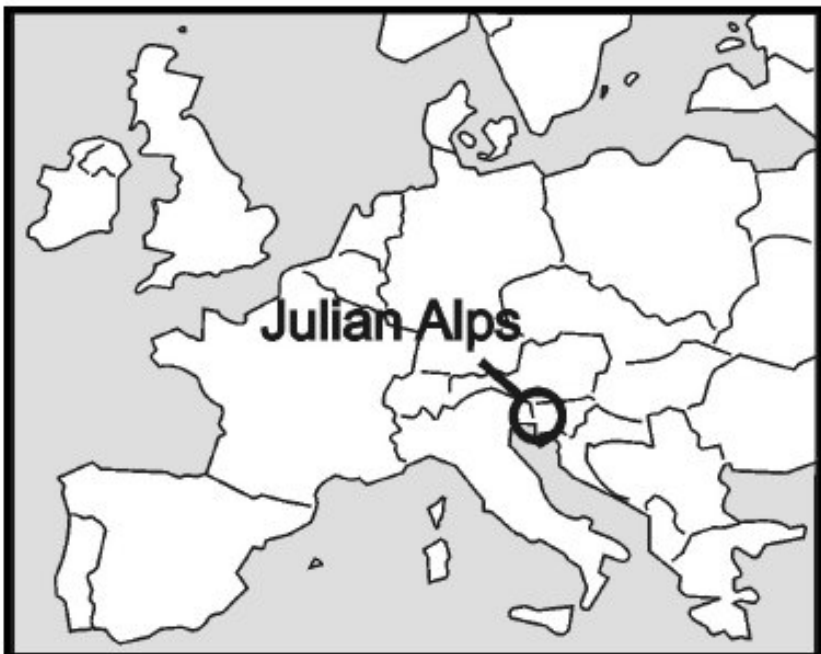


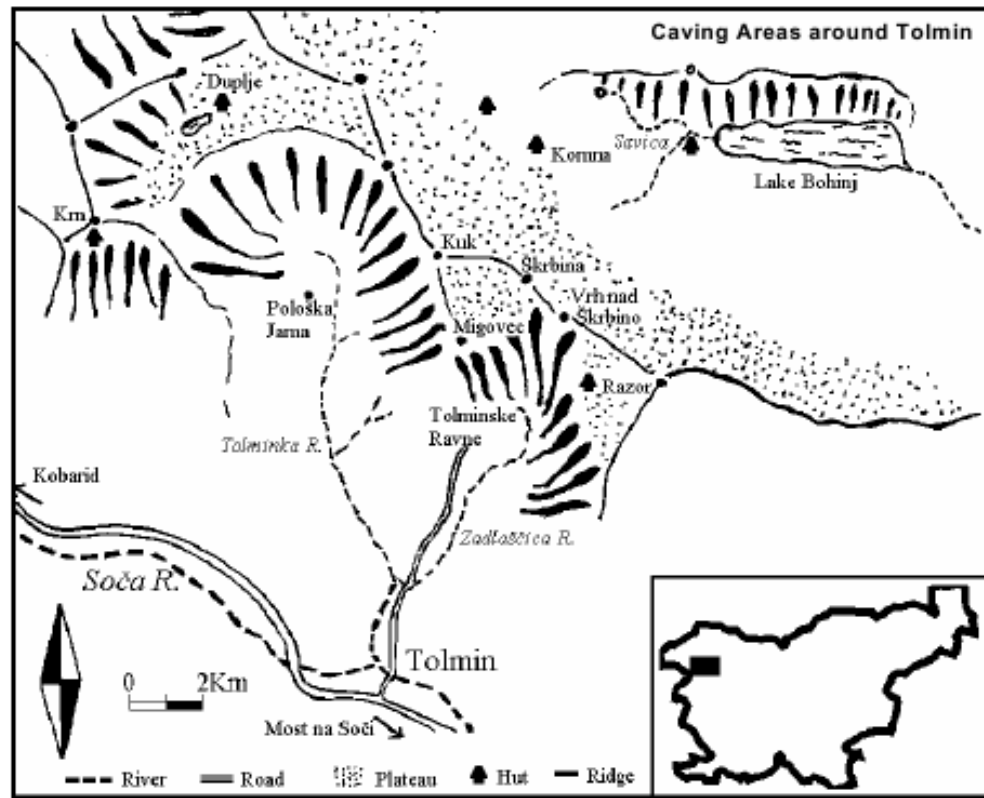
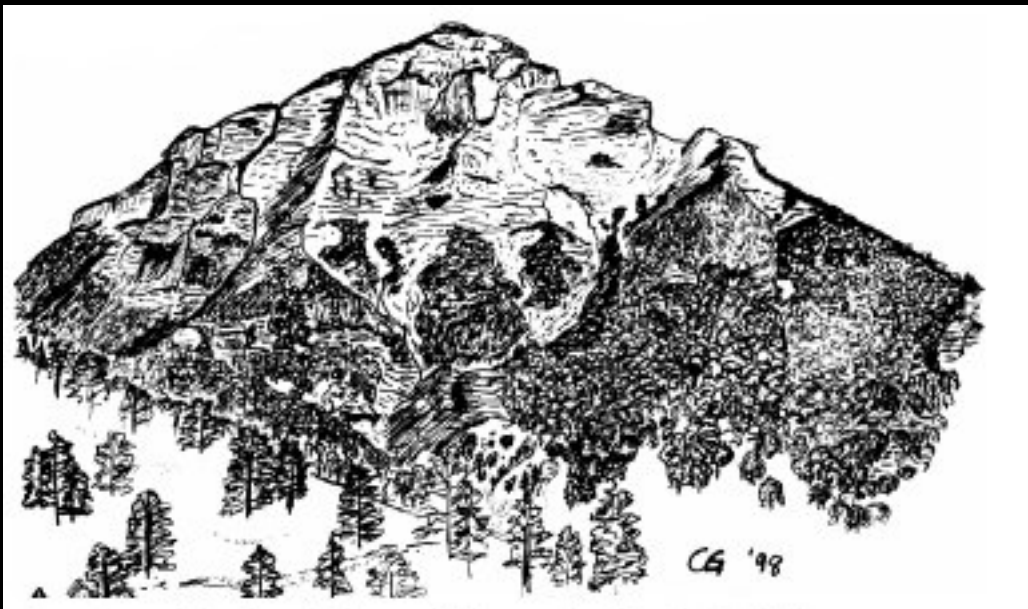
System Migovec / Vrtnarija: The Longest Cave in Slovenia



Jamarska Sekcija Planinskega Društva Tolmin (JSPDT)
Imperial College Caving Club (ICCC)



Map of Europe showing the Julian Alps













30.7 km total cave passage (2012)

So many years...



...what to talk about?

The Aeons of Migovec Exploration

1970s and 80s – JSPDT working alone (M2, M16)

1994-1999 – Imperial Join Them & System Migovec

2000-2005 – Gardener's World Vrtnarija

2007- 2012 – Vrtnarija & Kavkna Jama





JSPDT

'70s: M2 Kavkna Jama
(Blackbird Cave)

Explored with SRT

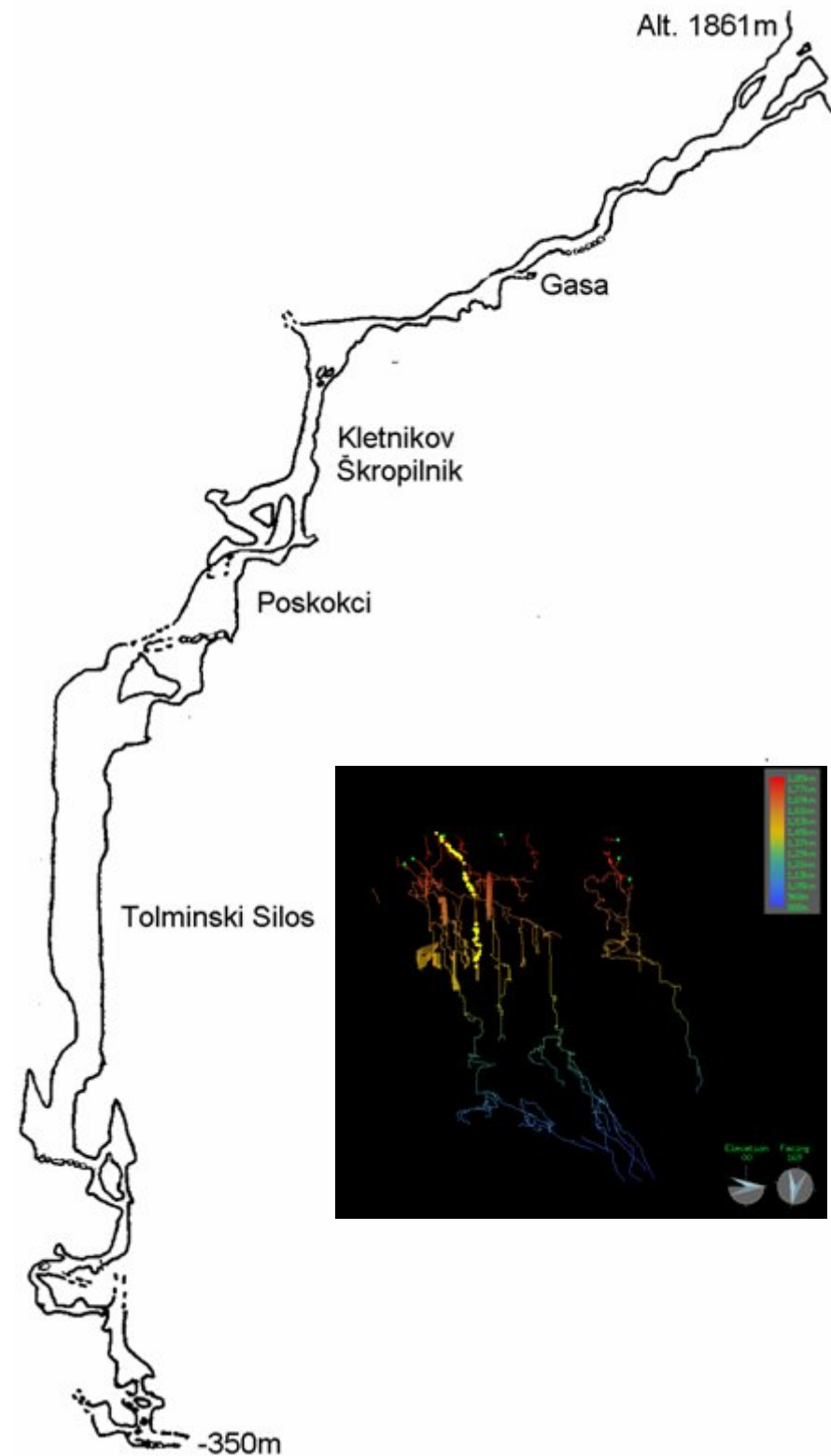
Home made:

descenders + jammers

3kg carbide lamps (empty)

