



CULIEMBRO 2010

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Culiembro 2010 Expedition Report

Written by Chris Jewell



Ghar Parau Foundation



BCRA

Contents

Introduction 3
Background – previous exploration chronology..... 4
Location Maps and Images:..... 5
Time Line of events:..... 7
Conclusion..... 16

Introduction

The 2010 trip built on the work of the 2009 expedition and team. Surveying and familiarisation work done in 2009 meant that exploration could start extremely quickly. The whole team was more experienced generally and more familiar with the cave and the sort of diving and caving it required. A large proportion of the team reached the limit of exploration and all made important contributions and worked hard for the benefit of the project as a whole.

The connection with Xitu is a historic achievement which all members of the 2009 and 2010 trip can take pride in. It also brings an element of closure for this team of explorers in Culiembro. Although there is certainly more cave to find working upstream in the 2/7 stream way is increasingly difficult and the trips are increasingly long. Looking for the 'missing' Asopladeru la Texa stream way might prove more productive - but this can wait for a new team.

Statistics

- Total new passage for 2010 was 731.69m dry and 73m in sumps
- further 228.89m was surveyed between sump 3 & 4, in passage explored by previous divers
- Survey Length of culiembro is now 3956.37m
- Total height range is 223mxitu entrance to deepest point in culiembro is 1264m

Dates

24/07/10 – 07/08/10

Members

Chris Jewell (CJ) – Expedition Organiser
 Adrian Hall (AH)
 Claire Cohen (CC)
 Diane Arthurs(DA)
 Emma Heron (EH)
 Jason Mallinson (JM)
 Leopoldo Trabanco (LT)
 Mike Bottomley (MB)
 Paul Swire (PS)
 Phil Rowsell (PR)
 Simon Cornhill (SC)
 Xesus F. Manteca (XM)

Note

In the following timeline S1 denotes sump 1, S2 denotes sump 2 etc...
 RW denotes Round Window and AW denotes Arched Window.

Background – previous exploration chronology

Six previous expeditions with the first in 1986 when the NPC visited the area.

1986: (Stanton & Thomas)

Sump 1 passed to surface in static Arched Window, followed by dive to surface in active route at bottom of cascade. Sump 2 in the active (Square Window) route passed and dive to 28m in third sump. Sump 2 of Round Window passed. Survey of Sump 1 completed. Bolt climb out of water in arched Window made.

1987: (Stanton, Sudwell & Thomas)

Arched Window extended through 26m deep sump and dry passage to undived sump. Further progress is made in the Square Window sump 3, reaching an elbow at 35m. In Round Window sump 3 is passed and passage explored to base of difficult climb.

1990: (Holroyd, Roe and Thomas)

Round Window extended to fourth static sump with several climbs and passages explored on route.

1991:

Trip abandoned due to high water levels.

2000: (Stanton, Holroyd and Danilewicz)

Sump 4 of the Round Window is dived and the cave explored to 10m high waterfall which cannot be scaled.

Sump 3 of the Square Window is passed using chest mounted rebreather. Passage explored to fourth sump.

2001: (Stanton, Holroyd and Seddon)

Route is discovered to bypass 10m waterfall found on previous trip in Round Window. Cave explored to large cascade which cannot be climbed.

2009: The forerunner to the 2010 expedition, 9 Cavers and Divers spend two weeks exploring and surveying the cave.

References:

Cave Diving Group Newsletters / dive reports:

Newsletter 82: p21 p22 (1986)

Newsletter 102 p28 p29 (1990)

Newsletter 141: p17 p18 + NL142: p22 p23 (2000)

