



Sicily 2011

Speleogenesis Reconnaissance in Sicily

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Patrice Tordjman & Jean-Yves Bigot.

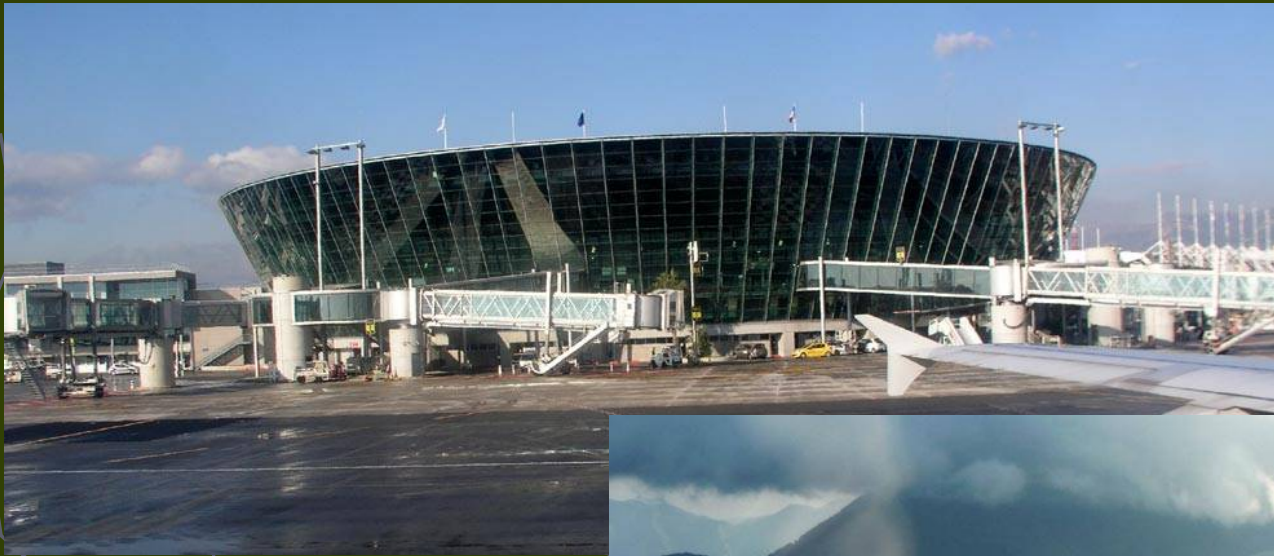
- *Speleogenesis Control Brigade*
(*Brigade de Contrôle du Karst BCK*)

&

- *Dipartimento di Scienze della Terra*
e del Mare dell'Università degli Studi
di Palermo, del Dipartimento di
Scienze della Terra.

12th - 19th December 2011

2 – Flight Nice - Palermo Via Rome



Departure from
Nice airport.

Arrival in Palermo
(via Rome) in Sicily on the
biggest island of
Mediterranean Sea.



12-12-2011

3 – The Palermo Catacombs



Our sicilian colleague Marc Vattano is waiting for us in airport in his 4x4, we are a bit cramped with our luggage.



It's the first time that we go to this island and Patrice Tordjman speaks about famous catacombs of Palermo : no sooner said than done, and here we are in front of the entrance of catacombs...
A little bit macabre, isn't it ?

12-12-2011

4 – Settled In Old Palermo

Palazzo Aiutamicristo (XVth c.)



We hurry up and open our bags and stuffs in the B&B located near the port. And we make the most of visit the city.



12-12-2011

5 – Sicily, It's Also Ancient Greece

In the west of Palermo, the limestone mountains are very high, it exists hypogenic caves inside.



The landscapes show greek monuments in the middle of nowhere. We shall remember that Sicily was one of the Great Greece.

6 – Monte Inici

The cave is located in the Monte Inici, this mountain dominates Castellammare del Golfo Plain (Trapani Province).



The dip of limestones is very clear. It has guided the structure and network of the Eremita cave.

7 – Eremita Cave

The cave shows curious shapes. The origin of cave is clearly hypogenic. The corrosive air is the origin of the most of space in this cave. The steam and corrosive air rise up and can corrode walls and roofs in the upper parts.