WWI Explosives

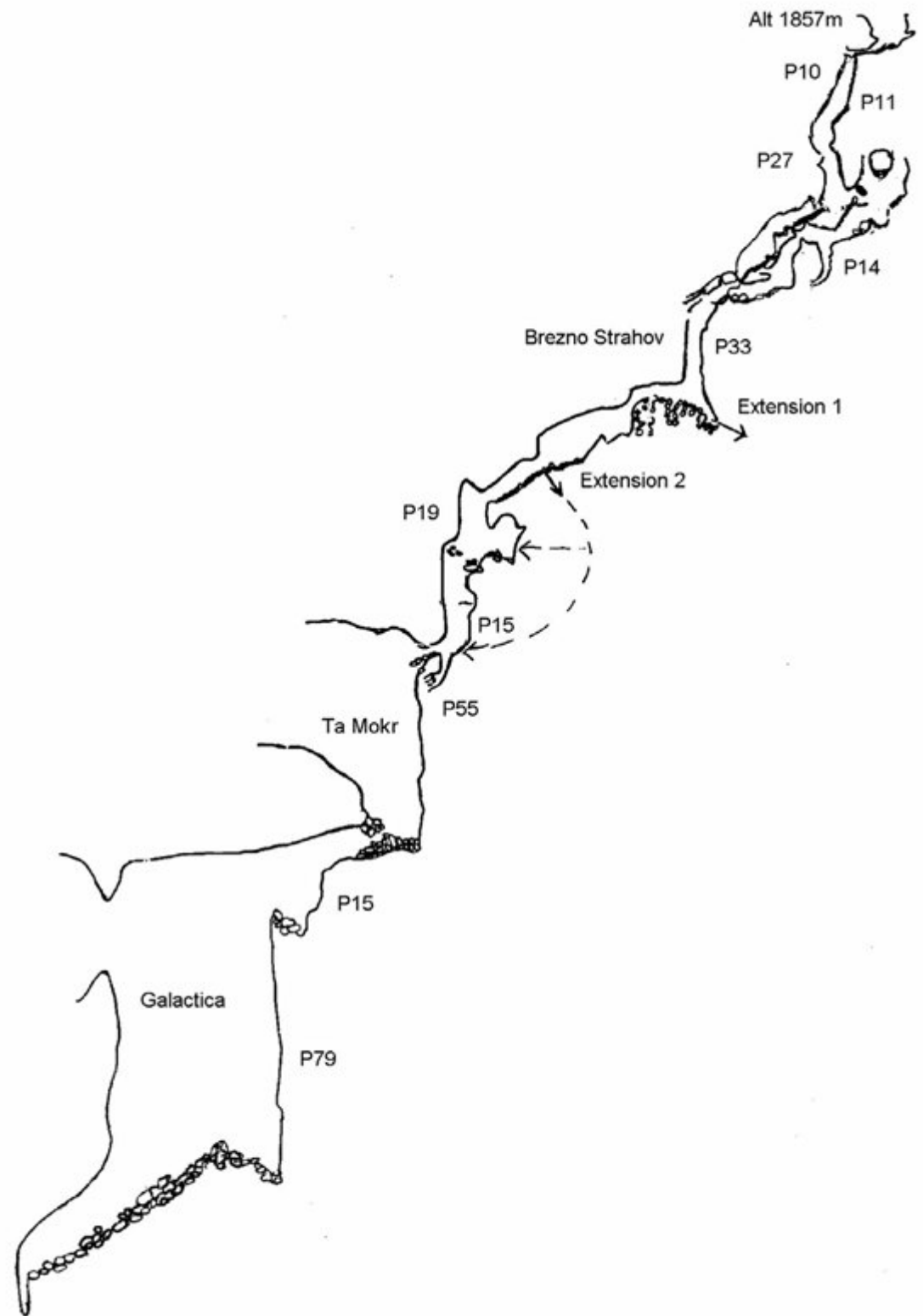
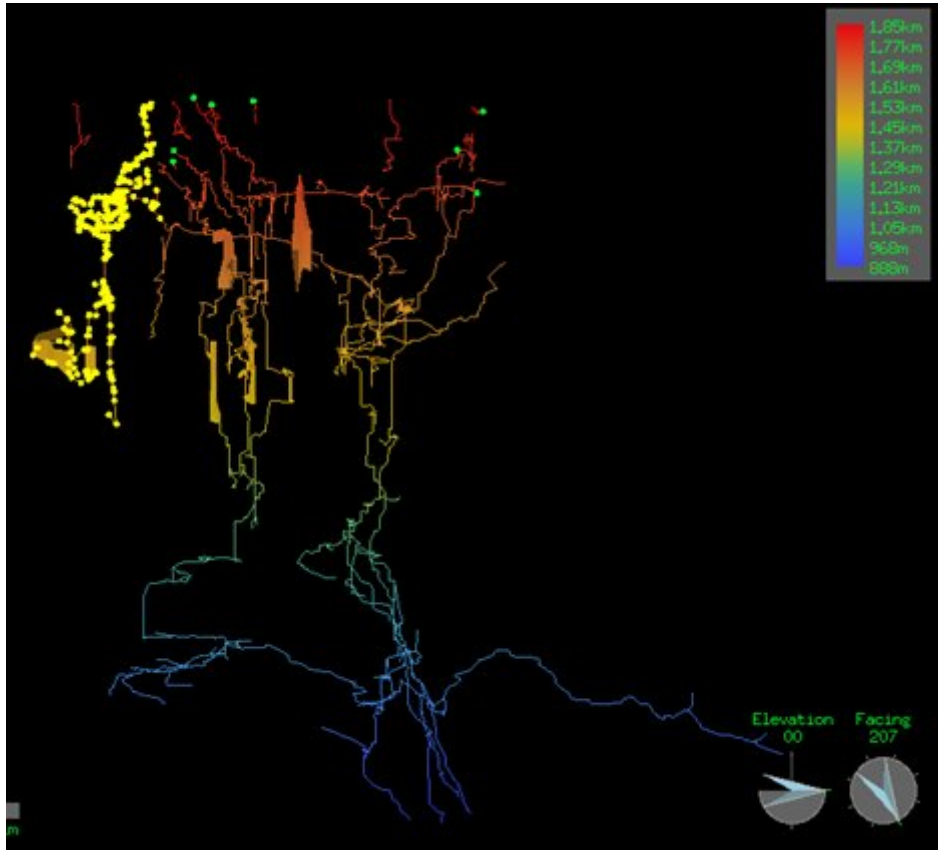
Recovered from Shells



JSPDT

'82-'85 :

M16 (-547m)



May 2007 – JSPDT caving trip to **Ease Gill**













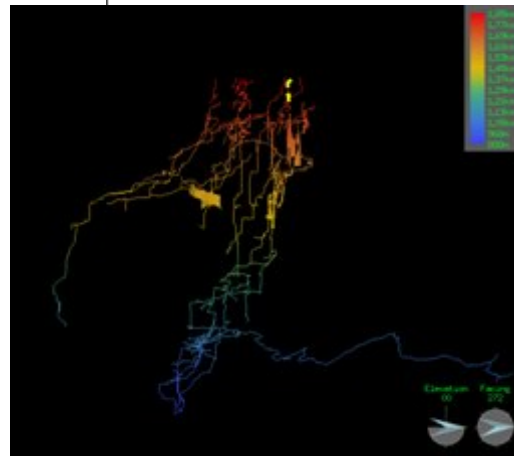
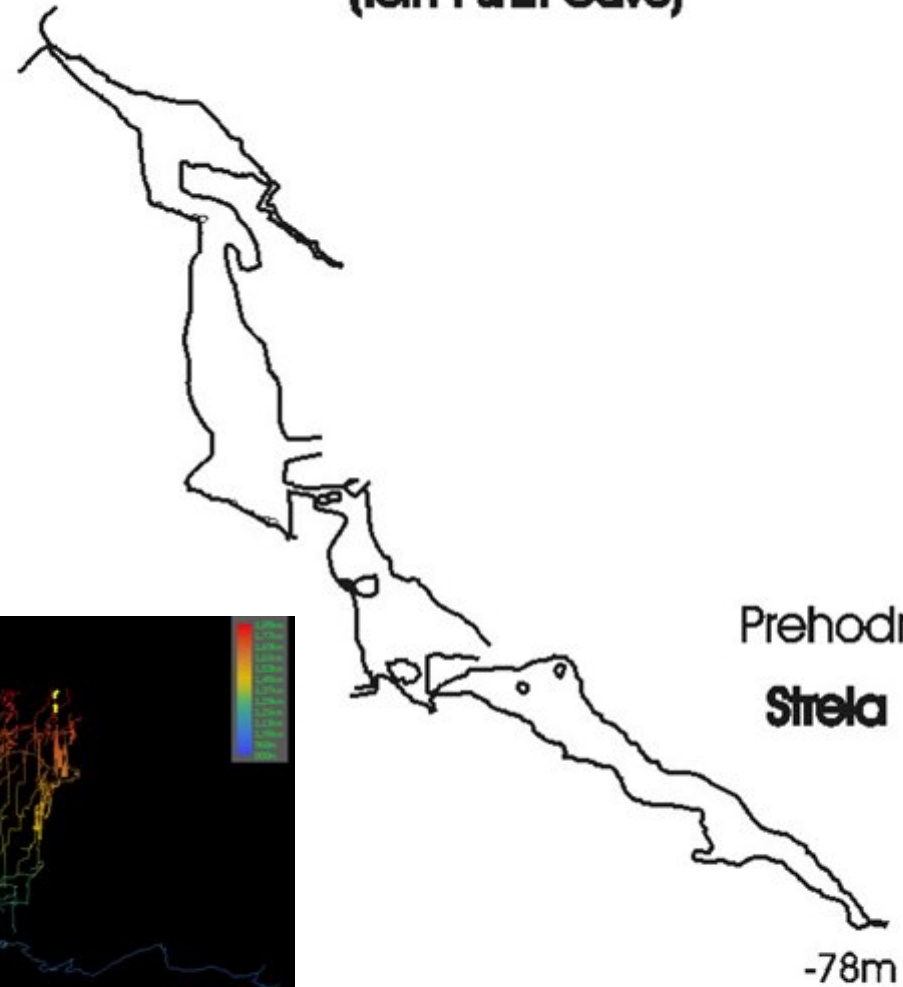


'94-ICCC Arrives on Mig

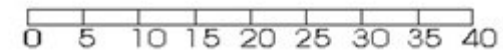


M18- Jama Kratke Majce (1994)

(Tom T-shirt Cave)



M18	Elevation
Tolminski Migovec	090 270
CMO ME JDW	← →
BCRA Grade 5	





TORN T-SHIRT CAVE (M18)

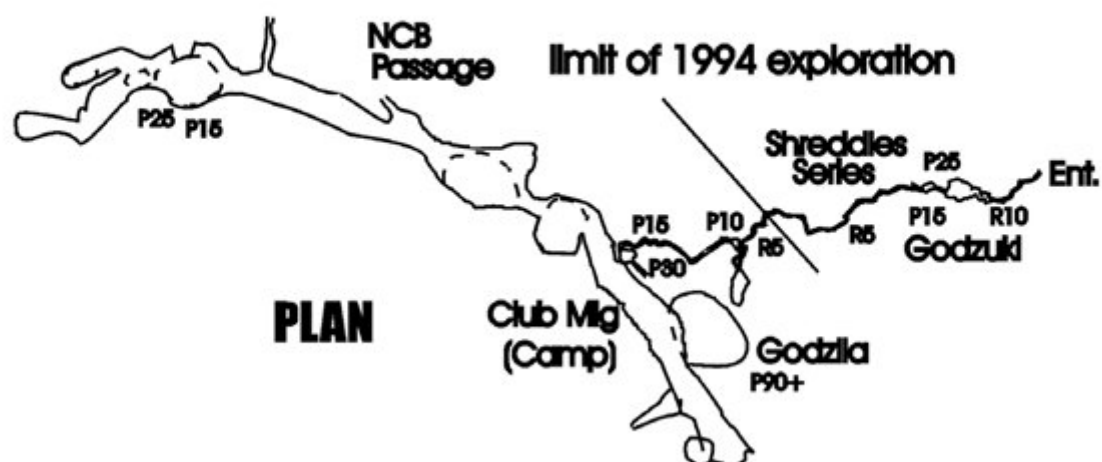
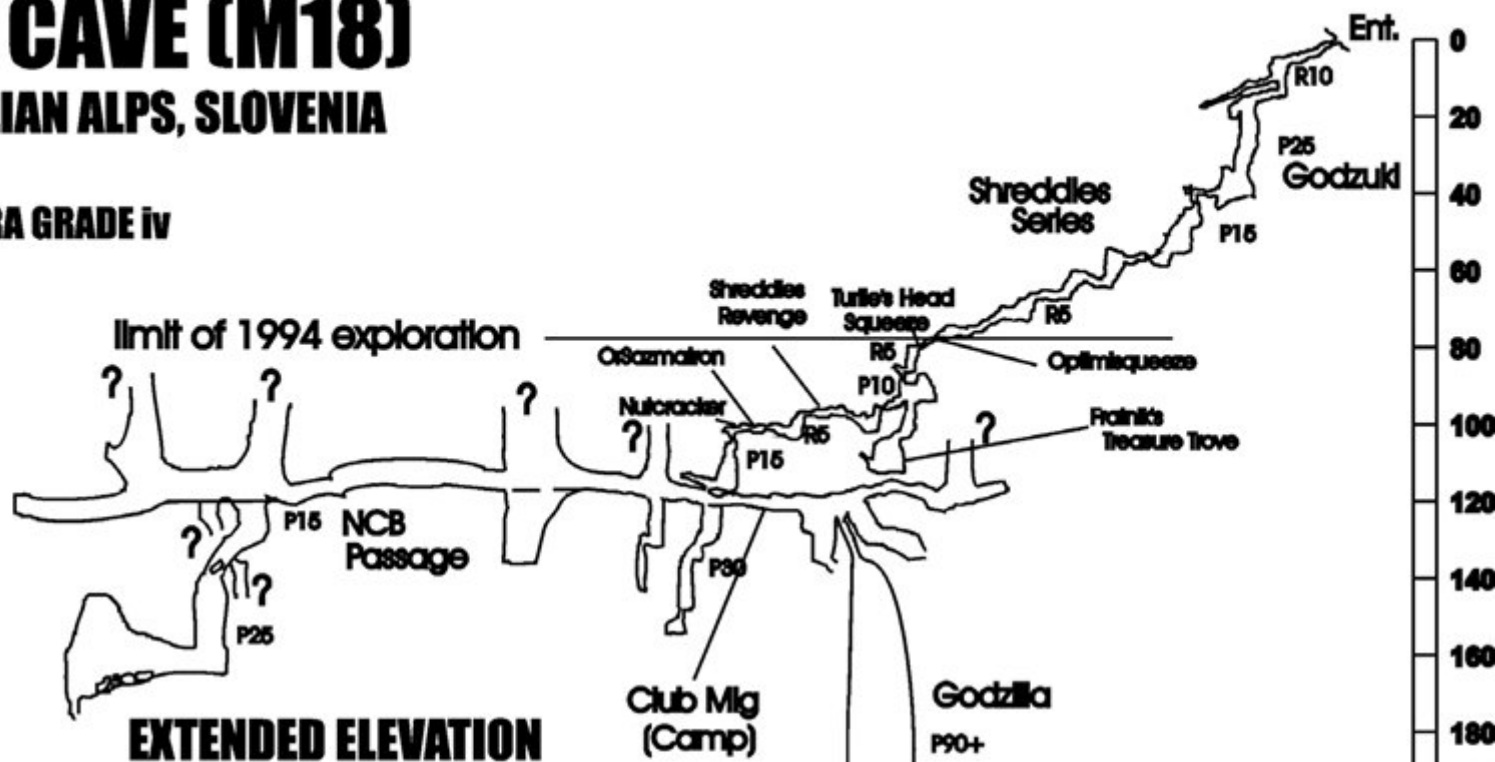
TOLMINSKI MIGOVEC, JULIAN ALPS, SLOVENIA

