NO LIMITS, NO BOUNDARIES: A VIEW OF KARST AS THE TYPICAL TRANS-BOUNDARY ENVIRONMENT

Mario Parise

National Research Council
Institute of Research for the Hydrogeological Protection

Landscape

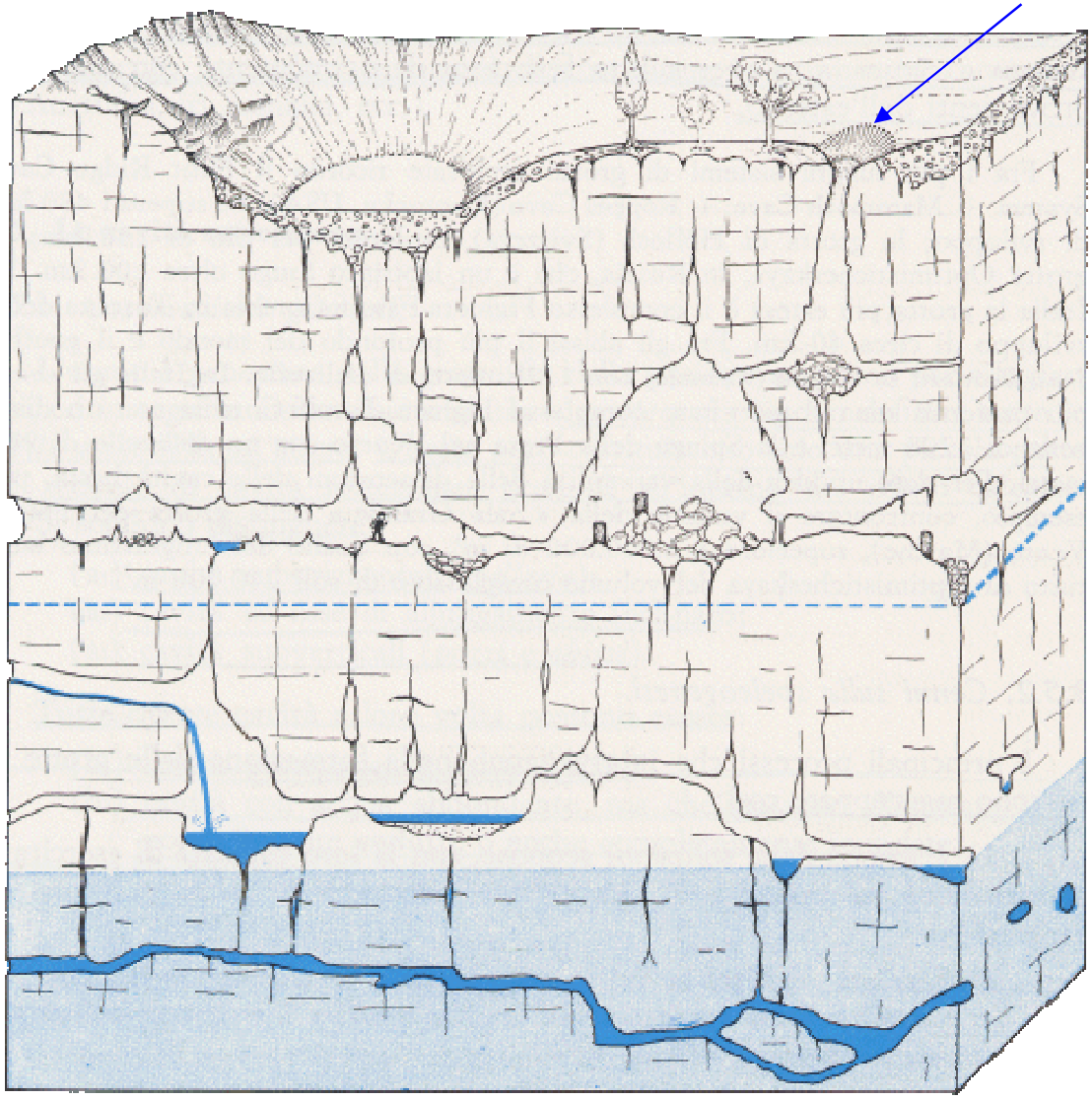
With or without boundaries….

Physical vs. political boundaries

Karst landscape

Doline

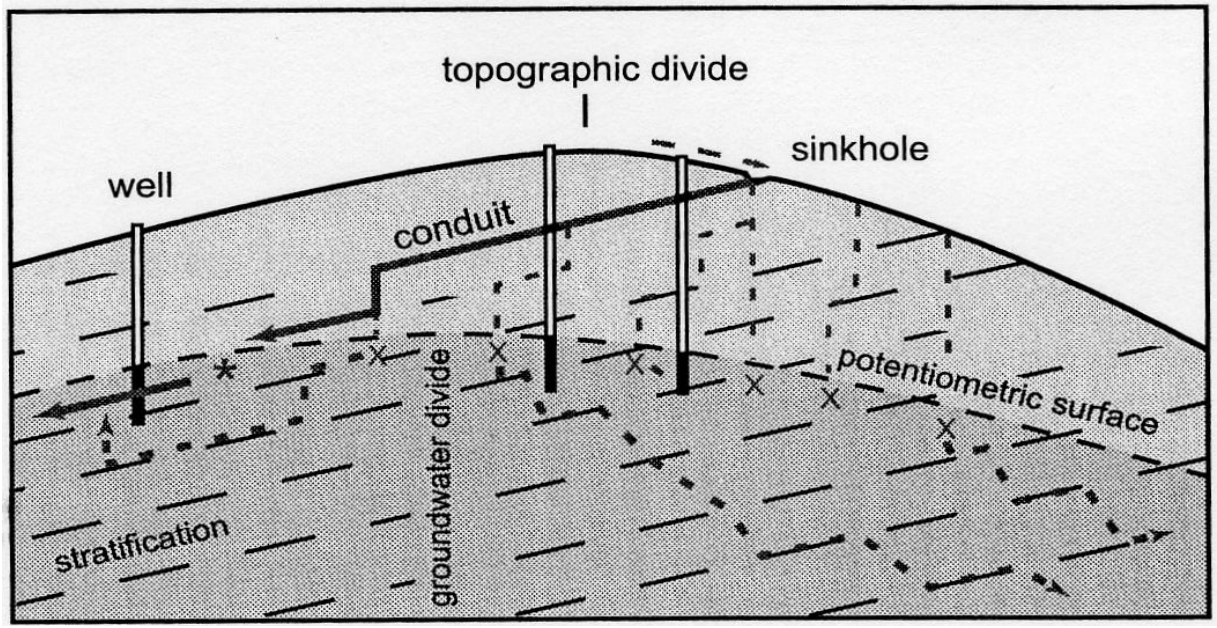
Swallow hole (ponor)



Vadose zone

Phreatic zone

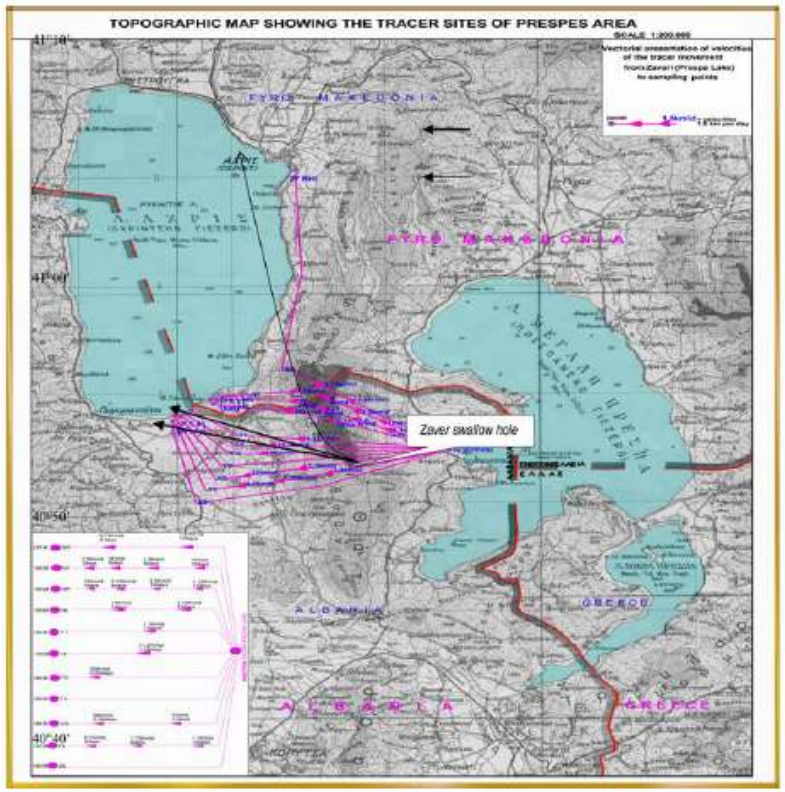
Influence of the stratigraphic setting on the infiltration water



Palmer, 2007

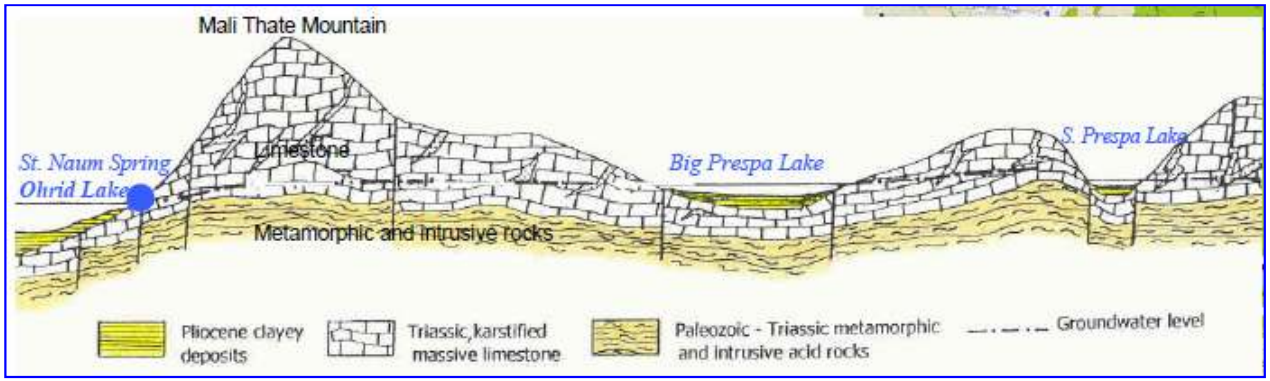
Infiltrating water, before reaching the water table, may move without being conditioned by the topographic divide, or by the underground one. A potential contaminant in the sinkhole can follow the bedding to reach the water table at the star in the figure. Further flows from the sinkhole or infiltrations through minor fractures may transport contaminants at other sites (i.e. those marked by X).

Trans-boundary waters

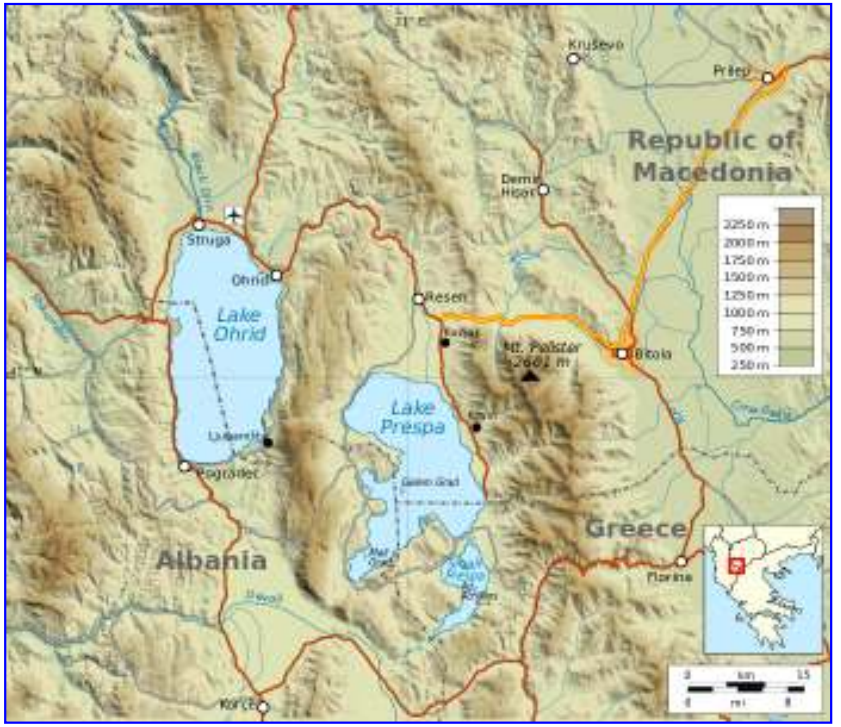


Lake Ohrid and Lake Prespa, at the borders among Macedonia, Albania and Greece.