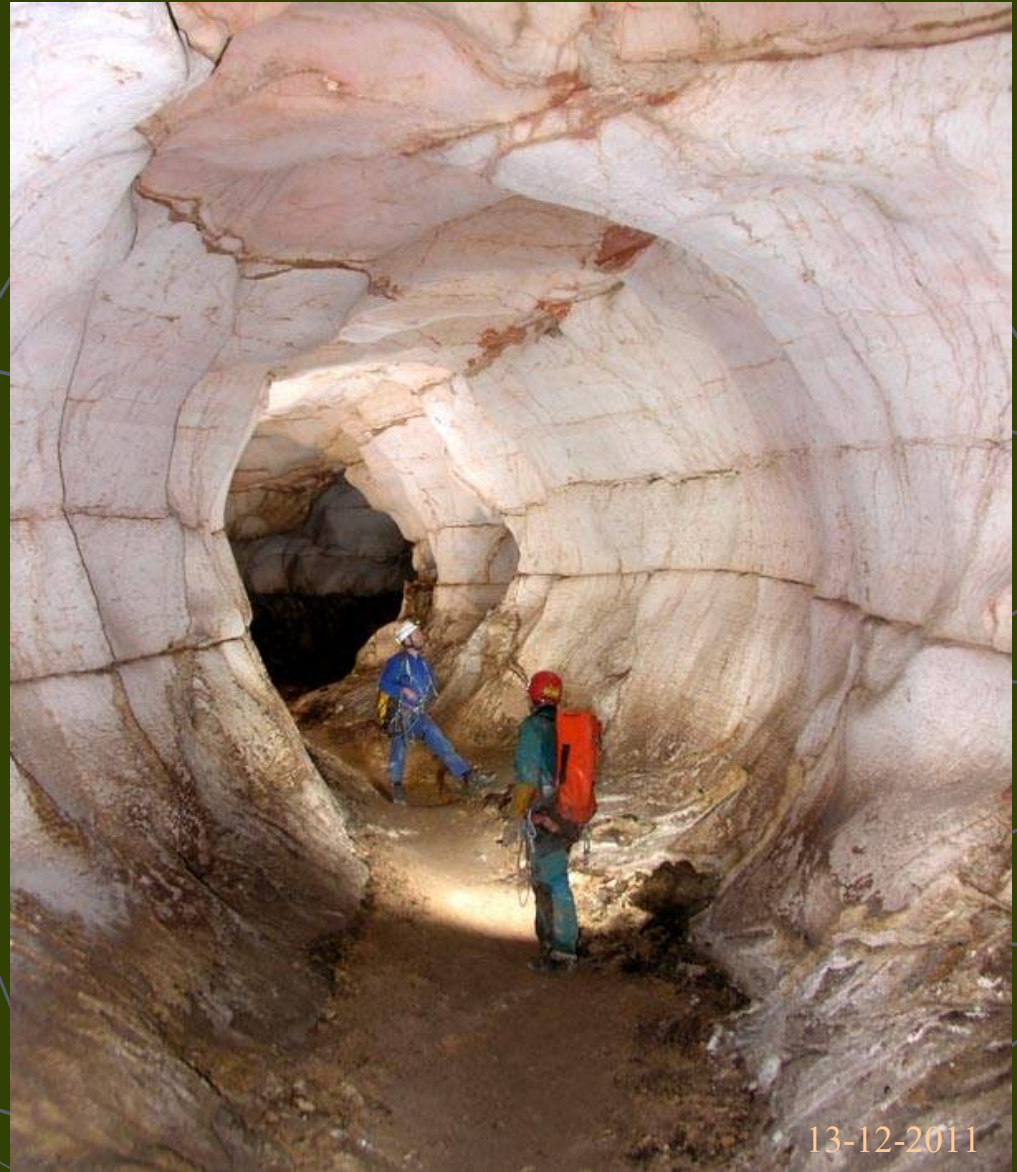
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8 – Eremita Cave

The depth of this cave is more 300 m, it's quite exceptional.



The limestones rock is clearly visible on the walls : we can see bedding planes and breccia.



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9 – Eremita Cave

The colours of the rock are astonishing and it's difficult to know if it's about bedrock or speleotheme.

Sampling of bacterial film on the wall.



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10 – Eremita Cave

The roofs are spangled by cupolas.



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The dimensions of this hypogenic cave are astonishing.

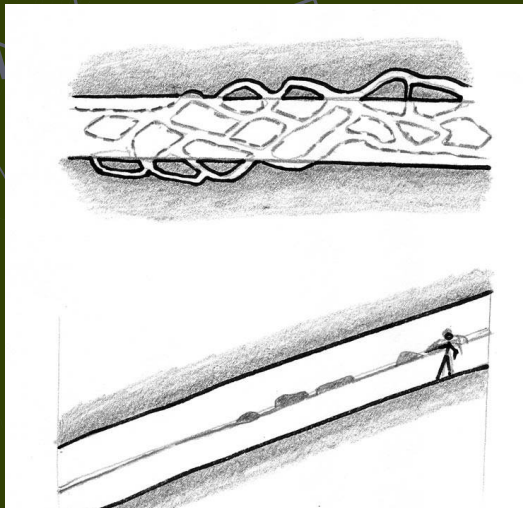


11 – Eremita Cave



The conduit dugged on the bedding plane slopes has been filled originally by a red filling. This filled conduit shows that the first speleogenesis began with this phreatic proto-conduit (anastomosis).

After this initial stage, these proto-conduits not filled can be runned across by the steam or corrosive air and increase by condensation-corrosion process.



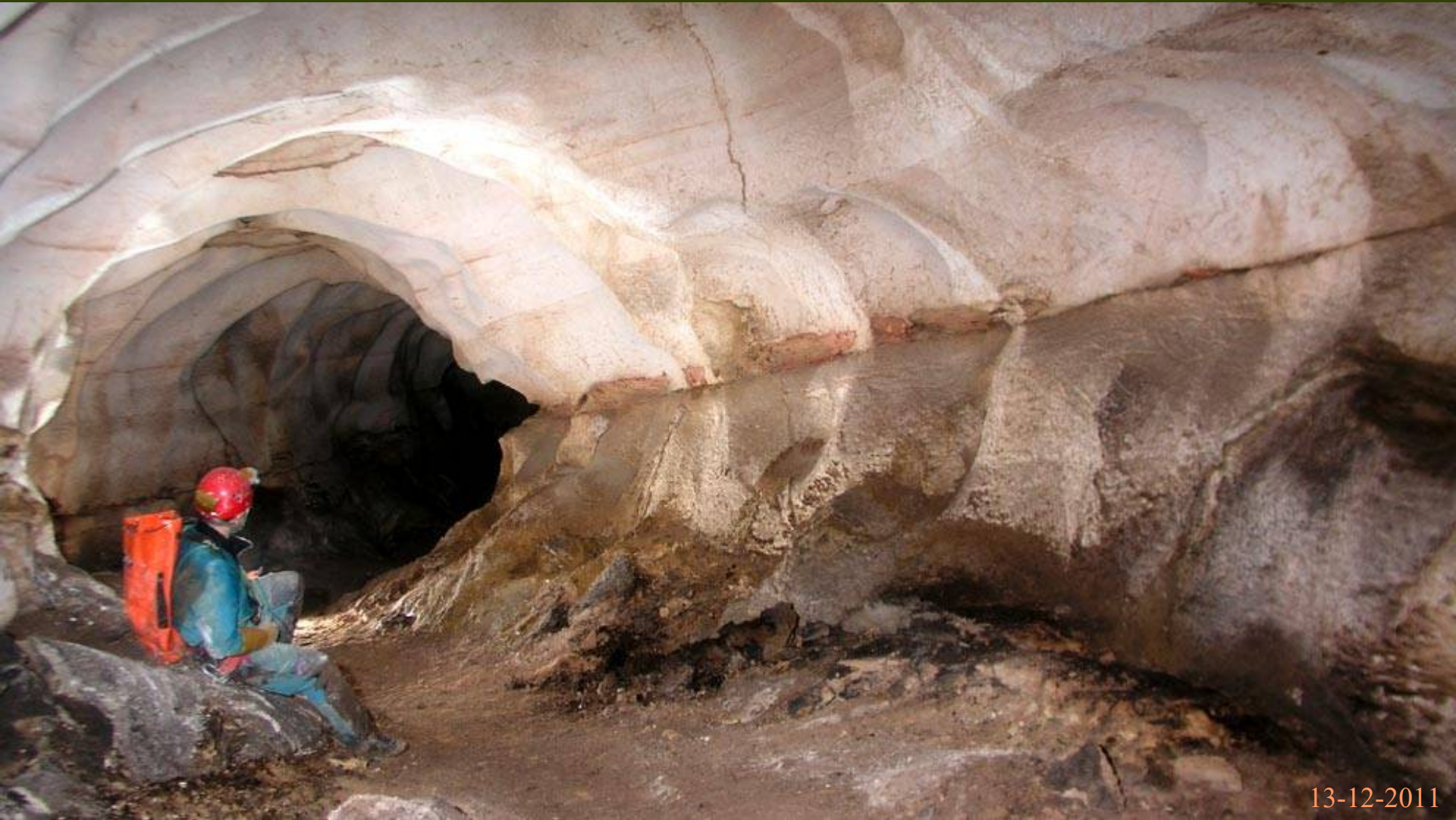
Proto-conduits anastomosis.