ALTITUDE 1840m DEPTH 232m

ICCC AND JSPDT SURVEY TO BCRA GRADE iv

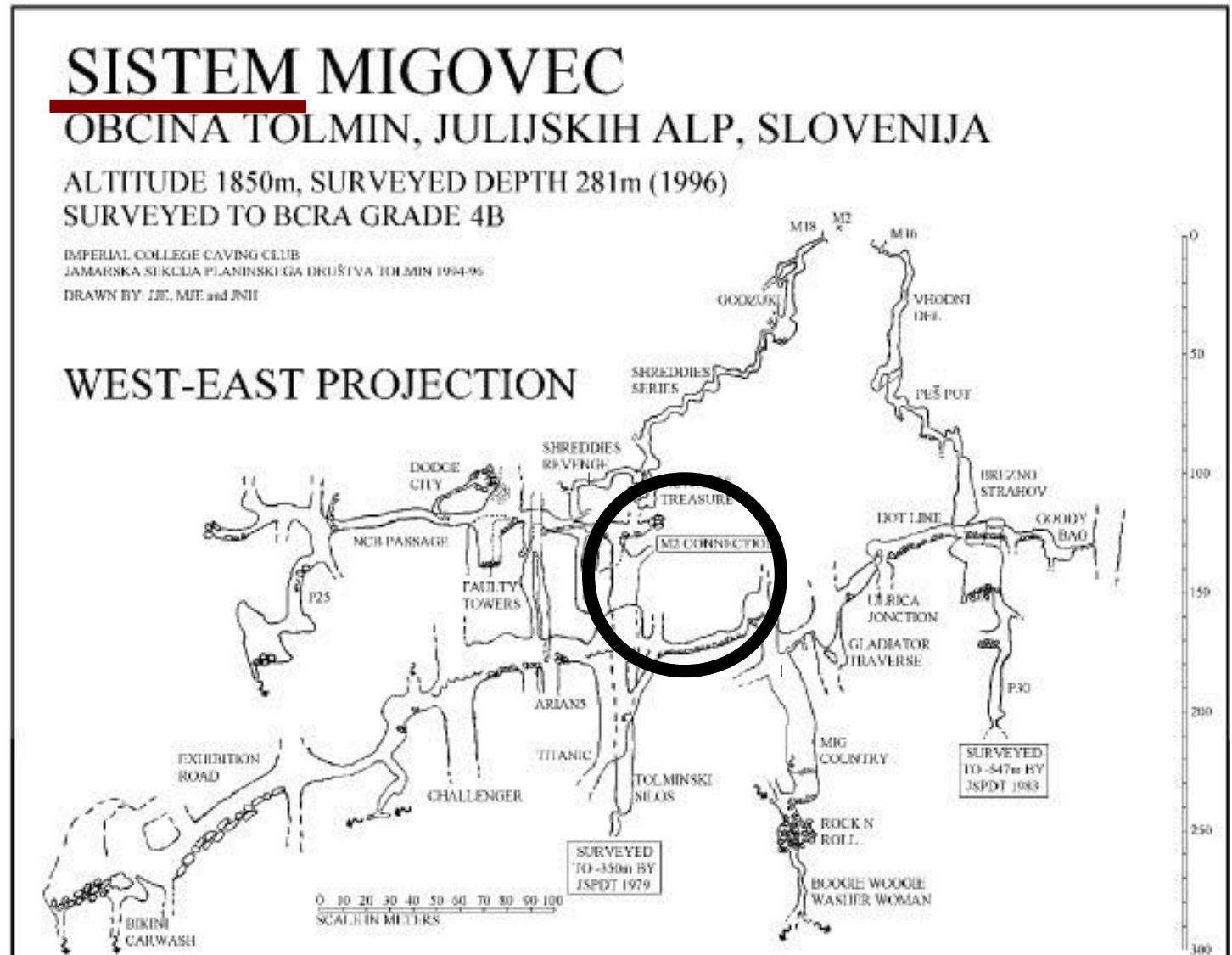
Location 540503/512394

Nm



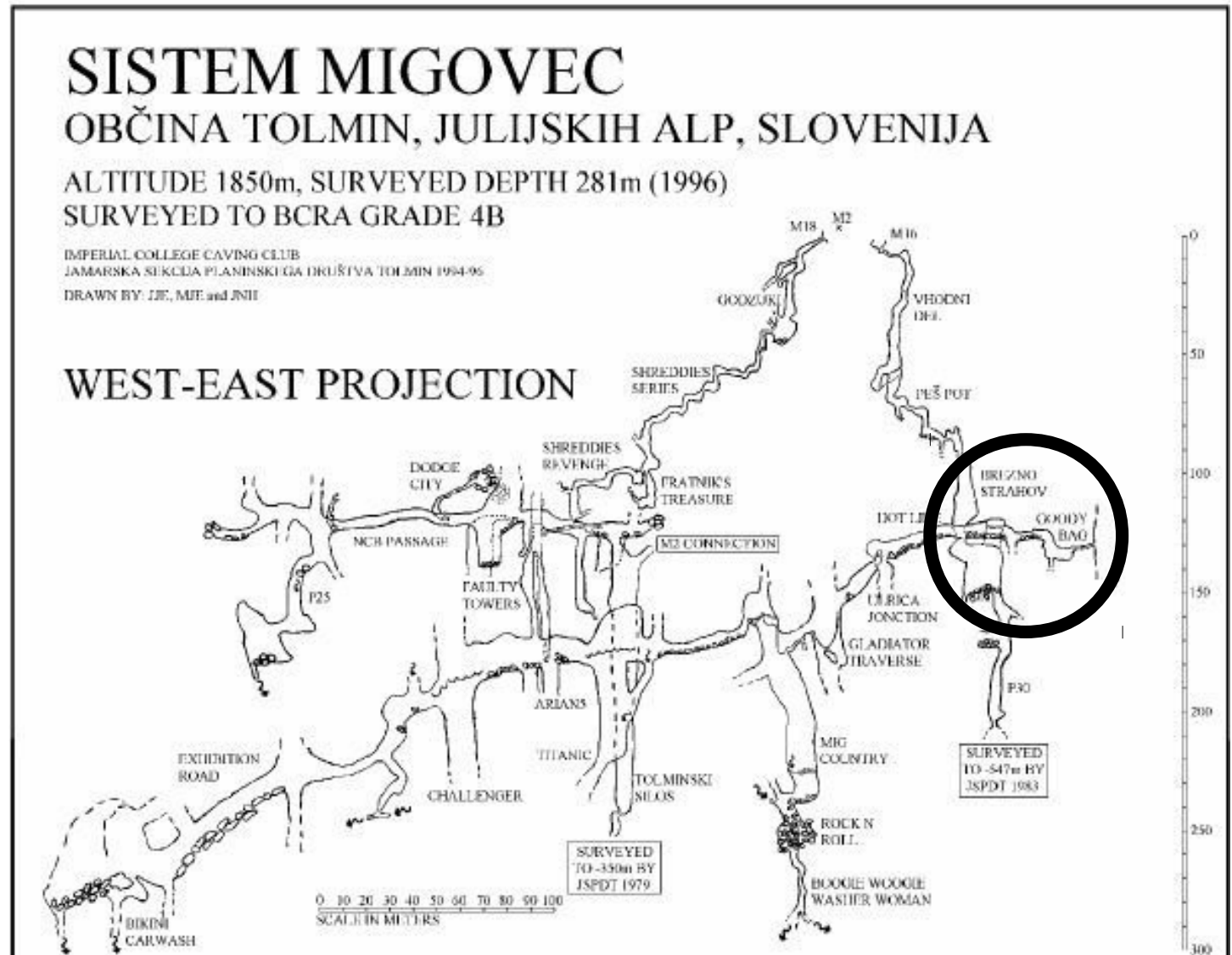
'96

First connection – to M2



'96

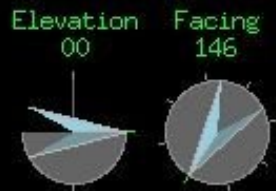
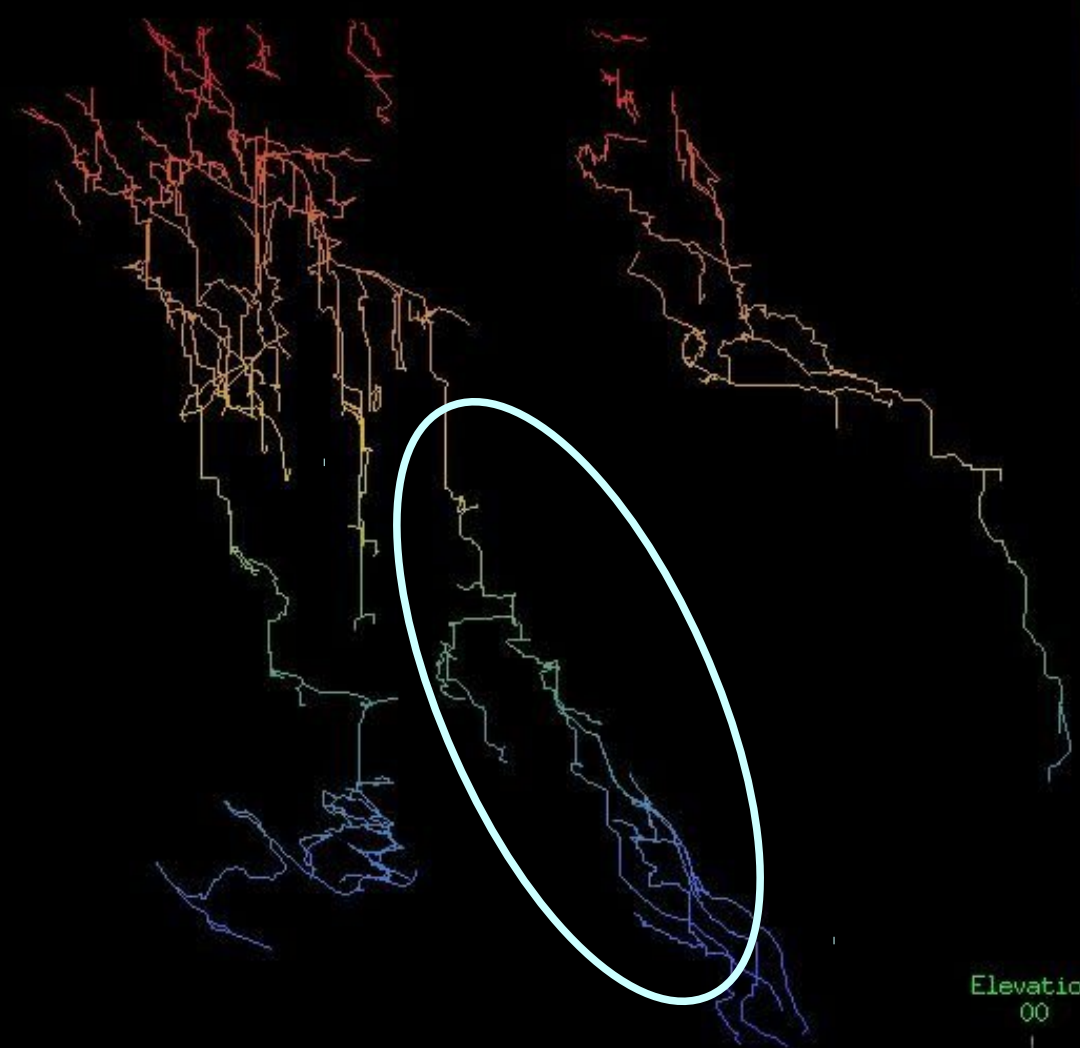
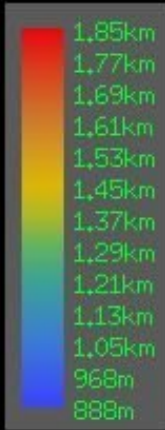
Second connection - to M16





Gladiator's traverse

'97-'99 Deeper and Deeper (-970m)