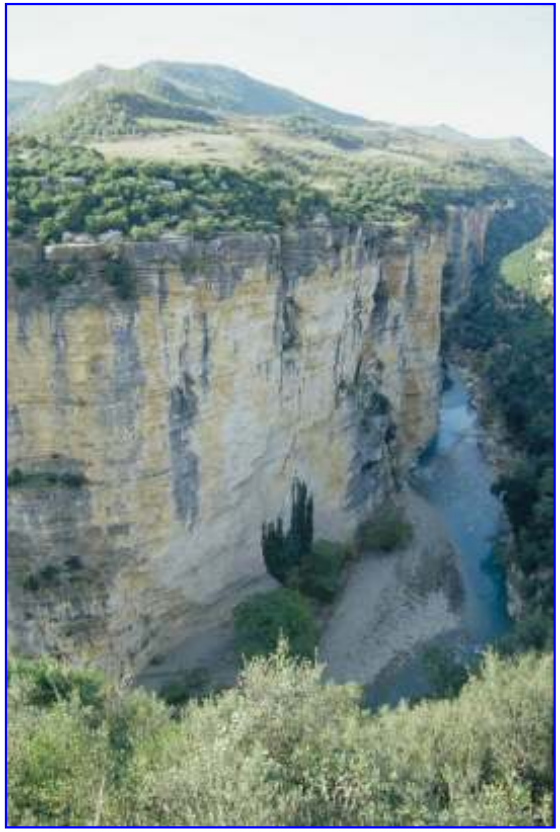
Amataj et al., 2007



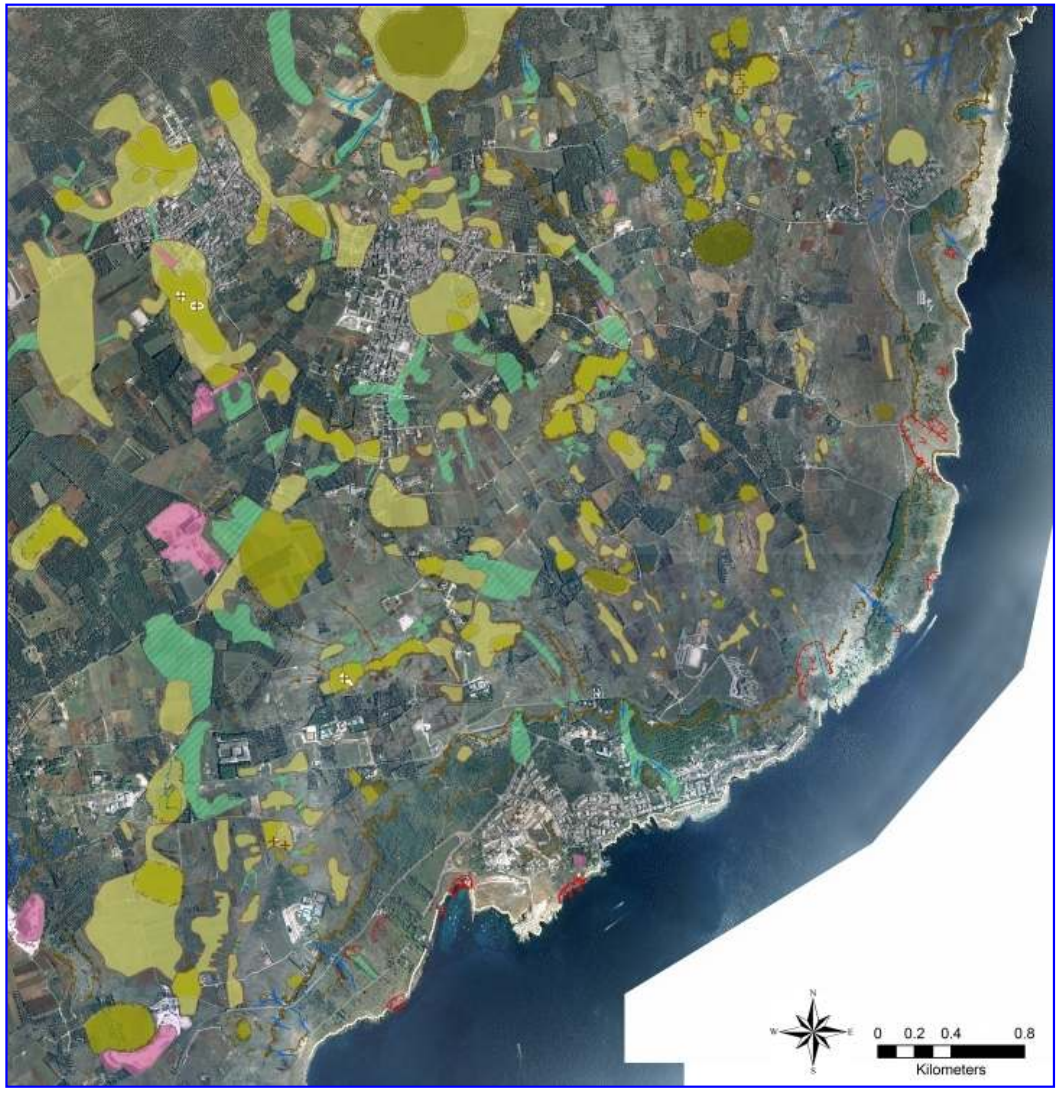
Eftimi, 2008



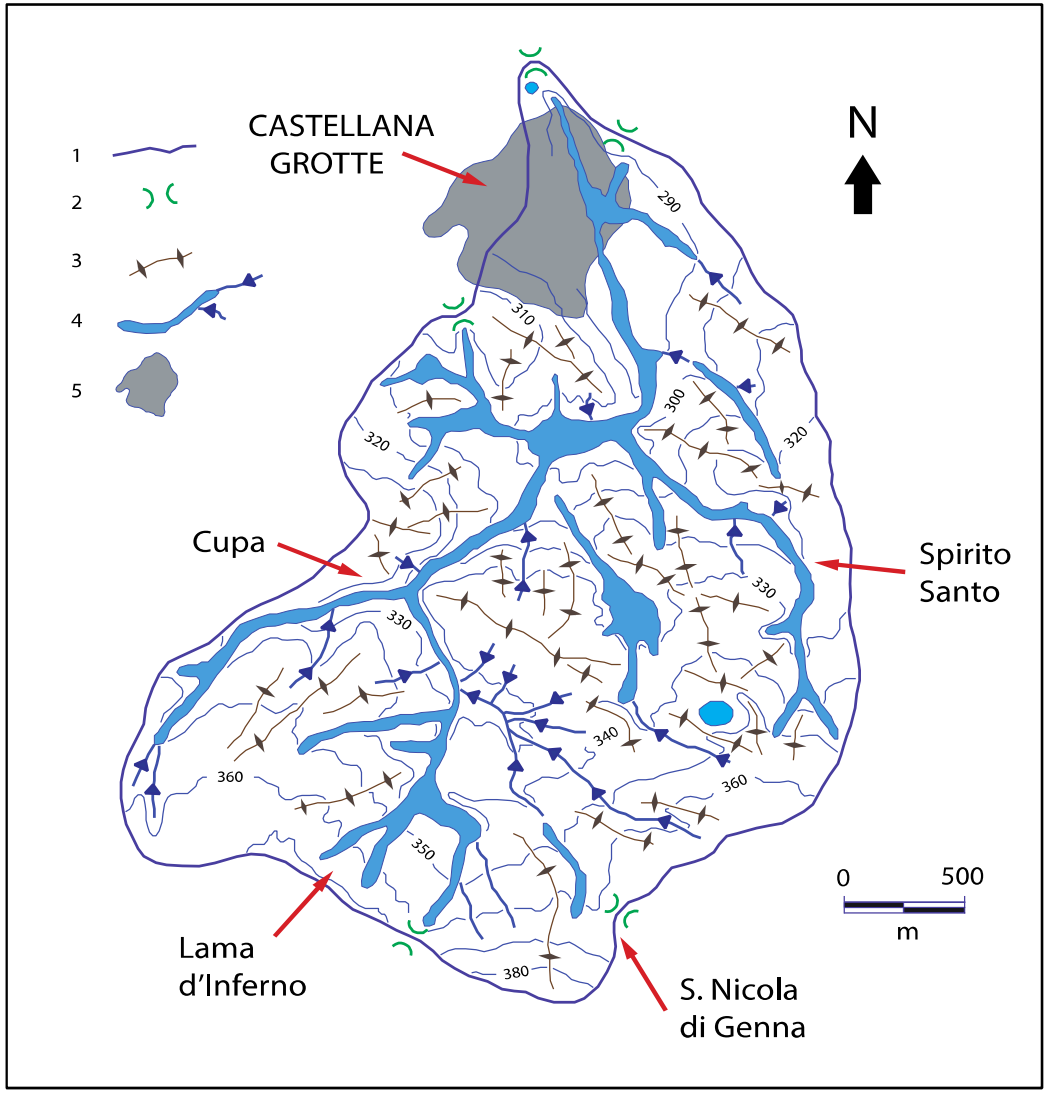
Karst landscapes



Karst geomorphology



Pepe and Parise, 2012



Parise, 1999

Too much water……

Altamura, Italy – *photo: V. Martimucci*

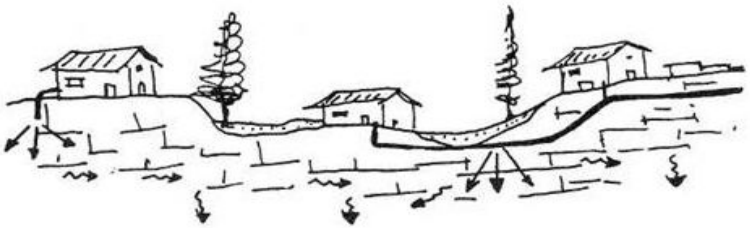
Conversano, Italy

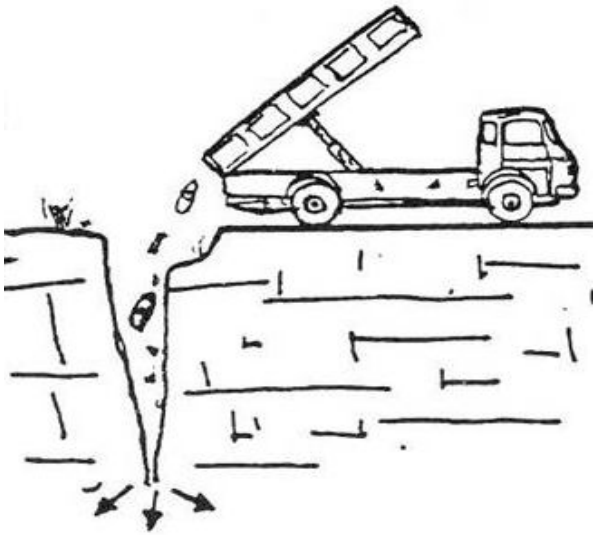
Vinales, Cuba – *photo: H. Farfan Gonzalez*

Pollution

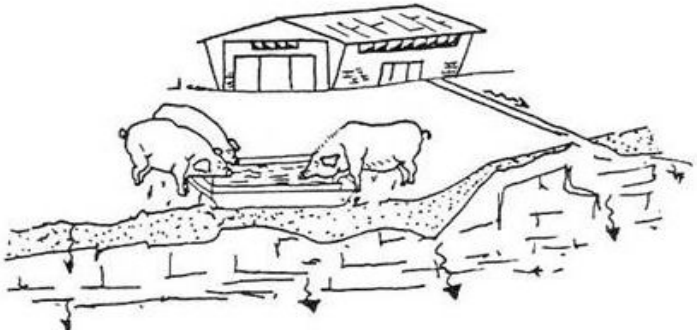
Sources of anthropogenic pollution :

- civil (sewers, landfills...)