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12 – Eremita Cave

Gallery on the bedding plane slopes with proto-conduits filled (red fillings).



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13 – Eremita Cave

The corrosive air is most agent of digging.



The speleotheme area is determined by air current. We can see on the lower part of the gallery, but in the upper part the corroded rock appears. Today, in the bottom of the cave the air is warmer than the top : the difference is about 2 or 3 degrees.

14 – Palermitan Welcome

We leave our gear in the clubhouse of the Associazione Naturalistica Speleologica (ANS) « Le Taddarite » and just to drink beer.

Marco and Giuliana invite us at home : and it was a great dinner.



15 – On Route To Etna

It's a long-day for us because we have to go to Catania, it will take 3 hours... by highway.



In the distance, Enna plateau, a great town in the centre of Sicily.



There is a meeting in Catania with a team of Centro Speleologico Etneo (CSE). We will guide in the lava tube of Etna ... cold of course !



16 – On Route To Etna

Etna is a imposant mountain rising up at 3330 m above the sea.



In the distance, we can see outline of one of monsters of Antiquity. This hot montain threatens Catania City for thousand years old.



17 – Catania

We stop in Catania, on the *Piazza San Francesco*, and we eat a few specialities of *Vecchio Forno* with our Sicilian friends.



Meeting
place in
Catania.



18 – Etna Slopes



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Lava flows
and many
cones stretch
over in the
distance on
the slopes of
Etna.

19 – Etna Slopes

It's not allowed to go on to the top of Etna. We must stop at the level of ski resort (*Rifugio Sapienza*) located in south slope. The peak is forbidden by Catanian Authorities. But we can see the *Crateri Silvestri* (alt. 1986 m)



20 – Etna Slopes



The strong wind
remember us that we
are at an altitude of
2000 m on the biggest
volcano of Europe.



The Speleogenesis
Control Brigade
(Brigade de contrôle
du karst - BCK) and
Marco Vattano.



Jean-Yves
Bigot

Philippe
Audra

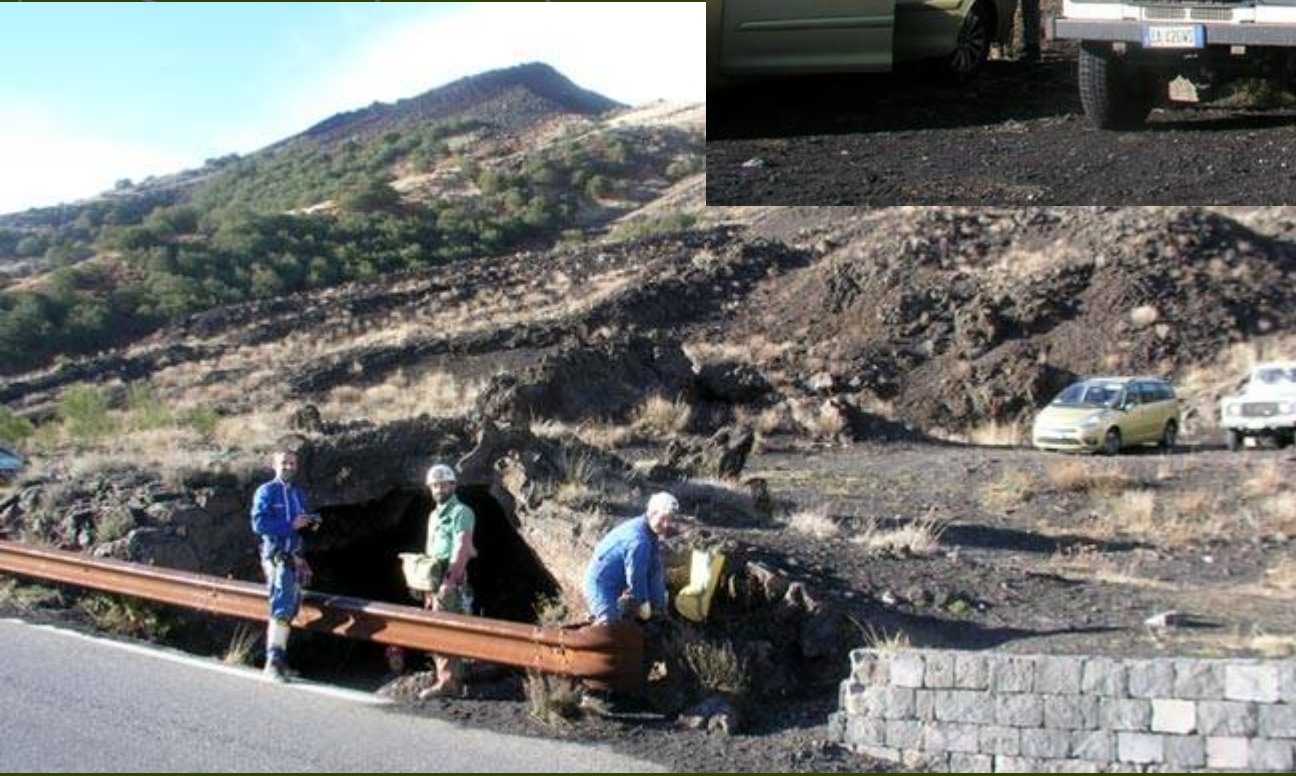
Jean-Claude
d'Antoni-
Nobécourt

Marc
Vattano

Patrice
Tordjman

21 – Tre Livelli Cave

The Three Levels Cave (Zafferana) is located on the south slope of Etna, near the road. It formed during the eruption of 1792.