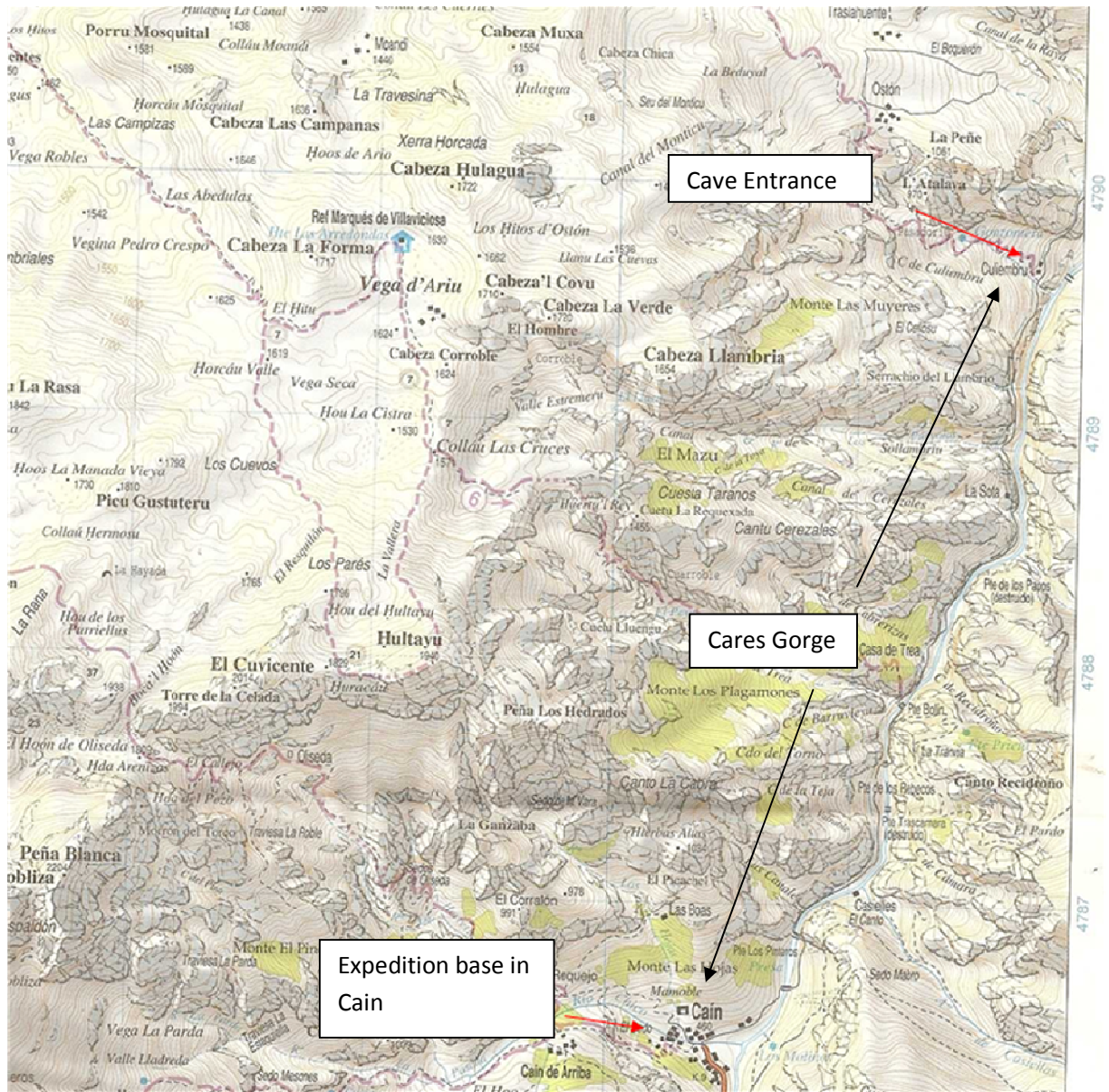
Newsletter 143: p21 (2001)

Newsletter 173: p22 (2009)

Location Maps and Images:



Location of Cain, Cares gorge and Culiembro:



Time Line of events:24/07/10

JM, EH, AH, CC, CJ, PR arrive in Cain

25/7/10

JM, EH, AH, CC, CJ, PR carry 2 loads of equipment along the path and re-rig the safety hand line down to the cave. CJ, PR and AH carry one load of equipment to the first sump. MB and PS arrive in Cain.