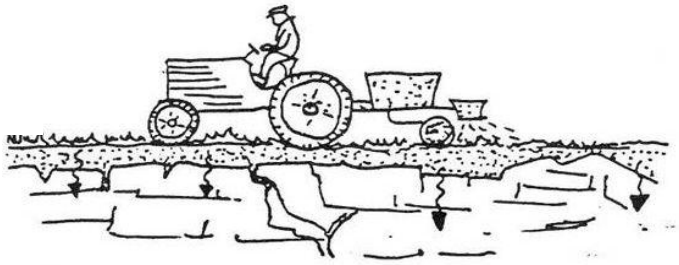


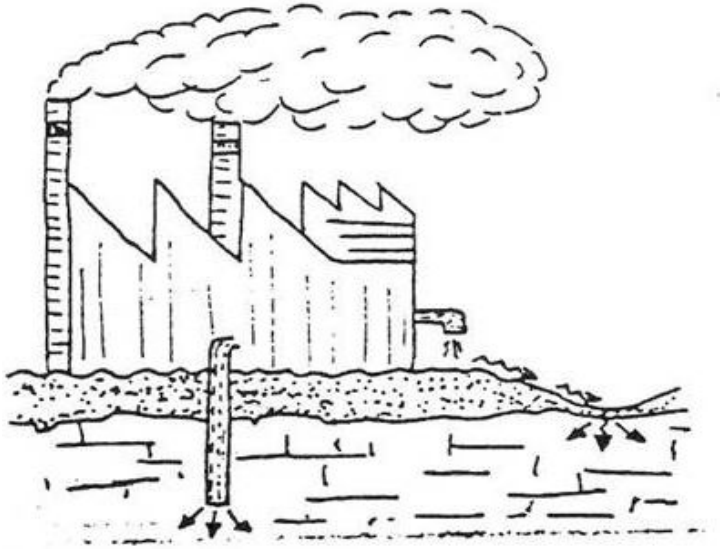


- industrial



- zootechny
- agricultural





Bussento, Italy – *photo: N. Damiano*

Bussento, Italy – *photo: T. Mitrano*

Bussento, Italy – *photo: U. Del Vecchio*

Ugento, Italy – *photo: M. Parise*

Resilience

initially proposed in the 70's in the field of ecology as a core concept within ecosystems.

It has been widely used in recent years, as the ability of a system to absorb perturbation or disturbances.

As concerns natural disaster, resilience is the **capacity to resist and recover from disaster losses**.

Three components:

- ✓ response to disturbance;
- ✓ capacity to self-organize; and
- ✓ capacity to learn and adapt.

ANTHROPOGENIC IMPACT ON KARST

The impact deriving from anthropogenic activities in karst areas can be evaluated

th

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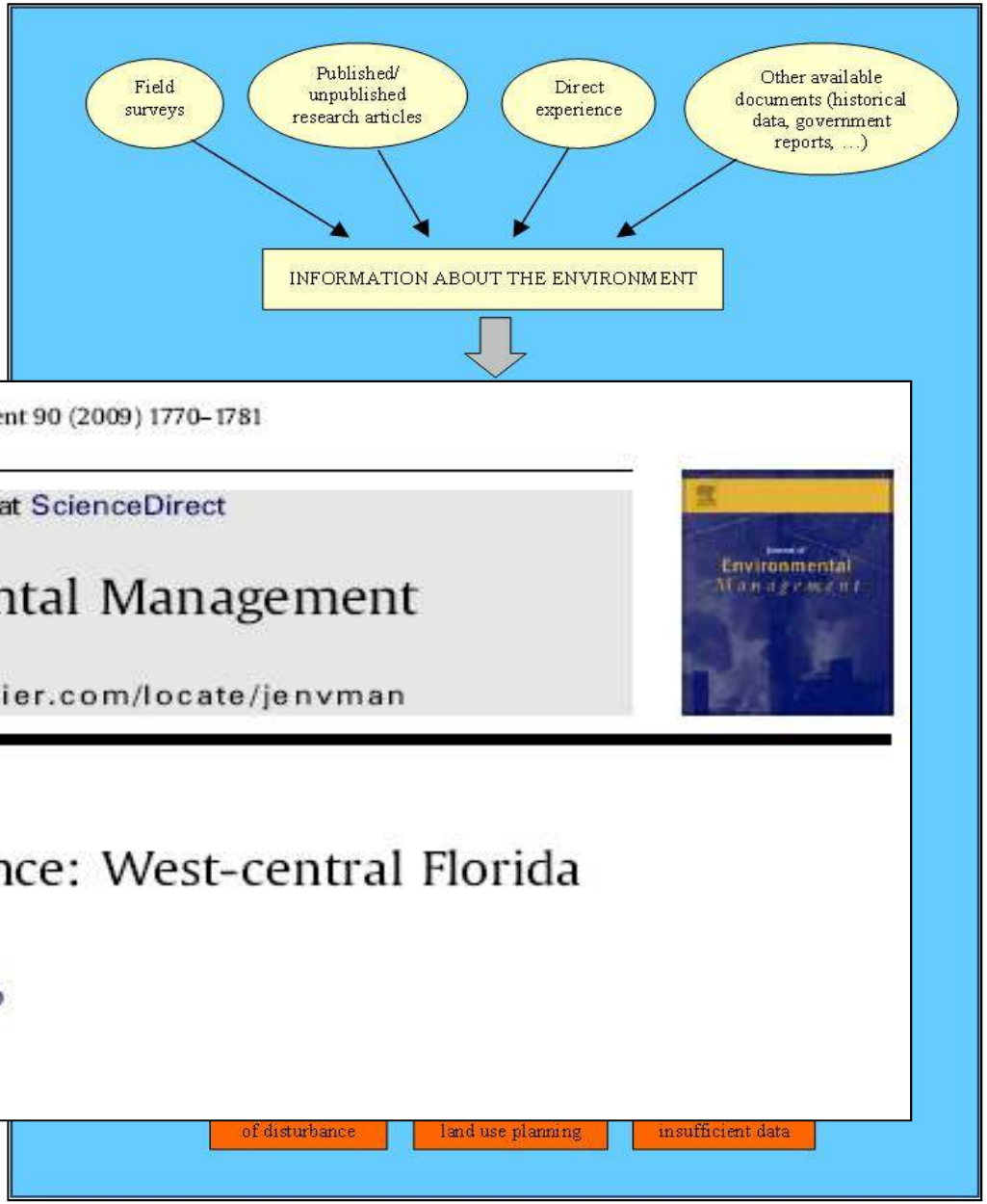
is



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ELSEVIER

Interregional comparison of karst disturbance: West-central Florida and southeast Italy

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[b] Italian National Research Council, Bari, Italy

Calò and Parise, 2006

Conclusions

Link among scientists, politicians, stakeholders and administrators

Goal: **safeguard** of karst aquifers and of biodiversity in karst

Trans-boundary = crossing political or administrative borders.

That's what water does… Let's follow water!

Looking at the world as a unique entity, without limiting our interest to political and/or administrative borders.

Sustainable development in karst

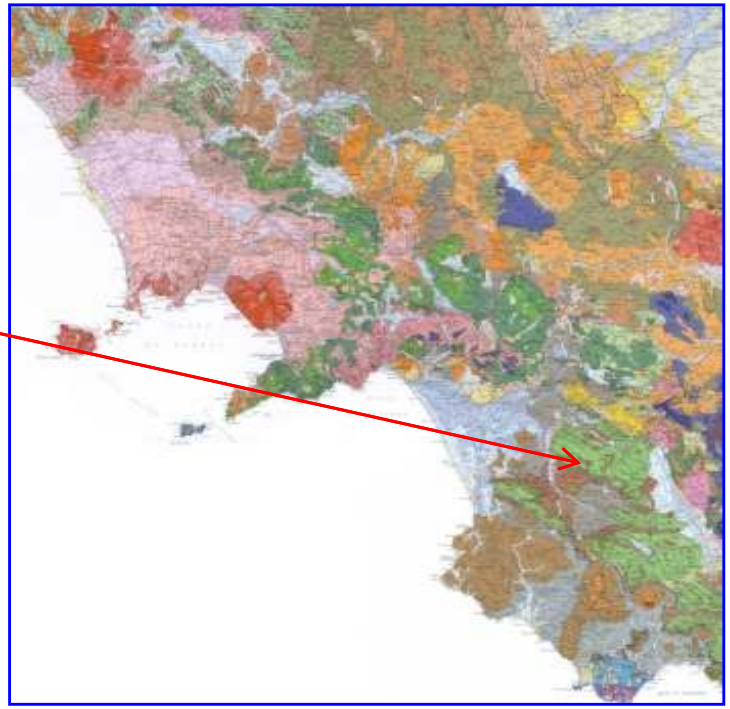
INCREASING PEOPLE'S AWARENESS ABOUT THE IMPORTANCE OF KARST LANDSCAPES AND AQUIFERS: AN EXPERIENCE FROM SOUTHERN ITALY

Berardino Bocchino[1], Umberto Del Vecchio[1], Laura De Nitto[1], Francesco Lo Mastro[1], Michele Marraffa[1], Francesco Maurano[1], Gianluca Minieri[1], Mario Parise[1,2] and Marco Ruocco[1]

[1] Alburni Exploration Team

[2] National Research Council, Inst. Research for the Hydrogeological Protection

Cilento,
Campania region,
southern Italy



ALBURNI MOUNTAINS

ALBURNI: HIGHER NUMBER OF CAVES THAN IN OTHERS CARBONATES MASSIFS OF CAMPANIA

Geological and morphological conditions favorable for development of karst (over 400 caves registered)

- Cretaceous-Tertiary limestones more prone to karst

- uplifting and formation of a top plateau

- formation of closed catchments filled by flysch deposits (many swallets at the contact)

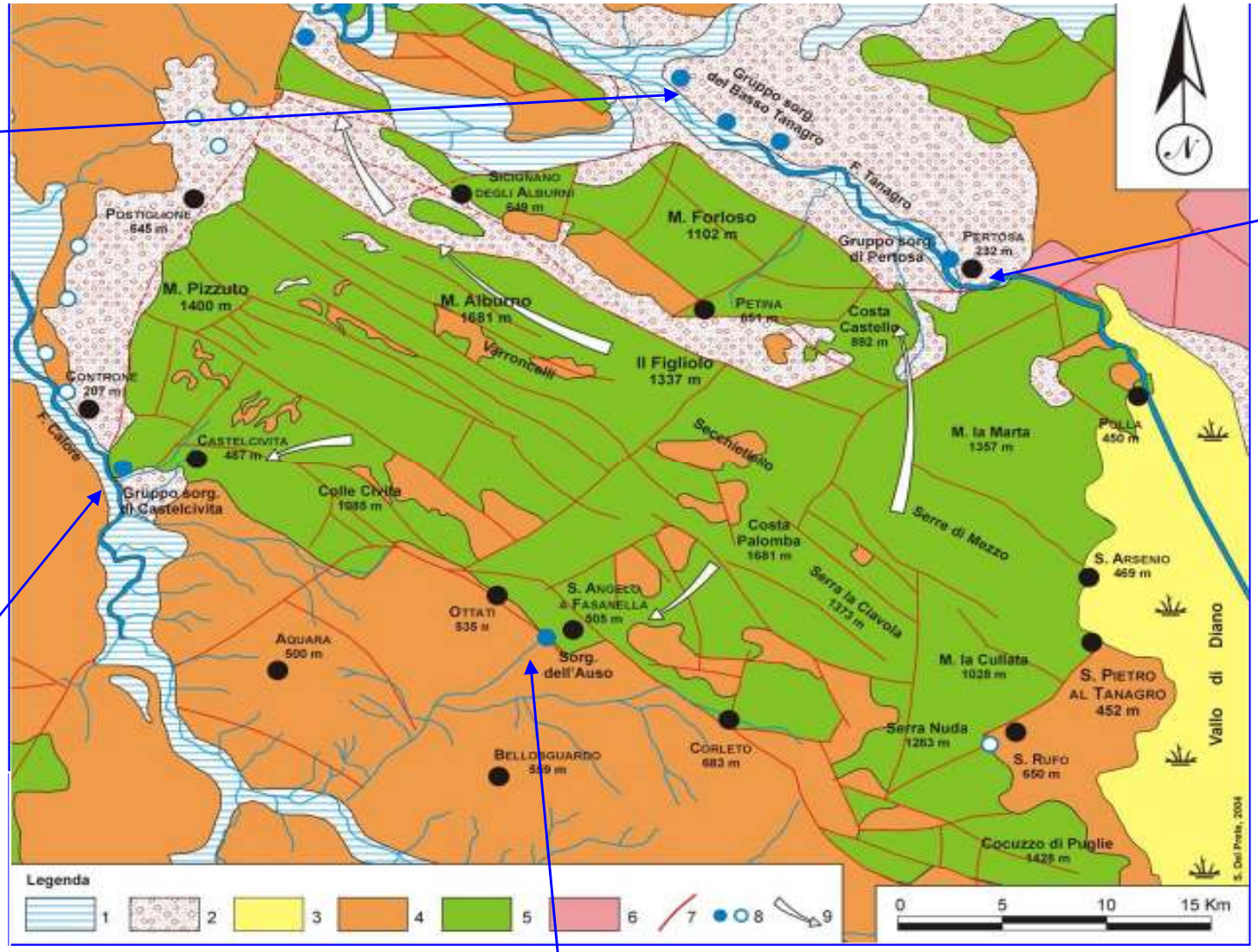
Many karst systems are in communication with springs at the base of the massif