Hum ! It's easy to get to and doesn't involve to use 4x4...

22 – Tre Livelli Cave



Our Catanian Colleagues, Alfio Cariola and Gino Gulli, install ropes in the cave.



As its name means, there are three levels of lava tube in this cave.

23 – Tre Livelli Cave

Our shoes grip the floor formed by many blocks of stone (scoria).



The different levels of lava flow can be seen on the both sides.

24 – Tre Livelli Cave

There are many stalactites on the roof, but they are neoformed by the heat of lava flow because the roof of conduit is really melted.



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The lava tube keeps the marks of lava flow on the walls (edge and notch).

25 – Tre Livelli Cave

During the cold season, the bats colonize the cave.



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The condensation water seeps along the body of bats.
We can see marks of colours on her skin. A spring-cleaning will be necessary to do !

26 – Tre Livelli Cave



The slope of this cave is the same of lava flow and we can get the bottom easily about 100 m under the entrance with only one pit.

27 – Tre Livelli Cave



Outside, a cool wind grotte invite us to change our clothes quickly. We look out onto the Catania Bay.

28 – Poggioreale

Poggioreale, it's a village of centre of Sicily, but it was ruined by the earthquake of 1968.



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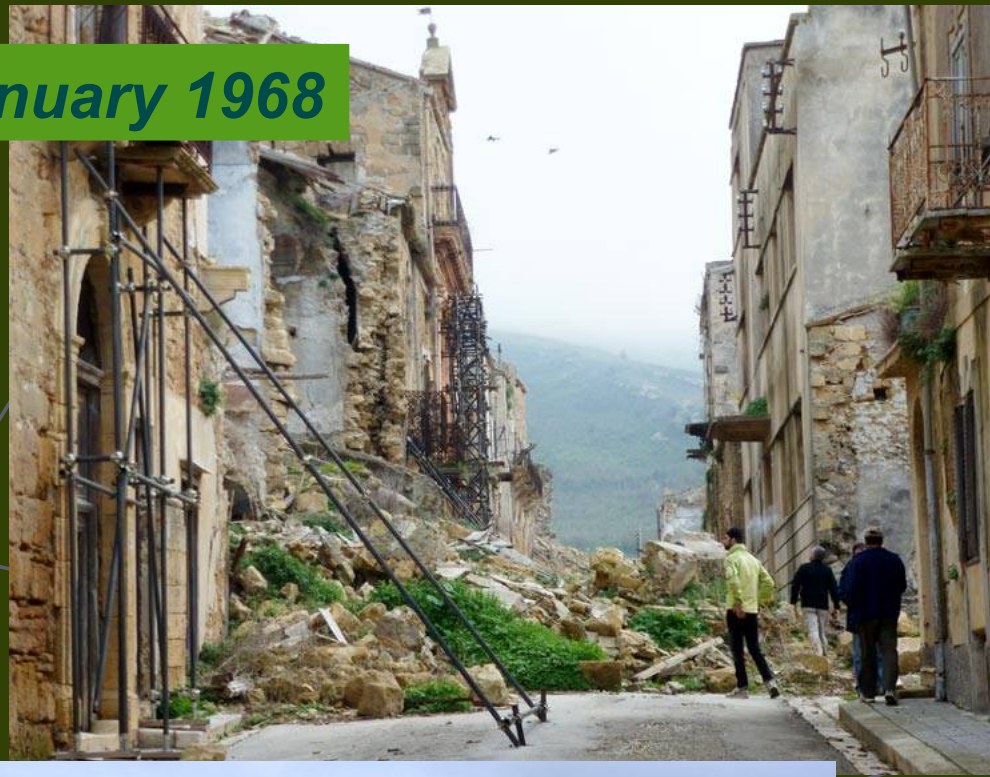


29 – Earthquake Of 15th January 1968

Great street of
Poggioreale.

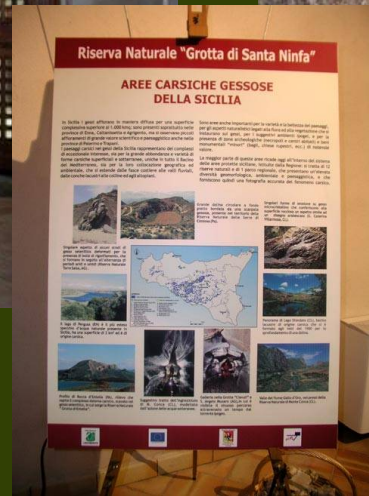
Cretto di Burri.

Between 1985 and 1989, an artist,
Alberto Burri, covered with concrete
blocks the ruins of Gibellina Village
devasted by the earthquake of 1968.



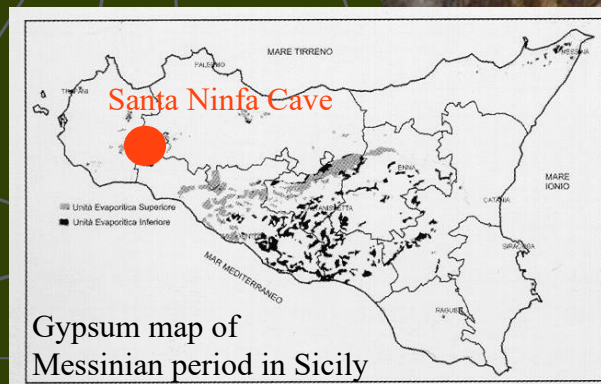
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30 – Meeting In Castello di Rampinzeri



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We are received in the Castello di Rampinzeri by the curator of the *Riserva Naturale « Grotta di Santa Ninfa »* : Giulia Casamento.



