

# North Peru 2016

**Franco-Peruvian Caving Expedition  
in the North of Peru  
(Amazonas and San Martín regions)**



Organization :

Groupe Spéléologique  
de Bagnols-Marcoule  
(Gard, France)  
and  
Espeleo Club Andino  
de Lima (Pérou)

*From 2016 august 12<sup>th</sup>  
to september 20<sup>th</sup>*

# 2 – ECA-GSBM Team



*Constance Picque*



*Jean Loup  
Guyot*



*Damien  
Vignoles*



*Juan Carlos Villegas*



*Diana Herrera*



*Naomi Mazzilli*

# 3 – ECA-GSBM Team



*Xavier Robert*



*Liz Hidalgo  
Sanchez*



*Jean-Yves Bigot*



*Jean-Sébastien  
Moquet*



*Joseph Galvez*



*James  
Apaéstegui*

# 4 – ECA-GSBM Team



*Angela Ampuero*



*Jean-Denis  
Klein*



*Luca Rava*



*Clémentine  
Junquas*



*Tini Alvarado*



*Nathalie Klein*

# 5 – Our Brazilian colleagues



*Lilia Senna  
Horta*



*Maria Elina  
Bichuette*



*Ezio  
Rubbioli*



*Jonas Eduardo  
Gallão*

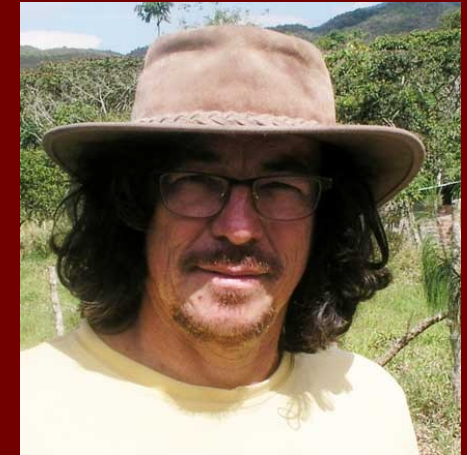
# 6 – Guides of Chirimoto



*Cirro*



*Emiterio*



*Luis Chavez  
Rodriguez  
(Lucho)*



*Ney Tuesta Orillo*



*Artemio Portocarrero  
Rodriguez*

# 7 – Guides of La Jalca and Naciente del Rio Negro



*Samuel Quispe*



*Aurelio Huaman  
Puscán*



*Aloncio Rodriguez  
Huaman Huaman*



*Jhon Brayan  
Valdez*



*Jhensen  
Quispe Frias*



*Jheny Quispe Frias*

# 8 – Lima-Chirimo

*Our route pass-through Cajamarca, ending in Chirimoto (Rodriguez de Mendoza, Amazonas).*





# 9 – Balsas



13-8-2016

*From Lima, we decided to travel through Cajamarca then drive across the Marañón River in Balsas, in order to make some measurements in Timbuj Spring In the Utcubamba Valley, between Leymebamba and Chachapoyas.*

# 10 – Balsas



*Everywhere we see dryness.  
In the Andes Montains, the  
Marañón water nivel is very low !  
As we can see on the limnimetric  
scale under the Balsas Bridge  
(Cajamarca).*

# 11 – Leymebamba



13-8-2016

*We drive through the Andes Mountains and begin to see the Amazonian Slope, near Leymebamba, where limestones massifs are more numerous.*

# 12 – Timbuj Spring



13-8-2016

*In the Utcubamba Valley (Amazonas), the Timbuj Spring color and flow are characteristic. It rained on the La Jalca Mountains.*

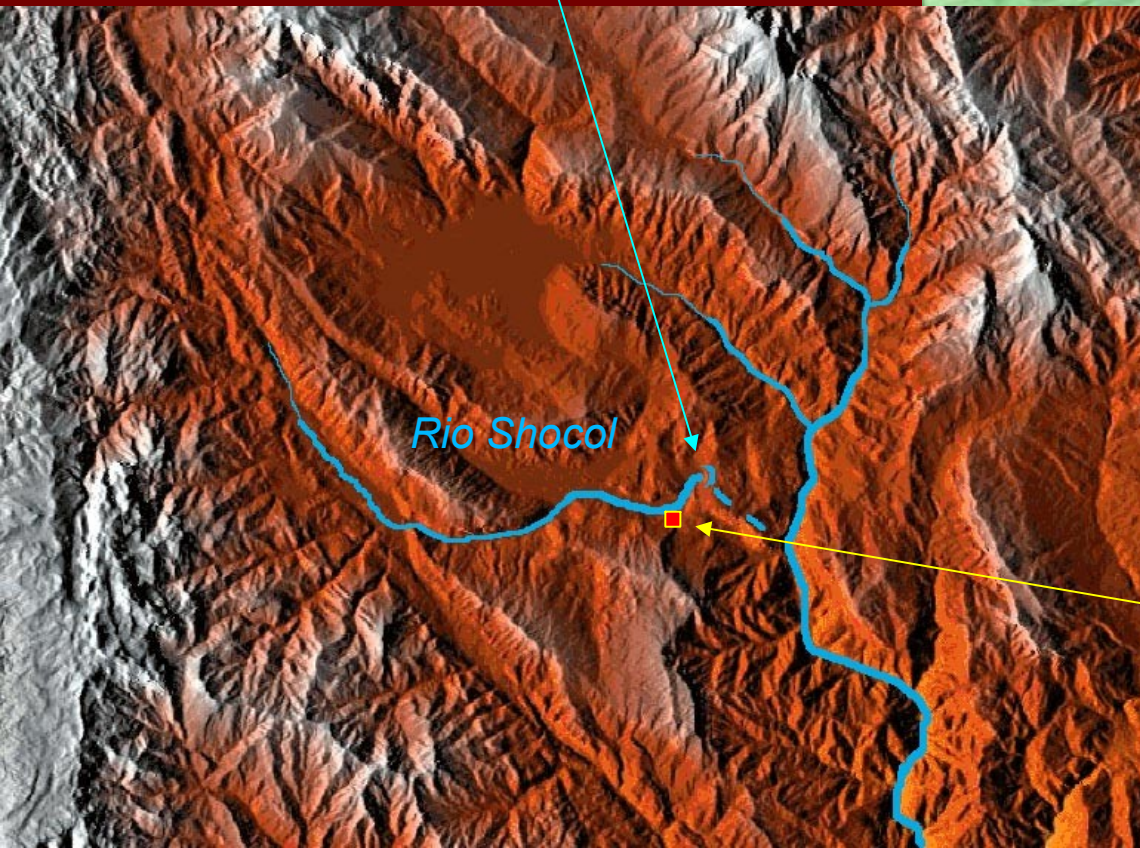
# 13 – Rio Shocol Valley

*The Shocol River disappears in a limestone massif near Milpuc. Chirimoto Village is located in the upstream part of Milpuc Sinkhole. Far away, can be seen Chirimoto Mountain where we will stay a few days.*

# 14 – The Rio Shocol Sinkhole in Milpuc



*Tragadero de Milpuc*



*View Google earth of  
Shocol River and  
Milpuc Sinkhole.*

*Chirimoto*

*Location of Milpuc  
Sinkhole.*

# 15 – The Rio Shocol Sinkhole in Milpuc

*The Shocol River disappears in the area covered with mud and vegetable remains, near Milpuc.*

# 16 – The Rio Shocol Sinkhole in Milpuc



14-8-2016

*The accumulation of vegetable remains has blocked the sinkhole. When the level rise, a very large lake occurs and Milpuc & Chirimoto Villages are flooded. May be, it exists a relationship between the flood and the deforestation.*



# 17 – Chirimoto



14-8-2016

*Lucho and his team receive us. They prepared everything for our settings in Chirimoto karstic massif, located above the village.*

# 18 – Casa del Colibri



*The Casa del Colibri is a very easy common house where we can prepare bags before loading on the mules.*

# 19 – Climbing the Mountain



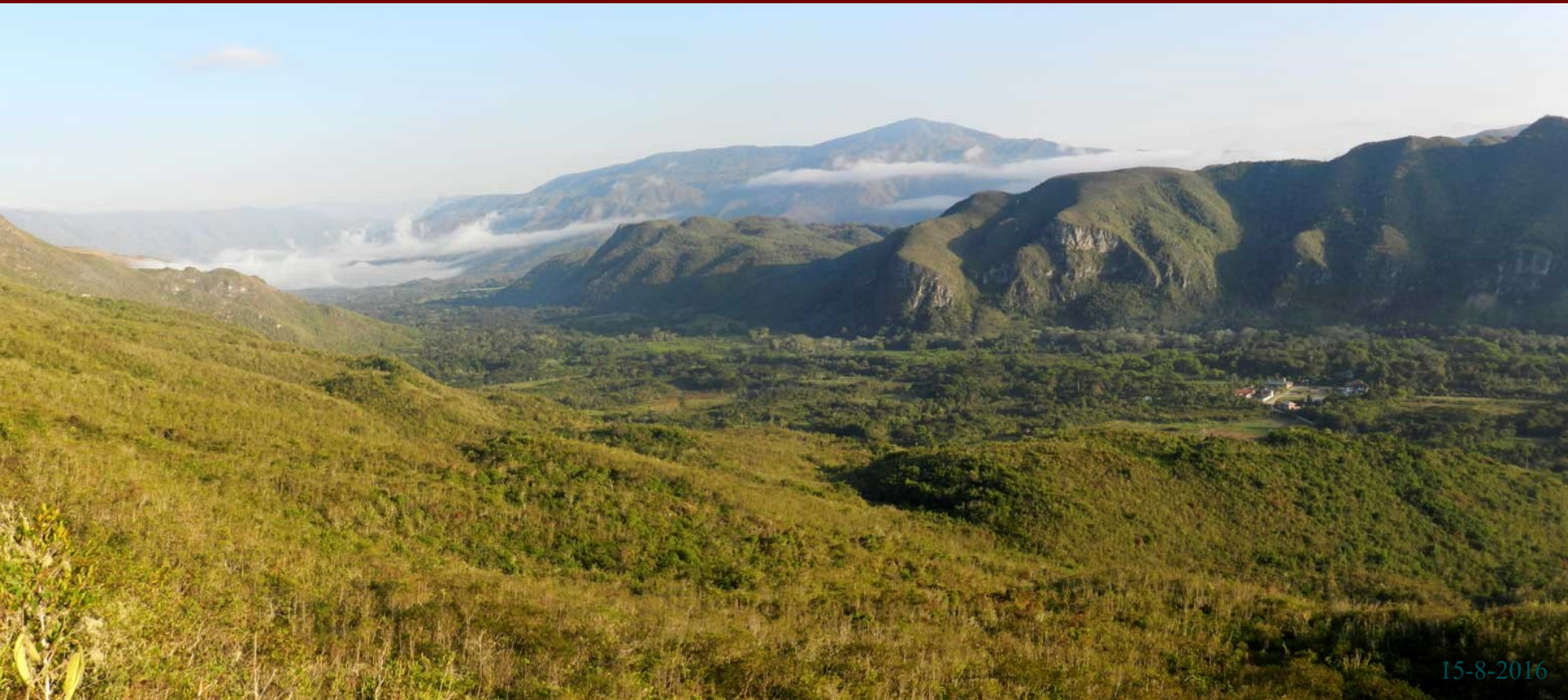
15-8-2016

*From Chirimoto Village to Belga Hut in the forest, Lucho is proud to lead his mules.*

# 20 – Climbing the Mountain

*The sun rises, but the  
Rio Shocol Sinkhole  
stays still in the fog.  
And the mules carry our  
luggage.*

# 21 – Climbing the Mountain



15-8-2016

*At the top of the slope, we can see Chirimoto Village  
In the Rio Shocol Valley.*

# 22 – Climbing the Mountain



15-8-2016



*It takes 4 hours walking ; first on a dry and sunny slope, then in a moister jungle.*

# 23 – Lost in the Rainforest



*Without guide, some of us believe find the Belga Hut; but they lost in the forest...*

# 24 – The Belga Hut



15-8-2016

*Around the Belga Hut, the way has been cleared for cows. But we can go camping near the hut, behind the barbed wire, it'll be our General Headquarters.*



# 25 – The Belga Hut



16-8-2016

*In the hut, we can find every thing we need.  
Except the water, we have to carry it every day from the river to hut.*

# 26 – Tragadero de Palmira

*The Tragadero de Palmira, indicated by Emitterio, will be explored and it could be jointed with the Palmira Doline very close.*



# 27 – Chachapoya Culture



16-8-2016

*At the entrance, in a fossil part of the cave, we find strange excavations.  
There are graves of the Chachapoya culture.*

# 28 – Chirimoto Team



16-8-2016

*Chirimoto Team all together, from left to right:  
Liz Hidalgo, Xavier Robert, Jean Loup Guyot, Luis Chavez (Lucho),  
Artemio Portocarrero & Ney Tuesta. At the bottom, from left to right:  
Constance Picque, Naomi Mazzilli, Damien Vignoles & Jean-Yves Bigot.*

## 29 – Tragadero de Palmira



*The junction between the tragadero and the Palmira system has been made.  
The route is rather aquatic and the water rather cold.*

# 30 – Tragadero de Palmira



*In the fossil galleries, many guacharos stay and nest. Of course, the river carries animal excrements and dead chicks.*

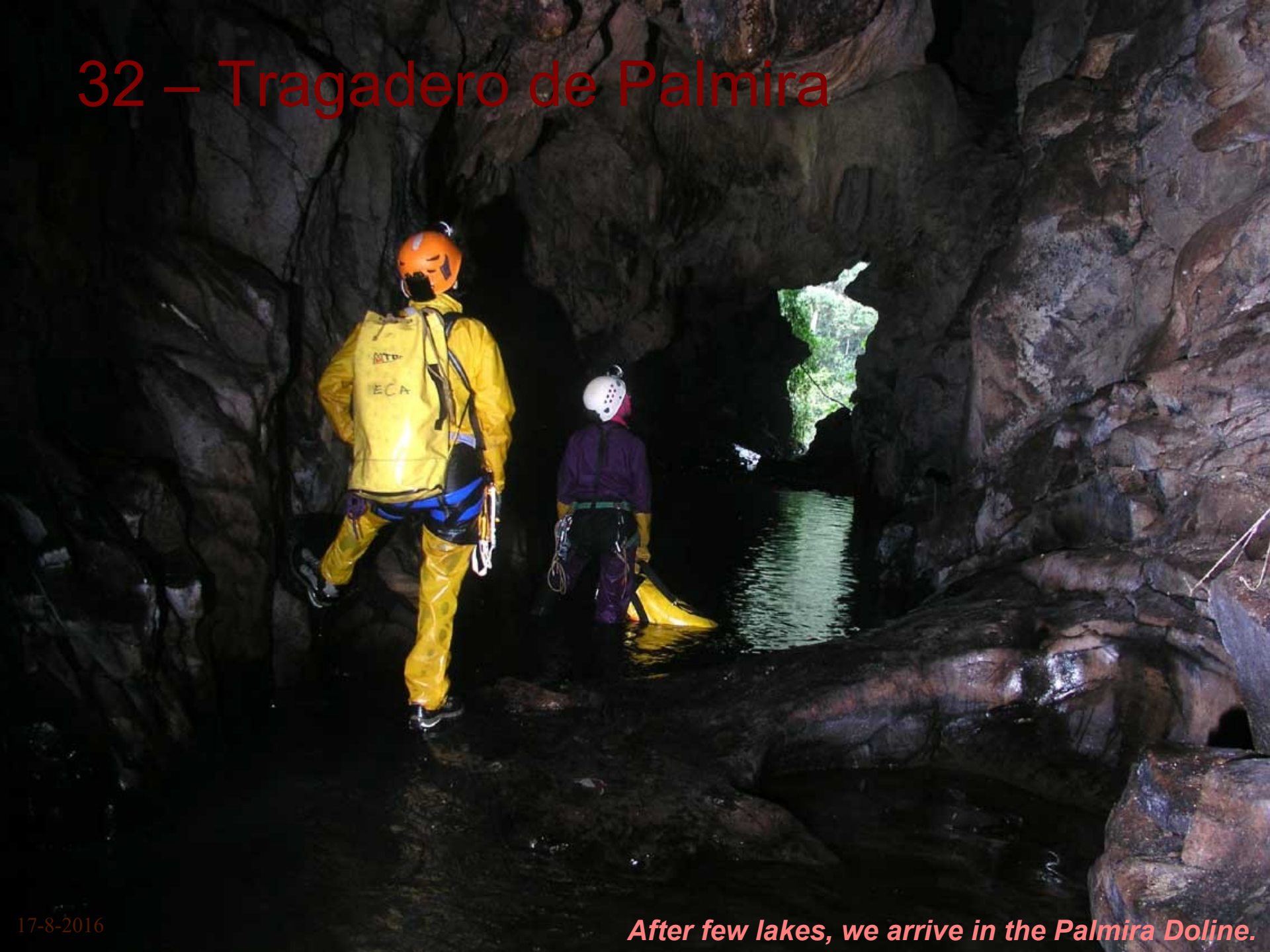
*Fortunately, the taste of this water is good...  
... upstream !*

