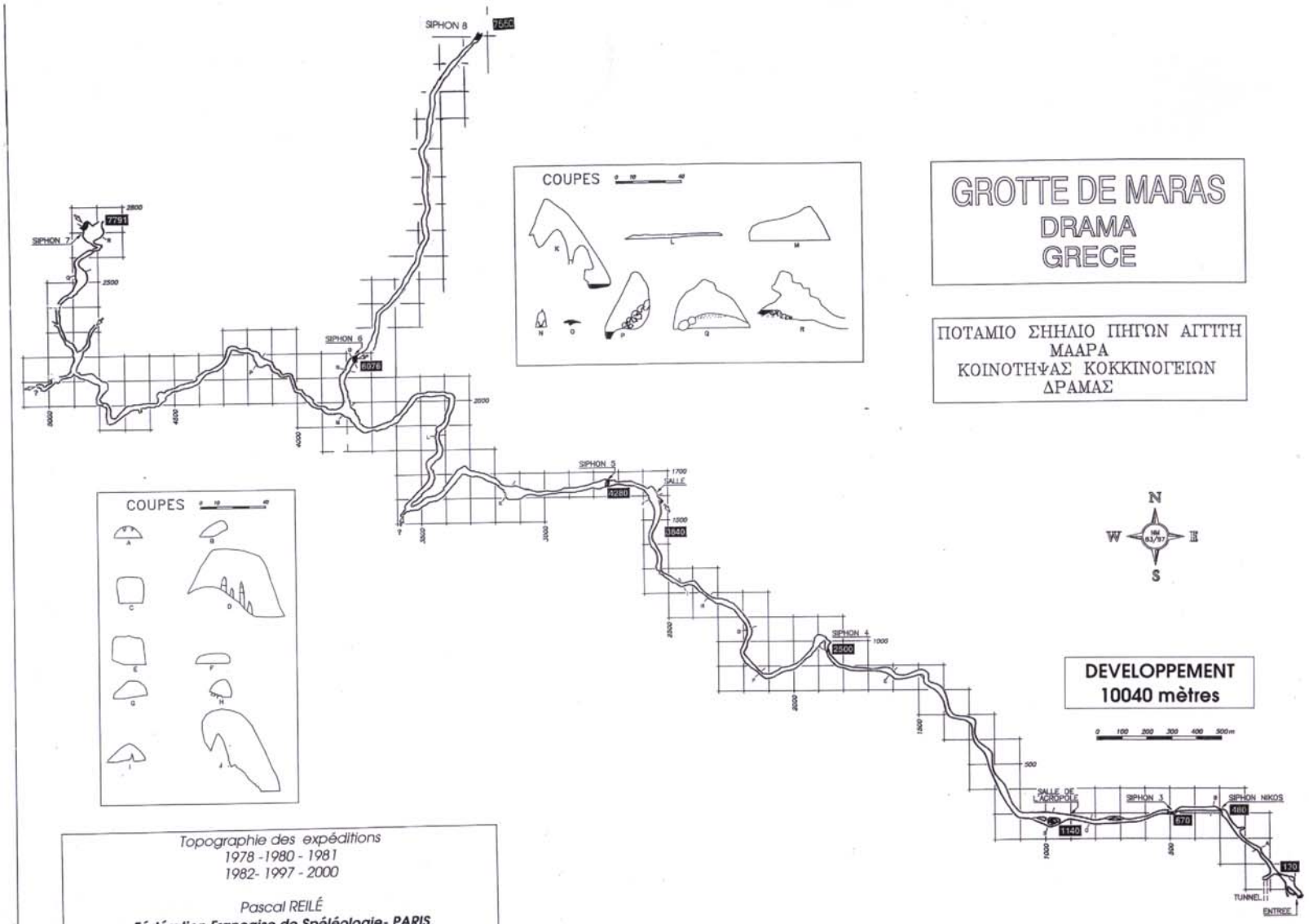
ΥΠΟΜΝΗΜΑ

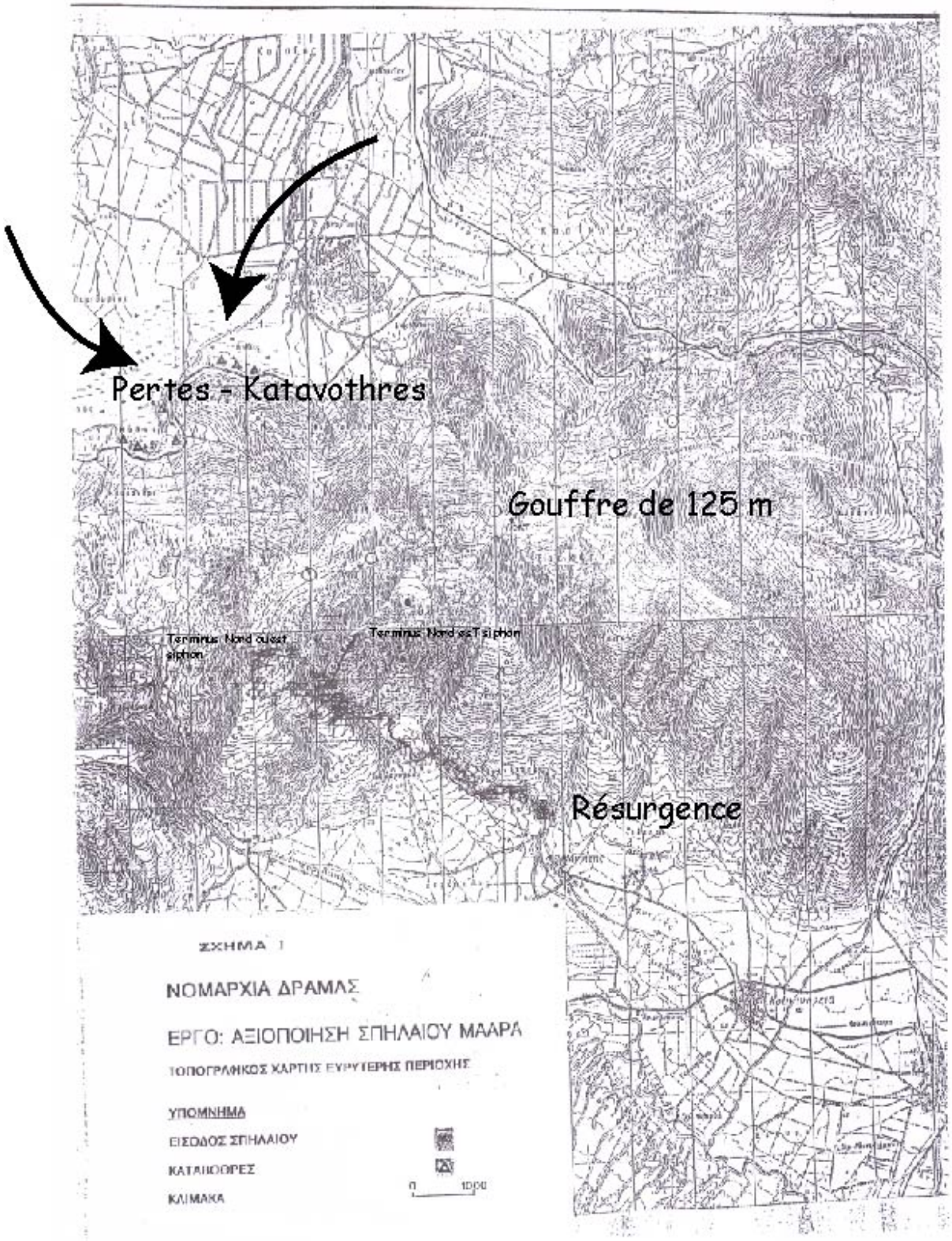
ΕΙΣΟΔΟΣ ΣΠΗΛΑΙΟΥ

ΚΑΤΑΒΟΘΡΕΣ

ΚΛΙΜΑΚΑ

0 1000


SIPHON 8
7550
SIPHON 7
7791
SIPHON 6
6076
SIPHON 5
4280
SIPHON 4
2500
SALLE DE L'ACROPOLE
1140
SIPHON 3
670
SIPHON NIKOS
480
120
TUNNEL
ENTREE
COUPES
GROTTE DE MARAS
DRAMA
GRECE
ΠΟΤΑΜΙΟ ΣΗΗΛΙΟ ΠΗΓΩΝ ΑΓΤΙΤΗ
ΜΑΑΡΑ
ΚΟΙΝΟΤΗΨΑΣ ΚΟΚΚΙΝΟΓΕΙΩΝ
ΔΡΑΜΑΣ
N
W
E
S
DEVELOPPEMENT
10040 mètres
Topographie des expéditions
1978 -1980 - 1981
1982- 1997 - 2000
Pascal REILÉ
Fédération Française de Spéléologie- PARIS


Pertes - Katavothres
Gouffre de 125 m
Terminus Nord ouest siphon
Terminus Nord est Siphon
Résurgence
ΣΧΗΜΑ 1
ΝΟΜΑΡΧΙΑ ΔΡΑΜΑΣ
ΕΡΓΟ: ΑΞΙΟΠΟΙΗΣΗ ΣΠΗΛΑΙΟΥ ΜΑΑΡΑ
ΤΟΠΟΓΡΑΦΙΚΟΣ ΧΑΡΤΗΣ ΕΥΡΥΤΕΡΗΣ ΠΕΡΙΟΧΗΣ
ΥΠΟΜΝΗΜΑ
ΕΙΣΟΔΟΣ ΣΠΗΛΑΙΟΥ
ΚΑΤΑΠΟΡΕΣ
ΚΛΙΜΑΚΑ
0
1000

1978	1980	1981	1982	1983