31 – Santa Ninfa Cave

It's the gypsum cave. We can go into the cave by an entrance located above the spring, and after we can go up the subterranean river.



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The shapes of galleries are astonishing.

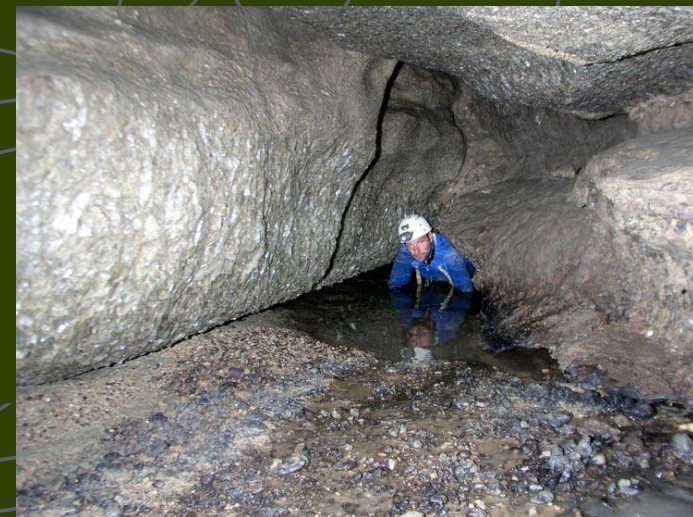


32 – Santa Ninfa Cave

The cave is formed in the Messinian gypsum (Latest Miocene). This type of rocks is very common in Sicily.



Yes, you
have to
get wet.



33 – Santa Ninfa Cave



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The channels can be seen on the roof.

34 – Santa Ninfa Cave

The team in Santa Ninfa Cave.



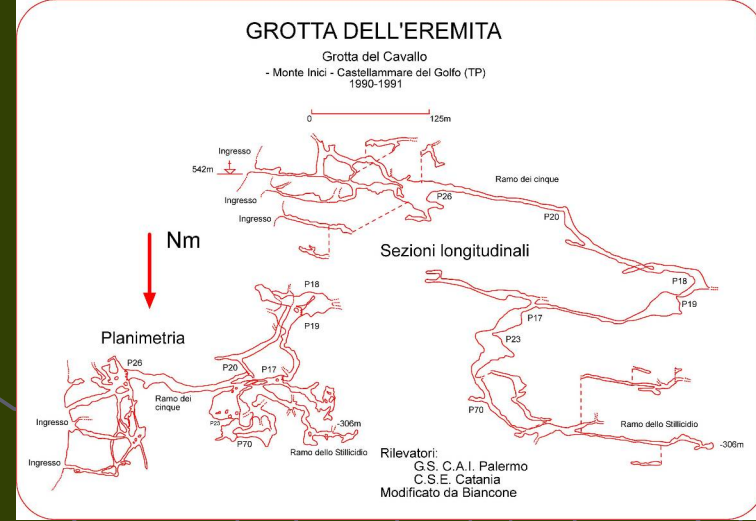
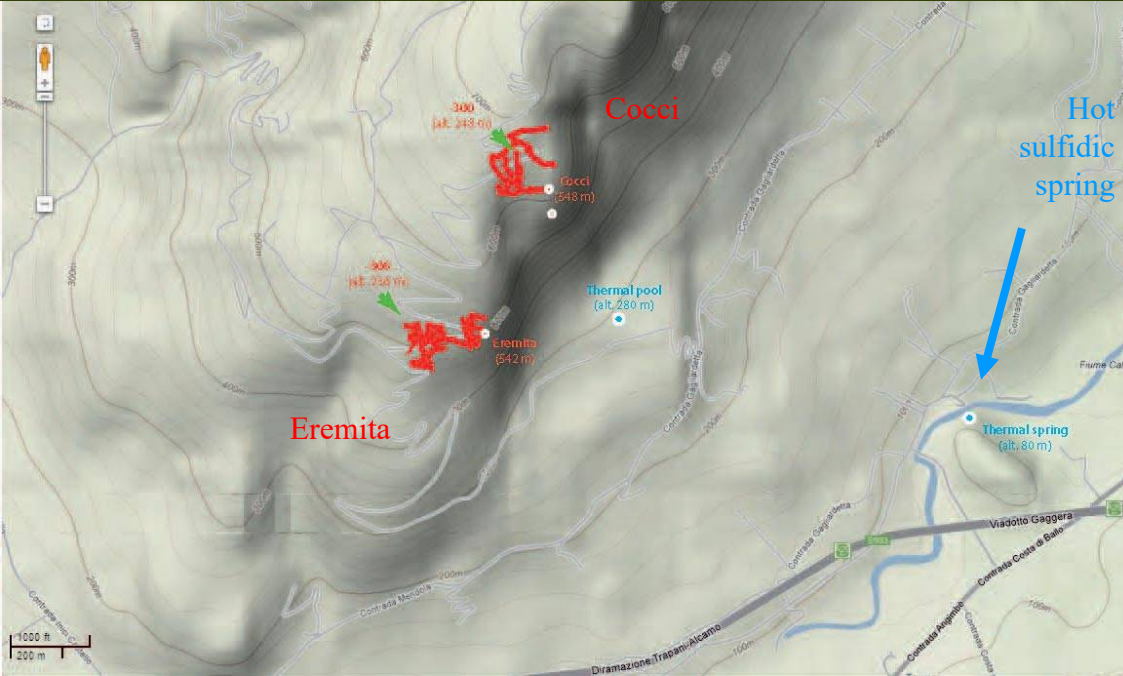
35 – Sulfidic Hot Spring



We are again on the foothill of Monte Inici. A hot spring appears and it smells strong the sulphur (old thermal baths). The temperature is 40° C and Philippe has a swim.