~~Ben's Crap Lead~~
~~Gardeners' World~~
~~Vrtnarija~~
System Migovec

Ben's Crap Lead - 2000

Oh-So-Fag-Arse
-5 m

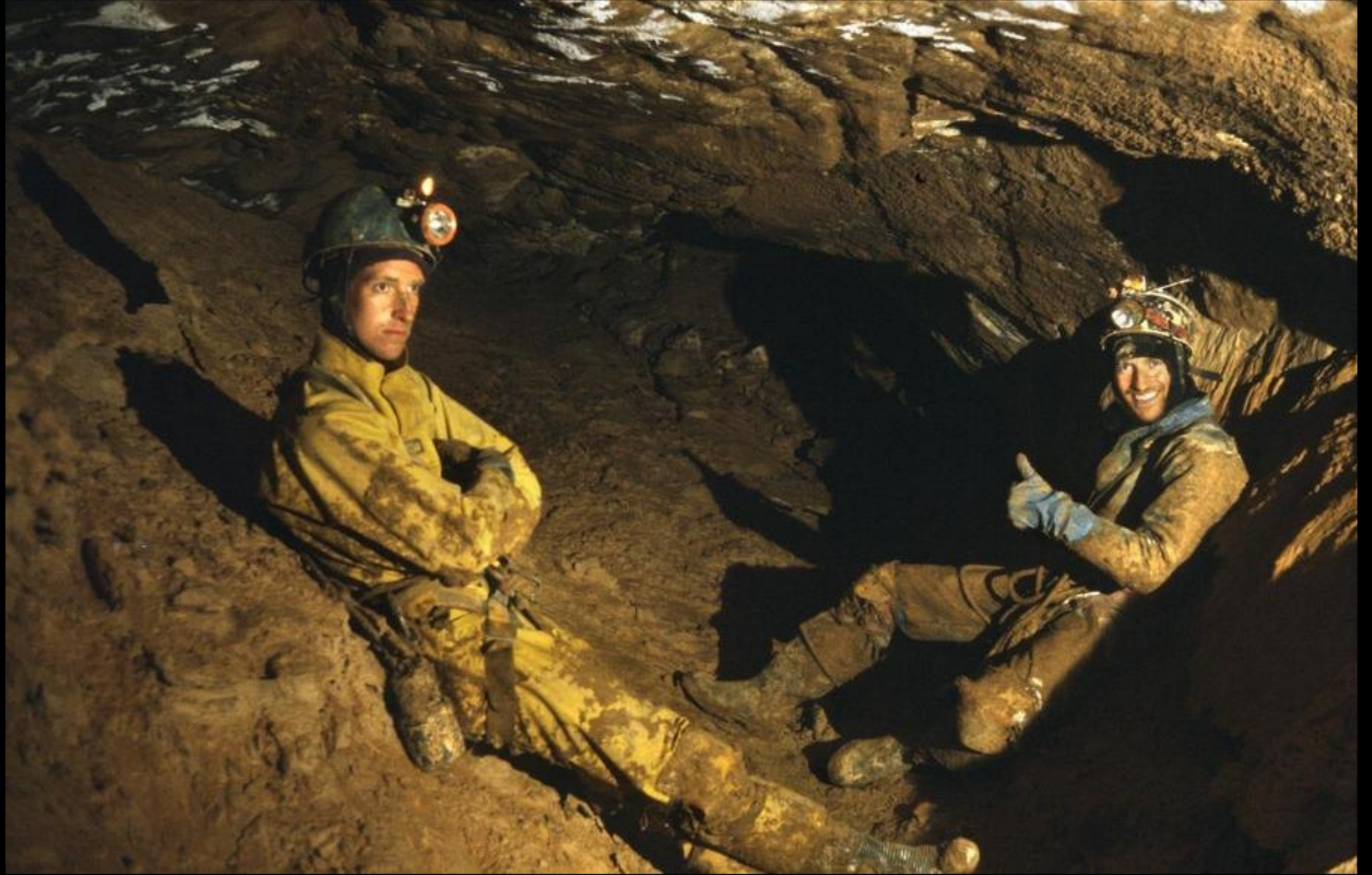


-250 m
Space Odyssey



Concorde
-300 m





Friendship Gallery -550m

Vrtnarija:

2000:

393 m deep

2001:

574 m deep

2002 (No Expedition):

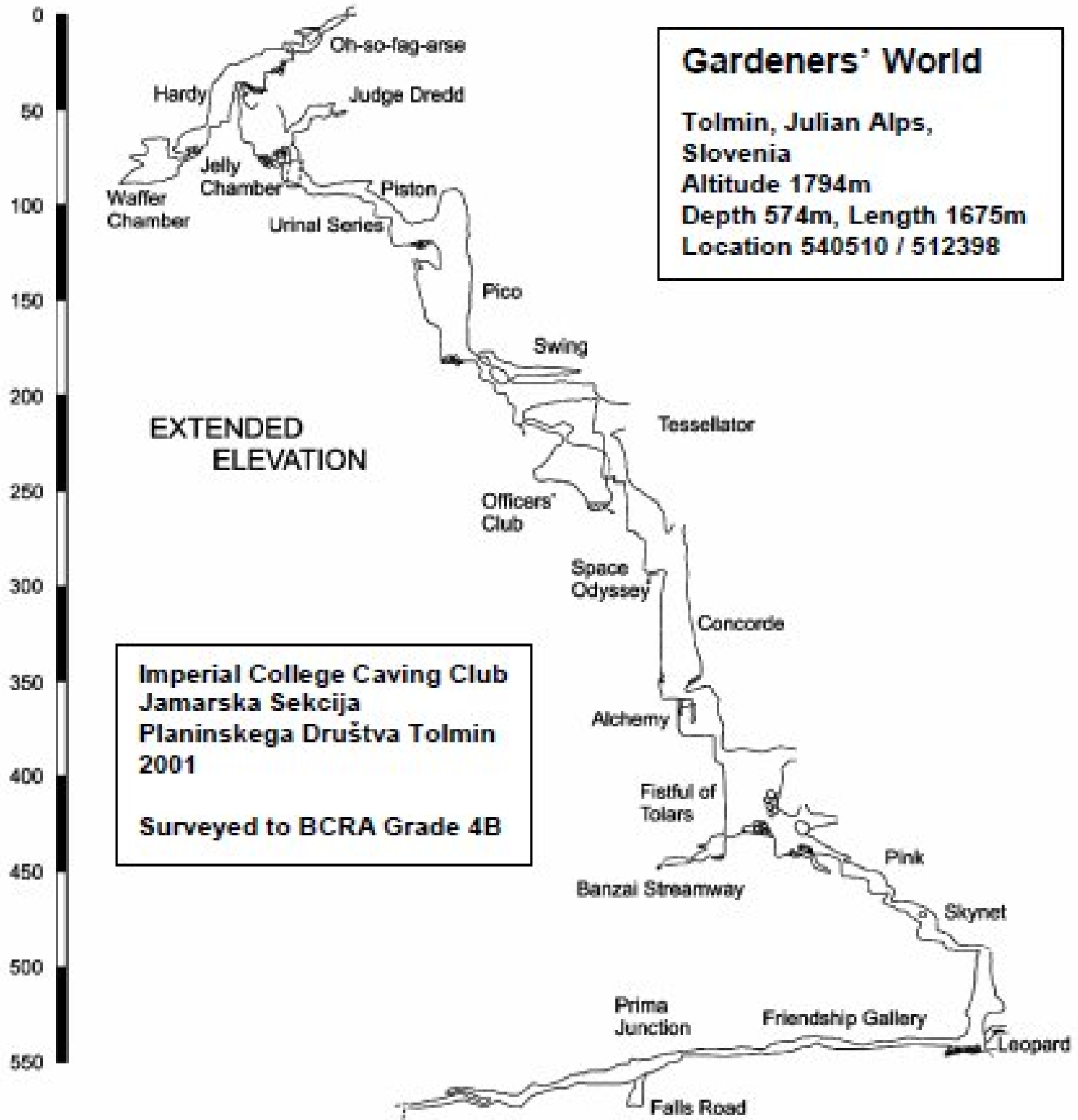
Experience, logistical hurdles

2003:

747 m deep - u/g camps

2004:

802 m deep



Gardeners' World
 Tolmin, Julian Alps,
 Slovenia
 Altitude 1794m
 Depth 574m, Length 1675m
 Location 540510 / 512398

Imperial College Caving Club
 Jamarska Sekcija
 Planinskega Društva Tolmin
 2001
 Surveyed to BCRA Grade 4B



EXTENDED
 ELEVATION

Oh-so-fag-arse
 Judge Dredd
 Hardy
 Jelly Chamber
 Waffer Chamber
 Urinal Series
 Pison
 Pico
 Swing
 Tesselator
 Officers' Club
 Space Odyssey
 Concorde
 Alchemy
 Fistful of Tolars
 Banzai Streamway
 Pink
 Skynet
 Friendship Gallery
 Leopard
 Prima Junction
 Falls Road