Low Tanagro

4000 l/s

Pertosa

2000 l/s



Castelcivita

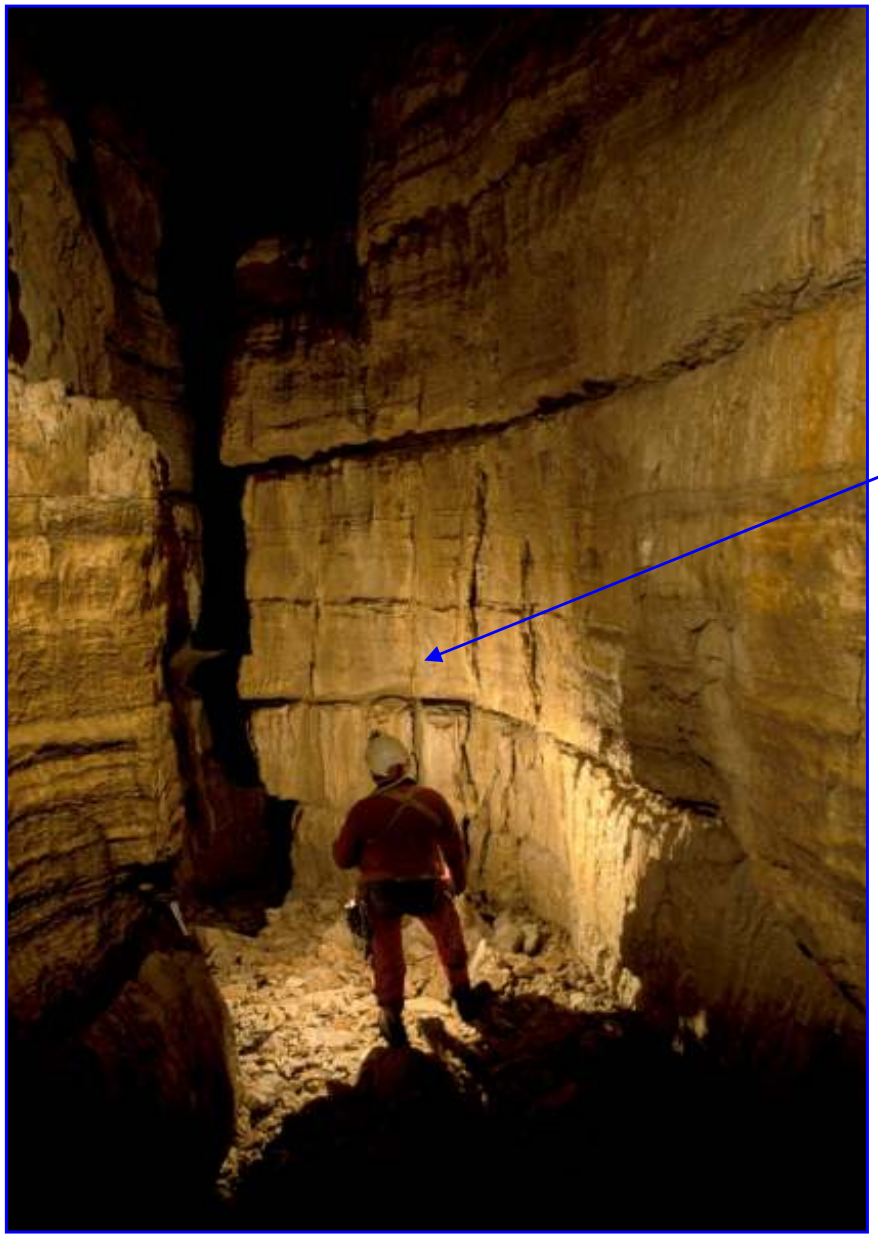
3000 l/s

Auso 1000 l/s

Faults are mostly sub-vertical

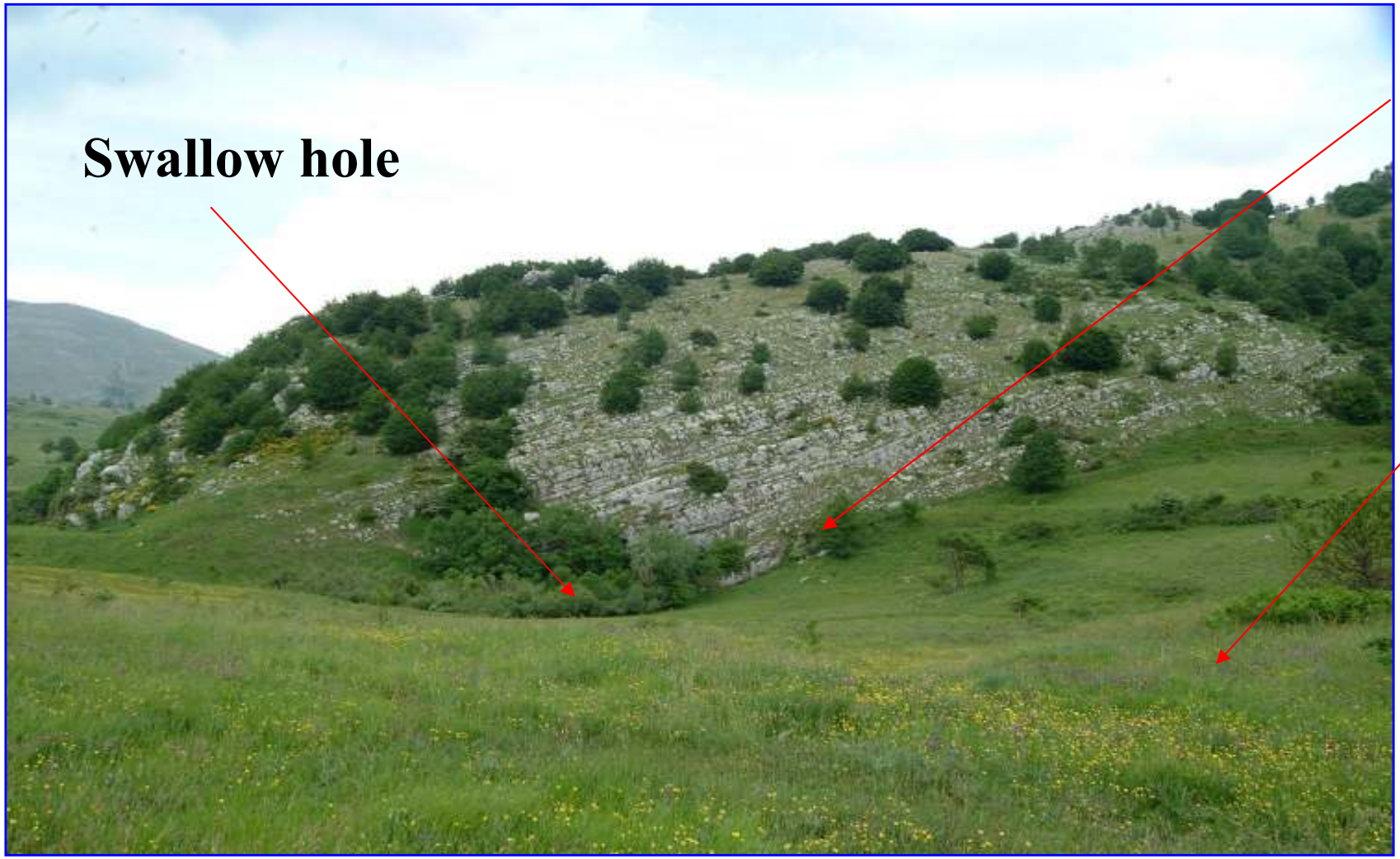
This tectonic style favors the formation of deep sub-vertical pits, in most of the cases separated and without communication

MORPHOLOGY



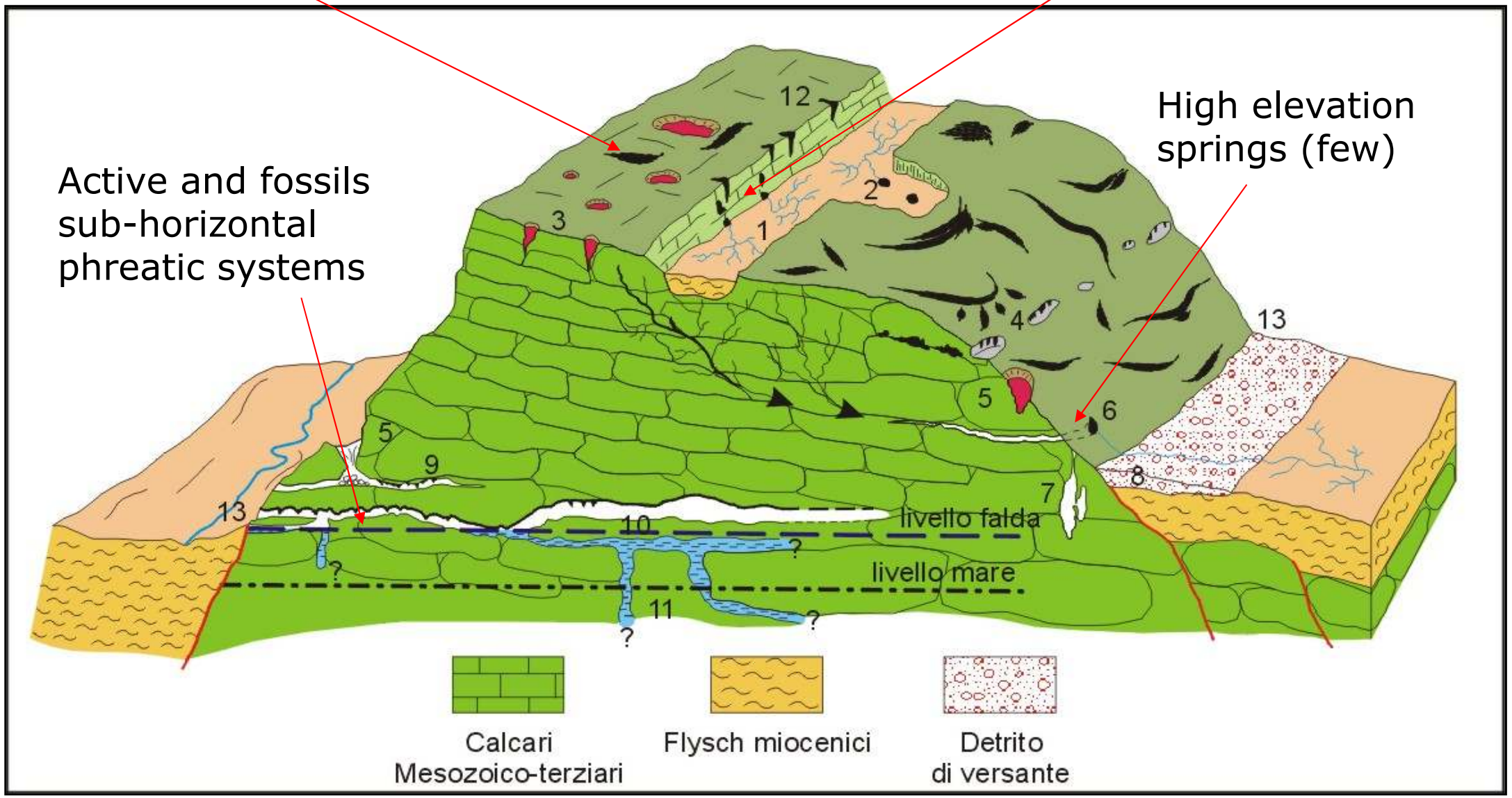
Typical meanders and pits that follows the main discontinuity systems in the massif