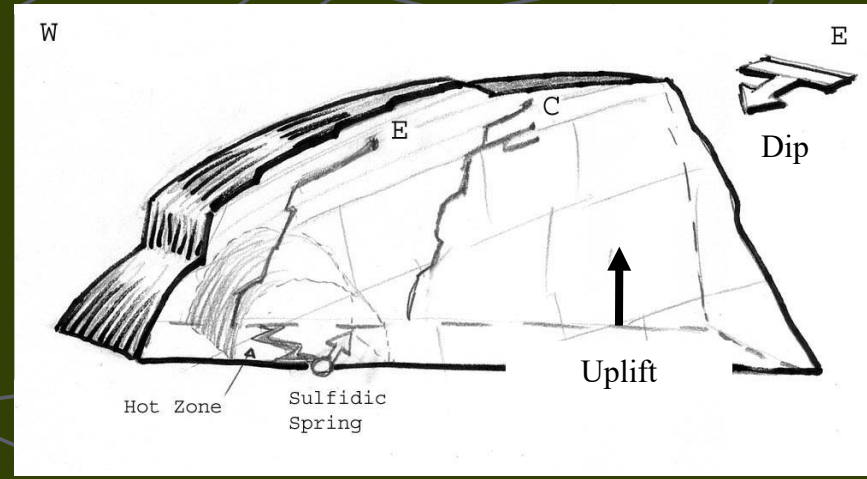
36 – Monte Inici



The structure of Monte Inici (dip) and the uplift influence can understand the vertical characteristics of both caves (Eremita and Cocci).



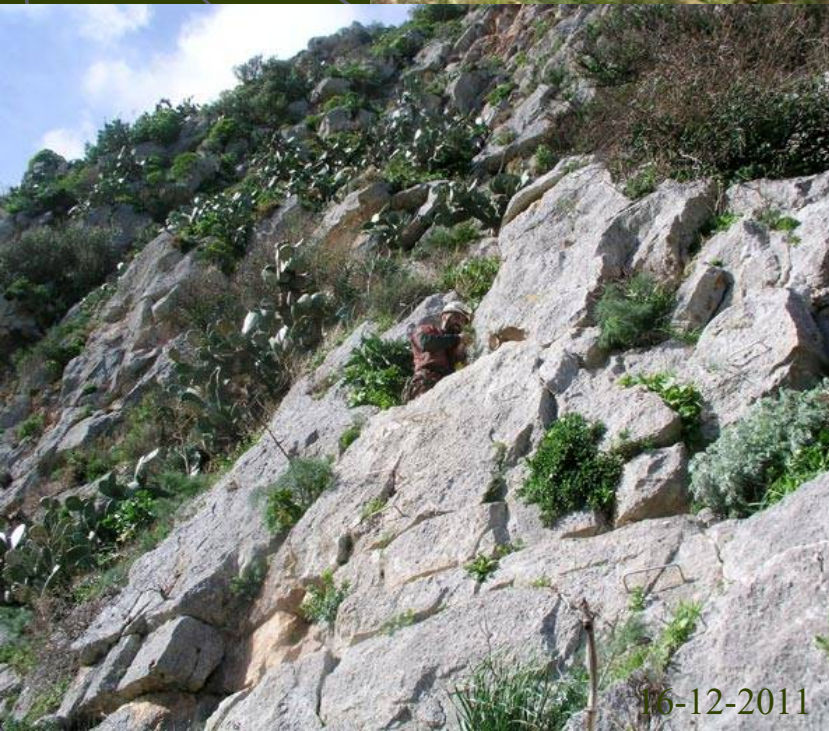
It is thermal spring, located near the monte Inici, that is in relationship with the caves origin.



37 – *Abisso dei Cocci*

Hot
sulfidic
spring

The entrance
is located in
the wall.



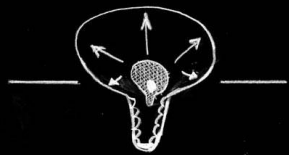
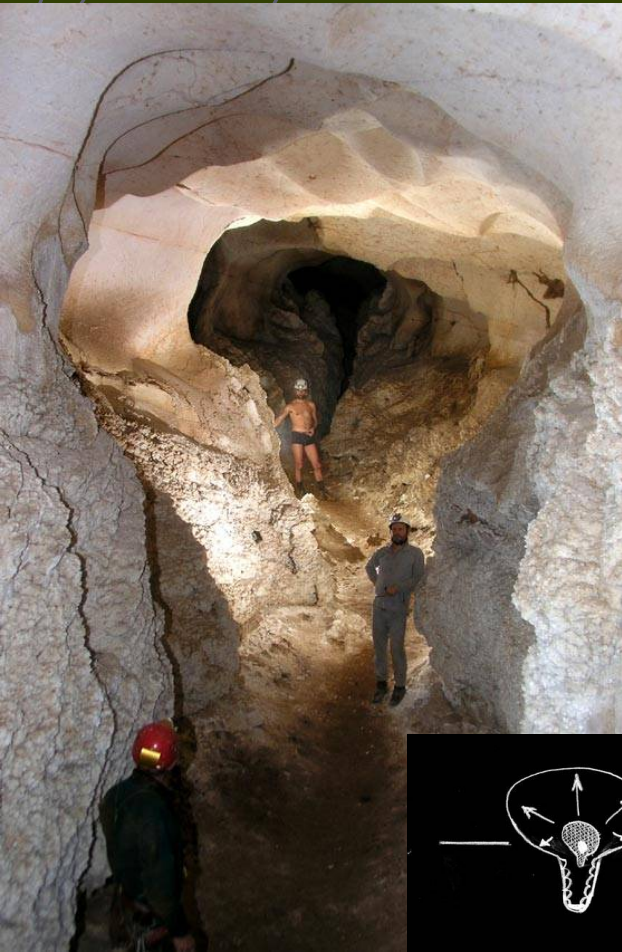
We have to go up
the slopes of
Monte Inici for to
reach the entrance
of the Abisso del
Cocci.