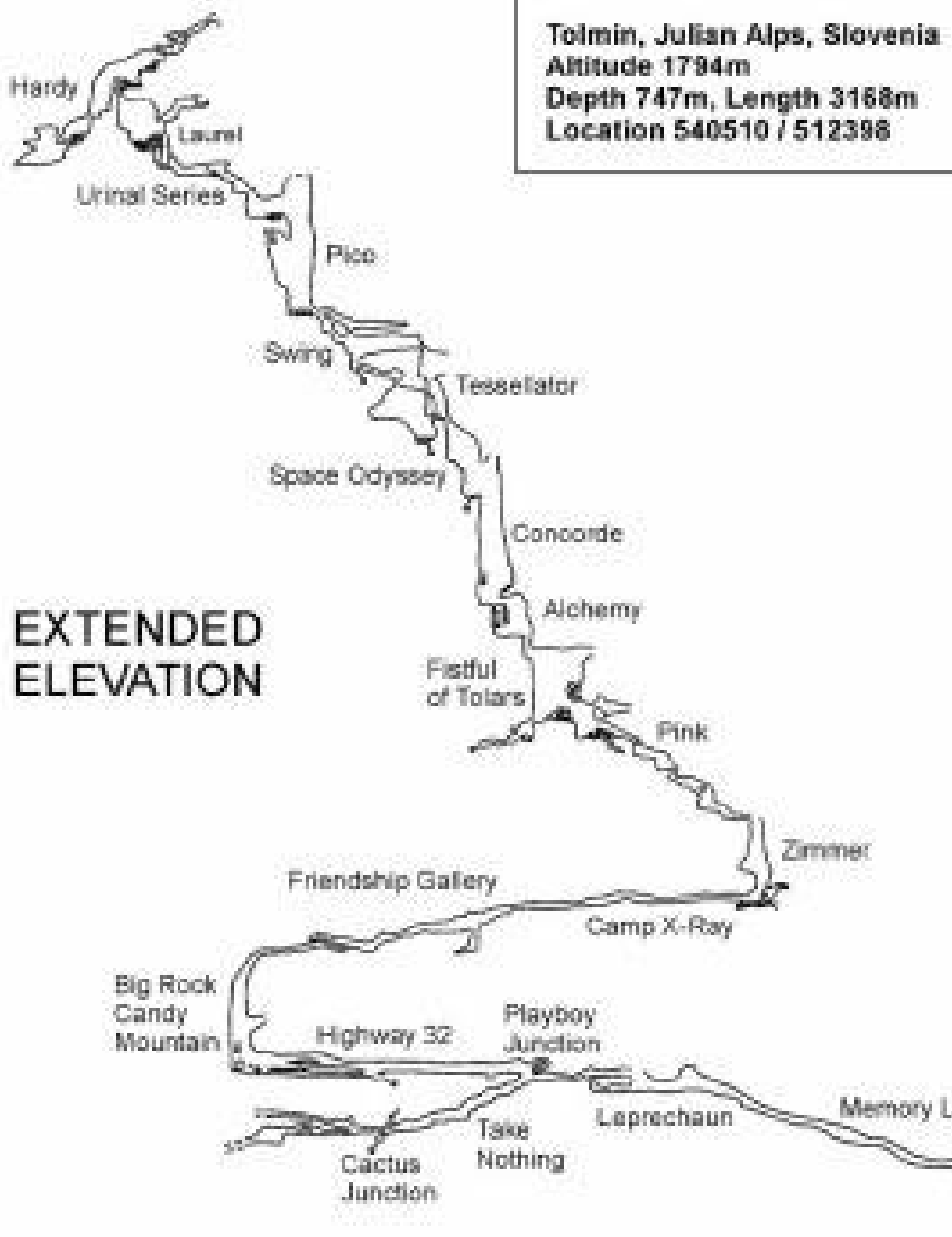


'The Fridge' Camp -650 m

Leprechaun
-650 m



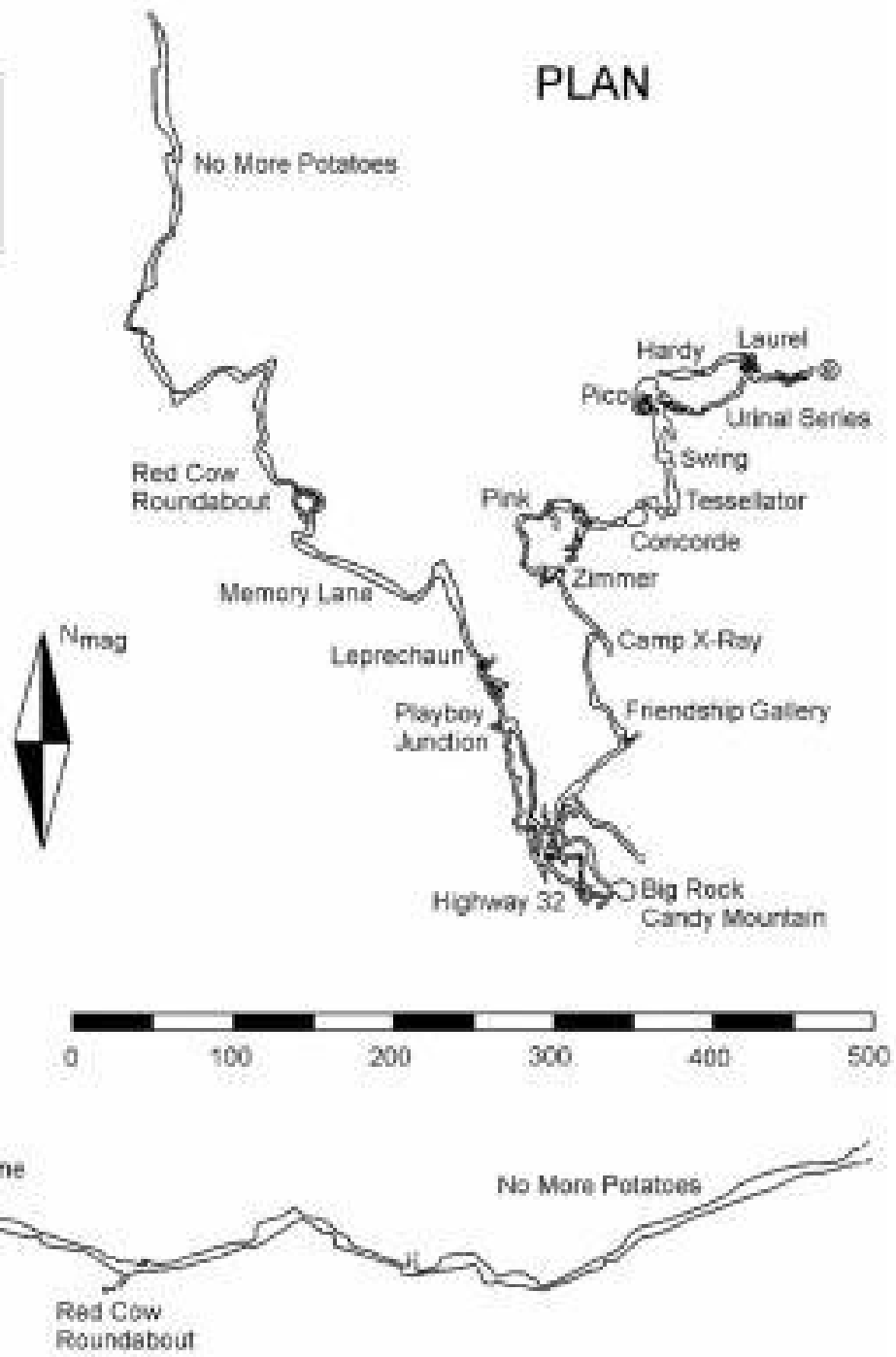
Gardeners' World



Tolmin, Julian Alps, Slovenia
Altitude 1794m
Depth 747m, Length 3168m
Location 540510 / 512398

ICCC/JSPDT 2003 Surveyed to BCRA Grade 4B

PLAN





Expedition Logistics



Carries



~1 km
Ascent









The Bivi



Maslow's Heirachy of Needs: (adapted for cavers)

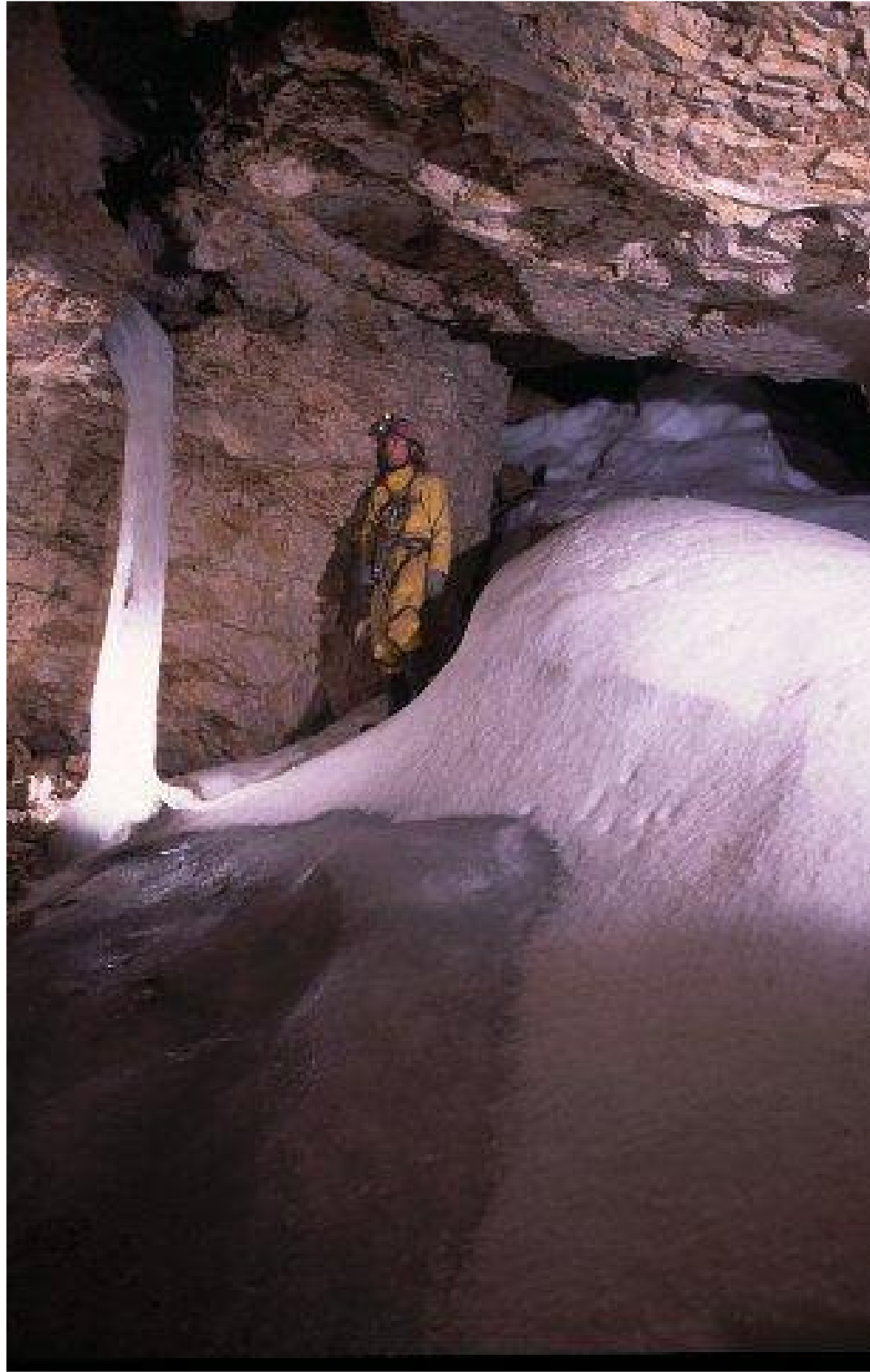
- Toilet
- Drink - water to start with!
- Food
- Shelter
- Heat
- Fuel
- Electricity
- 3G

Water

















Food



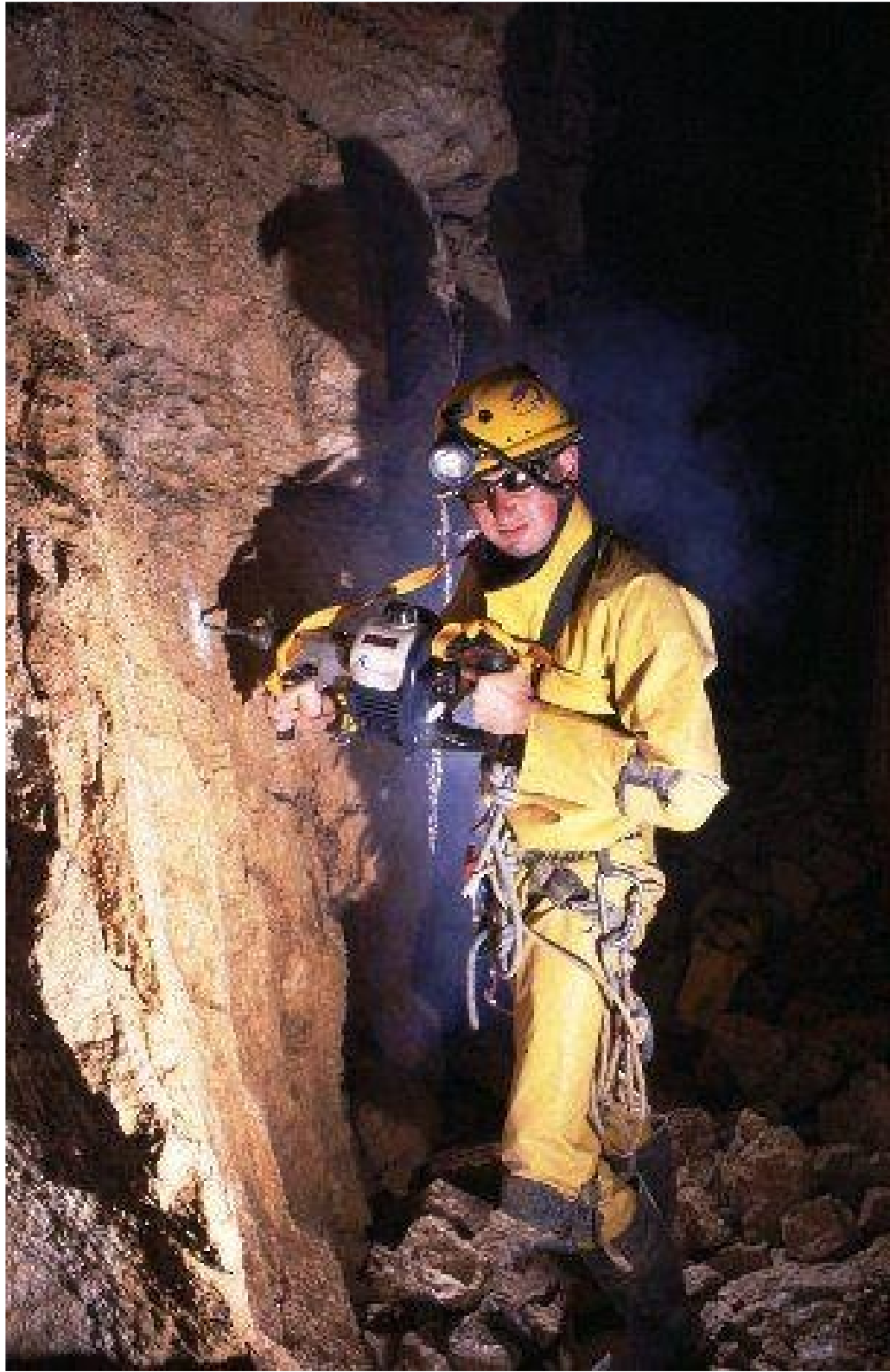


1999



2012





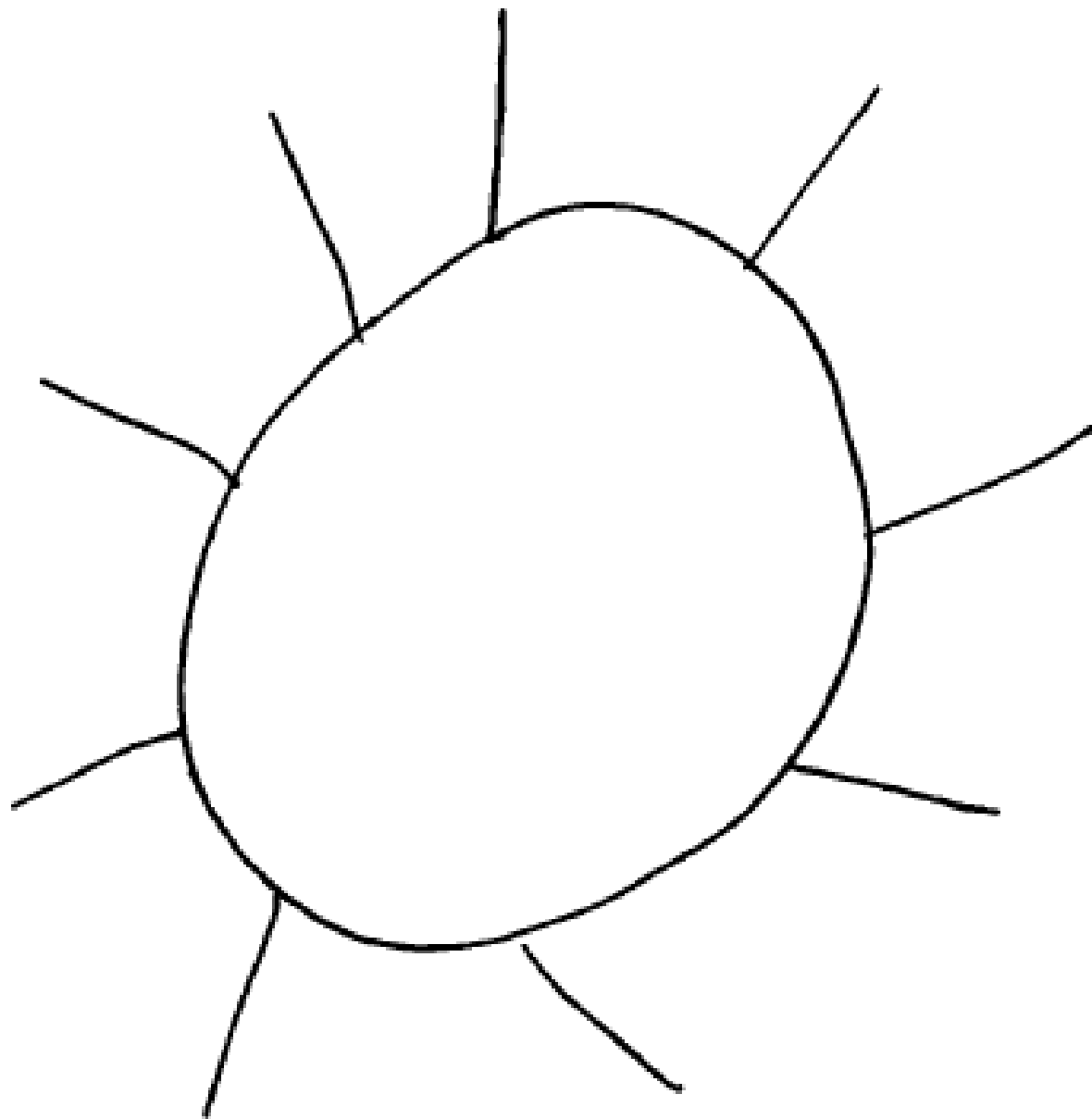








Shelter



The Sun by Andrew
age 20

Smashed Swede

-50 m



Surface Pushing....