Endhoreic basins with clay materials

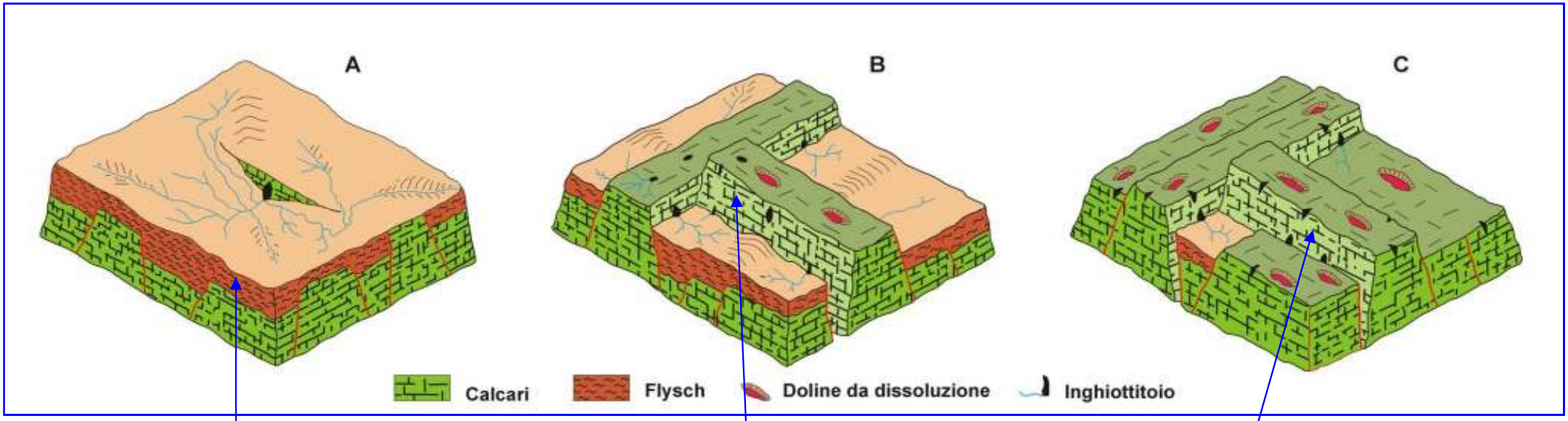


High number of surface features (dolines)

Systems swallow holes – vertical pits



Geomorphological evolution of the plateau and formation of swallow holes (ancient and recent)



Wide coverage of flysch (large basin with single swallet, central sector of Alburni)

(Fumo – Fra Gentile)

Erosion begins to affect the flysch, formation of small basins and many minor swallets

(Auletta, Pila, Inverno)

Erosion continues, active swallow holes migrate at lower elevation and fossil swallets are on the rockwalls

(Grotta dei Vitelli)

Explorations in Alburni begin during the ' 20s by the Commissione Grotte Eugenio Boegan (CGEB - Trieste).

1952, 1953, 1960 to 1973, 1980, 1985,1992

Grottoes active in the massif (years '20s -' 70s)
CGEB - Commissione Grotte Eugenio Boegan
GS CAI Napoli
CSM – Circolo Speleologico Meridionale
CSR – Circolo Speleologico Romano
SCR – Speleo Club Roma

In the '80s adoption of the new techniques of progression gives new life to the activities in the Alburni Massif.

The Ausineto, a mountain dew in the municipality of S. Angelo a Fasanella, becomes the base camp for the new explorations.

AIRES is born – Associazione Intergruppi Ricerche ed esplorazioni Speleologiche.

1995

The main outcome of this golden era for the speleological activity is the book

Monti Alburni
speleological researches

authors Francesca Bellucci, Italo Giulivo, Lucio Pelella and Tonino Santo, all from GS CAI Napoli.

The book is still today an unvaluable scientific document for the knowledge of geological and karst features of Alburni

In 2008, during the national speleological meeting in Valle Imagna, the two speleological federations from Apulia and Campania proposed a new coordination for the activities in Alburni, aimed at concentrating the efforts toward specific objectives and goals.

In december 2008 at Summonte (Avellino) a new team was formed, working also by using web tools.

Alburni Exploration Team

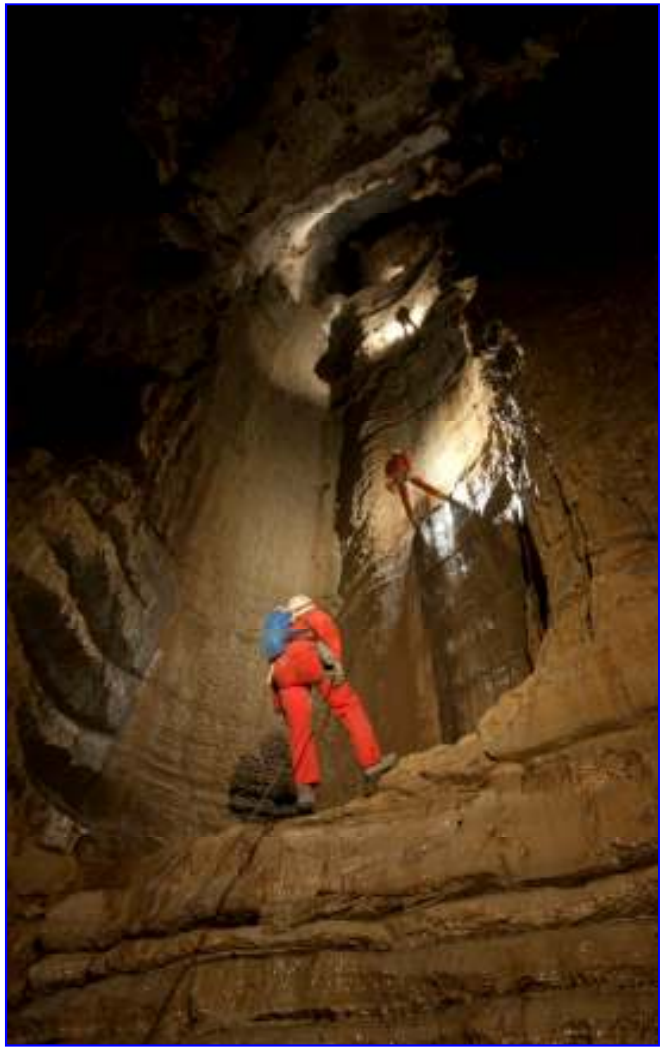
Alburni Exploration Team and the web

http://www.fscampania.it/alburni/index.htm

Electronic notebook where all the activities (from explorations, to meetings, etc.) are recorded, available to all members in order to share results and informations

Alburni Exploration Team: a new goal

- Involvement of local inhabitants
- Education of young generations: contributing to provide them with a different perspective of looking at their own land
- Photo and video shows in the main squares
- Direct partecipation of locals to caving activities (logistics, preparation, support, etc.)