# 31 – Tragadero de Palmira



*Walking in the river.  
On the floor, plants are  
sprouting between  
pebbles.  
They come from seeds  
guacharos have let down  
in the upper part of the  
subterranean river.*

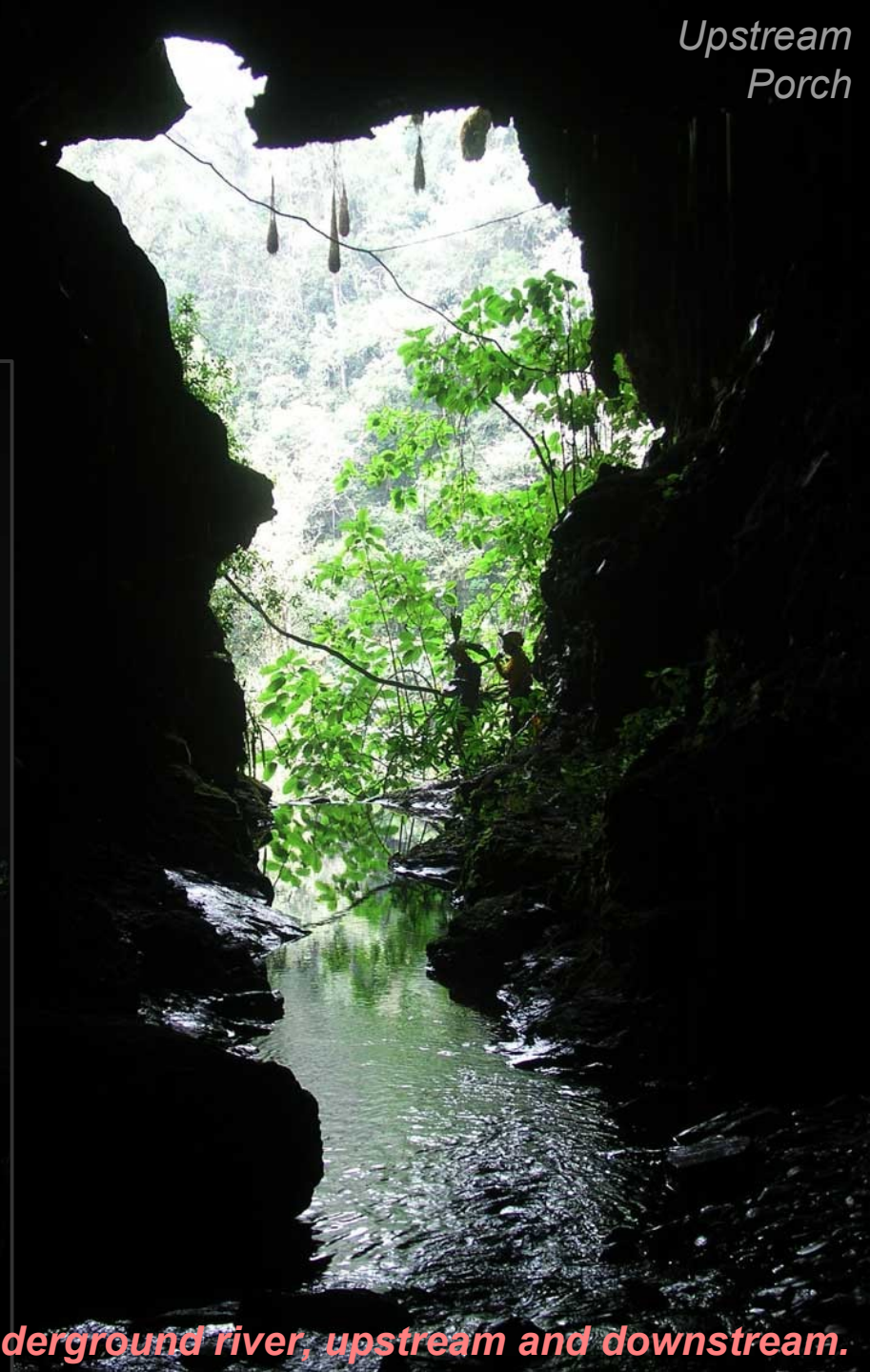
# 32 – Tragadero de Palmira





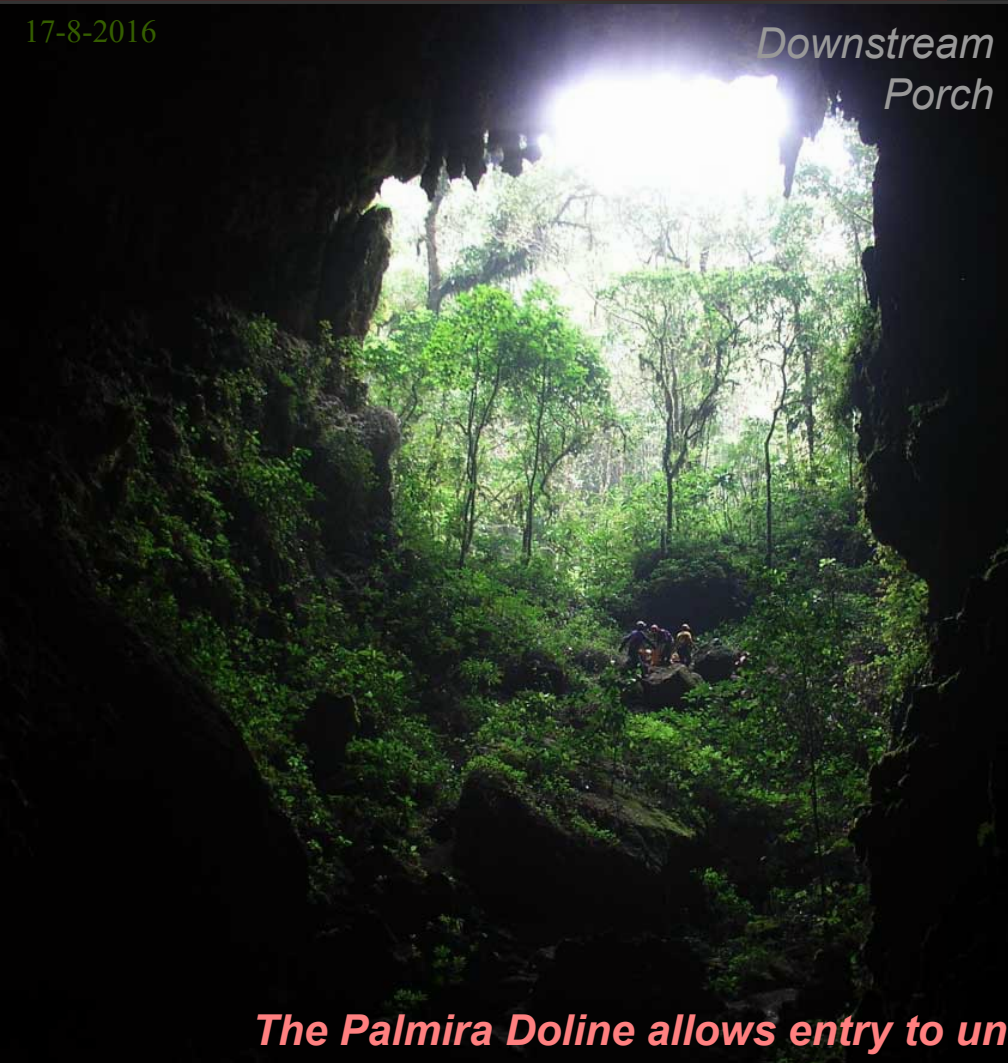
# 33 – Palmira Doline

*Upstream  
Porch*



17-8-2016

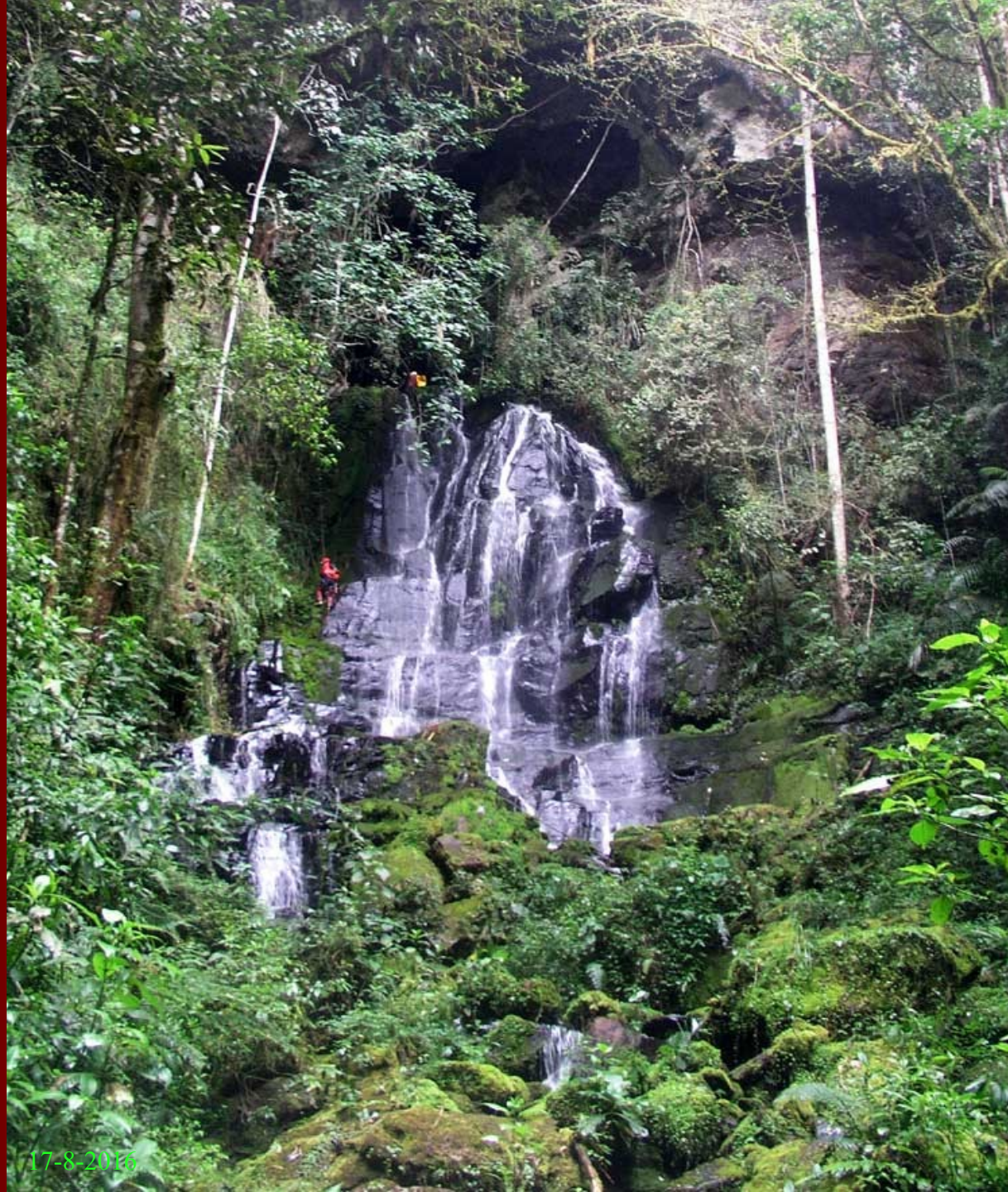
*Downstream  
Porch*



*The Palmira Doline allows entry to underground river, upstream and downstream.*

# 34 – Palmira Doline

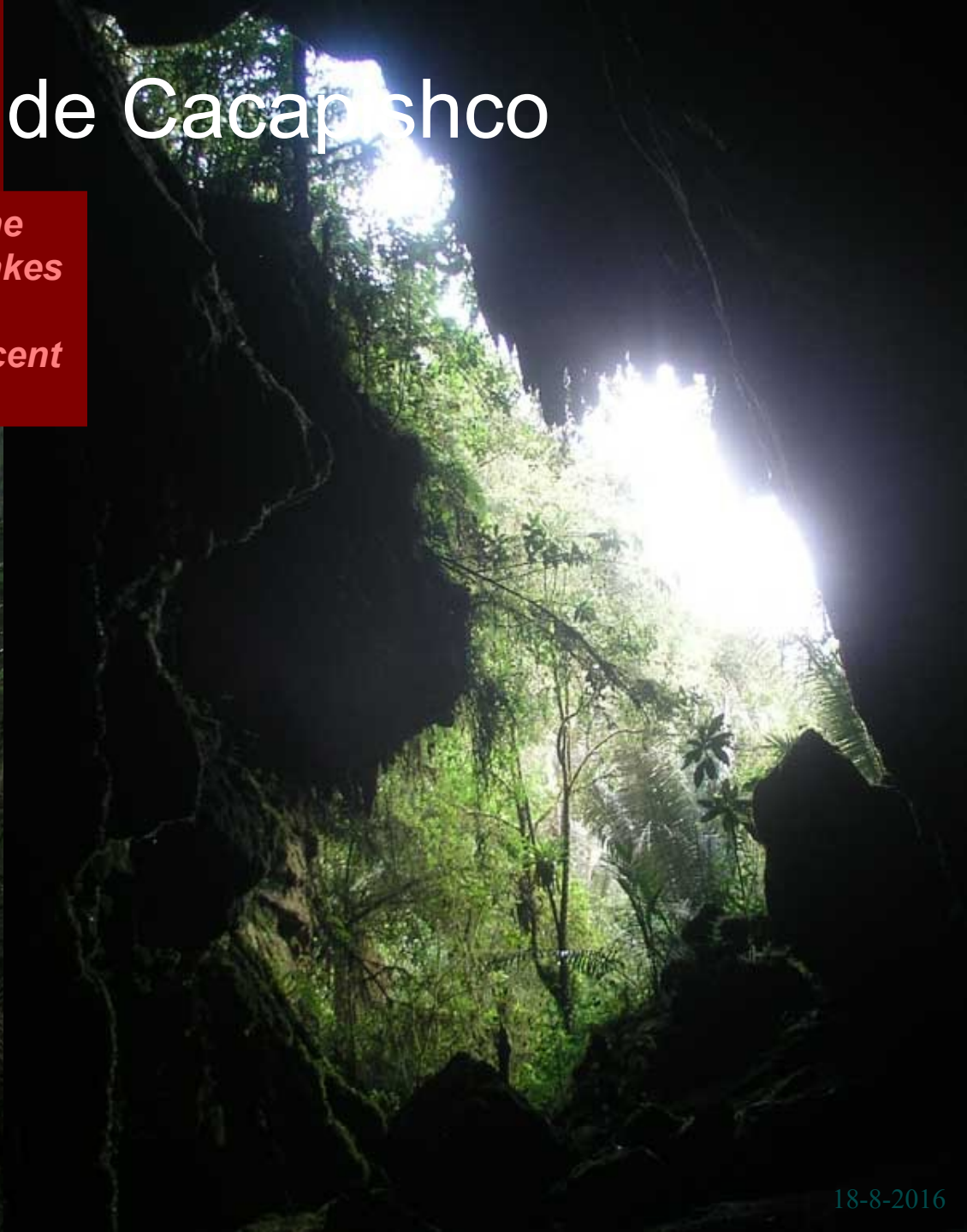
*The resurgence of river  
sunked in the  
Tragadero de Palmira  
is a very beautifull  
waterfall.*