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38 – *Abisso dei Cocci*

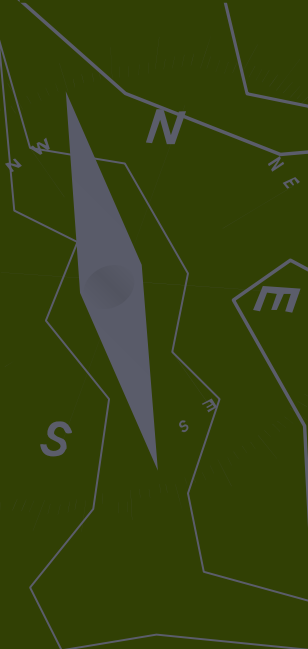
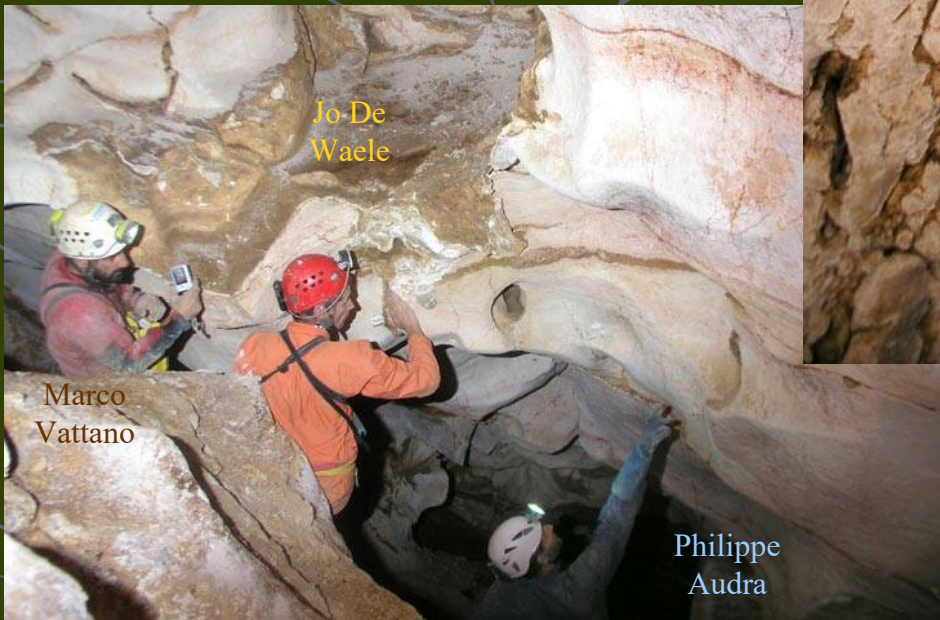
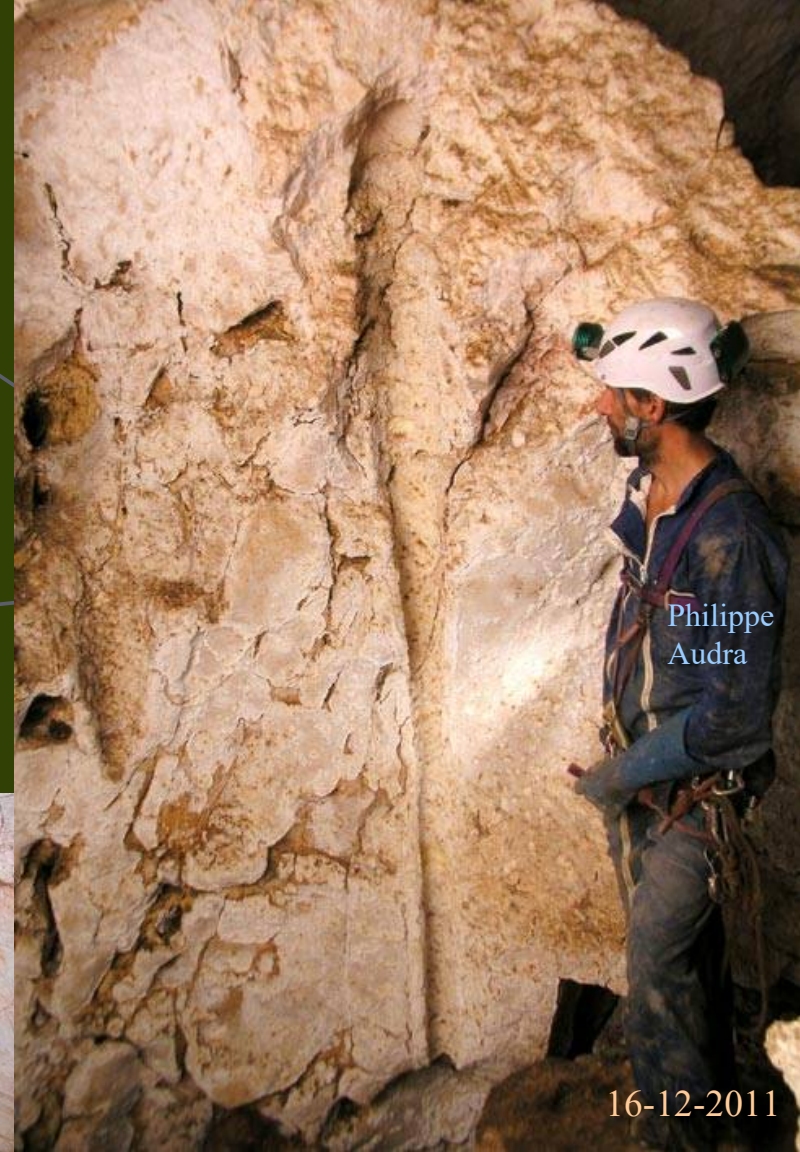
The shapes of Abisso dei Cocci result from expansion of the corrosion in the upper parts of galleries.

This cave has been digged by corrosive air flow.



39 – Abisso dei Cocci

Jo De Waele
joins the
team and can
put together
our
knowledge
for attempt to
understand
the cave.