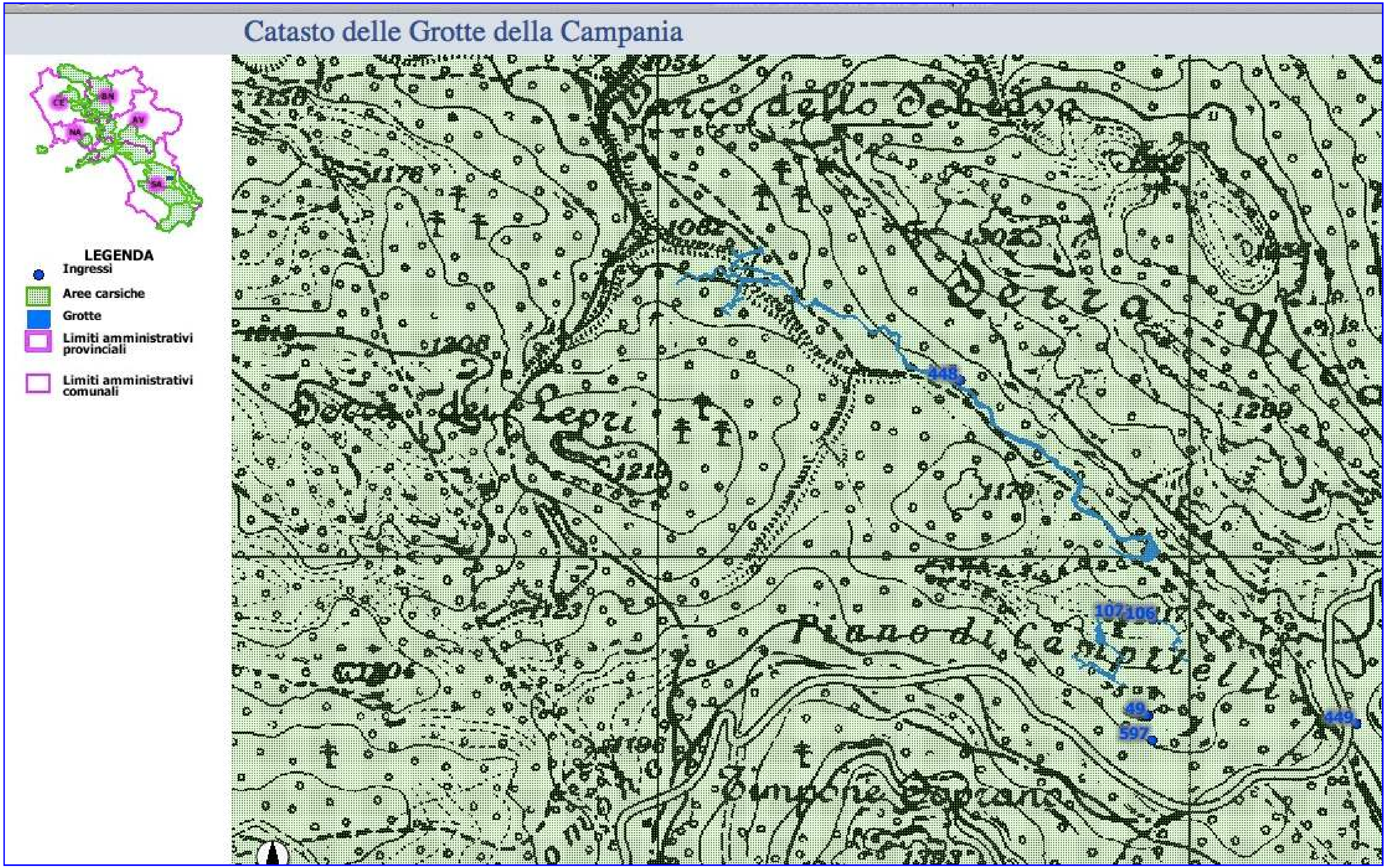


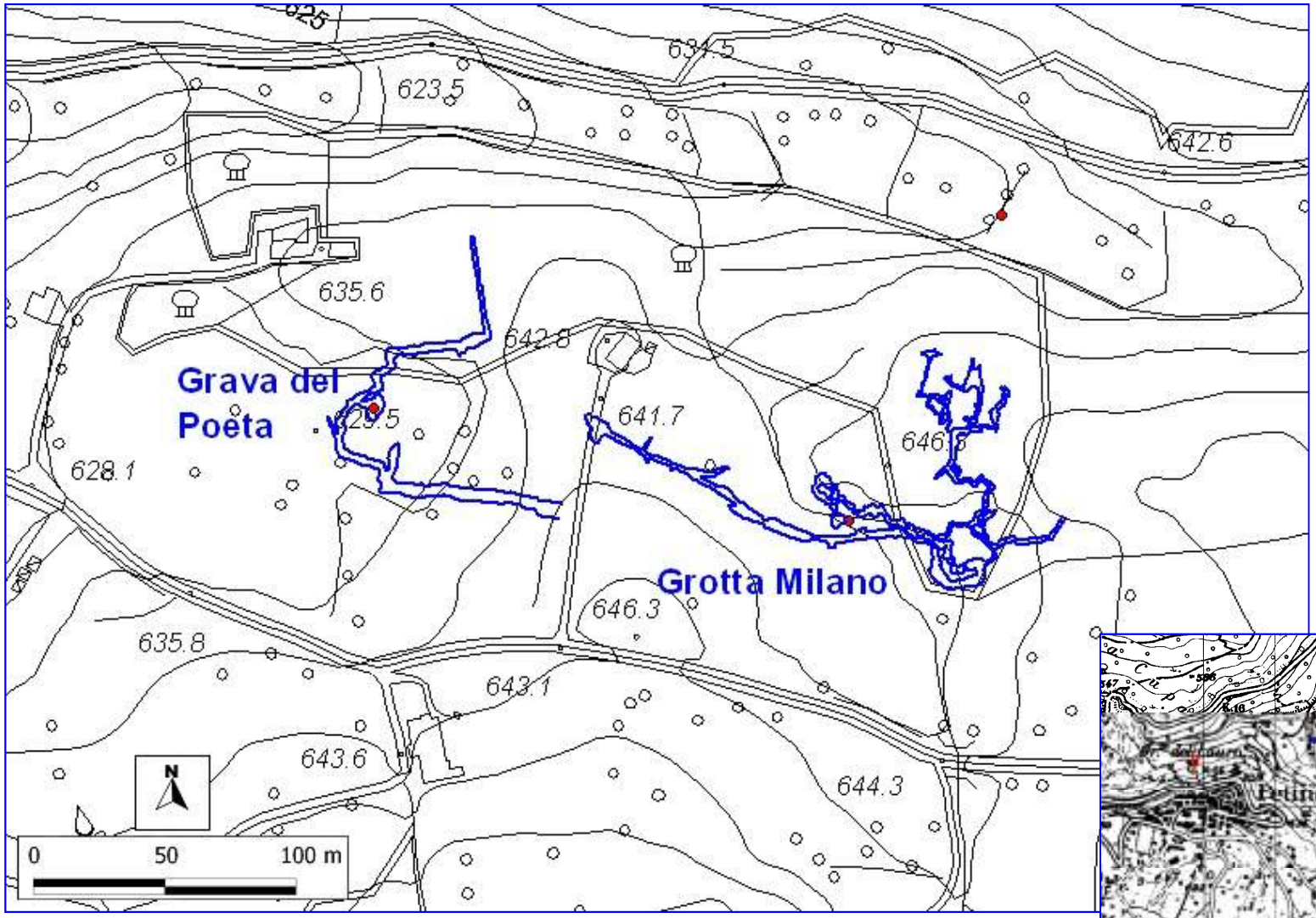
Teaching

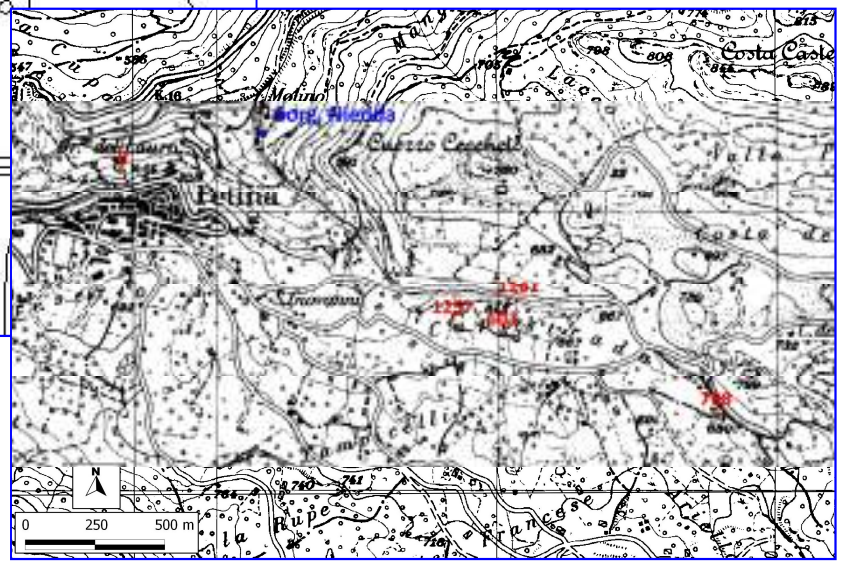
Field (and cave) lectures

Field (and cave) lectures

Puliamo il buio

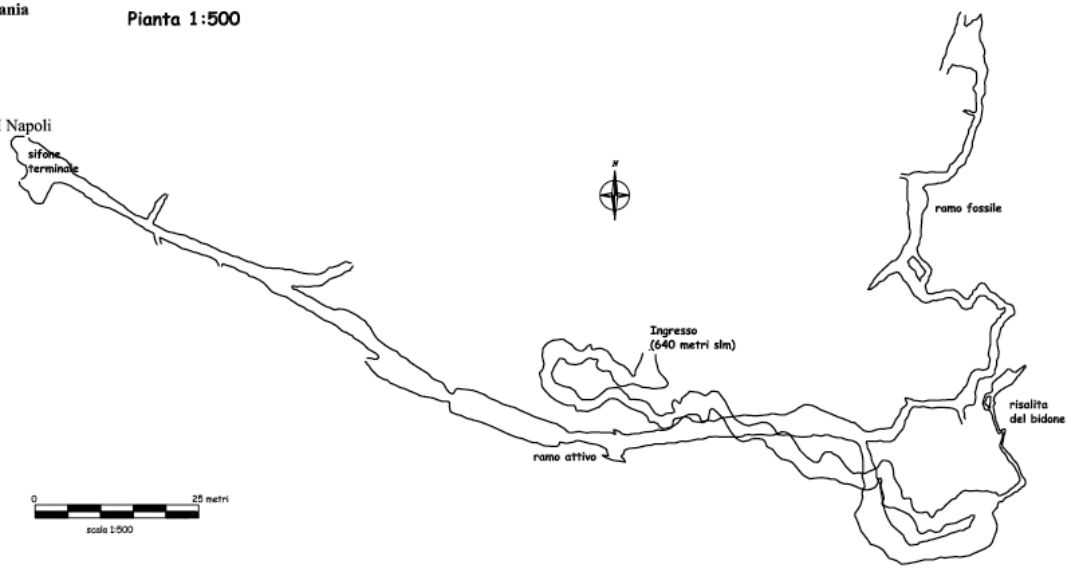

Catasto delle Grotte della Campania
LEGENDA
Ingressi
Aree carsiche
Grotte
Limiti amministrativi provinciali
Limiti amministrativi comunali
CE
BN
AV
NA
SA
448
107
106
49
597
449


Grava del Poeta
Grotta Milano
625
634.5
623.5
642.6
635.6
642.8
641.7
646.6
628.1
646.3
635.8
643.1
643.6
644.3
N
0
50
100 m

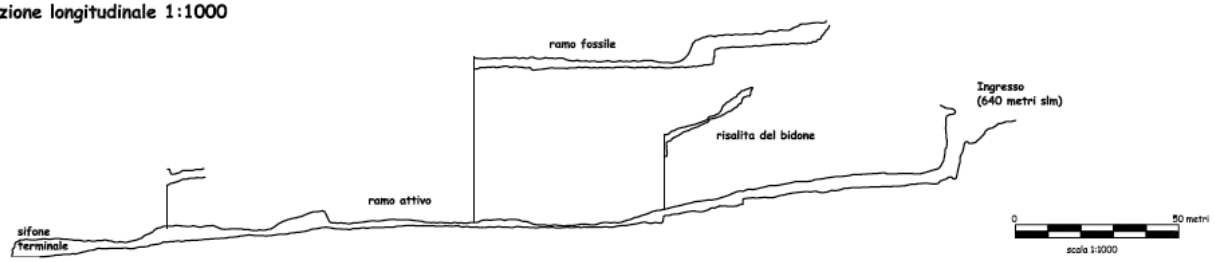

Costa Caste
Petina
N
0
250
500 m

Federazione Speleologica Campana
Catasto delle Grotte della Campania
Cp 603 - Grotta Milano
Petina (SA)
Quota ingresso: 640 metri slm
Sviluppo planimetrico: 350 metri
Profondità: - 40 metri
Rilievo: Gruppo Speleologico CAI Napoli
agosto 1988 - agosto 2003

Pianta 1:500



Sezione longitudinale 1:1000



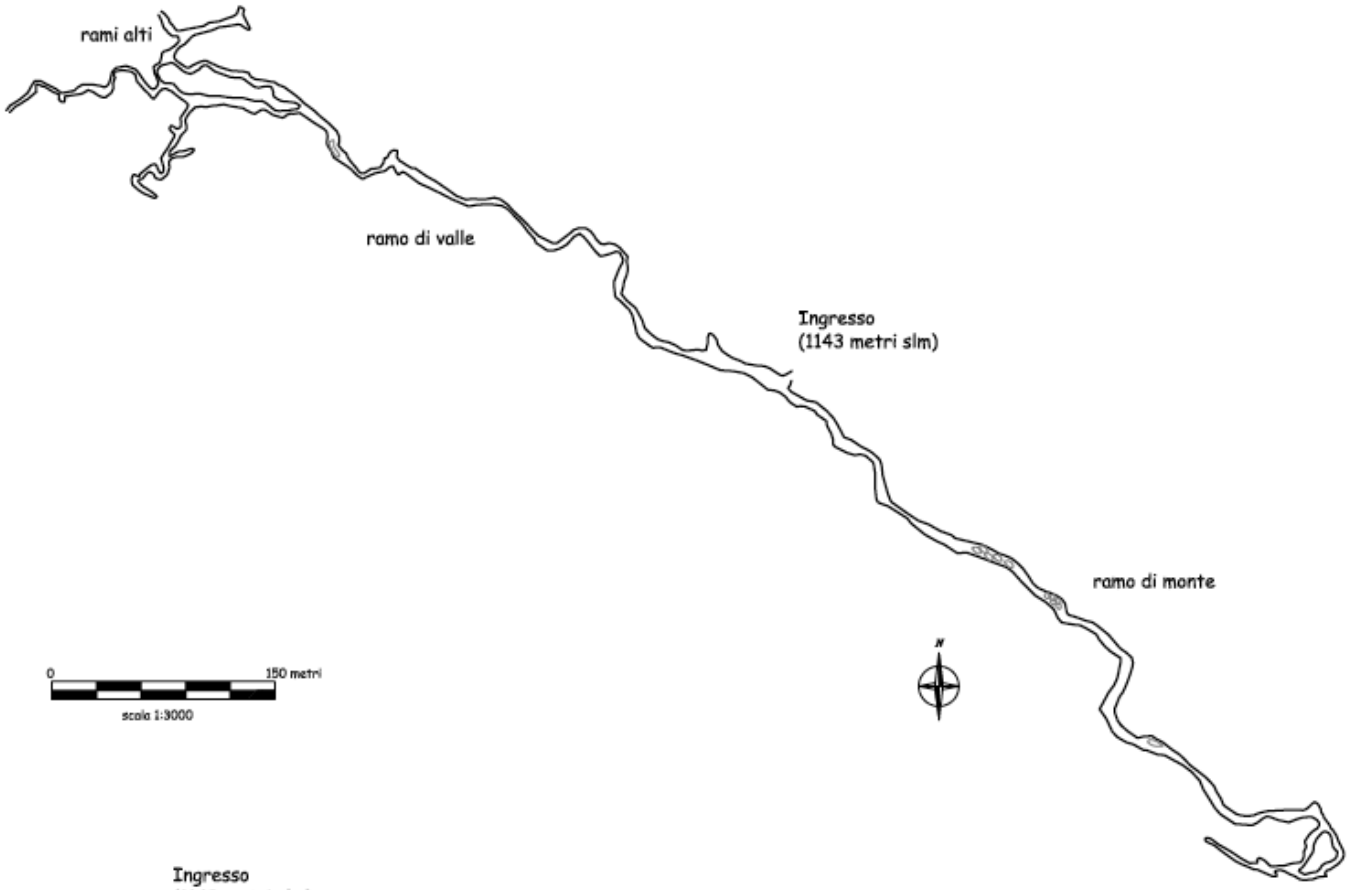
Federazione Speleologica Campana
Catasto delle Grotte della Campania
Cp 708 - Inghiottitoio di Mastro Peppe
Petina (SA)
Quota ingresso: 680 metri slm
Sviluppo planimetrico: 545 metri
Profondità: - 85 metri
Rilievo: A. Moretti, F. Saiza
Associazione Speleologi Romani
11 agosto 1968