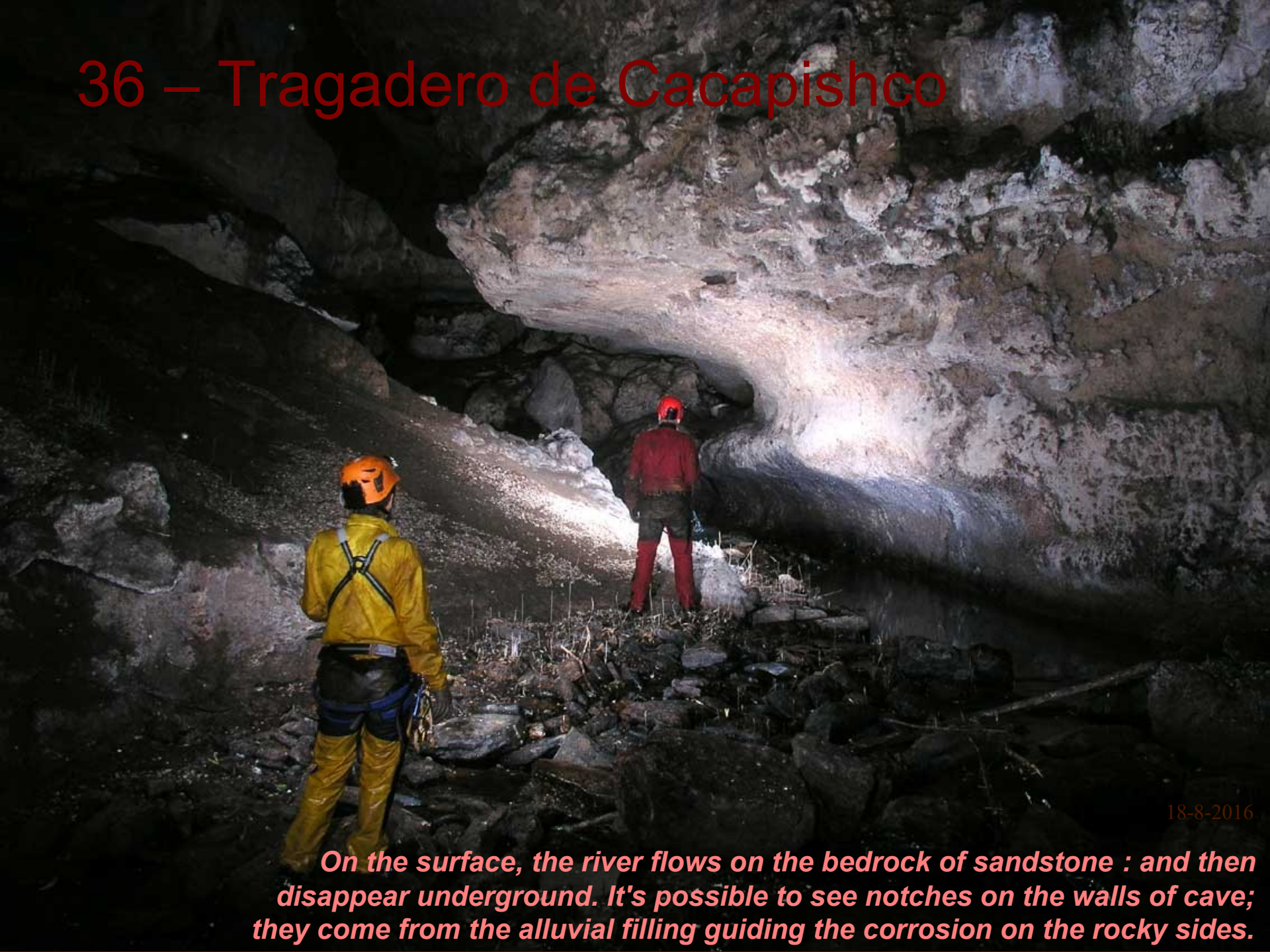
17-8-2016

# 35 – Tragadero de Cacapishco

*The day before, Artemio recognized the path to Tragadero de Cacapishco; it takes about 2 hours from the Belga Hut. The site is wild. Artemio points out recent pistes of Spectacled Bears.*



# 36 – Tragadero de Cacapishco



18-8-2016

*On the surface, the river flows on the bedrock of sandstone ; and then disappear underground. It's possible to see notches on the walls of cave; they come from the alluvial filling guiding the corrosion on the rocky sides.*

# 37 – Tragadero de Cacapishco



*The native indians like guacharos (« pollos » or chicken), There are sticks worm-eaten still in position. They serve to fall the young birds staying in their nest.*

# 38 – Tragadero de Cacapishco



*The fauna of Tragadero de Cacapishco is very diversified. We can see fishes adapted to the subterranean life and guacharos nesting in the deep parts of the cave. The young chicken are appreciated by the natives of rainforest.*

## 39 – Tragadero de Cacapishco



*The name of the cave indicates the presence of guacharos. The word « caca » makes a reference to the cry of guacharos when they move in the darkness by echolocation.*

# 40 – Tragadero de Cacapishco

*The subterranean river flows on the bedrock (sandstone), and disappears in the blocks and the narrow conduits.*

*But, it's possible to follow the fossil course decorated by stalagmites and stalactites.*





# 41 – Tragadero de Cacapishco



*The fossil bed of the river is very decorated (nice gours).*

# 42 – Tragadero de Cacapishco



*The cave shows a lot of fillings  
make up insoluble pebbles.*

# 43 – Tragadero de Cacapishco

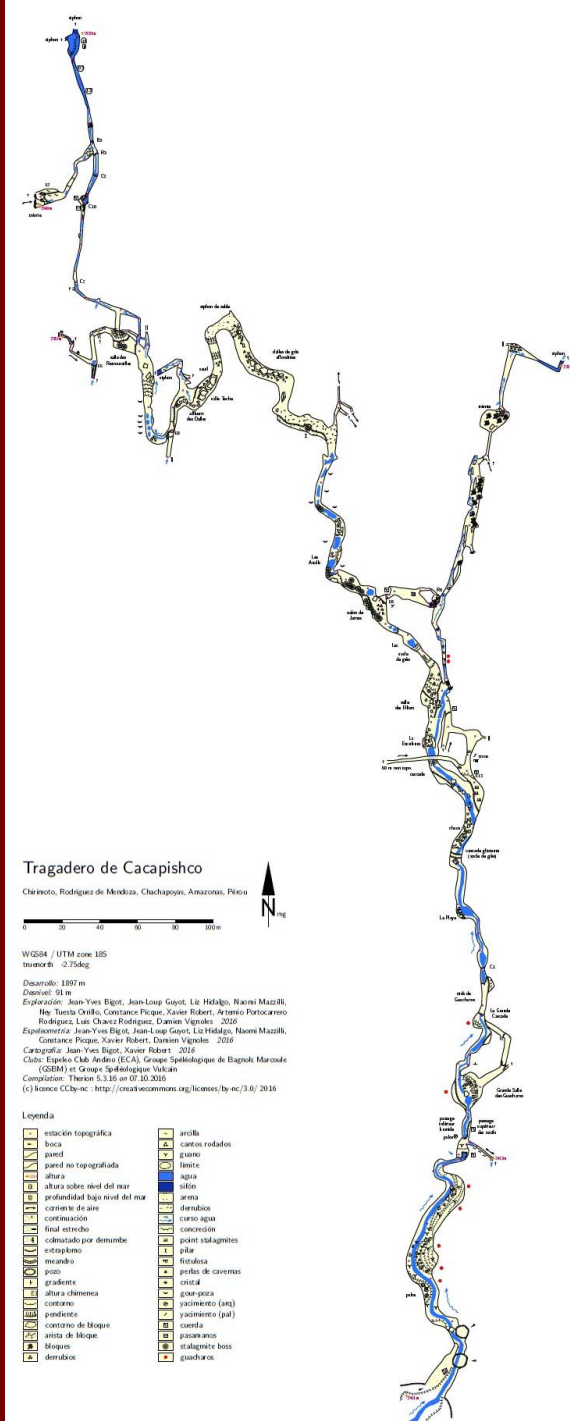


*The dip is very obvious  
on the walls of cave.*

# 44 – Tragadero de Cacapishco

Length: 1897 m

Depth: 91 m



# 45 – Tragadero de Cacapishco

Jean Loup  
Guyot

Constance  
Picque

Ney Tuesta  
Orillo

Liz Hidalgo  
Sanchez

Luis Chavez  
Rodriguez (Lucho)

Xavier  
Robert

Damien  
Vignoles

Naomi  
Mazzilli

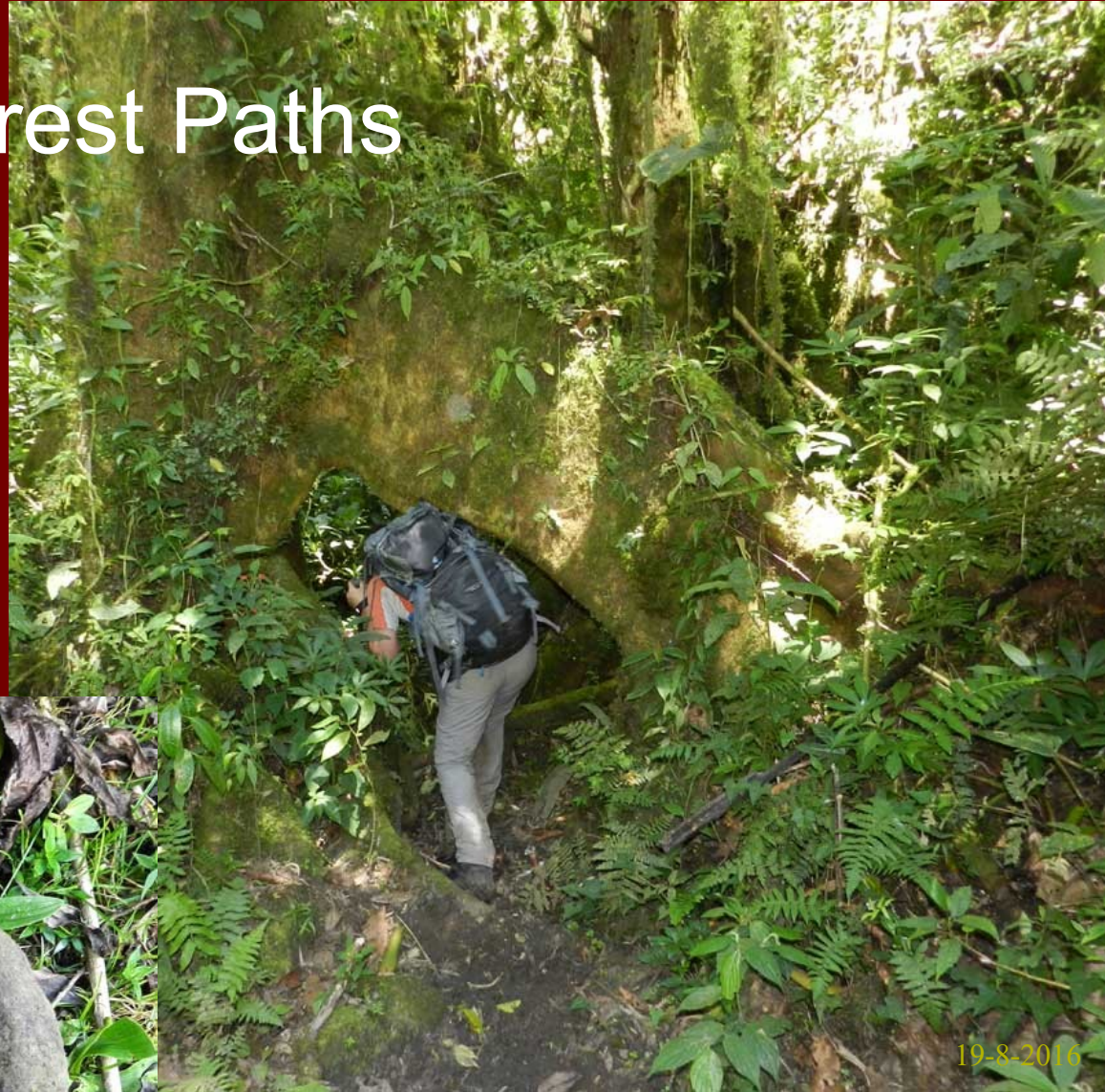


18-8-2016

*The Chirimoto team in the Tragadero de Cacapishco.*

# 46 – On the Forest Paths

*A little team formed by Artemio, Lucho, Xavier and Jean-Yves goes to the West of massif and recognizes sinkholes.*



19-8-2016



*We can see on the surface different things worked, as this batán (sandstone). It's obvious, the forest have been occupied before the arrival of the settlers.*

# 47 – Threatened Forest



*We arrive on the front  
of deforestation:  
the Chirmoto  
mountain is threatened.*

# 48 – Historical Monument



*The oldest hut of settlers of Chirimoto Mountain is abandoned. However, there had all of confort: fireplace and kitchen ustensil...*



# 49 – Sinkhole



19-8-2016

*We reach the sinkhole of Palmira downstream, but it's completely filled.*

# 50 – Cueva del Cementerio

*They show us two human skulls; it's a violated grave.*



19-8-2016



*Then, we find a little cave  
(sinkhole) called:  
Cueva del Cementerio.*

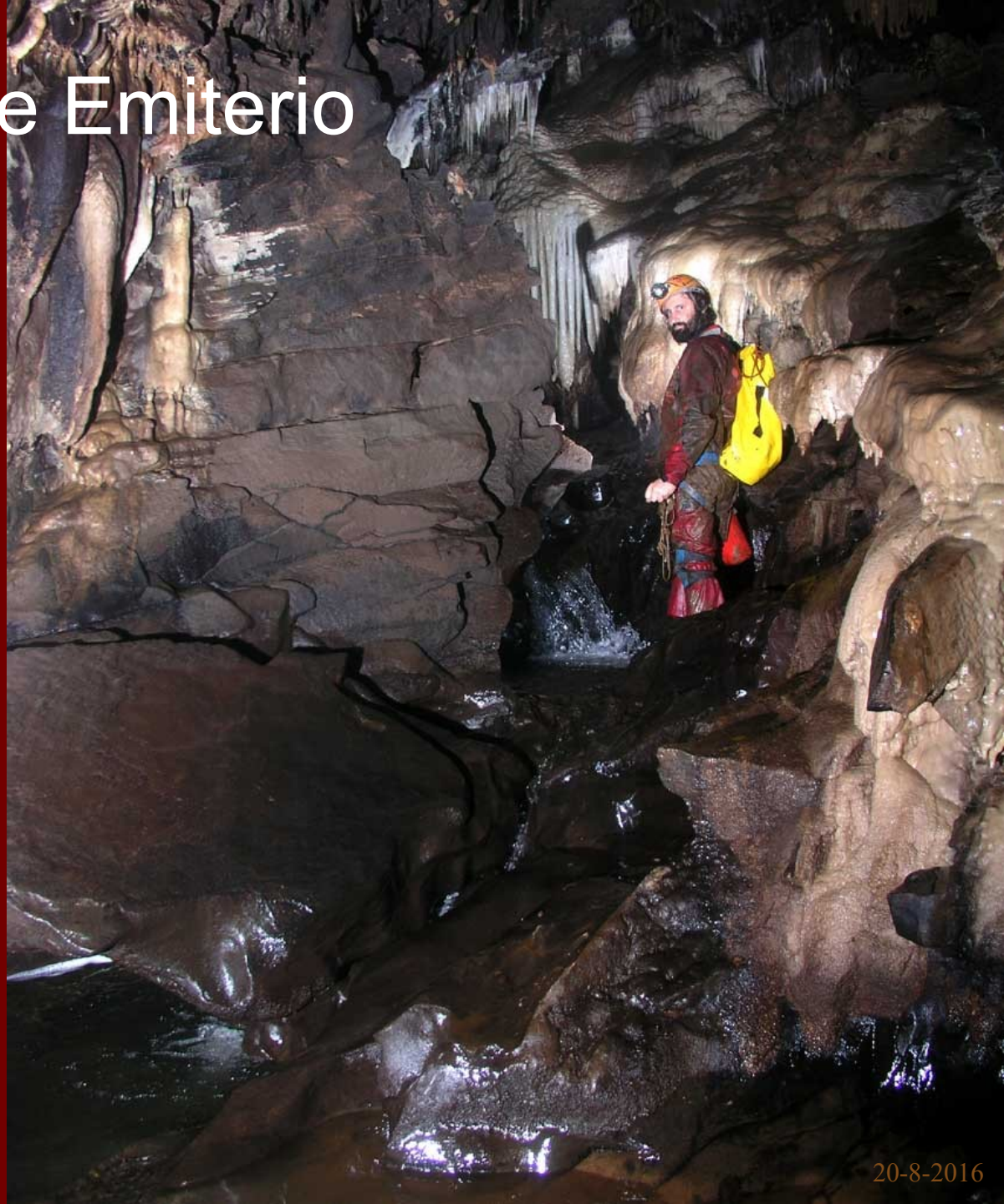
# 51 – Chalán de Emiterio

*The day before, Damien and Naomi went down in the Chalán de Emiterio and explored many galleries.*

*Two courses of subterranean rivers have been recognized.*

*Two teams follow the exploration of this cave, before to go down to the Chirimoto Valley.*

*The subterranean river flows on the bedrock sometimes incised. It's easy to see the sandstone with the stratification and fissured blocks.*



# 52 – Chalán de Emiterio



20-8-2016

*The main river of Chalán de Emiterio.*

# 53 – Chalán de Emiterio

*To the upstream river, on the beach we find tracks of big feline. Probably, a jaguar was lost in the cave...*