26/7/10

CJ patches the line in S1. PR, CJ and JM carry equipment to RW-S3. CJ and JM dive through and rig ladders on the climbs enroute to RW-S4. EH and AH dive sump one and leave extra cylinders by sump 3. All other divers work on carrying diving gear to sump 1.

27/7/10

CJ, EH, PS and MB dive kit through Sump 1 and RW-S2. Emergency bivi gear left beyond RW-S2 and exploration gear carried to RW-S3. CJ and EH dive this kit through RW-S3 and carry to RW-S4.



Divers preparing their equipment at dive base by sump 1. Photo by Mike Bottomley

28/7/10

SC and DA arrive in Cain early in the morning.

JM, PR and AH dive to current end of cave. Collect equipment on route and carry an extra diving cylinder. AH turns back at RW-S4 after carrying gear to the sump. JM dives the 'Jade sump' – and this is renamed 'Pocho Verde' after he passes this. (18m long, 6m deep). Approx 200m of passage is explored with a boulder choke half way. The

passage ends at another sump. Back in the main passage JM and PR then bolt climb, explore and survey approx. 180m of passage.

29/7/10

CJ, EH, MB, and PS dive to end of cave. EH turns back at S3 due to equipment failures. CJ and MB dive through 'Pozo Verde' and carry equipment to the undived sump. CJ passes this after 55m (15m depth at elbow) and surfaces in large sump pool. The words 'O.U.C.C 1979-81' are marked on the wall of the cave. The team now know that Culiembro is connected to Xitu. The stream way between this sump and Pozo Verde is surveyed by CJ and MB. Meanwhile PS de-rigs the waterfall bypass traverse from 2009. This frees up approximately another 80m of rope for more exploration.

CC and SC carry more rope and the dye to sump 3.



Emma Heron standing in Xitu looking at the markings left by O.U.C.C. in 1981. Photo by Jason Mallinson

30/7/10

PR and SC place the dye detectors in various sumps in the cave. They then survey a previously known side passage between RW-S3 and RW-S4. This suggests that another entrance from the surface could exist nearby.

CC, AH and M dive to arched window. Light failure for XM forces a retreat.



Xesus F. Manteca at dive base in sump 1. Photo by Mike Bottomley

31/7/10

JM and EH take photographs of the connection to Xitu. They then push the end of the cave, exploring and surveying approximately 180m of new passage.

CC, AH and XM dive to arched window again. XM carries equipment for the other two divers. AW-S2 is dived by AH and CC, however at the elbow of the sump CC becomes entangled in the dive line and retreats. AH places a bolt on the far side of the sump to assist future exploration before returning. Additional survey data is collected before an exit is made. LT assists the divers back from the cave.

CJ and MB complete photographic and video trip in S1 and S2.

01/08/10

Following their survey work PR, SC and DA look for possible other entrance on surface. XM removes his equipment from the Cave after being assisted by LT.

02/08/10

PR and SC go for pushing trip but PR is ill on route and the team turns back at RW-S3.

PS, DA, CC and CJ take photographs on route to S1.

XM and LT depart.



Chris Jewell by sump 2 in the Round Window – Photo by Mike Bottomley

03/08/10

CJ and AH go on pushing trip at end of cave. Explore approximately 140m of new passage then bring back all exploration gear to the near side of sump 4. The end of the cave is now in a large rift with a great quantity of water falling from a small slot. It might be possible to bypass this but the nature of the cave has changed dramatically and has become more vertical. An inlet with a significant quantity of water was also noted en-route.

CC does surveying dive in S1

PW dives an intermediary sump just before the lake en-route to sump 1 and lays 20m of new line in downstream direction. SC and DA take photos with PS in this area. Non-essential kit and gear belonging to team members who have made their last dive is removed from dive base at S1.

04/08/10

JM, PR, EH and SC dive sump1, then JM and PR dive sump 3 to collect the bags of exploration equipment left the previous day. The dye tracing detectors are collected and a UV lamp is used to examine these before they are dived back through sump 1 to avoid contamination in the water.

MB, PS, CC, DA assist with moving all diving equipment to the entrance of the cave. A large quantity of equipment is carried back to Cain with some members making two journeys.