Pianta 1:1000

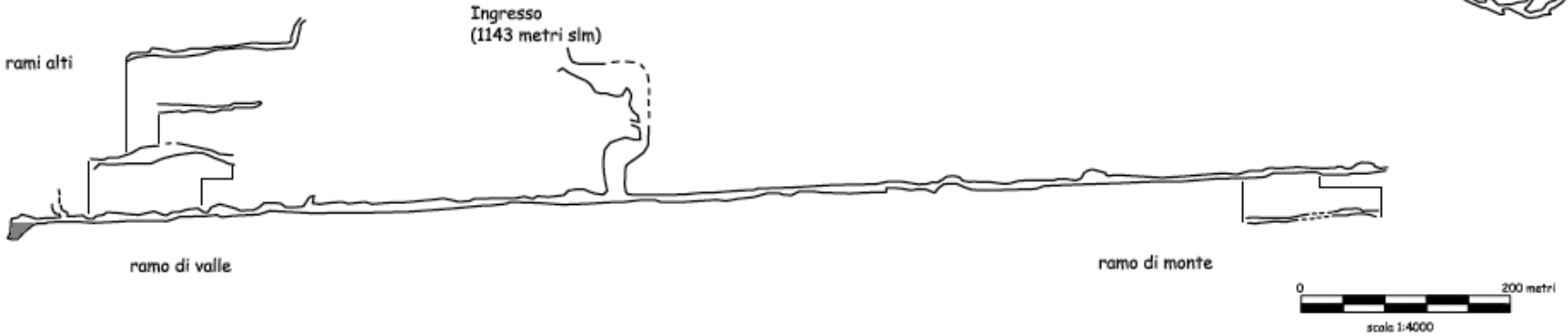
Sezione longitudinale 1:2000

Federazione Speleologica Campana
Catasto delle Grotte della Campania
Cp 448 - Grotta del Falco
Corleto Monforte (SA)
Quota ingresso: 1143 metri slm
Sviluppo planimetrico: 1786 metri
Profondità: - 161 metri
Rilievo: AIRES 1988