20-8-2016



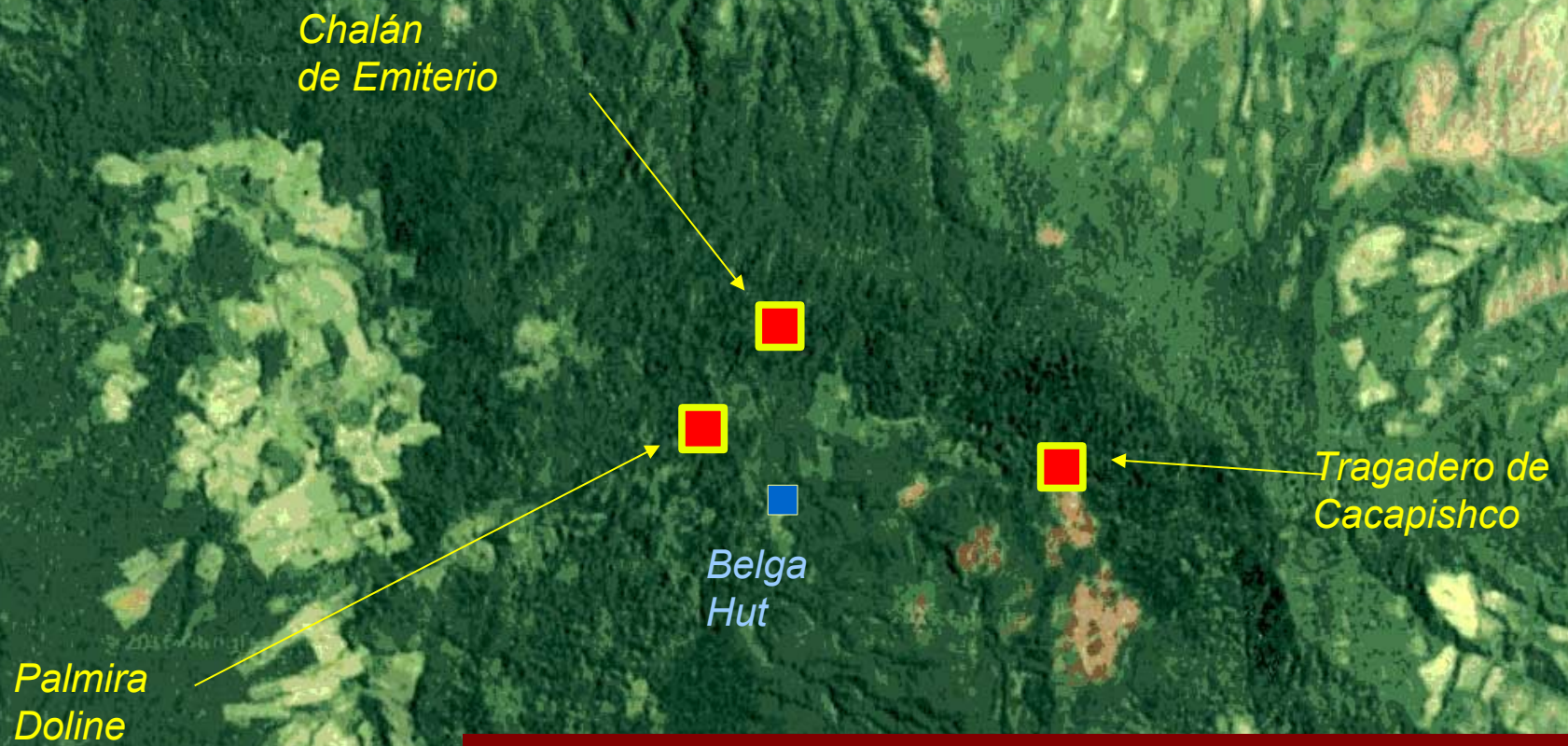
*Actually, we are very close to the surface. Damien and Naomi reach a sinkhole and go out: it's a new entrance of the underground system.*

# Chirimoto Convention



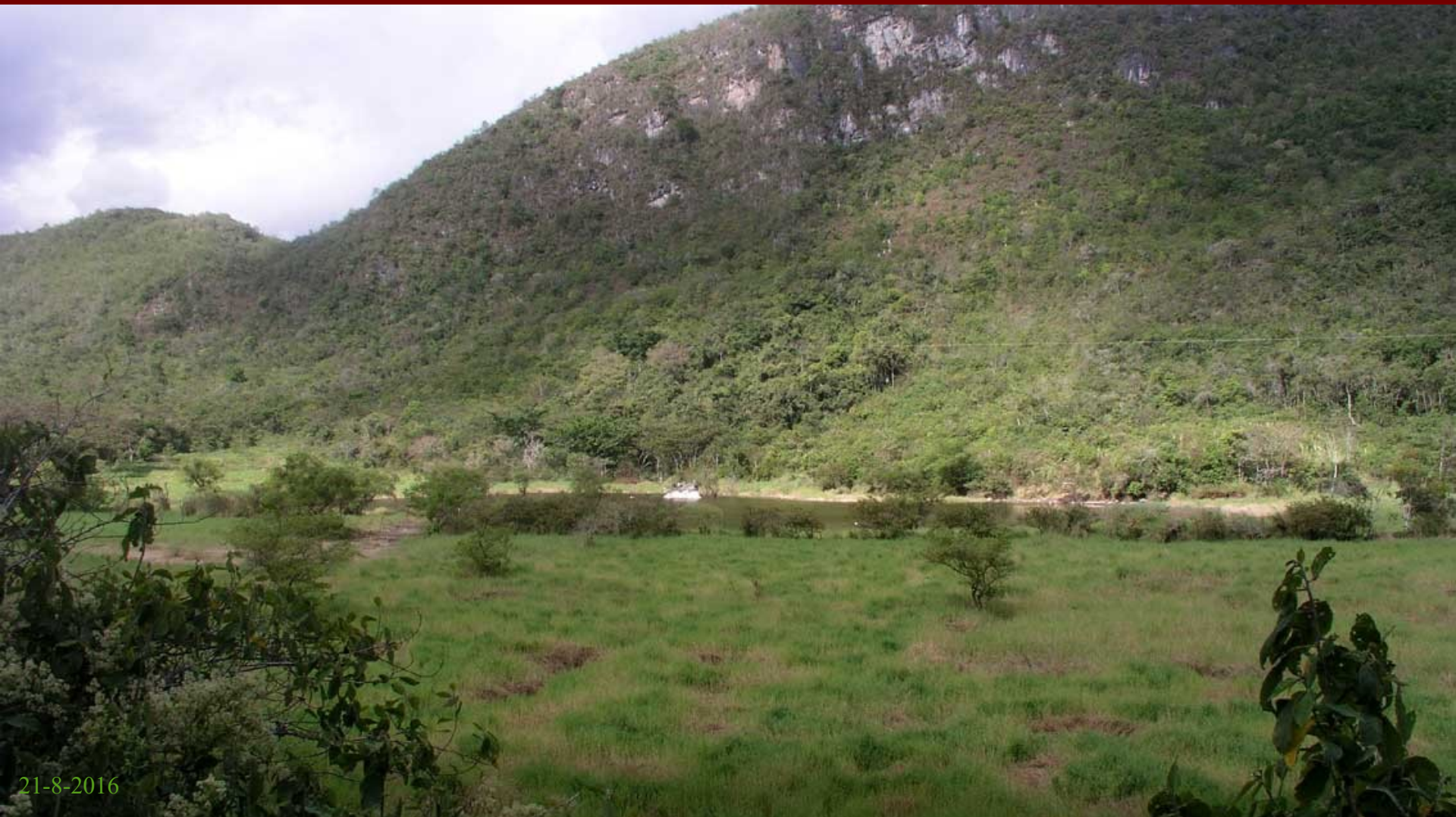
*In the evening,  
Lucho organizes  
a convention in  
the Colibri  
House.  
We have to  
inform the  
inhabitants of  
our results in  
the Chirimoto  
Mountain.*

# 55 – Caves Explored



*Three major caves have been explored :  
the Palmira System (length: 1550 m, depth: 110 m),  
the Emiterio Chalán Cave (length: 1366 m, depth: 109 m) and  
the Cacapishco Cave (length: 1897 m, depth: 90 m).*

# 56 – La Perla Lake



21-8-2016

*We prospect around the Chirimoto Village. They show us caves near the La Perla Lake, there is a mix-up between archeology and speleology...*



# 57 – La Perla Ruins



*The ruins of La Perla are an archeological site. In this place, there are many remains of prehispanic times: Emitterio shows us an enorme batán (sandstone).*

# 58 – La Perla Ruins



*We explored a little cave,  
but it's a tomb violated.*

*Around, there are many terraces  
built by Chachapoyas people.*

## 59 – La Perla Ruins



*The perched entrance of cueva del Mono Trepador contains many human bones, but no continuation...*

# 60 – La Perla Depression



21-8-2016

*Of course, the day hasn't been productive,  
but we have seen the La Perla Depression  
where the water of lake disappears.*

# 61 – Chalán de Lucuma



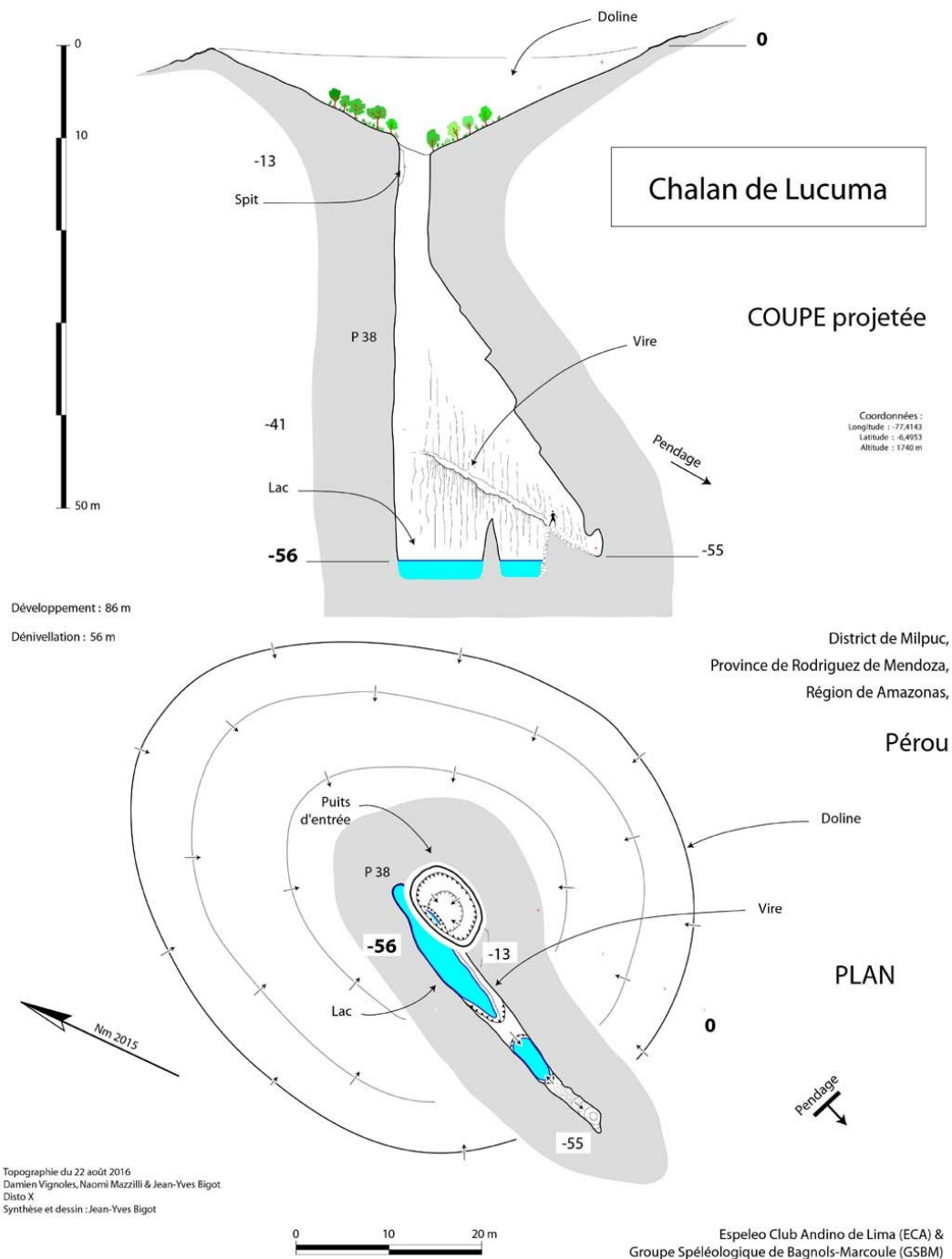
*Damien, Naomi and Jean-Yves continue the explorations of karstic sites around Chirimoto.*



*In Chontapampa, the Chalán de Lucuma is surveyed. But this cave has been recognized by spanish cavers a few years ago.*

# 62 – Chalán de Lucuma

*Survey of  
Chalán de Lucuma.*



# 63 – Cueva del Placer

*We arrive in front of cave called Cueva del Placer. The view is marvelous, but the air is foggy and the cave is very short...*

# 64 – The water of Chirimoto



*There is a mystery :  
Where does the water feeding Chirimoto people come from ?  
Does it come from the Chirimoto Mountain ?*



# 65 – The water of Chirimoto



22-8-2016

*The slope is very dry and deforested :  
It's not surprising to see the people  
complains of insufficient flow.*

*The spring (bocatoma de Chirimoto)  
doesn't allow speleological  
exploration.*

# 66 – Tragadero de Vista Alegre



22-8-2016

*A sinkhole of Rio Shocol is visited.  
Of course, the Tragadero de Vista Alegre works during the flood, but it's impenetrable.*

# 67 – Casa del Colibrí



22-8-2016

*The Casa del Colibrí is a house imagined by Lucho.  
It's a cultural space of the chirimoto community.  
Actually, this house can receive groups and it's very practical for us.*

# 68 – Casa del Colibri

*The house has been built in the seventies. Lucho was a pioneer of Chirimoto taking the initiative to do great work.*



*We can see on the walls of the house of Colibri old pictures of these glorious times.*

# 69 – Casa del Colibri

*The arrival of Chirimoto pioneers in the Rio Shocol Valley dates back to sixties.*



*Chirimoto was still a village of settlers, and there is still much to do...*

# 70 – Flora of Chirimoto



*Many flowers...  
Unclassifiable.*



# 71 – Flora of Chirimoto

*The red color is often presente and it's easy to distinguish it on the green background of the rainforest.*



# 72 – Fauna of Chirimoto

*In the forest, we  
can find little  
frogs...*



*... And big slugs.*



# 73 – Beetles

*It exists also  
Cicindela and  
frightening  
beetle...*



# 74 – Undesirable

*We can find in your  
luggage undesirable  
animals.  
Please don't touch !*



*You have to check  
your shoes and shake  
your clothes before to  
put on.*

# 75 – Rio Shocol

*We have date in Limabamba with Lucho and others local guides. The goal is the exploration of new caves.*



23-8-2016



*We go back up the Rio Shocol until the Challuayacu Bridge.*

# 76 – Cueva de los Vampiros



*We reach a little cave  
surrounded by cows...*

# 77 – Cueva de los Vampiros

*In Amazonia, cows indicate vampire bats.*

*Actually, there are many vampires in the cave; they wait the night and eating the blood of cattle.*



23-8-2016

# 78 – Bocatoma de Tuemal

*We have a goal : make the survey of cave recognized in 2011: the Cueva de la Bocatoma de Tuemal, a subterranean river about 500 m long.*



# 79 – Bocatoma de Tuemal



23-8-2016

*Sedimentary figures appear in the sand fillings. There is a « Gilbert delta » indicating the level of lake.*