Avalianos Giorgos Cordier Régis Cordier Vincent Filippi Elisabeth Ioannidis Nikos Laethier pascal Reile Pascal	Cordier Régis Cordier Vincent Filippi Elisabeth Ioannidis Nikos Laethier pascal Reile Pascal	Cordier Régis Cordier Vincent Filippi Elisabeth Ioannidis Nikos Laethier pascal Reile Pascal	Cordier Vincent Filippi Elisabeth Ioannidis Nikos Trouillot Gérard Trouillot Chritine Reile Pascal	Cordier Régis Cordier Vincent Filippi Elisabeth Ioannidis Nikos Laethier pascal Reile Pascal

1995	1997	2000	2003
Filippi Elisabeth Ioannidis Nikos Reile Pascal Xeidakis G.S	Durlet Pierre Filippi Elisabeth Ioannidis Nikos Giannopoulos V Langlois Dominique Langlois Marie Trouillot Gérard Trouillot Quentin Reilé Adeline Reilé Benoit Reile Pascal Trouillot Gérard Xeidakis G.S	Cailhol Didier Cailhol sylvie Filippi Elisabeth Durlet Pierre Giannopoulos V Langlois Dominique Langlois Marie Laureau Pierre Nicod Lionel Reilé Benoit Reile Pascal Trouillot Gérard	Filippi Elisabeth Reilé Benoit Reile Pascal Giannopoulos Vassili * Divers * Speleologist