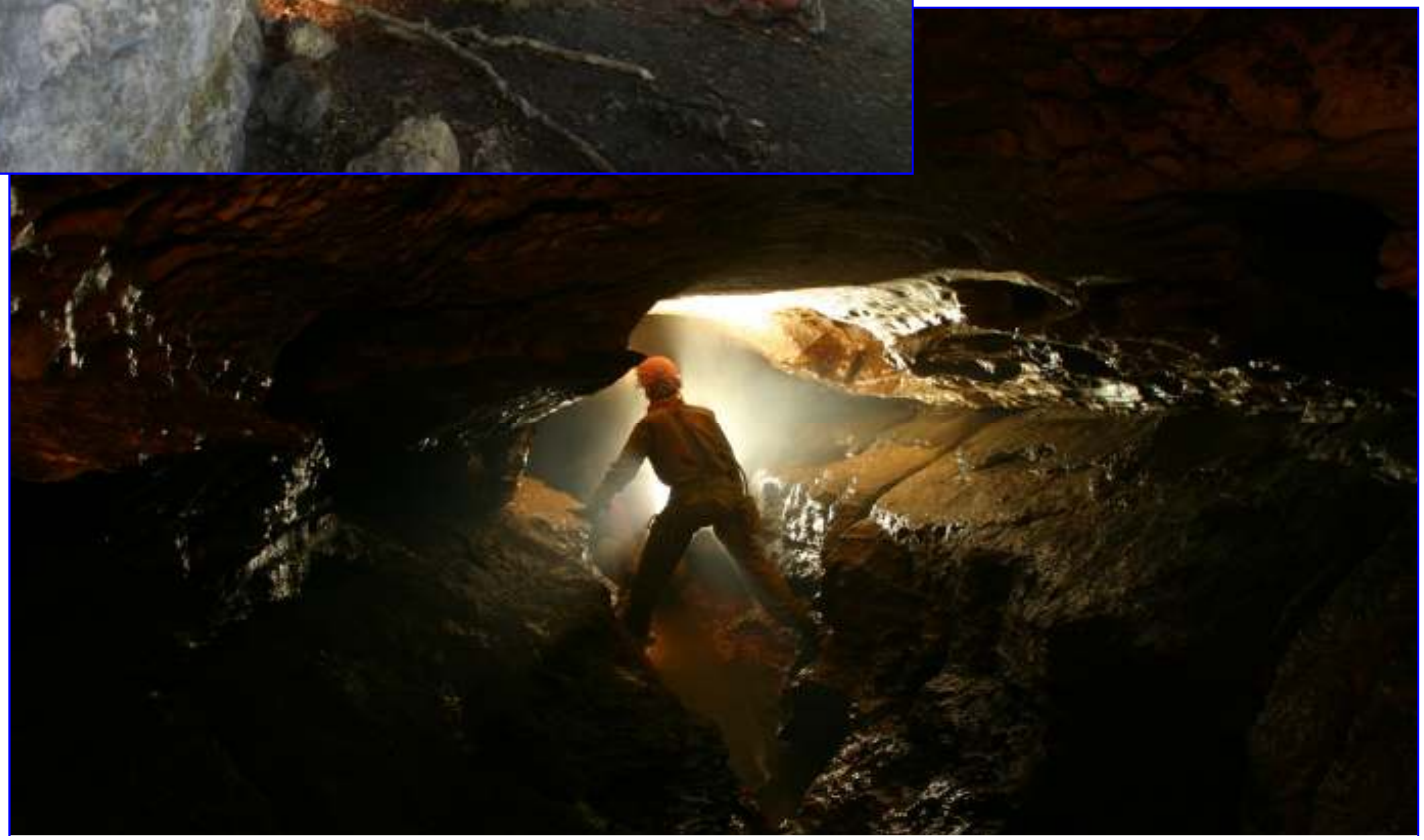
Pianta 1:3000



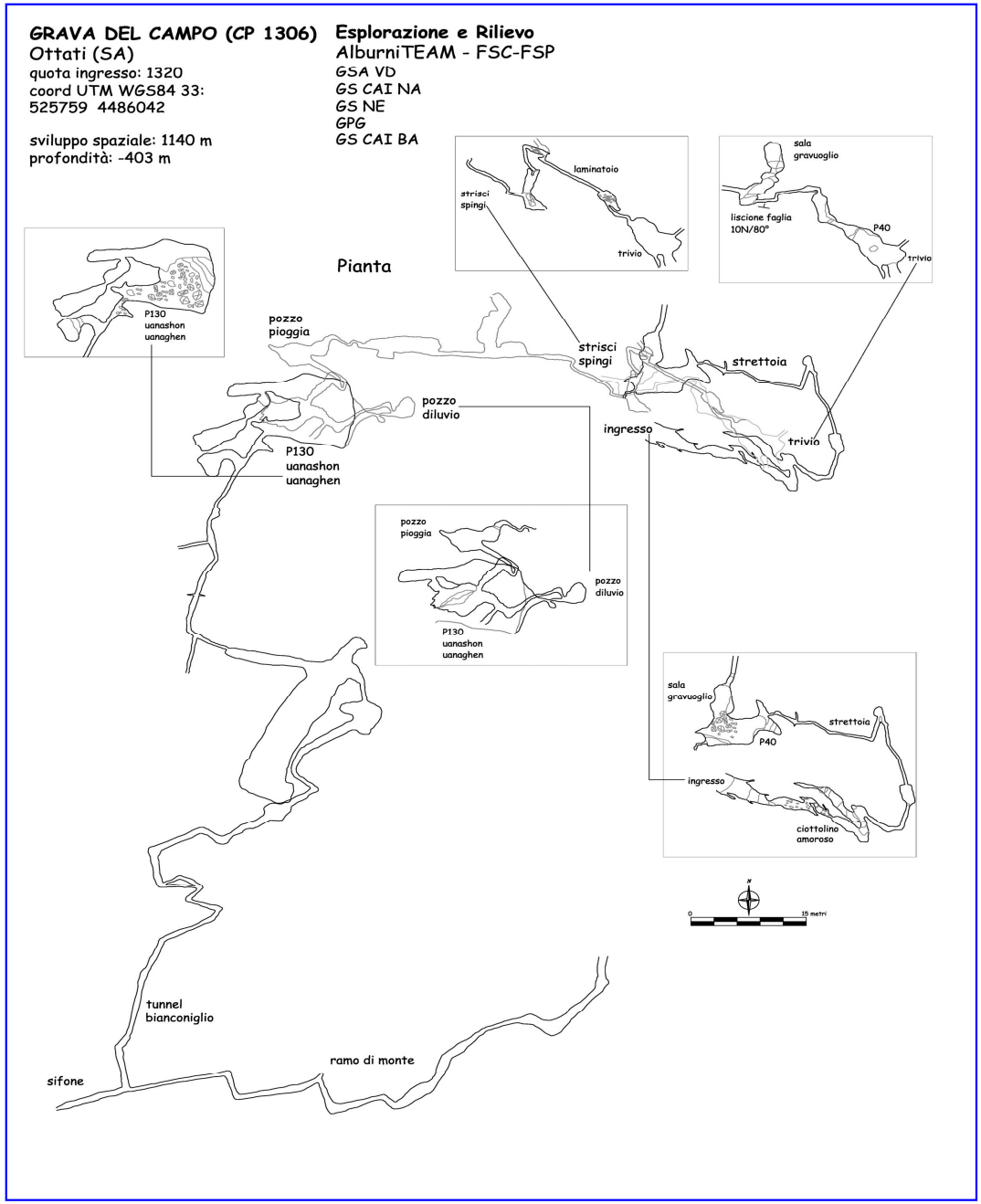
Sezione longitudinale 1:4000



Grava d'Inverno



Grava del Campo

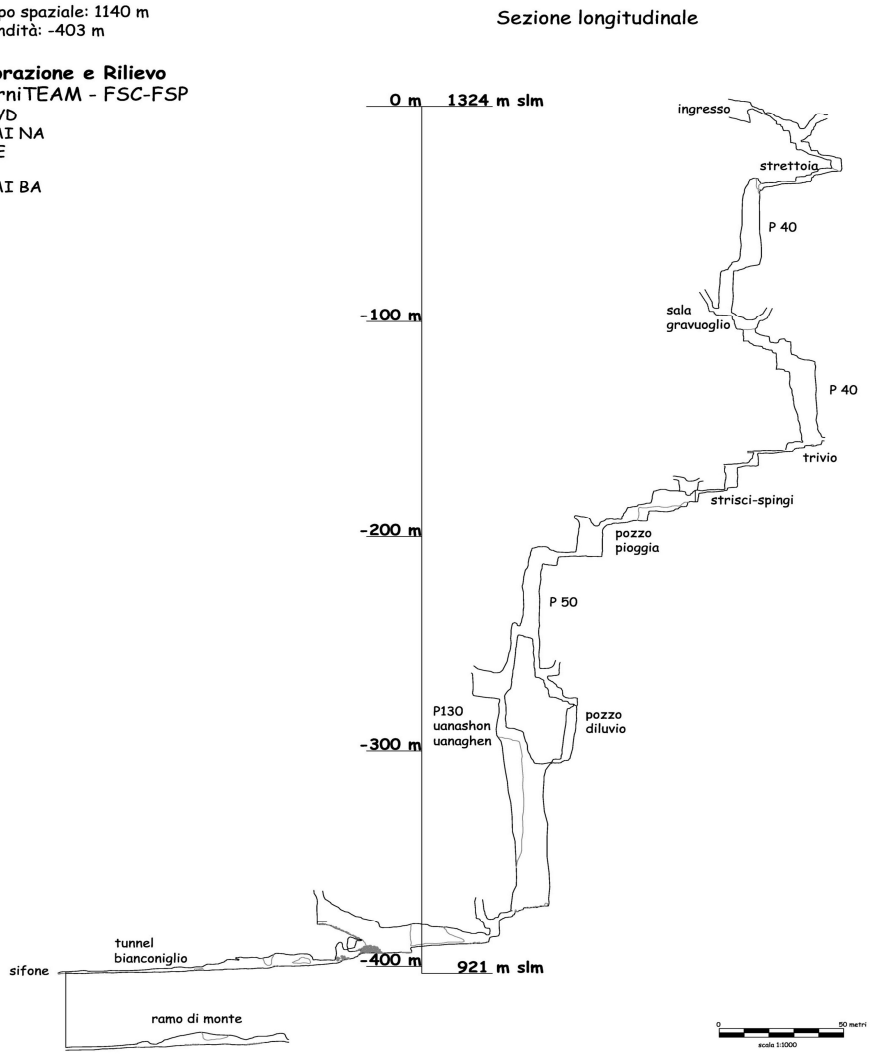


Grava del Campo

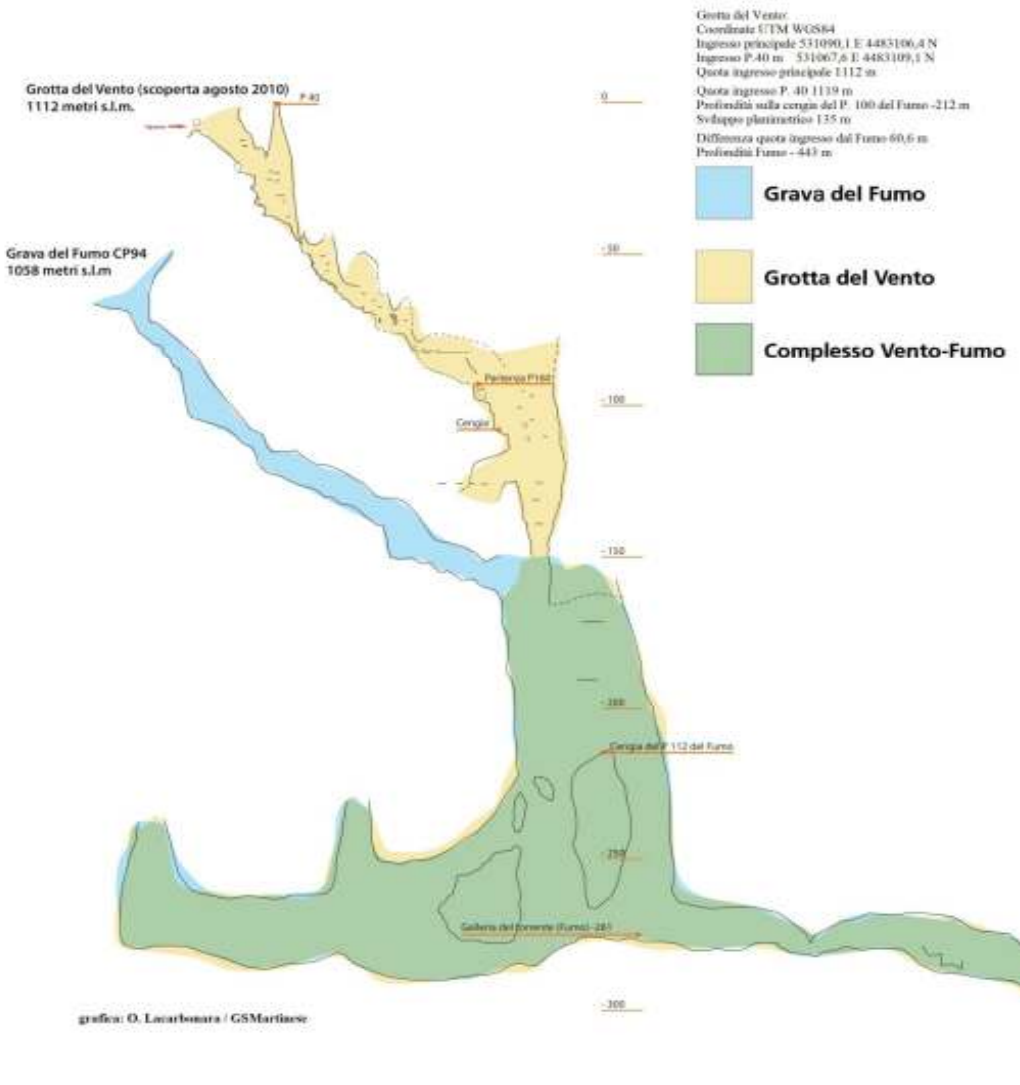
GRAVA DEL CAMPO (CP 1306)
Ottati (SA)
quota ingresso: 1320
coord UTM WGS84 33:
525759 4486042

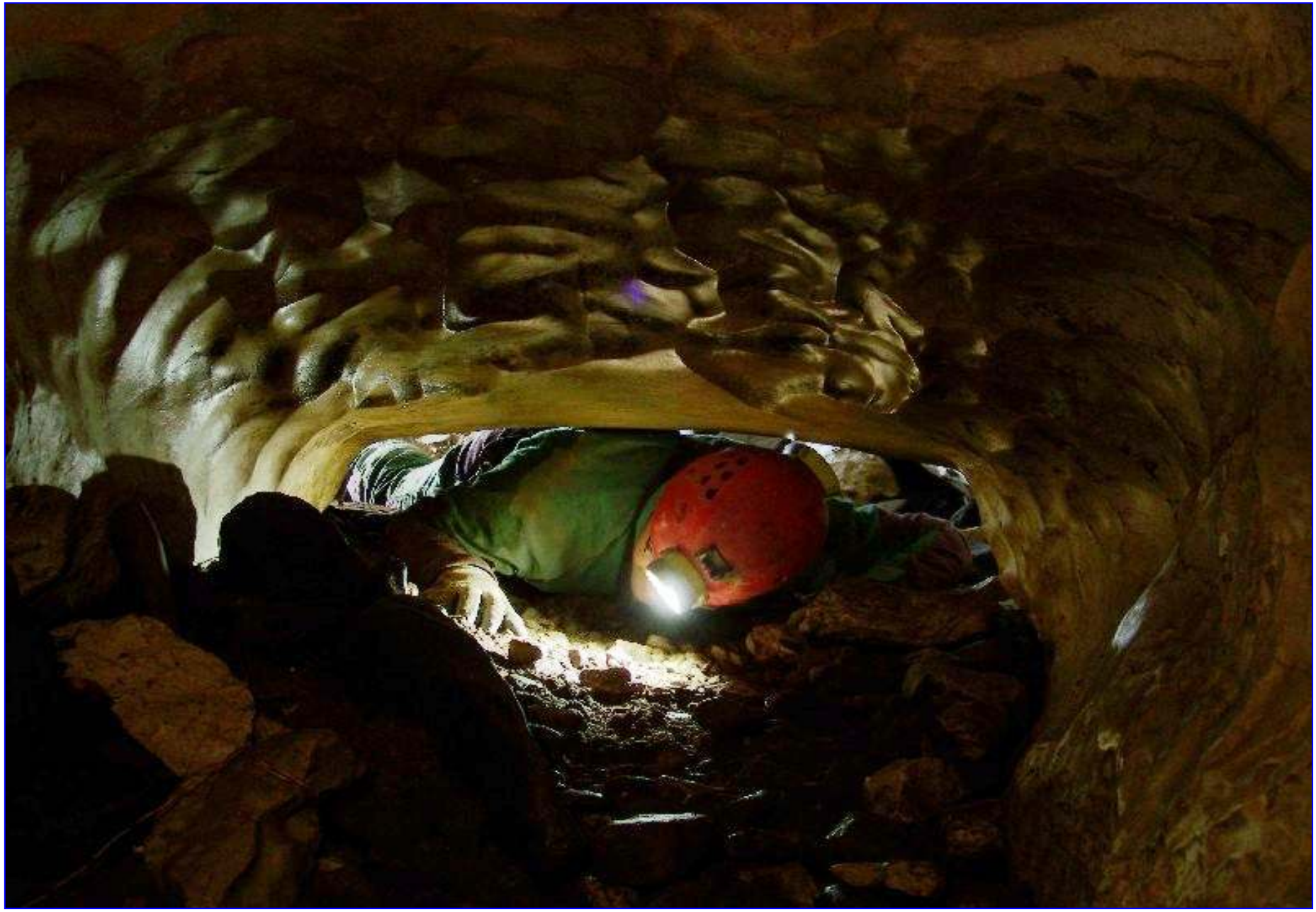
sviluppo spaziale: 1140 m
profondità: -403 m

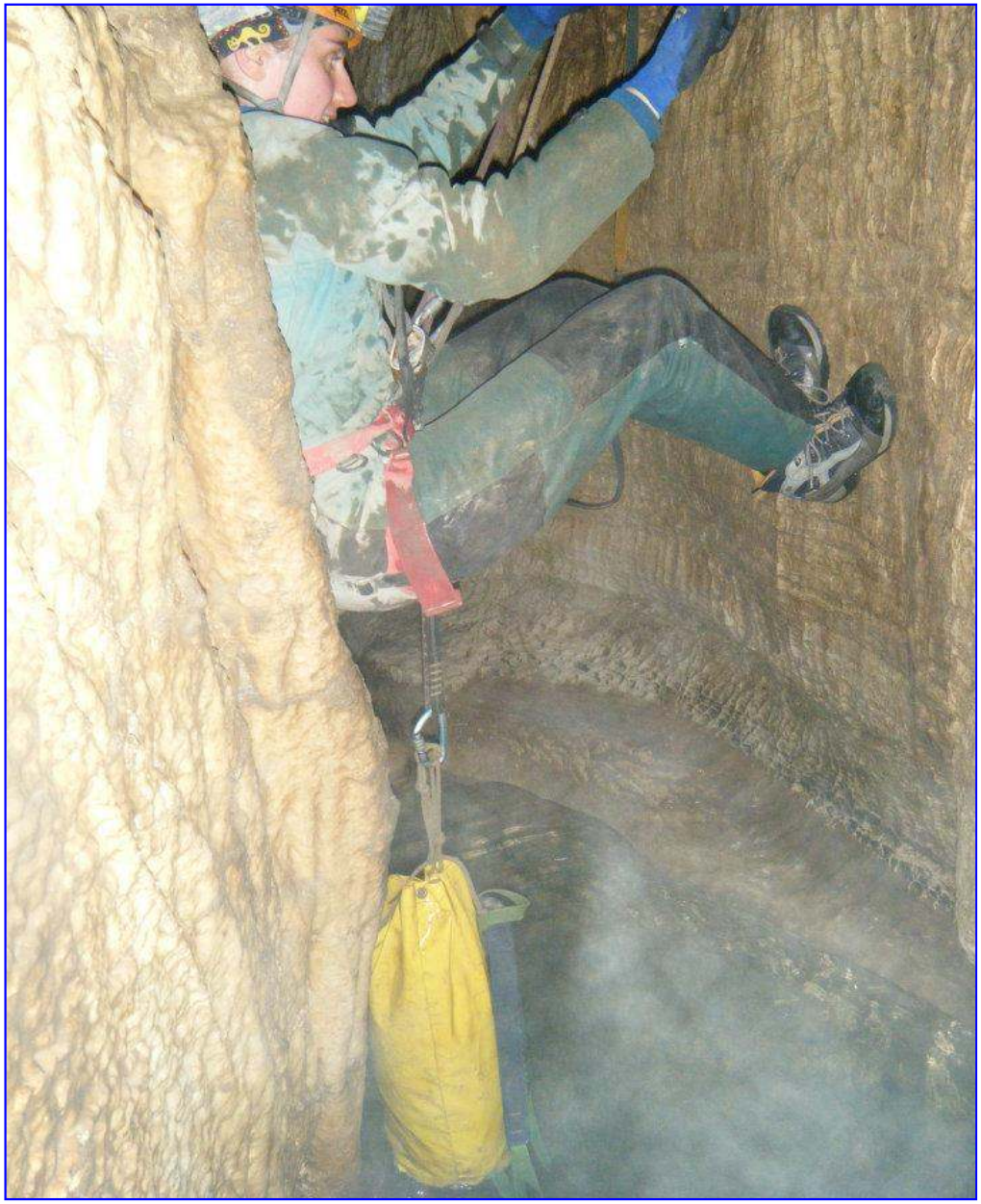
Esplorazione e Rilievo
AlburniTEAM - FSC-FSP
GSA VD
GS CAI NA
GS NE
GPG
GS CAI BA



System Grotta del Vento – Grava del Fumo







The future

Alburni Exploration Team aims to keep working in Alburni through:

- congresses;
- exhibitions;
- laboratory and didactic activities;
- research and explorations;
- seminars and courses on speleology;

and much more ……

XXII Congresso Nazionale di Speleologia

Euro Speleo Forum 2015

Condividere i dati

Pertosa - Auletta (SA)

30-31 maggio : 1 - 2 giugno 2015

First newsletter *Italian version*

XXII National Congress of Speleology and 10th Euro Speleo Forum together to "Sharing Data"

Beginning with the first National Congress (Trieste-Postumia, 1933), this event – occurring every 4 years – stands as a unique and fundamental opportunity for meeting and sharing researches and explorations in Italy and abroad.

Every Congress has always had its leading theme, acting as the leit-motiv linking the researches and contributions presented.

The theme proposed for the XXII National Congress 2015 by the Organizing partners: *Società Speleologica Italiana* , *Federazione Speleologica Campana* , *Gruppo Speleo Alpinistico Vallo di Diano* : "Sharing Data" aims to stress the importance of making the knowledge acquired in the speleological researches available to the community.

thanks for the collaboration, friendship and work to all those cavers and people that during these years have explored, documented and lived the Alburni with us