# 80 – Bocatoma de Tuemal

*Surveying in the  
underground  
river of Tuemal.*





# 81 – Mouses and Bats

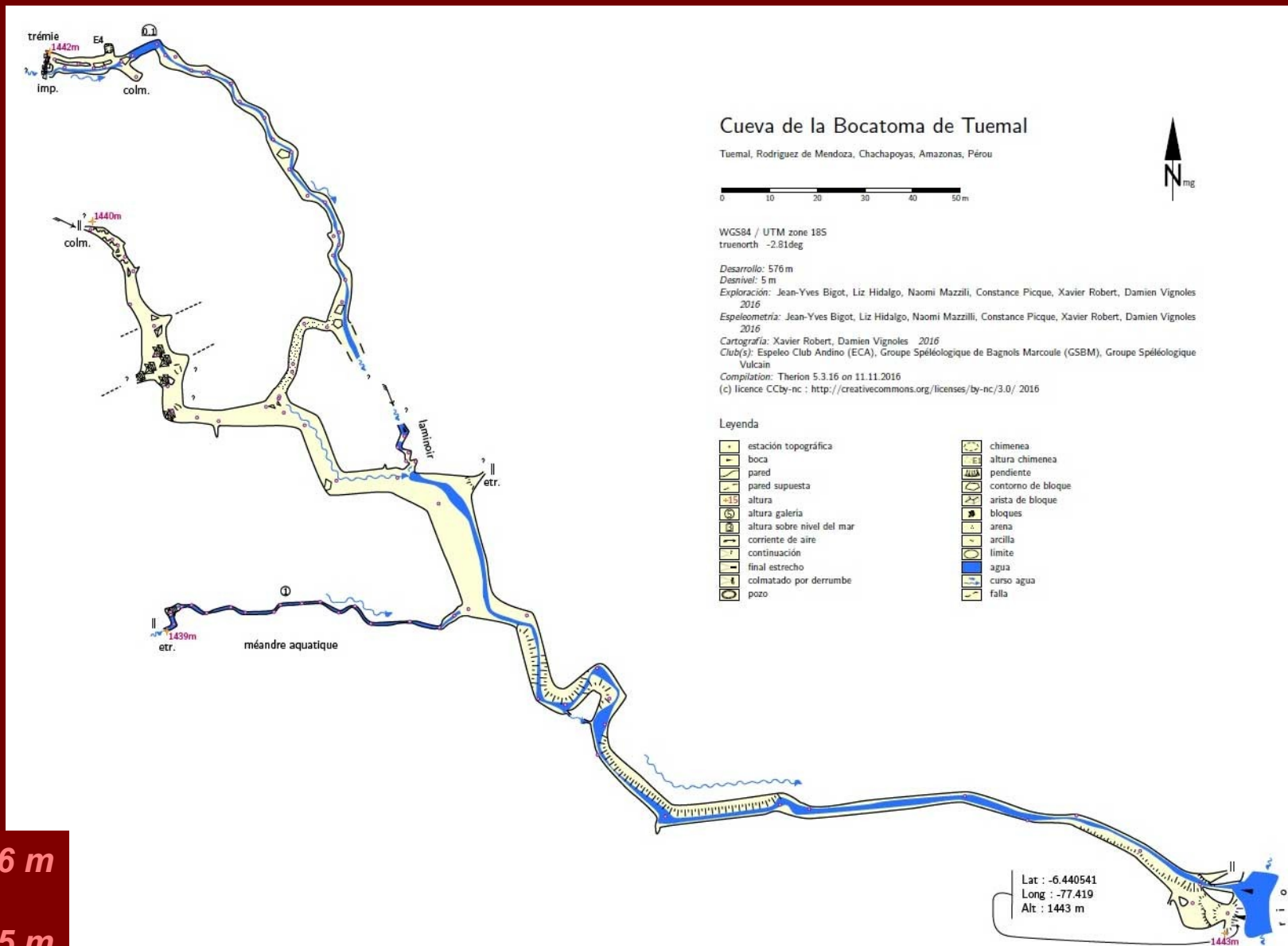
*Many species of bats live together in the Tuemal Cave.*



*The vampire bats are located in the entrance zone, but the bats eating pollen of plants (above) prefer to stay inside the cave.*

*As for rodents (opposite), they have make their nest near the entrance.*

# 82 – Cueva de la Bocatoma de Tuemal



Length: 576 m

Depth: 5 m

# 83 – Chirimoto Adventure is Over



*We have to leave Chirimoto and go to La Jalca:  
A last picture with our friend Cirro (in the center), he had invited us many times at home.*

# 84 – Closed Road

*The Mendoza Plain seen  
from the path.*

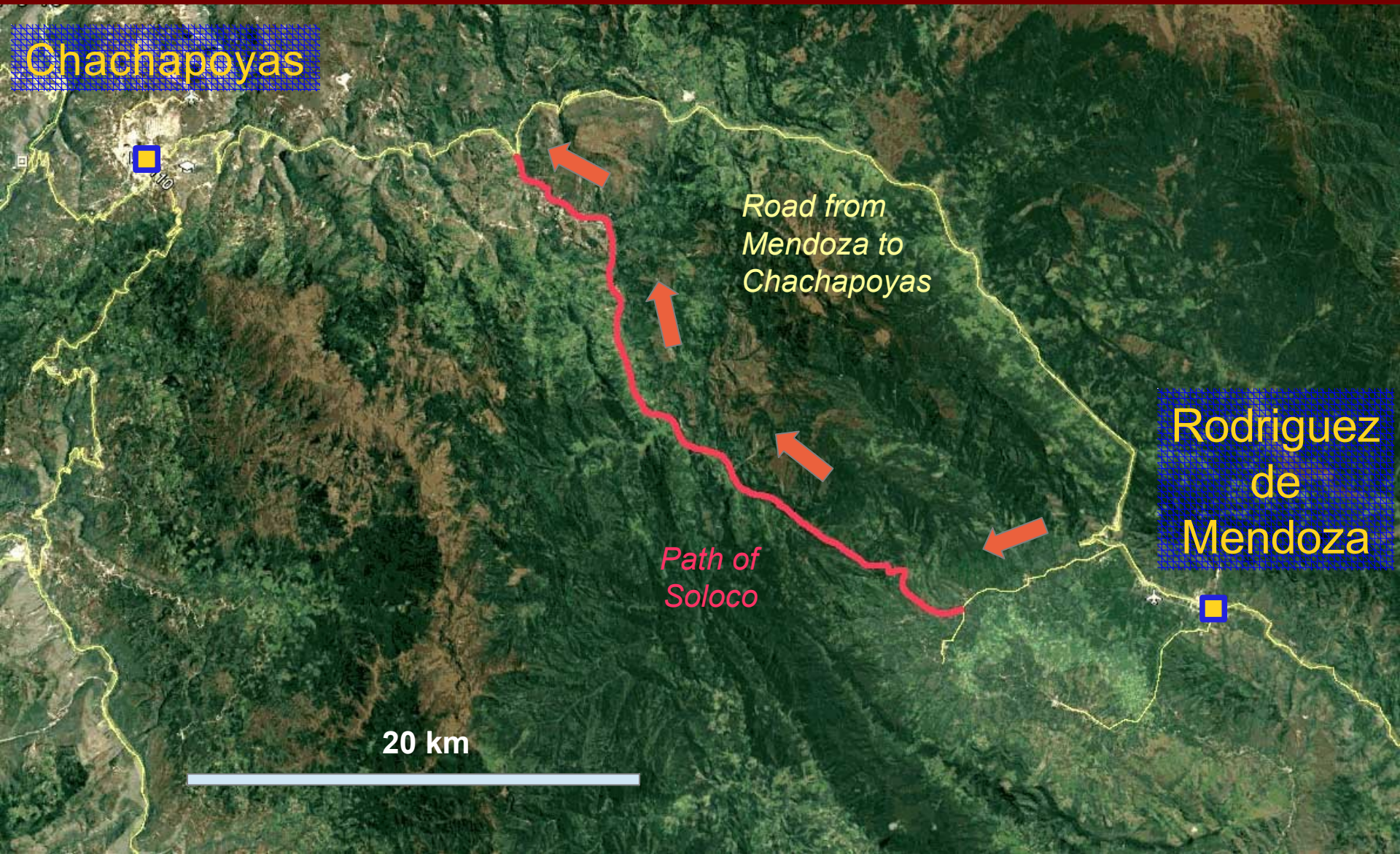


24-8-2016

*The road from Rodriguez de Mendoza to Chachapoyas is closed, we have to go on the path through Soloco. But this path is muddy, a vehicle 4x4 is essential... we decide to go now without to wait the opening road estimated time about 17h00.*

# 85 – Closed Road

*The appearance is deceptive: the path is not a real shortcut...*



# 86 – On the Path to Soloco



*Of course, we have got  
vehicles 4x4x to do...*

# 87 – On the Path to Soloco

*... But it rained, and  
the ruts are deep.*



*Of course, this  
place is wild and  
the landscapes  
are beautiful, but  
it takes more  
time than the  
road.*

24-8-2016

# 88 – La Jalca

*We have decided to go to La Jalca, a village occupied by native population chachapoya traditional.*





# 89 – La Jalca

*We introduce ourselves at the City Hall of La Jalca and we meet the governor: Aloncio Rodriguez Huaman Huaman, a helpfull man accepting to guide us on the field.*

*And we are soon in front of huge dolines...*



# 90 – La Jalca



25-8-2016

*At the foot of cliffs, there is an enormous cave: the Tragadero de los Alcones. In fact, it's the Cueva Yacuecuj, a cave containing many archeological remains. It had been surveyed in 2007 by ECA...*

# 91 – Tragadero de Totora

*Damien, Naomi and Jean-Yves see again the Tragadero de Totora explored in 2013. The aquatic part is too much hard, but Damien tries to follow the suction air flow. But we have to back.*



# 92 – Our Neighbours

*The  
neighbours  
of our hotel  
are curious.*



*Brigita Puscán,  
coiffed by  
traditional  
« pañuelo », asks  
us questions  
about our  
presence in La  
Jalca.*

*Her son, Aurelio  
Huaman Puscán,  
will go caving  
with us.*

26-8-2016

# 93 – Cueva del Frio

*Naomi and Damien decide to explore a cave located in the bottom of huge doline. We called it: Cueva del Frio because its temperature is freezing.*

# 94 – Cueva de los Alcones

A photograph showing the interior of a cave. The walls and ceiling are made of dark, layered rock. The floor is covered with large, light-colored boulders. A person is visible in the distance, standing on a rock. Light enters from an opening on the right side of the cave.

*Aurelio, Constance  
and Jean-Yves take few shots  
in the Alcones Cave,  
called tambien Cueva Yacuecuj.*

# 95 – Cueva de los Alcones



*We find many human bones  
and archeological remains.*

# 96 – Cueva de los Alcones

*There are many constructions and terraces indicating that correspond to typical tombs of chachapoya culture.*

*The cave has been sacked and it exists a big crater in the middle of cave made by treasure hunters.*





# 97 – Near Huinto



*Aurelio guides us until his « chacra » (garden in the forest) near Huinto, but his cave is so short... However the landscape is fantastic.*

# 98 – La Jalca Massif

*We can see the geological structure of La Jalca limestones. The dip is spectacular.*



# 99 – Tragadero de Ucshapugro



***Despite the GPS problem,  
we reach the entrance of the  
Tragadero de Ucshapugro  
corresponding to sinkhole  
and dry river.***

# 100 – Tragadero de Ucshapugro



*Rapidy, a sump is reached...  
We have to come back with  
diving bottles.*

# 101 – Trapped Fishes

*There are many ponds of clear water in the cave, but only one of them is occupied by about ten fishes. It's the dry season and there is no water in the river.*

*The explanation is simple. There are many fishes in this pond because it's fed by a trickle of water falling from the roof. It's sufficient to maintain water quality and allow the survival of fishes until the next season.*



27-8-2016

# 102 – Trapped Fishes

*The fishes are partially depigmented, it's the beginning of adaptation. Their mouth can be stretch out and serve to stick as a sucker.*

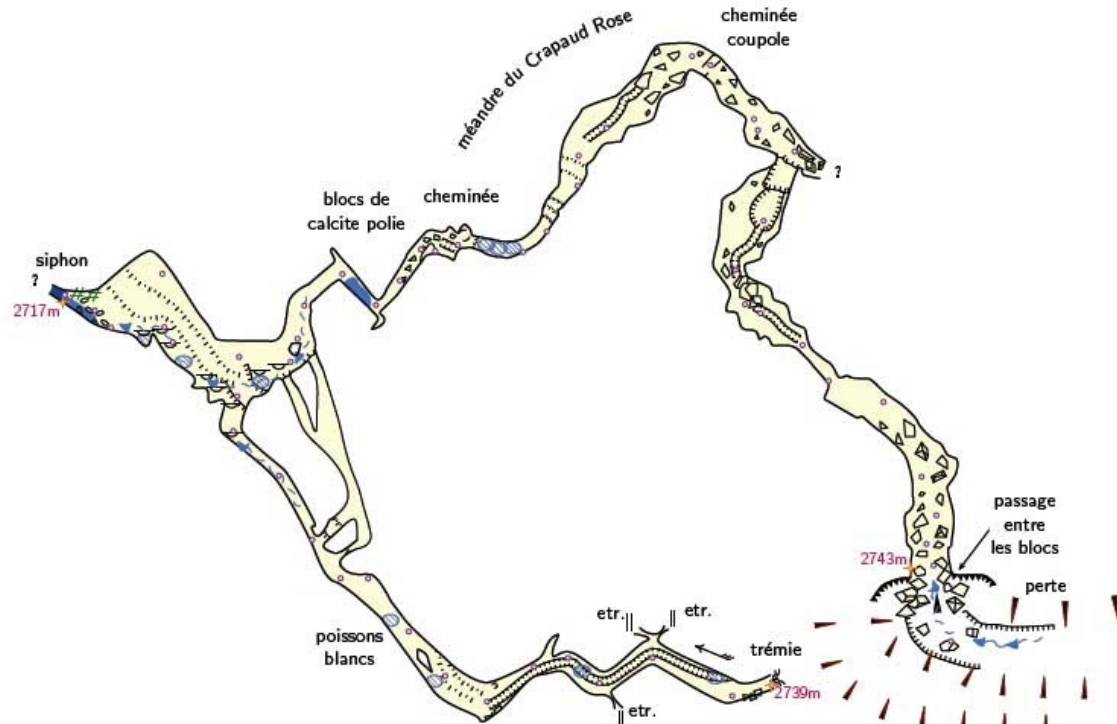


*In this way, they can climb the falls and reach others ponds.*

# 103 – Cueva de Ucshapugro

**Length: 331 m**

**Depth: 26 m**



## Tragadero de Ucshapugro

La Jalca, Chachapoyas, Amazonas, Peru



WGS84 / UTM zone 18S  
truenorth -2.50deg

Desarrollo: 331 m  
Desnivel: 26 m

Exploración: Jean-Yves Bigot, Maria-Garcia Bustamante, Olivier Fabre, Naomi Mazzilli, Constance Picque, Xavier Robert, Damien Vignoles 2013 – 2016

Espeleometría: Jean-Yves Bigot, Maria-Garcia Bustamante, Olivier Fabre, Constance Picque, Xavier Robert, Damien Vignoles 2013 – 2016

Cartografía: Jean-Yves Bigot, Xavier Robert 2013 – 2016

Clubs: Espeleo Club Andino (ECA), Groupe Spéléologique de Bagnols Marcoule (GSBM), Groupe Spéléologique Vulcain

Compilation: Therion 5.3.16 on 10.10.2016

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### Legenda

estación topográfica	final estrecho	contorno	sifón
boca	colmatado por concreción	pendiente	curso agua
pared	colmatado por derrumbe	contorno de bloque	curso agua intermitente
pared no topografiada	extraplomo	arista de bloque	canaleta
+15 altura	meandro	agua	detritus vegetales
corriente de aire	pozo	cantos rodados	dolina
continuación	chimenea	agua	

# 104 – Cueva del Frio

*Xavier and Jean-Yves have to see again the bottom of the Cueva del Frio and to survey the tributaries.*





# 105 – Cueva del Frio

*The entrance of this cave is amazing. It's wellknown of Chachapoyas people, but nobody has explored it because there is a short vertical pit...*

# 106 – Cueva del Frio

*Of course, we find all of things in the Cueva del Frio, trapped animal skeletons, but also human bones.*



*Skeleton of Mustelidae in the Crown Tributary.*



*Human mandible.*

# 107 – Cueva del Frio



*At the bottom of the pit 4 m deep, we find a lot of human bones on the floor.*

# 108 – Cueva del Frio

*The human sacrifice was practicing by Chachapoyas. Men have been thrown into the shaft after have been striken violently on their head .*



*The skull shows marks of knocks and fractures.*

*The Chachapoya World is sometimes violent...*

# 109 – Cueva del Frio

*On the clay wall,  
near the bones, we  
notice little holes  
made with stick.*

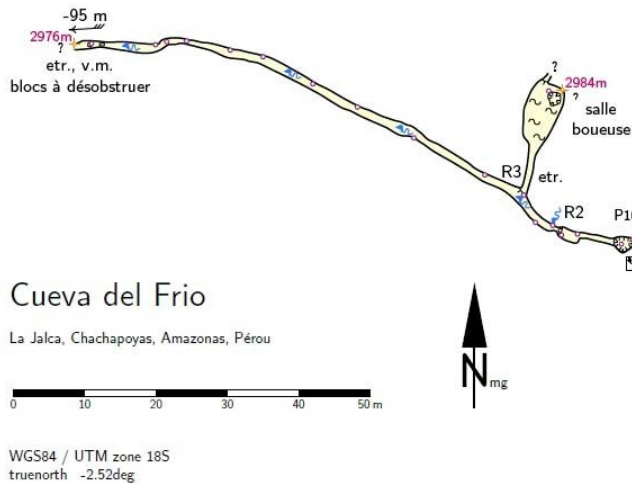
*Similar marks have  
been found in the  
Soloco Caves  
(Tragadero de  
Santa Maria), but  
it's difficult to  
interpret it.*