2007: The Next Generation



Rebolt M1, M6

Hawk Cave

Stag Cave

Moth Cave

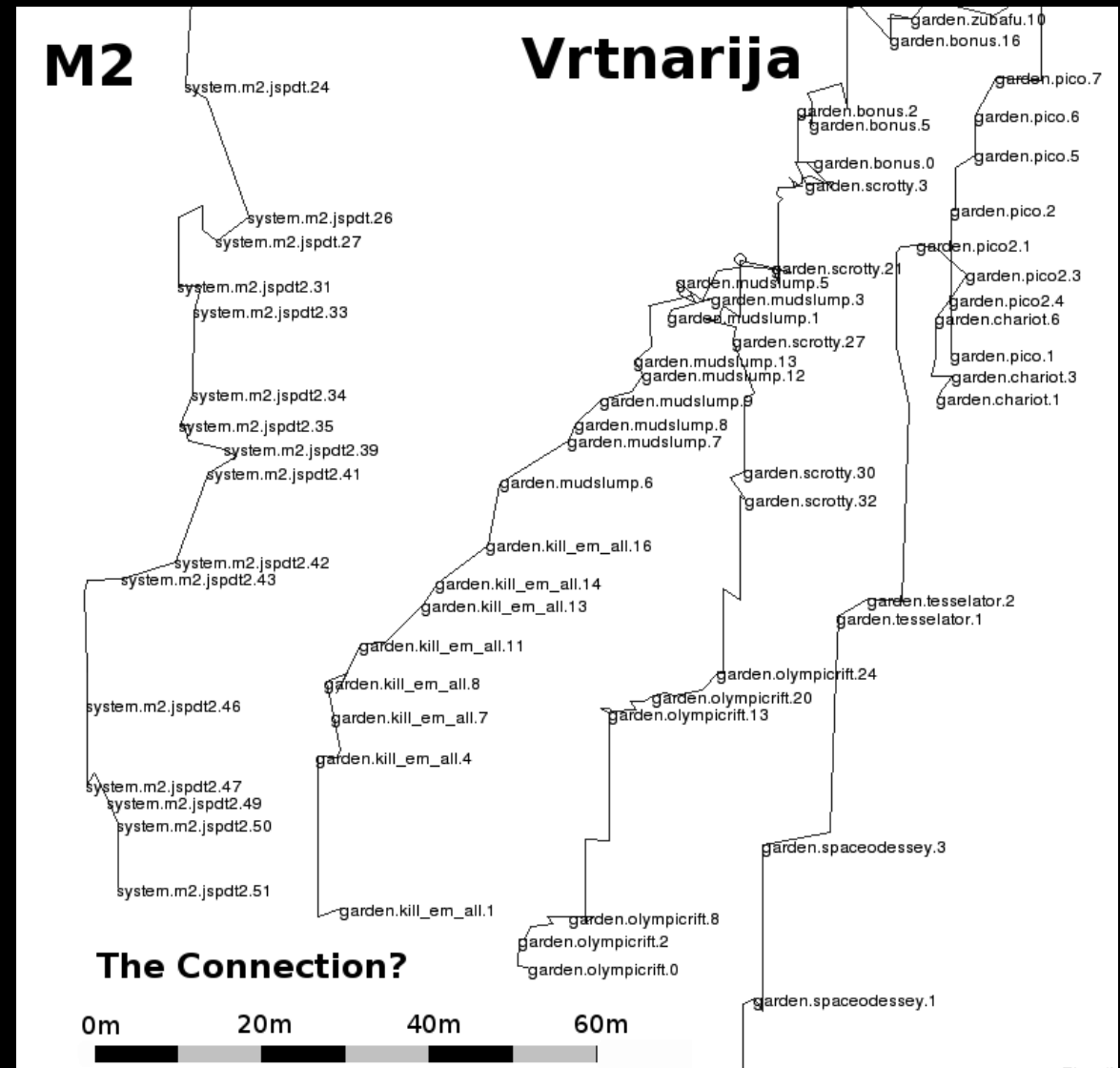
Monatip

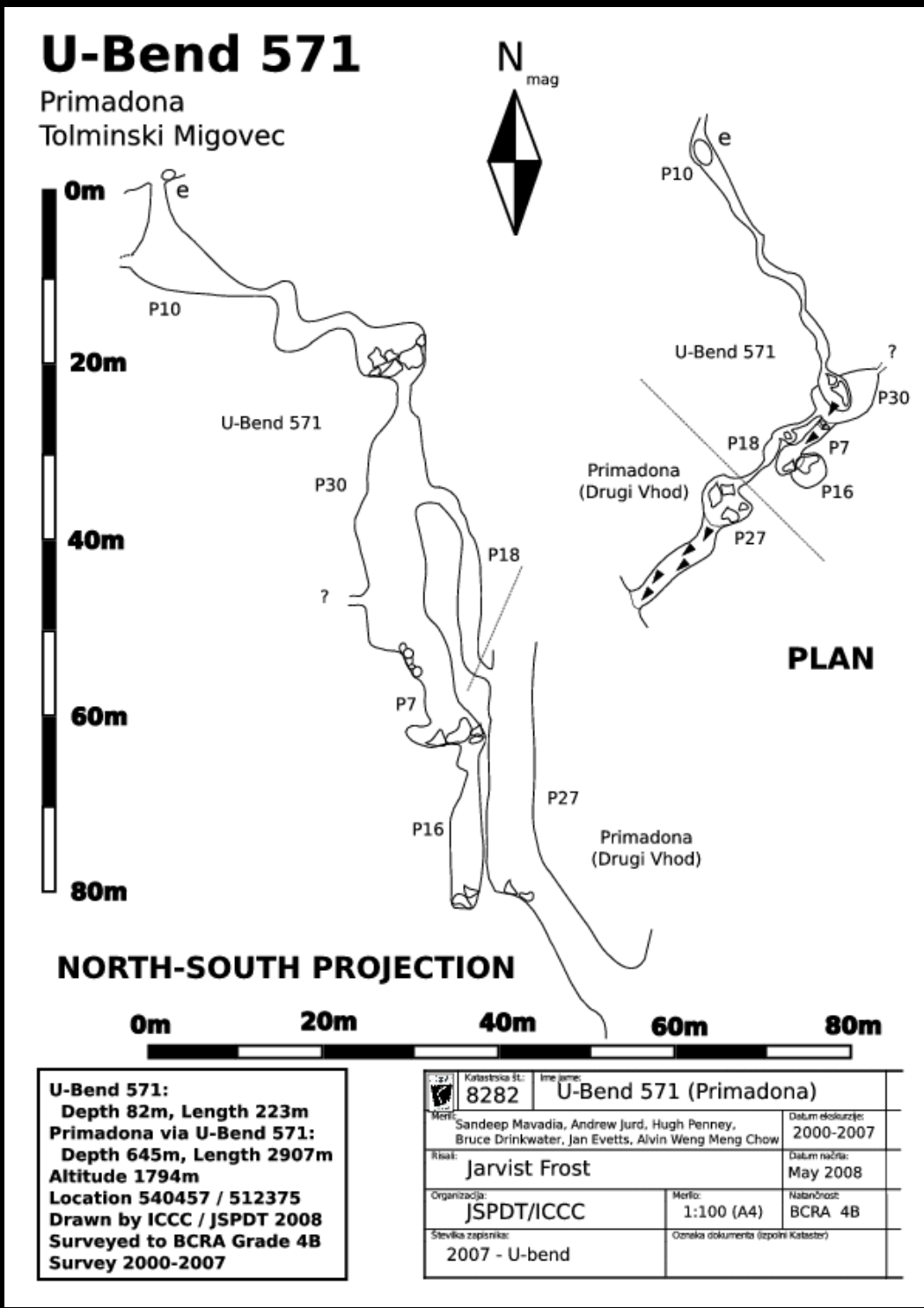
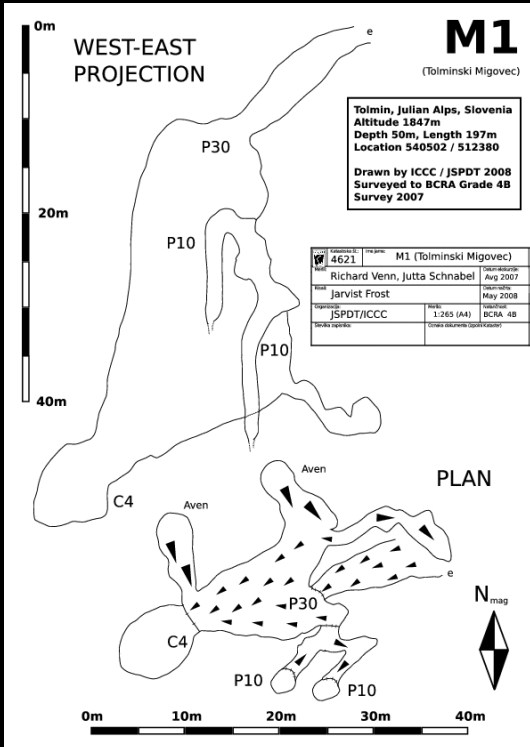
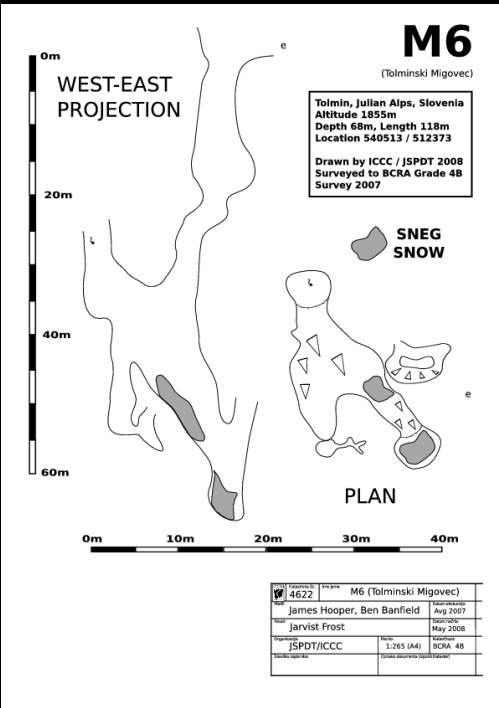
Planika Jama

U-Bend – Primadona

Kill'em All

2007: Much Surface Work





2008: A Hard Day's a-Gonna Push



2008:

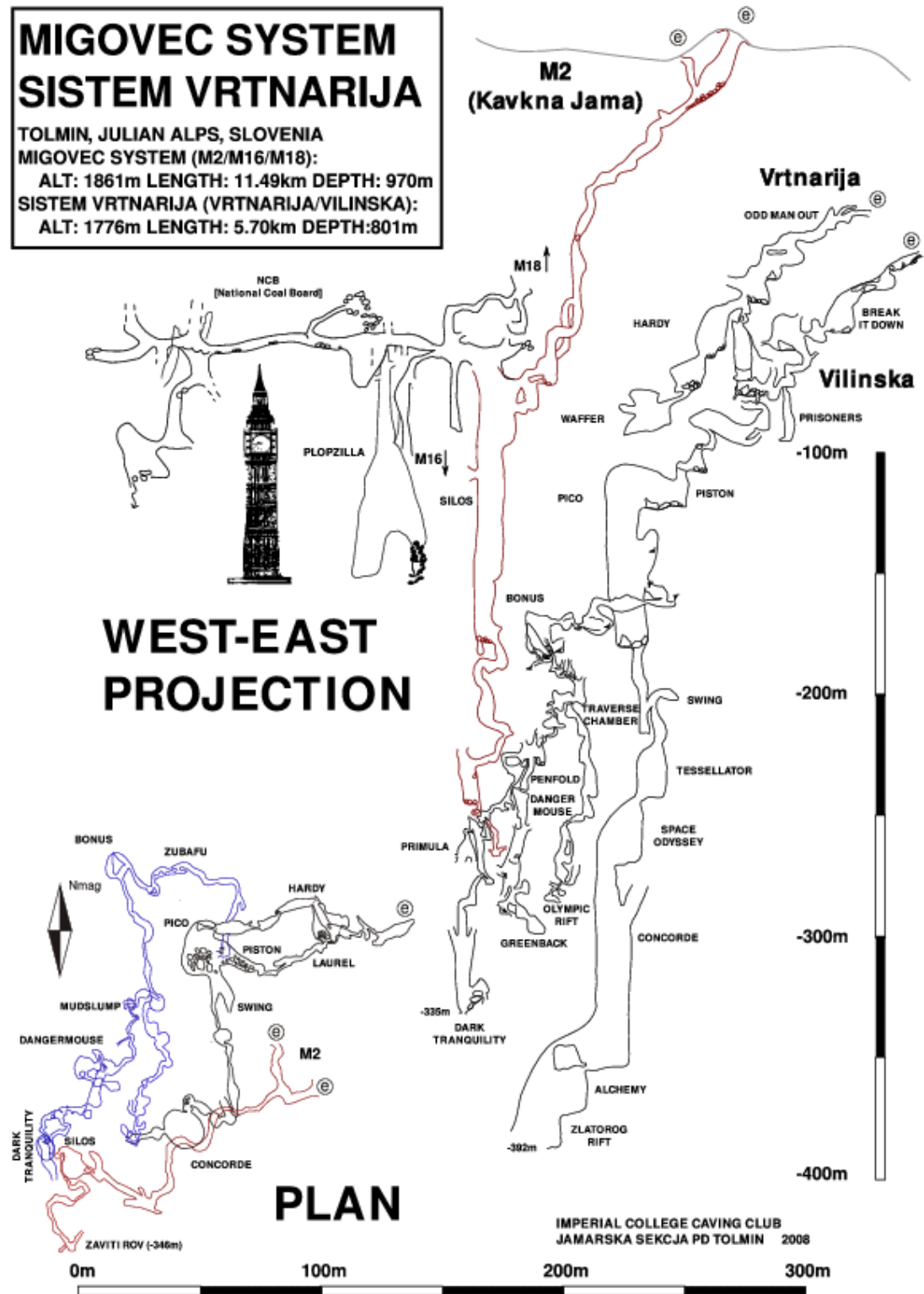
Rebolt + rig M2 to -350m

Bounce Trips (15hrs+)