Adrian Hall Traversing above the stream way near the limit of exploration towards 2/7. Photo by Chris Jewell

05/08/10

Final equipment is removed from the cave entrance and taken back to Cain. JM and EH depart. SC and DA visit Xitu entrance.

06/08/10

PR, CJ, SC, DA, PS and MB depart

07/08/10

CC and AH depart

Sistema Xitu-Culiembro:

The connection of the two caves means that the total depth of the system is 1264m. This connection took 29 years to achieve since Xitu was explored in 1981.

Entrance to Xitu Statistics:

Entrance to connection point in Xitu height is 108m straight line distance of 1101m bearing 239 deg.

Xitu Statistics:

xitu.s1.b1(highest entrance) to xitu.s2.g-2 (connection point) is 1124m vert, straight line distance 2307m, bearing of 099 deg.

Depth of the System:

Total depth of joined system entrance to entrance is 1232m
Xitu entrance to deepest point in culiembro is 1264m

Dye Tracing:

Detectors were placed in the following sumps:

- 1) RW-Sump 4 – to get a positive result and prove that the dye did actually work
- 2) RW-Sump 3 – As a negative test to check that the detectors were not contaminated in some way.
- 3) RW-Sump 2 – As a negative test to check that the detectors were not contaminated in some way.
- 4) Active streamway after Square Window S2 – This was to prove the hydrological connection between the active streamway at the end of the cave and the Square Window series last dived in 2009.

Location	Result	Conclusion
RW-Sump 4	Positive	Check that dye and detectors did work correctly.
RW-Sump 3	Negative	Negative test proves detectors were not contaminated
RW-Sump	Negative	Negative test proves detectors were not contaminated
Active stream way after Square Window S2	Positive	Proves the hydrological connection between the active stream way at the end of the cave and the Square Window series

Accounts**Income**

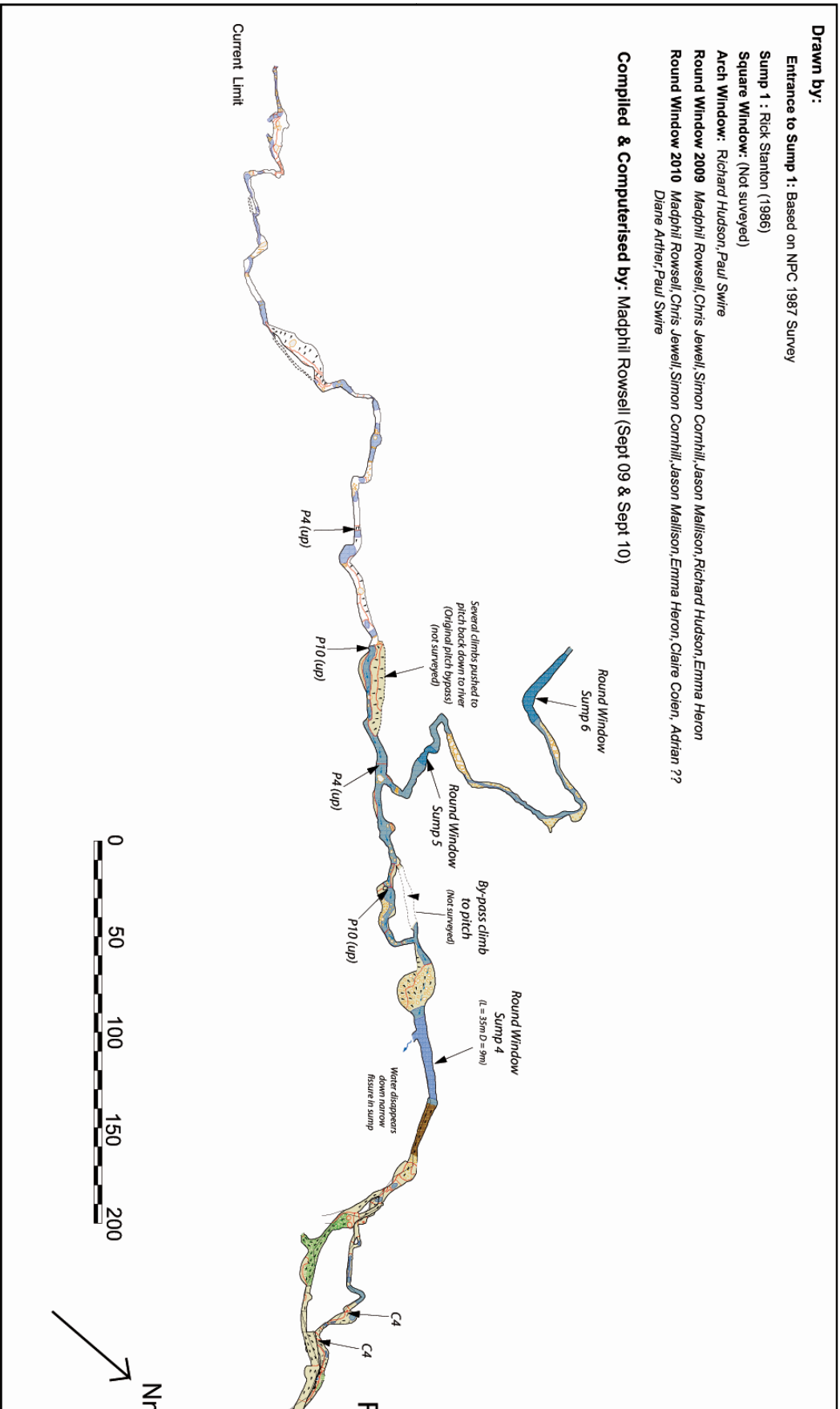
Exped fees	£280.00
Ghar Parau	300
Total Income	£580.00