# 110 – Cueva del Frio

Length: 587 m

Depth: 95 m



## Cueva del Frio

La Jalca, Chachapoyas, Amazonas, Pérou

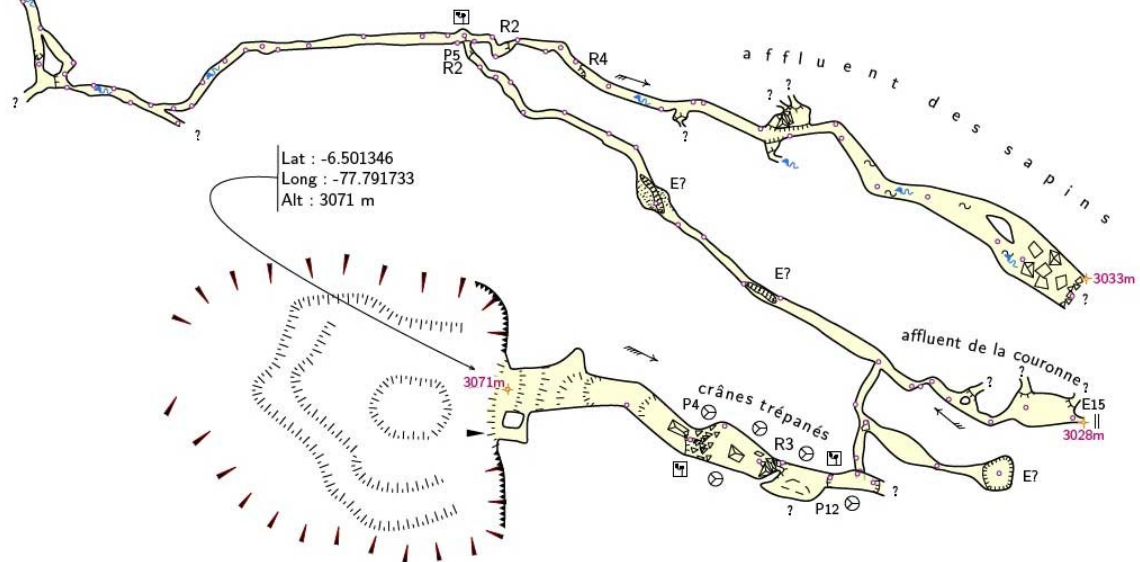


WGS84 / UTM zone 18S  
truenorth -2.52deg

Desarrollo: 587 m  
Desnivel: 95 m  
Exploración: Jean-Yves Bigot, Liz Hidalgo, Naomi Mazzilli, Constance Picque, Xavier Robert, Damien Vignoles 2016  
Espeleometría: Jean-Yves Bigot, Liz Hidalgo, Naomi Mazzilli, Constance Picque, Xavier Robert, Damien Vignoles 2016  
Cartografía: Xavier Robert, Damien Vignoles 2016  
Club(s): Espeleo Club Andino (ECA), Groupe Spéléologique de Bagnols Marcoule (GSBM), Groupe Spéléologique Vulcain  
Compilation: Therion 5.3.16 on 11.11.2016  
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### Leyenda

	estación topográfica		profundidad pozo
	boca		pendiente
	pared		contorno de bloque
	altura		arista de bloque
	corriente de aire		bloques
	continuación		derrubios
	final estrecho		arcilla
	colmatado por derrumbe		límite
	extraplomo		curso agua
	pozo		yacimiento (arq)
	chimenea		cuerda
	altura chimenea		dolina



# 111 – La Jalca-Palestina

*We leave the mountains of La Jalca (alt.: 2860 m) for Palestina (alt.: 860 m).*



# 112 – Fires

*In La Jalca Mountain, we have seen the forest (Selva Alta) burning: the flames exceeded the top of the trees.*



*On the road, uncontrolled fires show that the deforestation goes on in the Andes.*

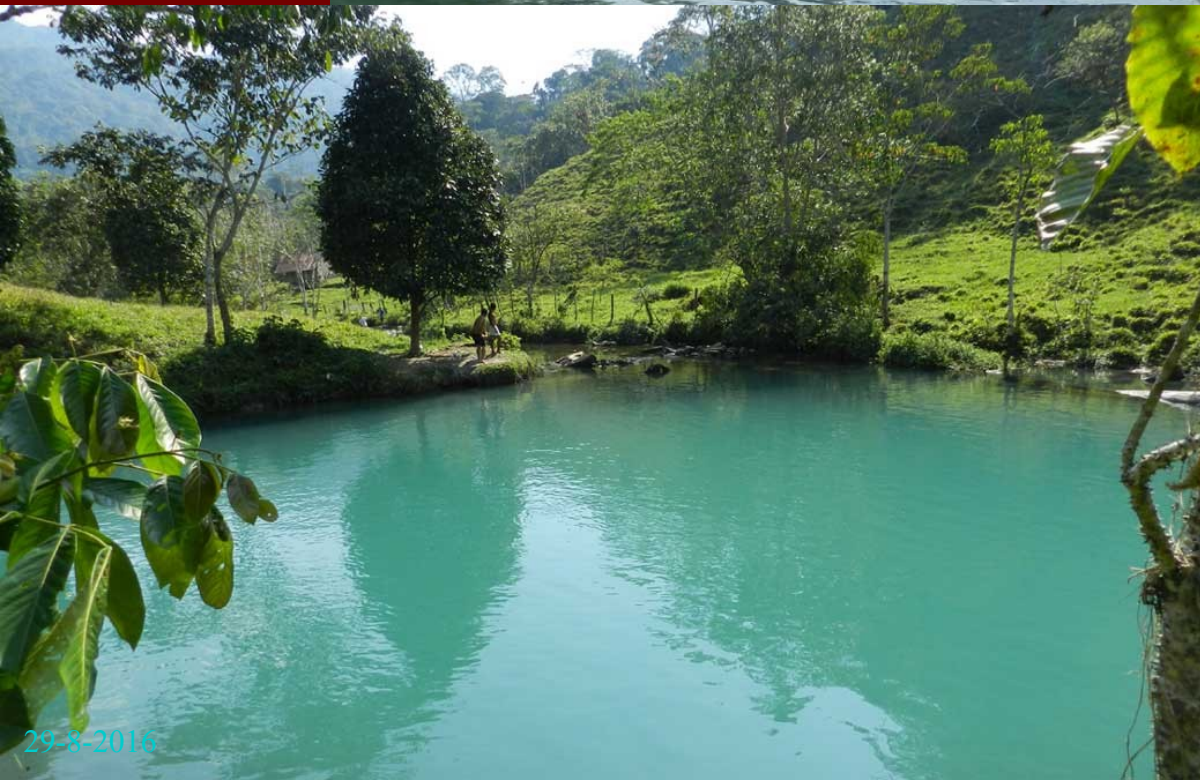


# 113 – Patricia Pass



*From the Patricia Pass,  
we can see the Rioja  
Plain where we go.  
The goal is to take our  
place in the Cueva de  
Palestina Camp, near  
Nueva Cajamarca  
(San Martin).*

# 114 – Aguas Claras



*On the road, we stop at Aguas Claras; it's swim time for the local people.*

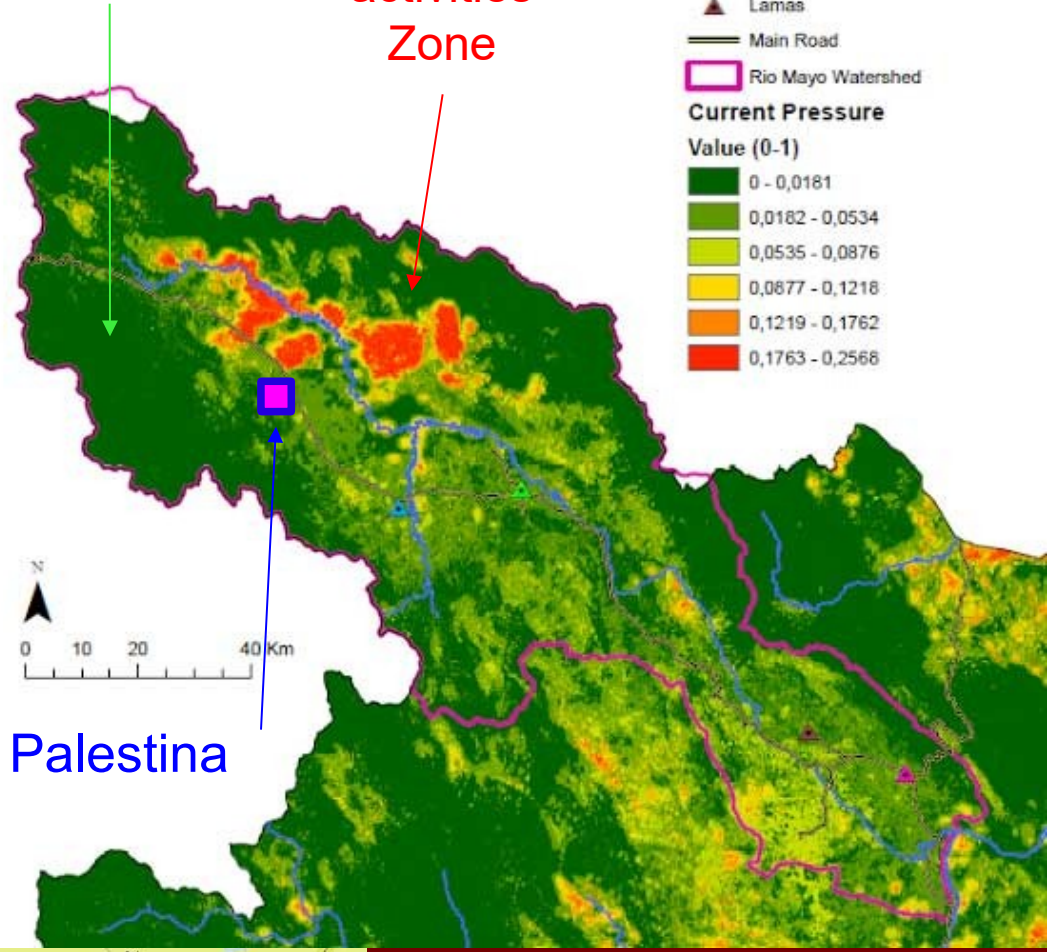
*It's also a big spring.*

# 115 – Palestina

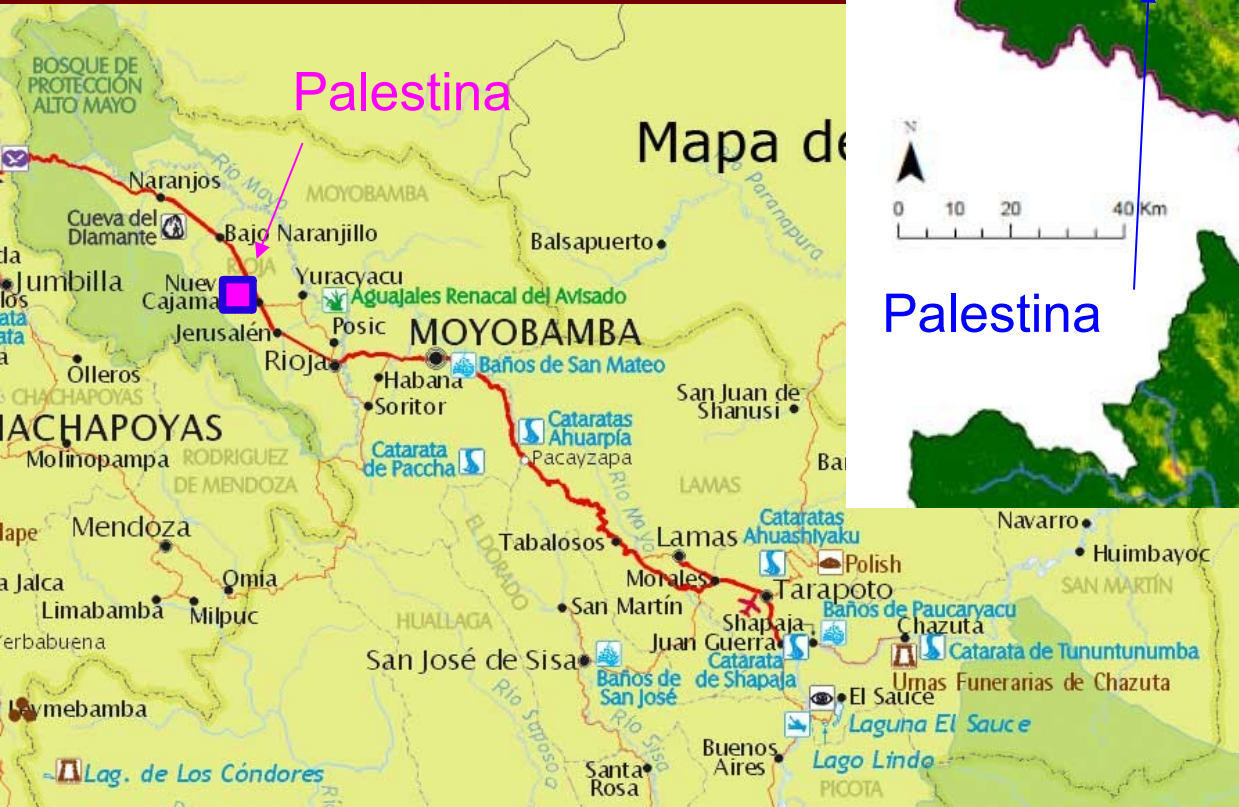
*Paltestina is a little village located near the forest park (« Bosque de Proteccion Alto Mayo »), a threated paradise by the deforestation around the Alto Mayo reserve.*

Alto Mayo Reserve

Human activities Zone



Paltestina



*Particularly, on the both sides of Rio Mayo River.*

# 116 – Cueva de Palestina



*We focus our efforts in the bottom of Cueva de Palestina. Xavier and Damien try to free dive the sump. But it doesn't pass !*

# 117 – Cueva de Palestina

*It exists another ventilated passage. It's located at the foot of high fault, but there is too much work in this place.*



# 118 – Cueva de Palestina

*Of course,  
we have  
found  
nothing,  
but it's a  
pleasure to  
walk in this  
cave.*



# 119 – In the Rain

*We walk up with the mules  
in the rain until the Fundo  
Las Malvinas Hut.  
It is not possible to put up  
the tent outside,  
All is soaked.  
We'll sleep together on the  
first floor in the hut.*

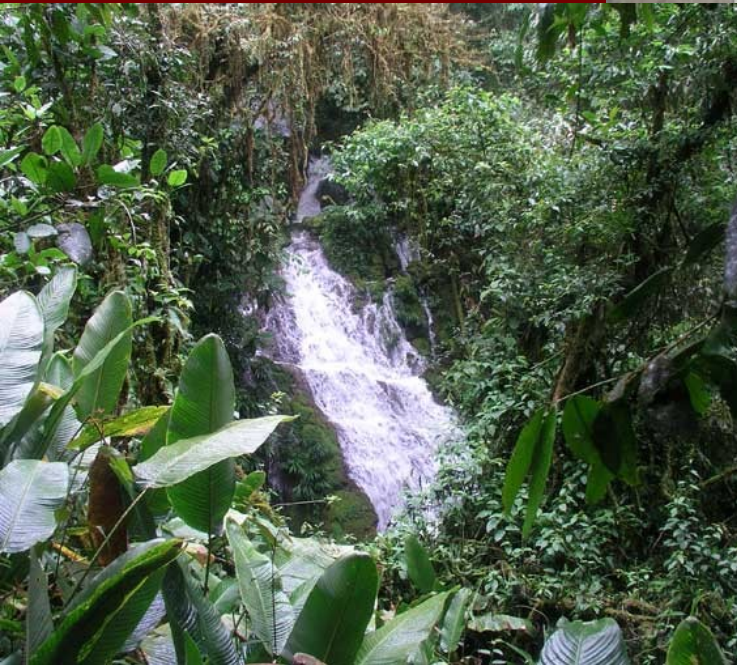
*The Samuel Children,  
Jheny and Jhensen  
Quispe, and also the  
young Brayan Valdez  
stay with us.  
They cook and go to  
supply water.*