'Captain Kangaroo' /
Vrtnarija pushed to -335m

[we stopped as we were
below the bottom of M2...]

Exploration (downwards) M2
continued in winter



2009: Brezzvezdna Noč



'Starless Night'

Camping to further
explore.

**2009: Metal Camp
(-254m)**



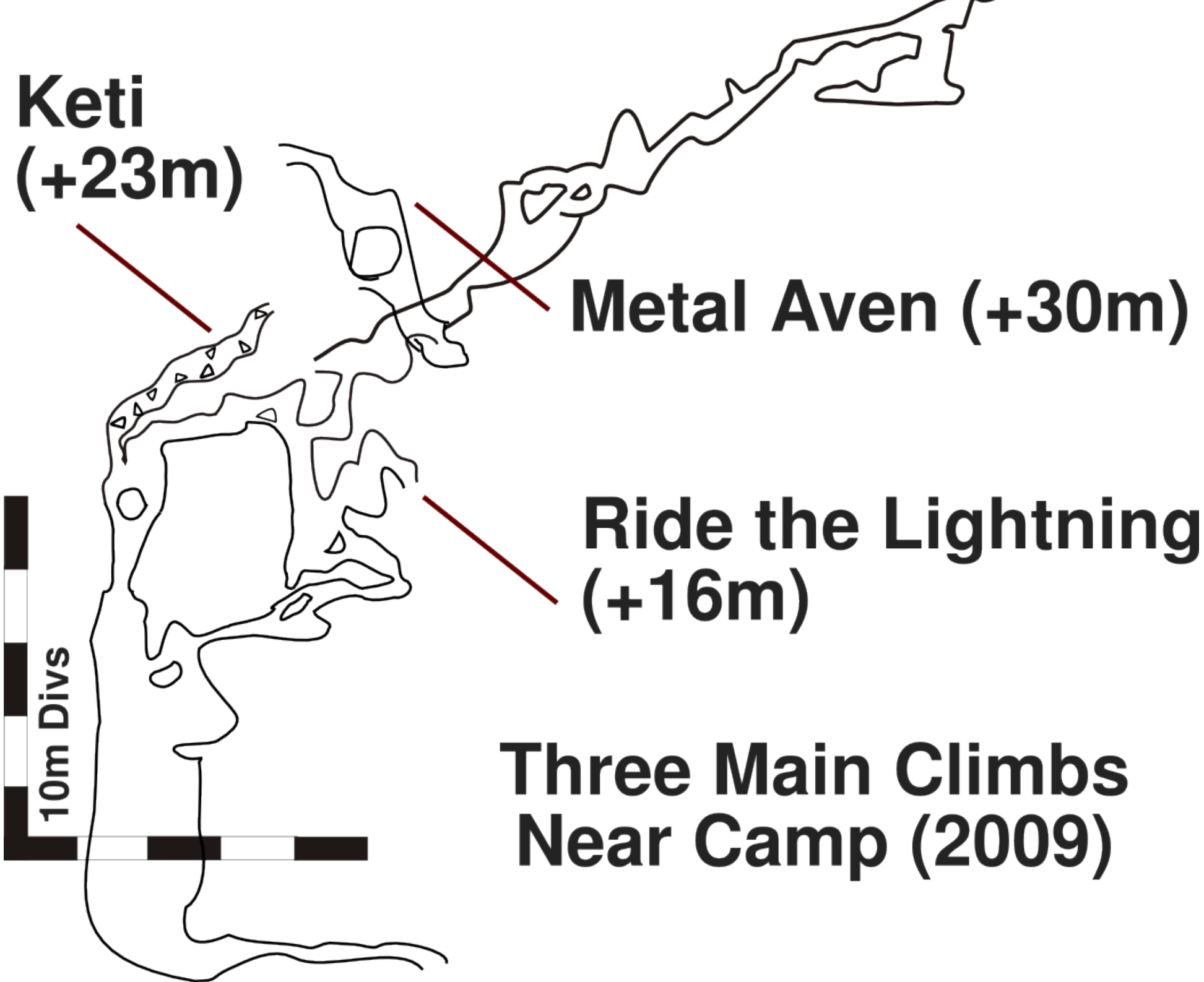
**1 degree Celsius
1-2 night camps**

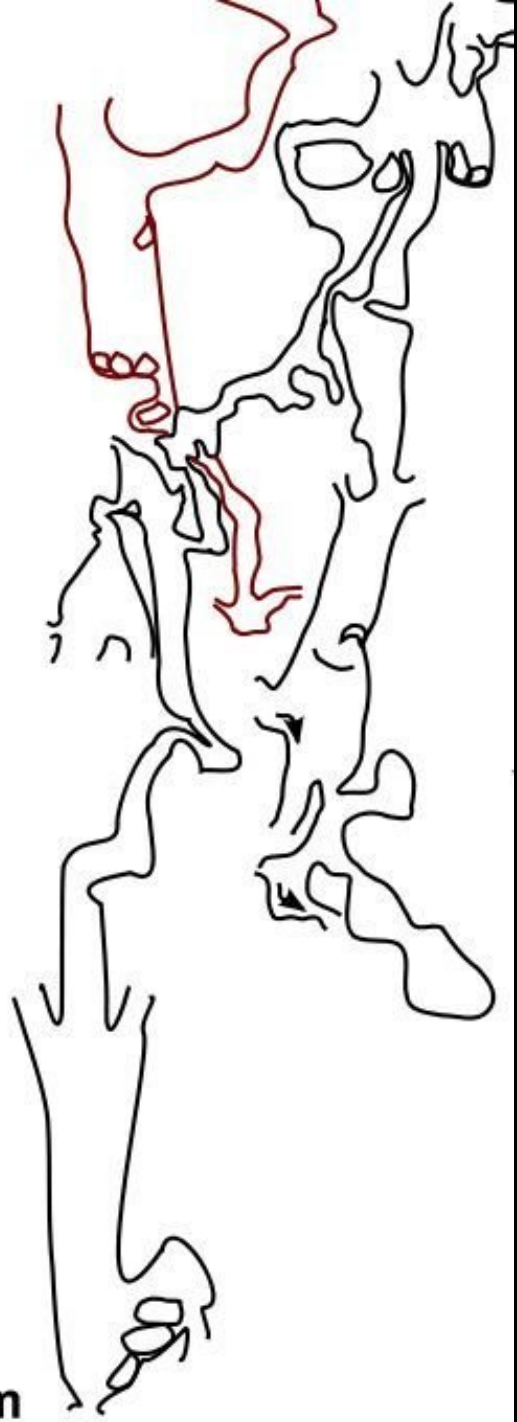
**Keti
(+23m)**

Metal Aven (+30m)

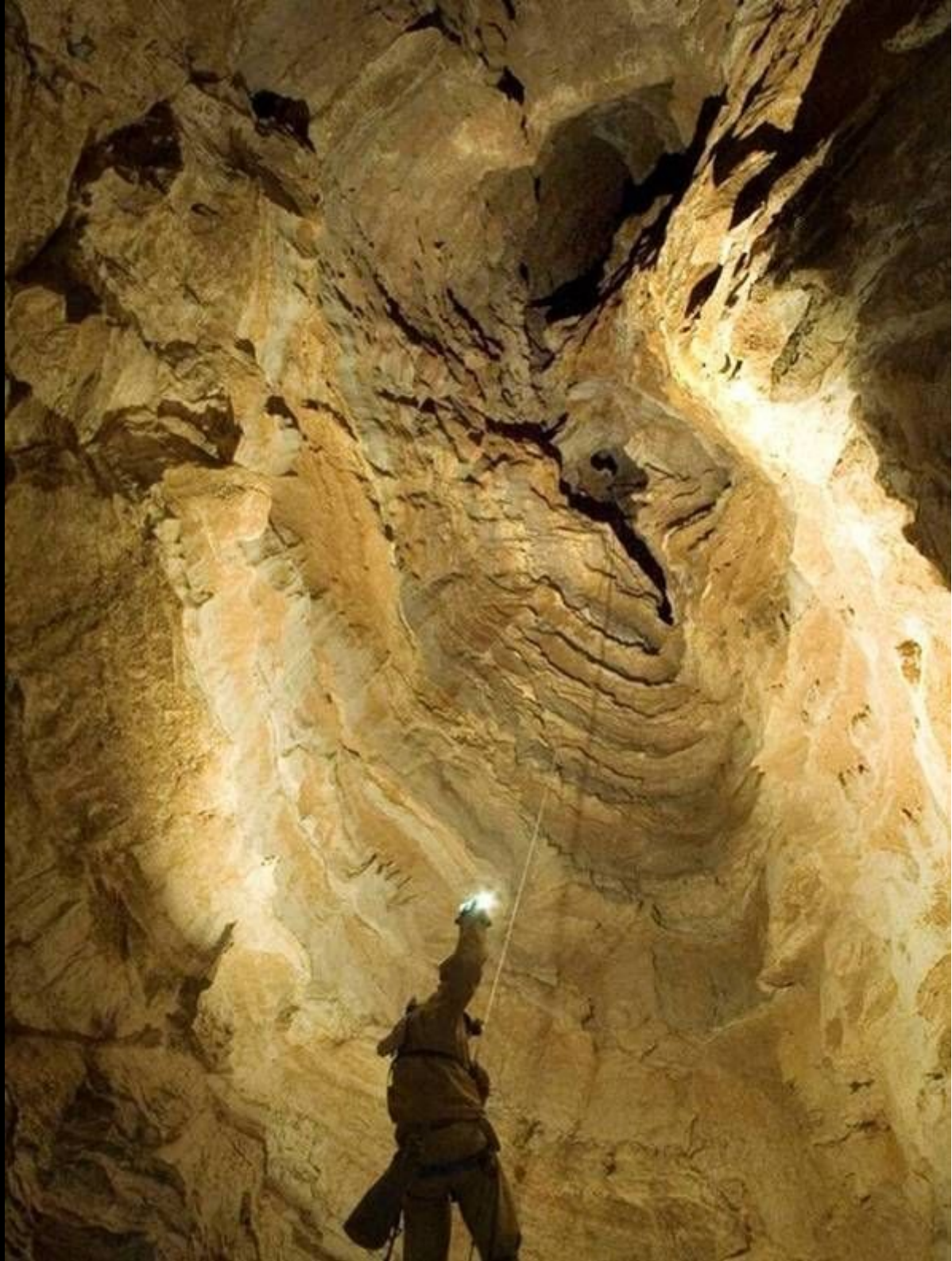
**Ride the Lightning
(+16m)**

**Three Main Climbs
Near Camp (2009)**





**DARK
TRANQUILITY**





Mirage Canyon (30m high!)