40 – Abisso dei Cocci



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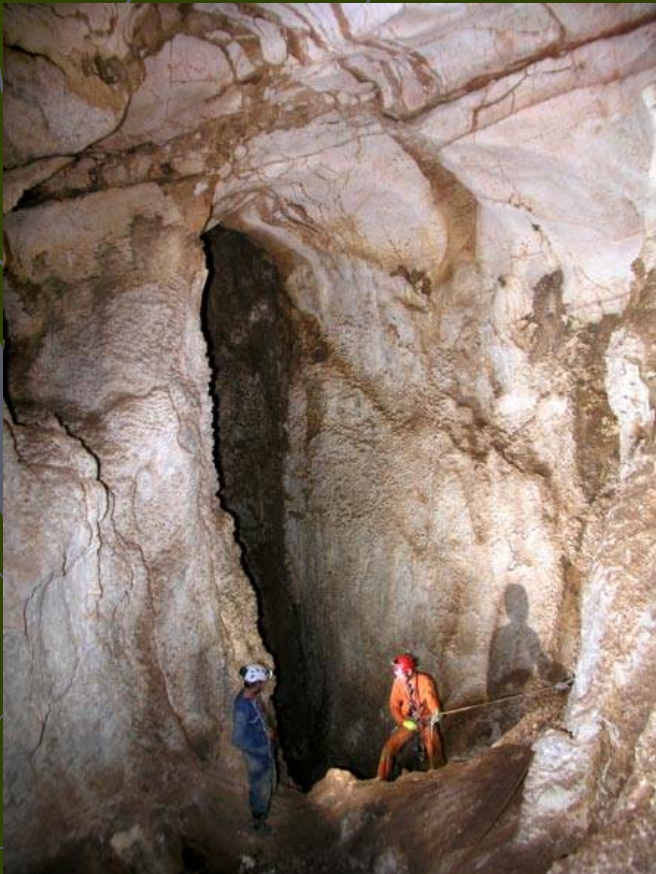
These greenish filaments are speleothems !



In this cave, different minerals can combine with guano and may be can form new or unkown speleothems.

41 – Abisso dei Cocci

In the upper parts, near the surface, there are many normal speleothems, but in the bottom of the cave, the walls are very bare and show that the air flow is corrosive.



42 – Abisso dei Cocci

The subterranean landscapes are varied.



43 – Abisso dei Cocci



In the upper part of this cave, the seepage can form stalactites and stalagmites, whereas the lower part is very dry and covered with gypsum deposits.

44 – Acqua Fitusa



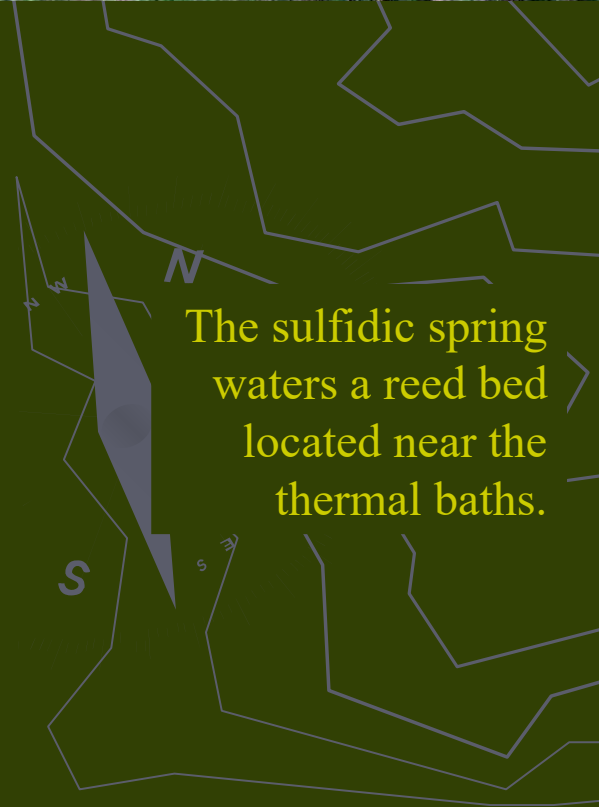
There is bad smell
in the old thermal
baths. The block is
destroyed and
abandoned.



45 – *Acqua Fitusa*



There are small caves above the sulfidic spring.



The sulfidic spring waters a reed bed located near the thermal baths.



46 – *Acqua Fitusa*

In a few hundred meters of springs, there are many entrances of caves. Marco Vattano drew these caves and began their study.



Entrance of Acqua Fitusa Cave (San Giovanni Gemini).

47 – *Acqua Fitusa*

Marco Vattano tells us that the galleries are very wide : 2 m wide and 6 m high. Yes, but the cross section looks like the cross shape...



This cave looks like the Chat Cave (Alpes-Maritimes, France).

48 – *Acqua Fitusa*

In this cave, the sulfidic water rose up across the feeding fissure located in the middle of the conduit.



Different microorganisms colonized the thermal waters ; the strange calcite shapes show the structure of the bacterial filaments.



49 – Fauna

Except bats and toads, we can't see extraordinary fauna.



We found animal droppings and quills of crested porcupine (*Hystrix cristata*) in the Eremita and Acqua Fitusa Caves.

Take care, it can prick very strong !

Marco met face to face porcupine in cave. According him, better to go away...



50 – Dinner In Sferracavallo

After the visit of Acqua Fitusa Cave, we decide to dinner in a little fishing harbour located in NW of Palermo : Sferracavallo.

Team debriefing after Acqua Fitusa.



In the Sferracavallo restaurant, It exists only one single menu. You can eat fish and seafood products in a speedy cadency.

51 – Contretemps

The assignment is over and we leave Marco (Univ. of Palermo) and Jo (Univ. of Bologna), they go on their scientific research programme in other caves.

Post office in Palermo : a real monument



We go to the airport, by foot and by bus. We do not know that we will spend all night in Rome, everything paid for by Alitalia...

52 – Rome

The arch of Constantine (on the left)
and the Colosseum (on the right)



We make the most of this contretemps :
Patrice and Jean-Yves go to visit Rome.



The temple of Peace
and in the distance the
Colosseum

The via dei Fori Imperiali and
the Monument at Victor-Emmanuel II

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53 – Rome



St. Peter's Square



Eagle mosaic made with tesserae of calcite

54 – The End

The end

The end

The end

The end