*Yes, this is child  
labour !*



# 120 – In the Hut

*This morning, Jheny is cooking something for us. It rained all night long, and we heard the rumble of the river growing by the last rains. This river goes out of Cueva de Samuel...*



*It's cold and it'll be difficult to explore the Aquatic Tributary of the Cueva de Samuel...*



# 121 – Cueva de Samuel



1-9-2016

*The Cueva de Samuel is flooding, The water has inundated the entrance and especially there is no air flow.*

*Conclusion: it exists sumps...*

# 122 – Cueva de Samuel

*The waterfalls are very slippery and we have to take care.*



# 123 – Let's go

Xavier  
Robert

Jhon Brayan  
Valdez

Jhensen  
Quispe

Constance  
Picque

Naomi  
Mazzilli

Damien  
Vignoles

Jheny  
Quispe

*Two days for  
nothing.  
We have to go  
down to  
the valley  
(Naciente del  
Rio Negro).*

# 124 – Failed Gauge



*A gauge with current meter in the Aguas Claras Spring is planned.*

*Xavier helps Liz, but the stream gauge equipment doesn't work...*



# 125 – Wild Honey

*In the path to the Aguas Claras Spring, we meet a man with bucket full of honey. He found a wild beehive in the forest.*



*He has put the pieces of hive in his bucket and gives us honey comb structure filled of honey.*

*Excellent.*

# 126 – Aguas Claras



2-9-2016



*Today, the water of Aguas Claras Spring is not very clear, however Xavier attempts to sound it with measuring device.*

*The deep measured is 7 m.*

# 127 – Serrano Yacu

*In the north of Alto Mayo Massif (Agua Verdes), there is a huge spring : Resurgence of Rio Serrano Yacu (about 15 to 20 m<sup>3</sup>/s).*



Serrano Yacu  
Spring

# 128 – Serrano Yacu

*The water is very muddy because of the last rains fallen in the Alto Mayo Massif.*





# 129 – Serrano Yacu



*Liz removes and measures, but the CTD probe, fixed to the pontoon, has disappeared; probably taken by the flood of Rio Serrano Yacu River...*

# 130 – Naciente del Rio Negro



*Samuel guides us  
to the caves near  
Naciente del Rio  
Negro Village.*

# 131 – Naciente del Rio Negro

*We arrive in front of the entrance of cave called: Cueva Seca del Naciente del Rio Negro, occupied by many bats.*

# 132 – Cueva Seca de Naciente del Rio Negro



3-9-2016

*A characteristic smell of ammonia indicates the presence of vampire bats in the cave.*

# 133 – Cueva Seca de Naciente del Rio Negro



*Evidently, the people hates vampire bats and the remains of fire have been used for fill with smoke.*



*The vampire bats are dangerous in the night (rabies contamination), but not in the caves.*

# 134 – Cueva Seca de Naciente del Rio Negro



*Of course, it exists other  
bats in the caves, and  
many worrying spiders as  
well as amblypygies.*

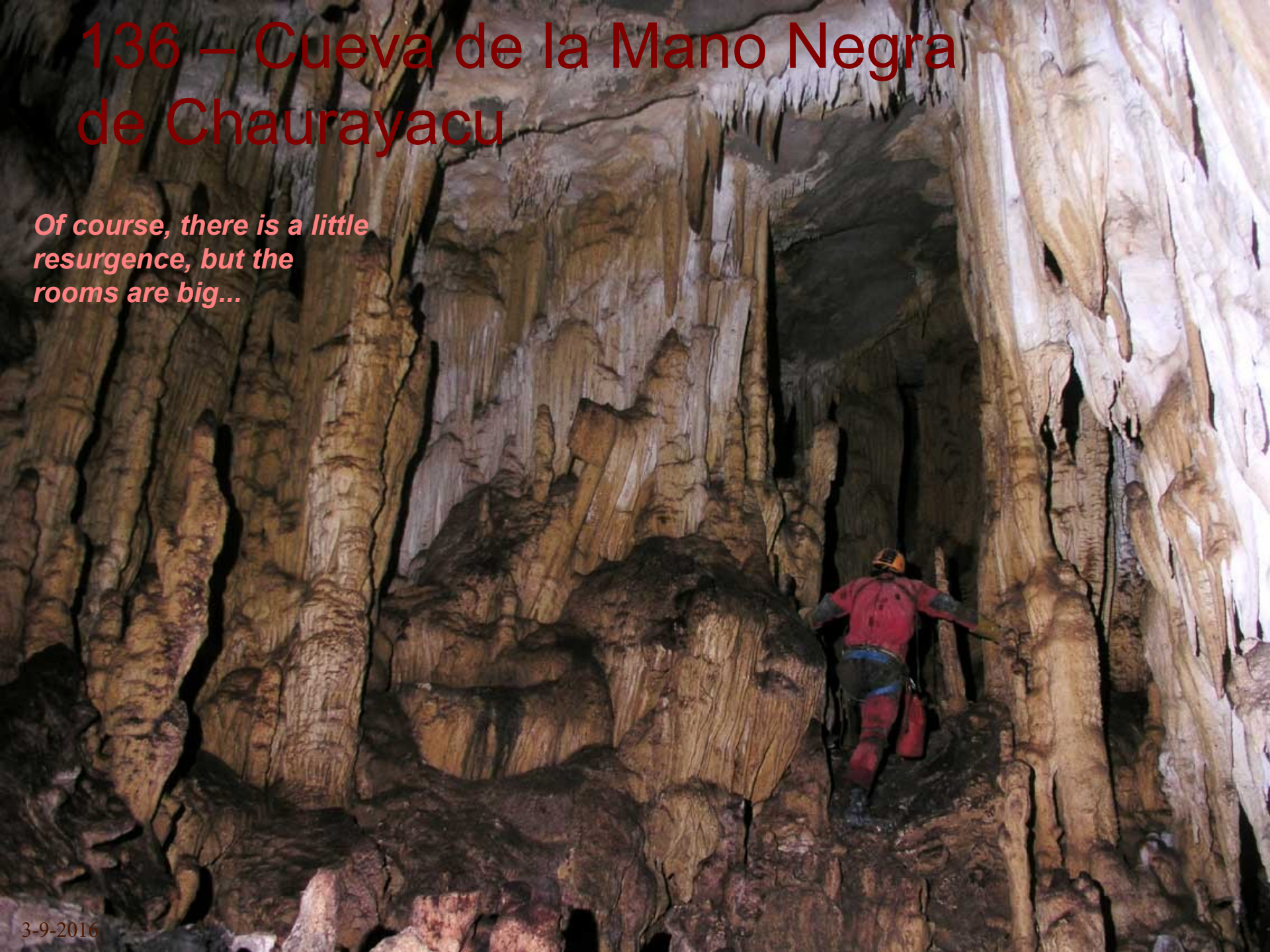
# 135 – Cueva de la Mano Negra de Chaurayacu



*Jhensen and Samuel Quispe show us the entrance of cave near Chaurayacu at the level of Rioja Plain.*

# 136 – Cueva de la Mano Negra de Chaurayacu

*Of course, there is a little  
resurgence, but the  
rooms are big...*





# 137 – Cueva de la Mano Negra de Chaurayacu



3-9-2016

*There are many bats and the animal dejections have corroded the walls and roof (we can see the bare rock without speleothems).*

# 138 – Cueva de la Mano Negra de Chaurayacu

*The « guano stalagmites » are the beginning of trophic chain made up detritivore beetles and impressive predators.*



# 139 – Cueva de la Mano Negra de Chaurayacu

Length: 1162 m

Depth: 81 m

## Cueva de la Mano Negra de Chaurayacu

Nueva Cajamarca, Rioja, San Martín, Perú



WGS84 / UTM zone 18S  
truenorth -2.99deg

Desarrollo: 1162 m

Desnivel: 81 m

Exploración: Jean-Yves Bigot, Jhensen Quispe Frias, Liz Hidalgo, Naomi Mazzilli, Samuel Quispe, Xavier Robert, Damien Vignoles 2016

Espeleometría: Jean-Yves Bigot, Jhensen Quispe Frias, Liz Hidalgo, Naomi Mazzilli, Samuel Quispe, Xavier Robert, Damien Vignoles 2016

Cartografía: Xavier Robert, Damien Vignoles 2016

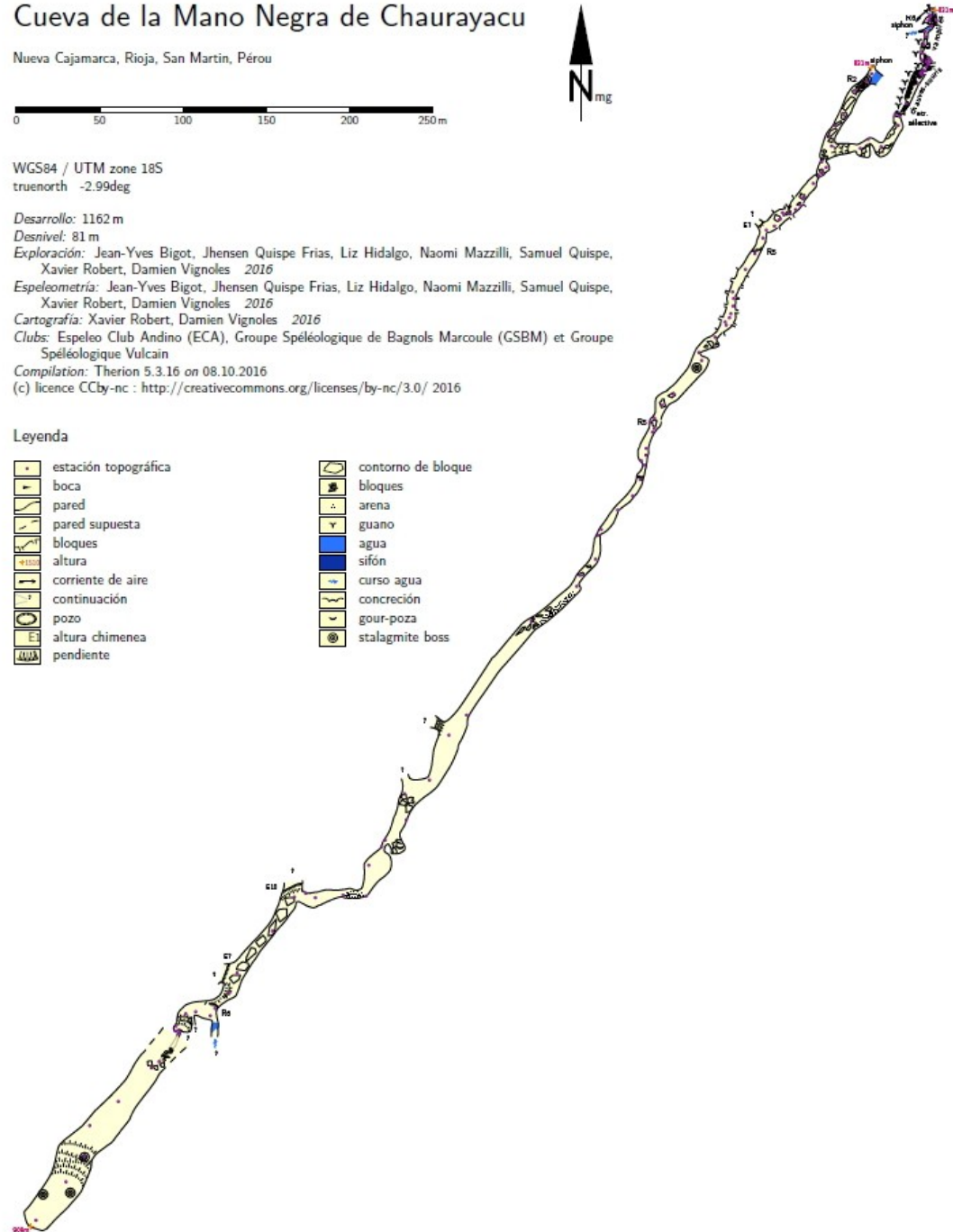
Clubs: Espeleo Club Andino (ECA), Groupe Spéléologique de Bagnols Marcoule (GSBM) et Groupe Spéléologique Vulcain

Compilation: Therion 5.3.16 on 08.10.2016

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### Leyenda

	estación topográfica		contorno de bloque
	boca		bloques
	pared		arena
	pared supuesta		guano
	bloques		agua
	altura		sifón
	corriente de aire		curso agua
	continuación		concreción
	pozo		gour-poza
	altura chimenea		stalagmite boss
	pendiente		



# 140 – Tarapoto



4-9-2016

## 1° SIMPOSIO INTERNACIONAL del CARST



Fotos: ICA/GREM

**5 - 6 SEPTIEMBRE de 2016**  
TARAPOTO (San Martín) | Auditorio de la UCV

CONTACTOS: [simposiodelcarstperu.blogspot.pe](http://simposiodelcarstperu.blogspot.pe)  
[carstperu2016@gmail.com](mailto:carstperu2016@gmail.com)

### CIENCIA Y DESARROLLO TERRITORIAL

#### TEMAS DE LA CONFERENCIA

- Formación y evolución del sistema cárstico
- Ecoturismo y desarrollo sostenible en regiones cársticas
- Funcionamiento hidro-geoquímico del acuífero cárstico
- El carst, centinela de la variabilidad climática actual y pasada
- El carst, un registrado excepcional de la tectónica andina
- Biodiversidad en los sistemas cársticos
- Paleontología subterránea

#### EXCURSIÓN PRE SIMPOSIO

2 y 3 de SEPTIEMBRE : Cueva Palestina (público en general)

ORGANIZAN:  
Instituto Geofísico del Perú - IGP | Institut de Recherche pour le Développement - IRD | Universidad César Vallejo - UCV  
[www.igp.gob.pe](http://www.igp.gob.pe) | [www.peru.ird.fr](http://www.peru.ird.fr) | [www.ucv.edu.pe](http://www.ucv.edu.pe)



*In the afternoon, we travel from Nueva Cajamarca to Tarapoto where we have to meet our friends for the karst symposium, the first in Peru...*

# 141 – Symposium

*The first international symposium of karst takes place in Tarapoto (San Martin) the 5 and 6th of september 2016 at Cesar Vallejo University (UCV).*

James  
Apaéstegui

Jean-Denis  
Klein

Jean Loup  
Guyot



*During two days, different participants talk about:*

- *Formation and evolution of karstic system,*
- *Climatic variability,*

*... / ...*

# 142 – Symposium

- Hydrogeochemistry of karstic aquifer,
- Mining exploitation in karstic regions,
- Biodiversity,
- Ecotourism and sustainable development.



Jean-Yves  
Bigot

Tomas  
Cotrina

James  
Apaéstegui

Jean Loup  
Guyot



*The organizers of symposium are:*

- Tomas Cotrina (UCV),
- James Apaéstegui (IGP) and
- Jean Loup Guyot (IRD).