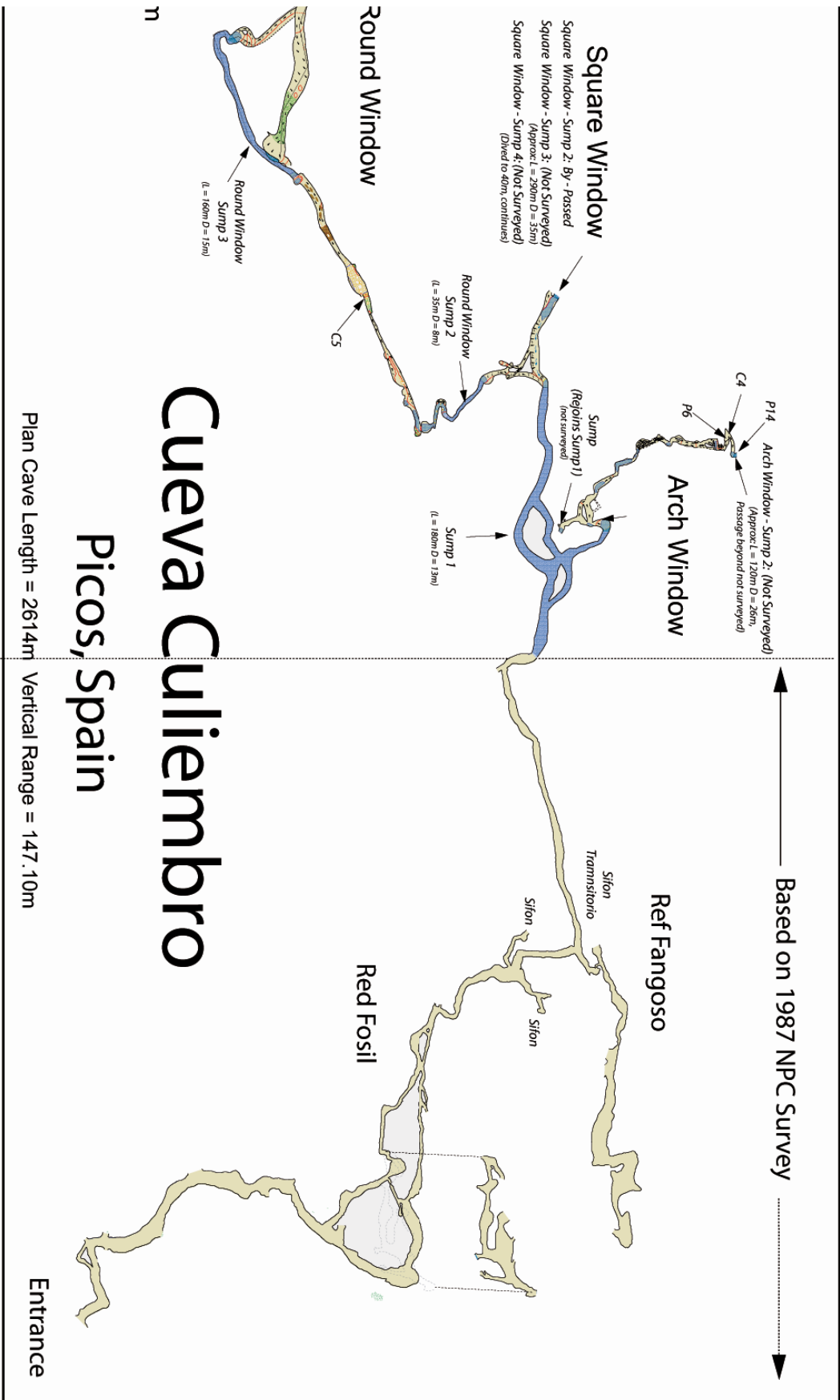
Expenditure

	<u>Q</u>	<u>£</u>
Dive line		
Polyprop	200m	£10.00
4mm nylon	200m	£20.00
Rope		
9mm	250	£250.00
50 Thru bolts	50	£10.00
Hangers	25	£47.50
Mallions	25	£70.00
Magic paper (white board)		£8.00
Otterbox		£25.00
blizzard pack sleeping bags x 2		£50.00
Foil Padded Camping Sleeping Mat		£10.00
Action Pack Emergency food		£15.00
Bothy/Storm Shelter		£17.00
Exped Shopping		£35.00
Survey consumables		£10.00
Total Expenditure		£577.50

Balance	£2.50
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Final survey:





Conclusion:

The connection between Xitu and Culiembro is a significant and historical achievement. With hindsight it is possible this connection might have been made earlier if several factors had come together. Diving operations in Asopladeru la Texa in 2008 might for example have been directed at Xitu instead or the previous explorers of Culiembro might have returned between 2001 and 2009 to tackle the eventual connection sump. Both these situations were reliant on reliable survey data showing how close the Xitu-Culiembro connection was.

The 2009 expedition made significant improvements to the survey data collected – however the connection itself proved there was a significant error somewhere.

Bolting in the stream way towards 2/7 requires lengthy trips. The penultimate trip was 16 hours and the final trip was 18 hours. Whilst it is still possible to work faster and keep trip times to this sort of length at some point continued exploration of this branch would benefit from camping. Diving back through multiple sumps after trips of over 20 hours adds to the hazards of cave diving through exhaustion. Camping beyond sumps of course comes with its own logistical problems.

Future exploration

Rather than continue up the 2/7 stream way it might be more productive for an expedition to search for the missing 'Texa' stream way. Whilst the Arched Window branch is closest to this cave, this section is static where the Texa stream way enters Culiembro is still a mystery.

One possibility not examined is that the water joins the Culiembro flow downstream of sump 1 – unseen before it enters the gorge. Therefore working downstream from sump 1 towards the gorge might discover a confluence which it would be possible to explore upstream towards Texa.

Videoing

A much smaller video camera was used in 2010. This made it possible to carry the camera to the end of cave and film en-route. A powerful handheld diving light provided enough light for filming but additional lighting would have created better images and this will be looked at for the future.

Facebook updates

There is mobile phone coverage in Cain which means it was possible to update the status of the expeditions 'Facebook' page whilst in the field. By relaying this to the main website we were able to provide live updates as the expedition progressed – all by mobile phone sms messages. This enabled the expedition to interact with interested cavers and members of the public, increasing the reach and engagement we had whilst away in Spain.



The 2010 Team – Photo by Mike Bottomley

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