*James & Jean Loup are also members of the expedition North Peru 2016.*

# 143 – Rio Mayo



*Return trip from Tarapoto, following the Rio Mayo Valley, to Nueva Cajamarca where we have to prepare the camp of Palestina. About twenty people are expected...*

# 144 – Palestina Camp



*Everyone installs its tents and more for about 8 days.*



# 145 – Cueva de la Piedra Brillante



*The cave has been discovered in 2016 by the local people (Perla de Daguas). There is a very nice river and its water is tapped.*

# 146 – Cueva de la Piedra Brillante



*The survey is made and the Cueva de la Piedra Brillante exceeds now 2 km long.*

# 147 – Cueva de la Piedra Brillante



*The Dream Team: about fifteen people have explored the cave.*

# 148 – Cueva del Higueron



9-9-2016

*We have a mission to fulfill: remove pebbles of sandstones in the Higueron Cave because the geologist Patrice Baby wants to make cosmogenic dating.*

# 149 – Cueva del Higuieron



*There are a lot of pebbles in this cave, but those of Metro Gallery are the biggest and highest in altitude.*

# 150 – Cueva del Higueron

*We are four:  
Jean-Denis, Xavier,  
Ezio and Jean-Yves.  
Our kit bags are full  
of stones.*



*The underground river  
flowed in the Cueva del  
Higueron and was  
populated by crabs.*

# 151 – Tragadero de Yuracyacu



*On the Yuracyacu River Side, there is an astonishing Tragadero. We can go down into until 40 m deep. A part of the water of Yuracyacu River disappears underground and it could be the water of Palestina Cave...*

# 152 – Tragadero de Yuracyacu

*But, we have to  
check it, and we  
decide to color  
the water...*

*Despite surveillance of the  
Palestina Resurgence, the  
coloring is never come out...*

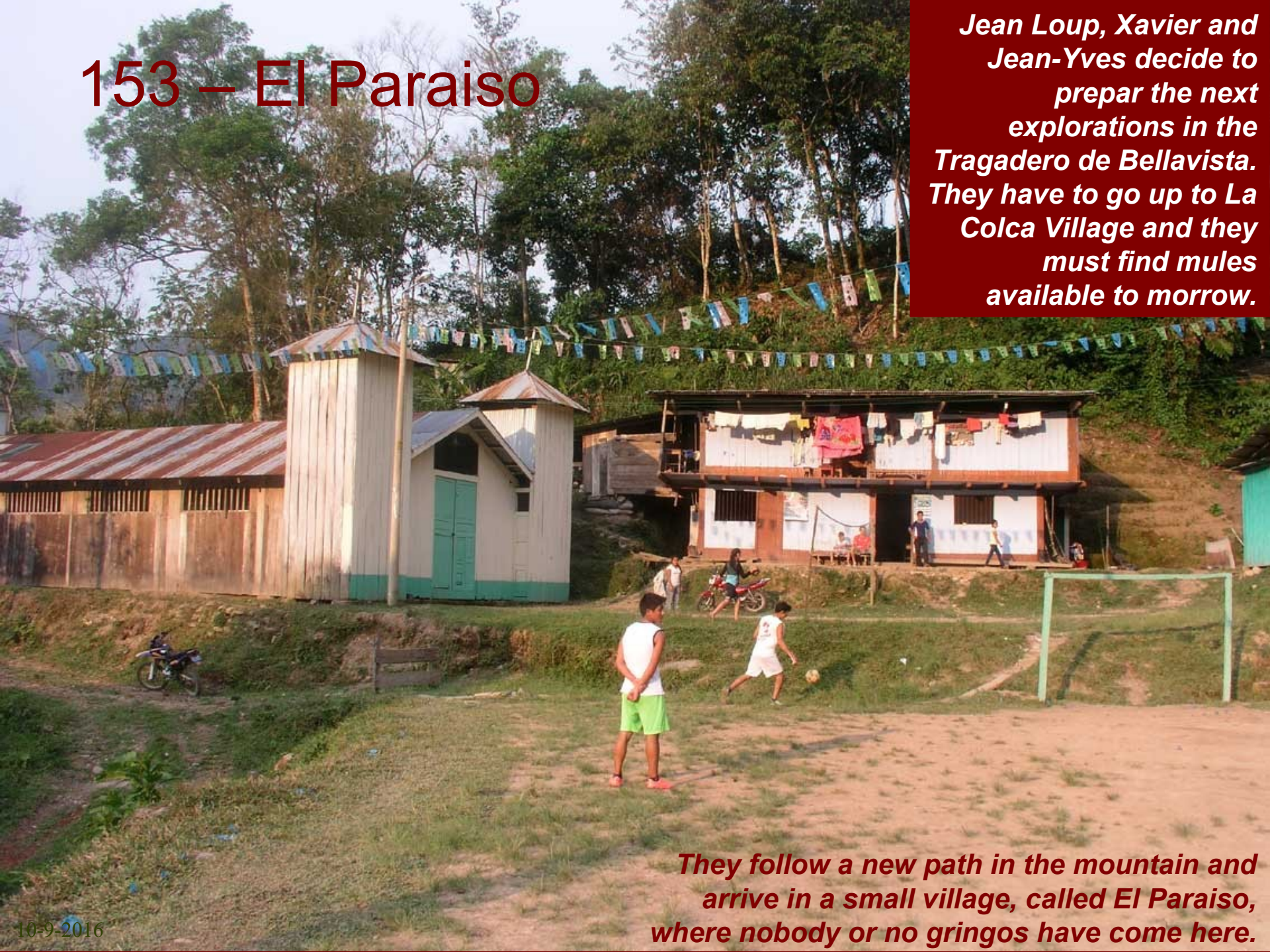
10-9-2016





# 153 – El Paraiso

*Jean Loup, Xavier and Jean-Yves decide to prepare the next explorations in the Tragadero de Bellavista. They have to go up to La Colca Village and they must find mules available to morrow.*



*They follow a new path in the mountain and arrive in a small village, called El Paraiso, where nobody or no gringos have come here.*

# 154 – Palestina Evenings

*The evening, we are a lot of  
and the caving goals are  
missing.*



*We have to open new  
fronts of exploration,  
as well as the Tragadero  
de Bellavista.*

10-9-2016

# 155 – Angela Birthday



10-9-2016

*Every year in the same time, it's the birthday of Angela;  
and everyone celebrates this event.*

# 156 – Back to Bellavista



11-9-2016

*After two years, we return to the Bellavista village where we find the same people seen during the first expeditions.*

# 157 – Bellavista



11-9-2016

*To our great surprise, we discover many fishes in pond of clear water.*

# 158 – Bellavista



*We are very satisfied with fishes,  
because there are probably  
unknown for the science, and the  
cave goes on !*

# 159 – Tioyacu



*The hydrologists have decided to install a measuring tube in the Tioyacu Spring, but the City Hall of Segunda Jerusalén have converted the spring to leisure park...*

# 160 – Tioyacu

*Jean Loup and Liz have an appointment with the mayor of Segunda Jerusalén and his assistant Percy. Percy is a young gay that had participated in the exploration of Cueva de Samuel in 2015.*



*They have to meet the mayor and to obtain the permission to put the CTD probe (« Conductivity, Temperature, Depth »).*

12-9-2016



# 161 – Tioyacu



*It's a sensitive zone, because the spring is tapped.*

# 162 – Tioyacu

*Jean-Denis and Jean Loup  
have permission to put  
the measuring tube.*



*The data will be recorded by the  
CTD probe and be exploited data  
by Hidalgo Sanchez, doctoral  
candidate in hydrology.*

# 163 – Bellavista



*The explorations in the Tragadero de Bellavista take again with:  
Jean-Denis Klein, Xavier Robert, Ezio Rubbioli, Lilia Senna Horta, Jean Loup Guyot,  
Liz Hidalgo Sanchez and Jean-Yves Bigot.*

# 164 – Bellavista



*The rock of galleries are very smooth and shiny.*

# 165 – Bellavista



*The dip is visible, in particular  
in the toboggan zone.*

# 166 – Bellavista



*A new raid is programmed  
in the Tragadero de  
Bellavista: it'll be the last.*

# 167 – Bellavista



# 168 – Bellavista



*The river bed is covered by the brown calcite during the dry season, but it's eroded and corroded during the rainy season.*



# 169 – Bellavista

*The dip of geologic layers is noticeable in the cross-sections.*



*The saturated water builds up a very nice brown calcite.*

# 170 – Bellavista

Ezio  
Rubbioli

Xavier  
Robert

Constance  
Picque

Jean-Denis  
Klein

Jean-Yves  
Bigot



*It's the end of exploration  
at the 306 m deep.  
And it's not finished !*

# 171 – Tragadero de los Perros

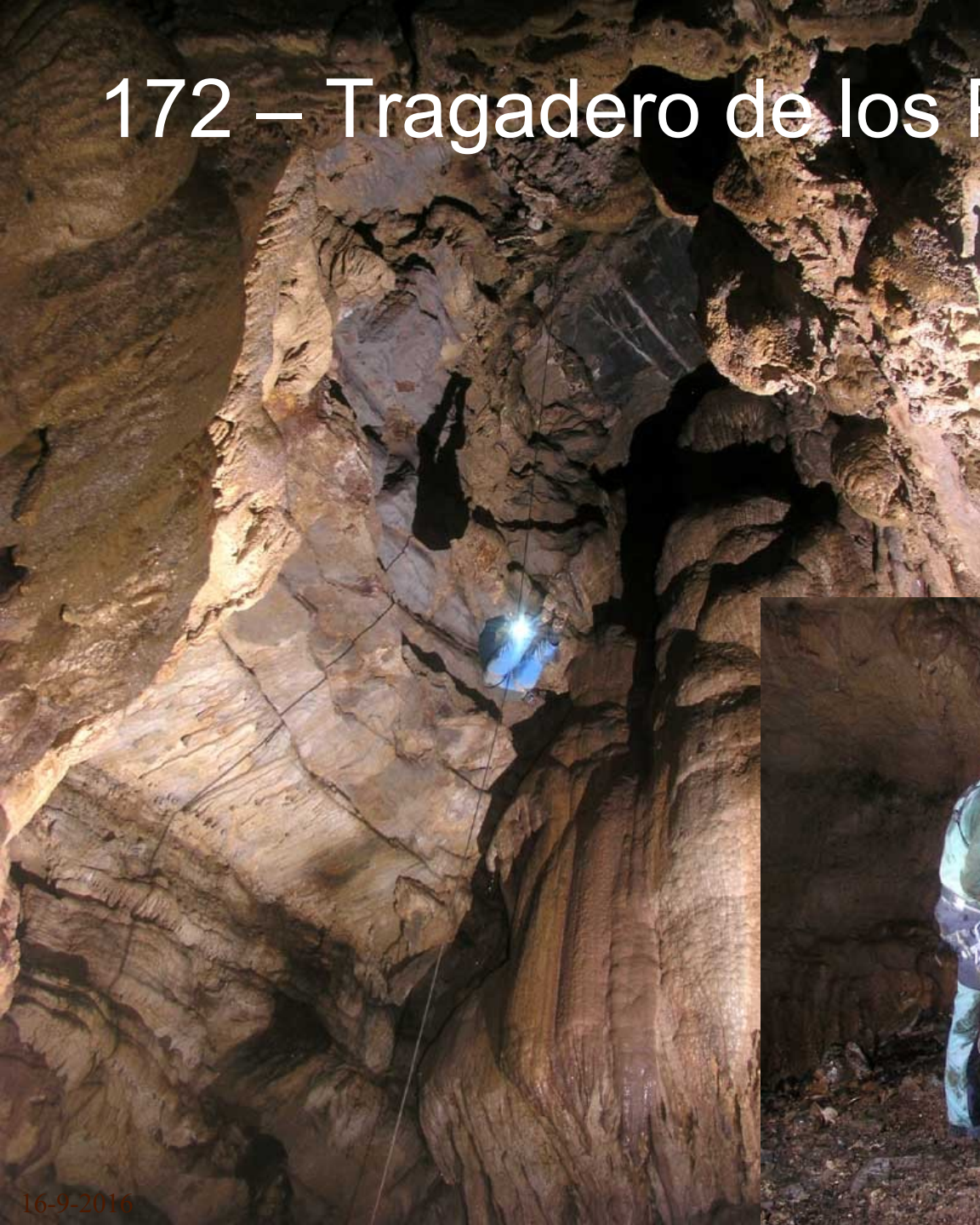


*We go to explore  
caves near El  
Paraiso.*

*On the floor,  
Nathalie observes  
typical clues of the  
emblematic bird:  
the Gallito de las  
Rocas.*

# 172 – Tragadero de los Perros

*The Tragadero isn't very deep (-59 m) and the local people is used to throw out dog cadavers.*



# 173 – Ground Coffee



*Celmira gives us  
some coffee.*

*And Jean-Denis is  
grinding it !*

# 174 – Assessment

*In this table, there are only the caves exceeding 400 m long surveyed:*

*The North Peru 2016 Team has explored three main massifs: Chirimoto, La Jalca and Alto Mayo.*

Massif	Names of caves	Surveyed length
Alto Mayo (San Martín)	Tragadero de Bellavista	990 m
Alto Mayo (San Martín)	Cueva de la Piedra Brillante	2329 m
Alto Mayo (San Martín)	Cueva de la Mano Negra	1162 m
La Jalca (Amazonas)	Cueva del Frio	587 m
La Jalca (Amazonas)	Cueva de los Alcones	472 m
Chirimoto (Amazonas)	Sistema de Palmira	779 m
Chirimoto (Amazonas)	Tragadero de Cacapishco	1897 m
Chirimoto (Amazonas)	Chalán de Emiterio	1252 m
Omia (Amazonas)	Cueva de la Bocatoma de Tuemal	576 m

*In all, more of 12 km of galleries have been surveyed.*

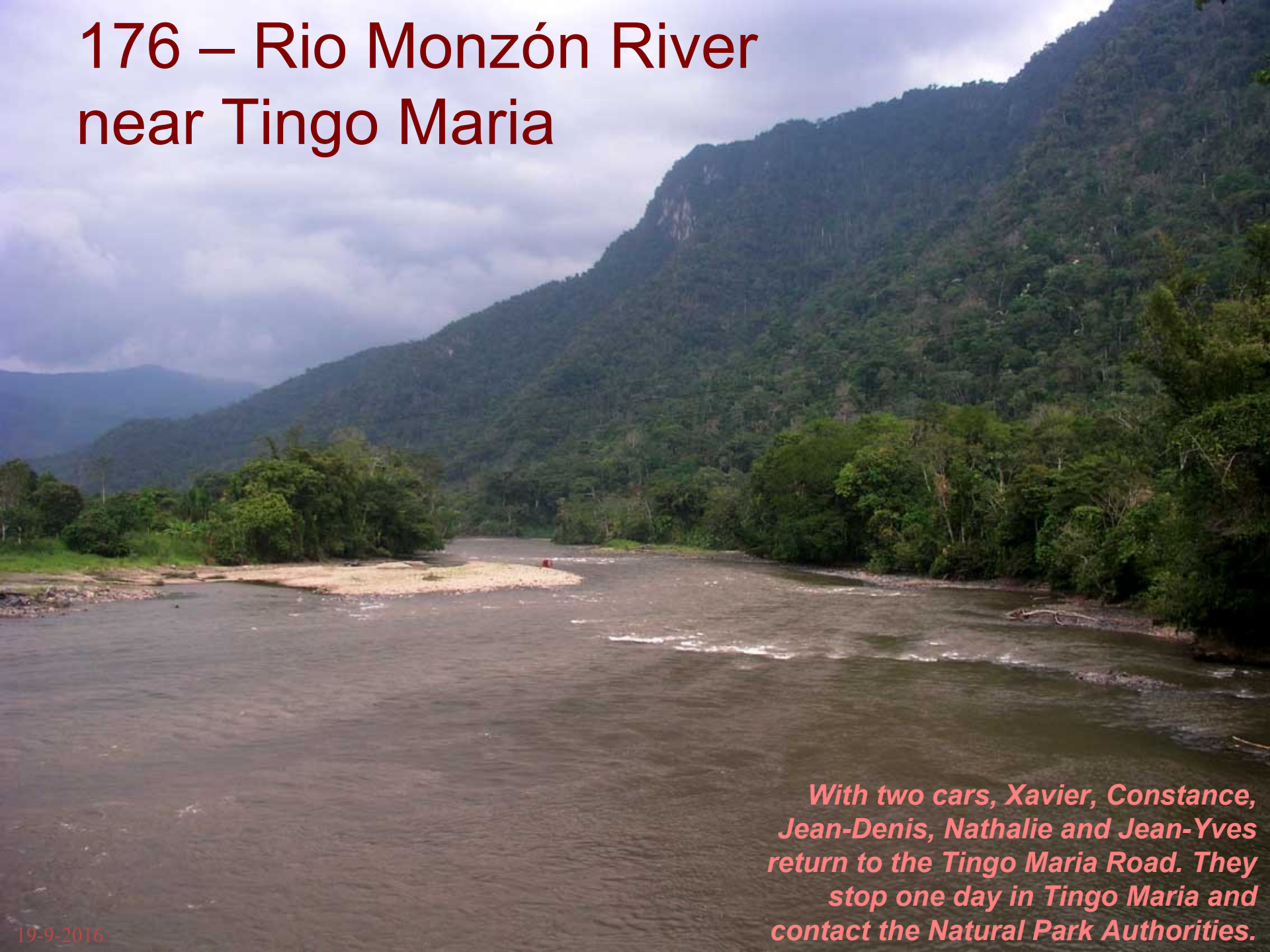
# 175 – Travel Palestina-Lima

Palestina  
Tarapoto  
Tingo Maria  
Lima

*The return to Lima is programmed by the Tingo Maria Road, going up the Rio Huallaga.*



# 176 – Rio Monzón River near Tingo Maria



*With two cars, Xavier, Constance, Jean-Denis, Nathalie and Jean-Yves return to the Tingo Maria Road. They stop one day in Tingo Maria and contact the Natural Park Authorities.*



# 177 – Cueva de las Lechuzas

Urban fresco in the Tingo Maria City



*The Cueva de las Lechuzas is located in the very karstic park of Tingo Maria.*

# 178 – Lechuzas Resurgence



19-9-2016

*At the foot of cave, a important resurgence goes out.  
The water is cloudy because it rained before.*

# 179 – Andes mountains



*From Tingo Maria, we have to cross the Andes Mountains.  
In the Altiplano, the air is very cold.  
Arrived at Lima, our speleological journey in the North Peru ends suddenly at this moment.*



180 – The End

*The End*