Two Minutes to Midnight (35m pitch)

**I Walk the Line
(6m climb,
15m pitch)**



Happy Monday (81m pitch)





20x20m (measured)





Hanging Garden (p10m)

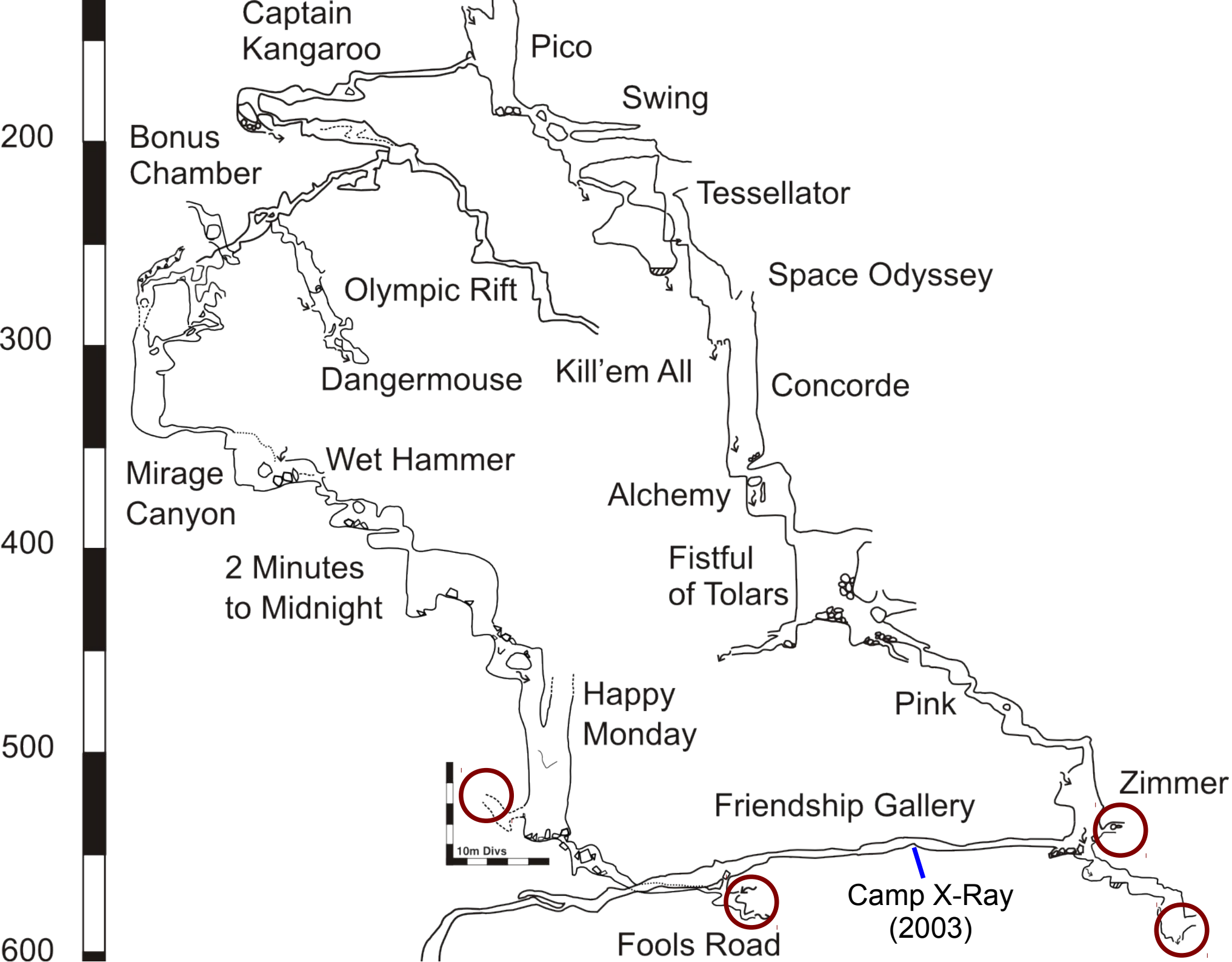


A bolt!

**And a
confluence.**

**Falls Road /
Fools Road
(P -7m/+10m)**









Eggstravaganza (-555m)





2009 Summary:

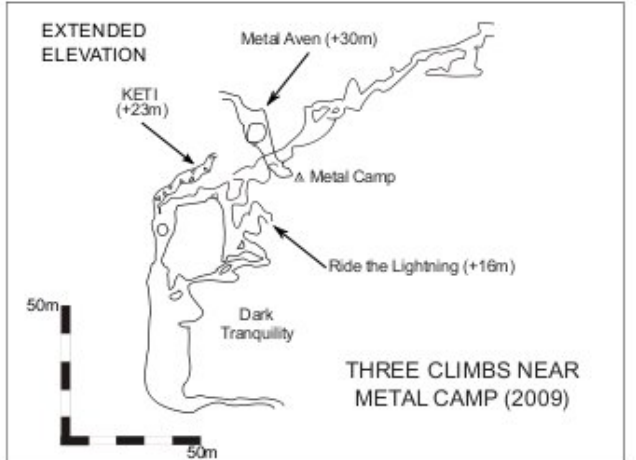
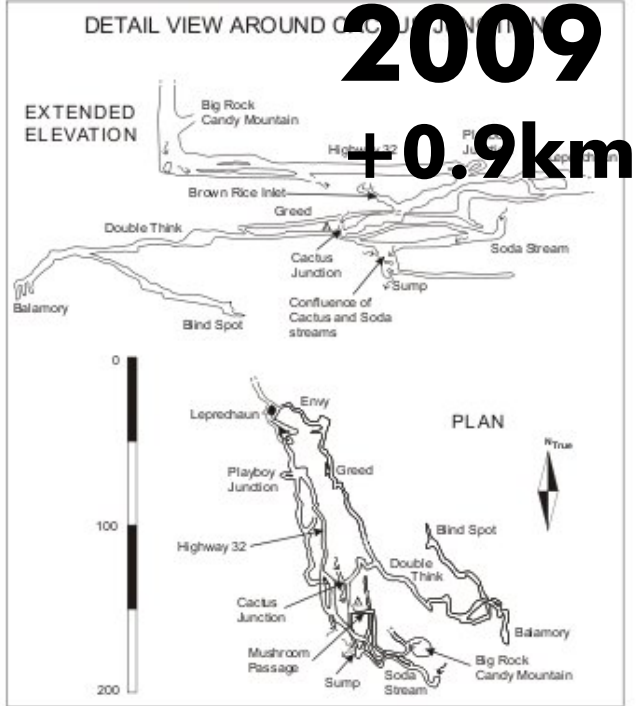
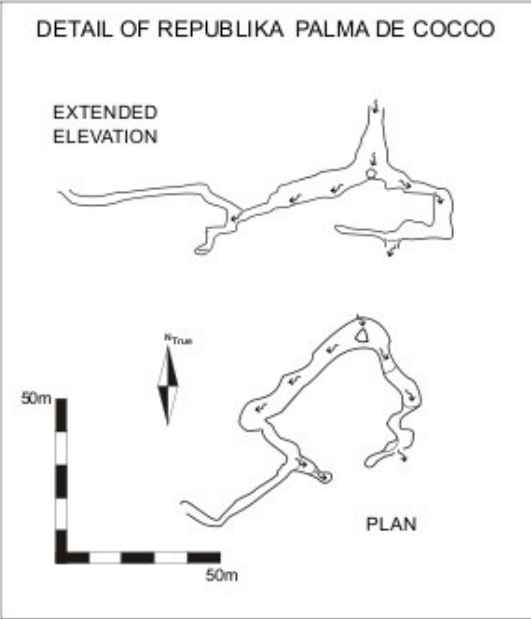
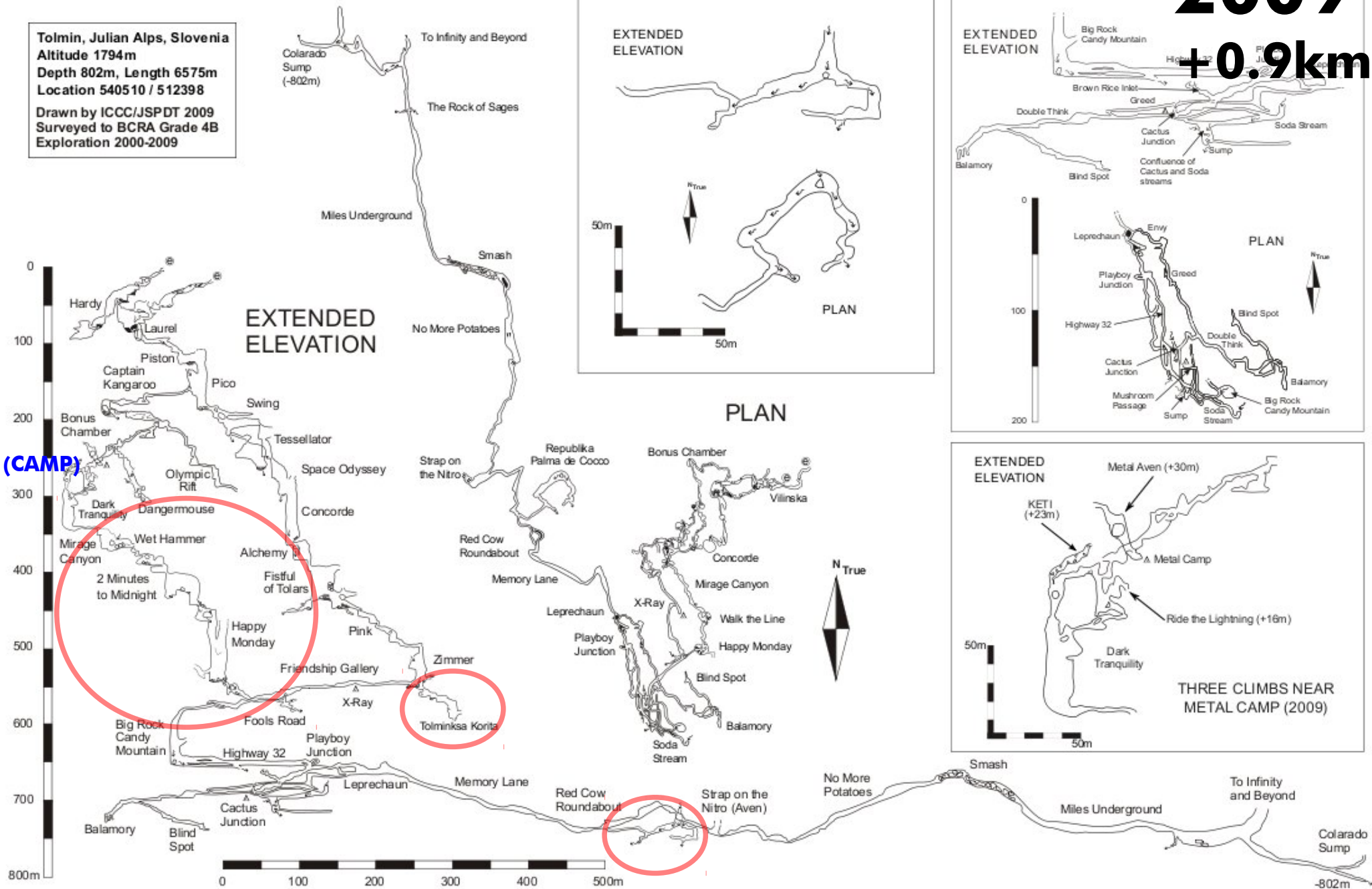
**854m new passage
in Vrtnariji
(~ -300 to -555m)**

**Total for Migovec:
955m**



VRTNARIJA

Tolmin, Julian Alps, Slovenia
 Altitude 1794m
 Depth 802m, Length 6575m
 Location 540510 / 512398
 Drawn by ICCC/JSPDT 2009
 Surveyed to BCRA Grade 4B
 Exploration 2000-2009



2009
+0.9km

(CAMP)

2010: Follow the Water





2009 @ Camp X-Ray (-539m)

Camp X-Ray (2003, 2010–2011) -550m



2010














Weather report (Vrtnarija)

5 DAY FORECAST

Day	Weather	Min. (C)	Max. (C)
Tues	 Rain	1	1
Wed	 Flood	1	1
Thurs	 Dark	1	1

Zimmer

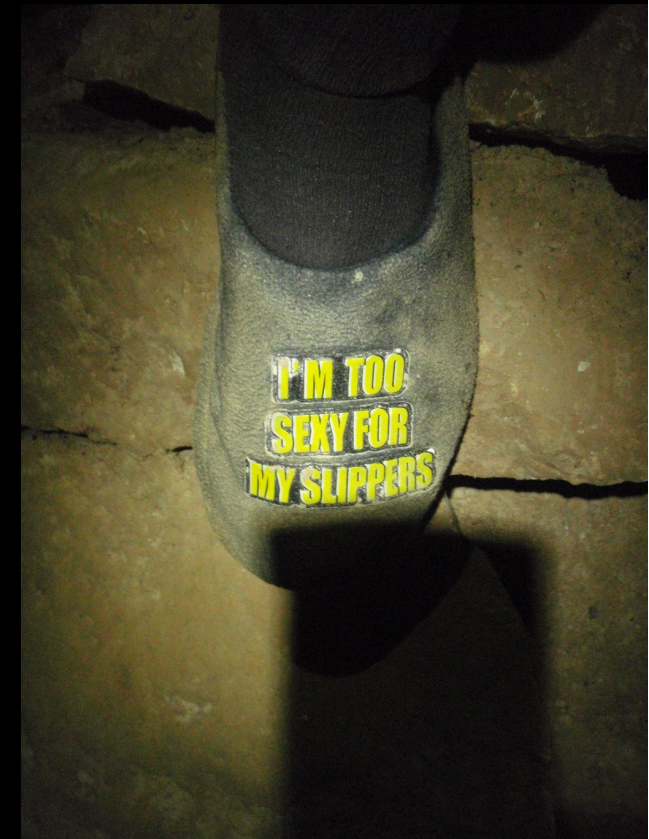
Crap! Today is
Wednesday.

Trom
30/8/10

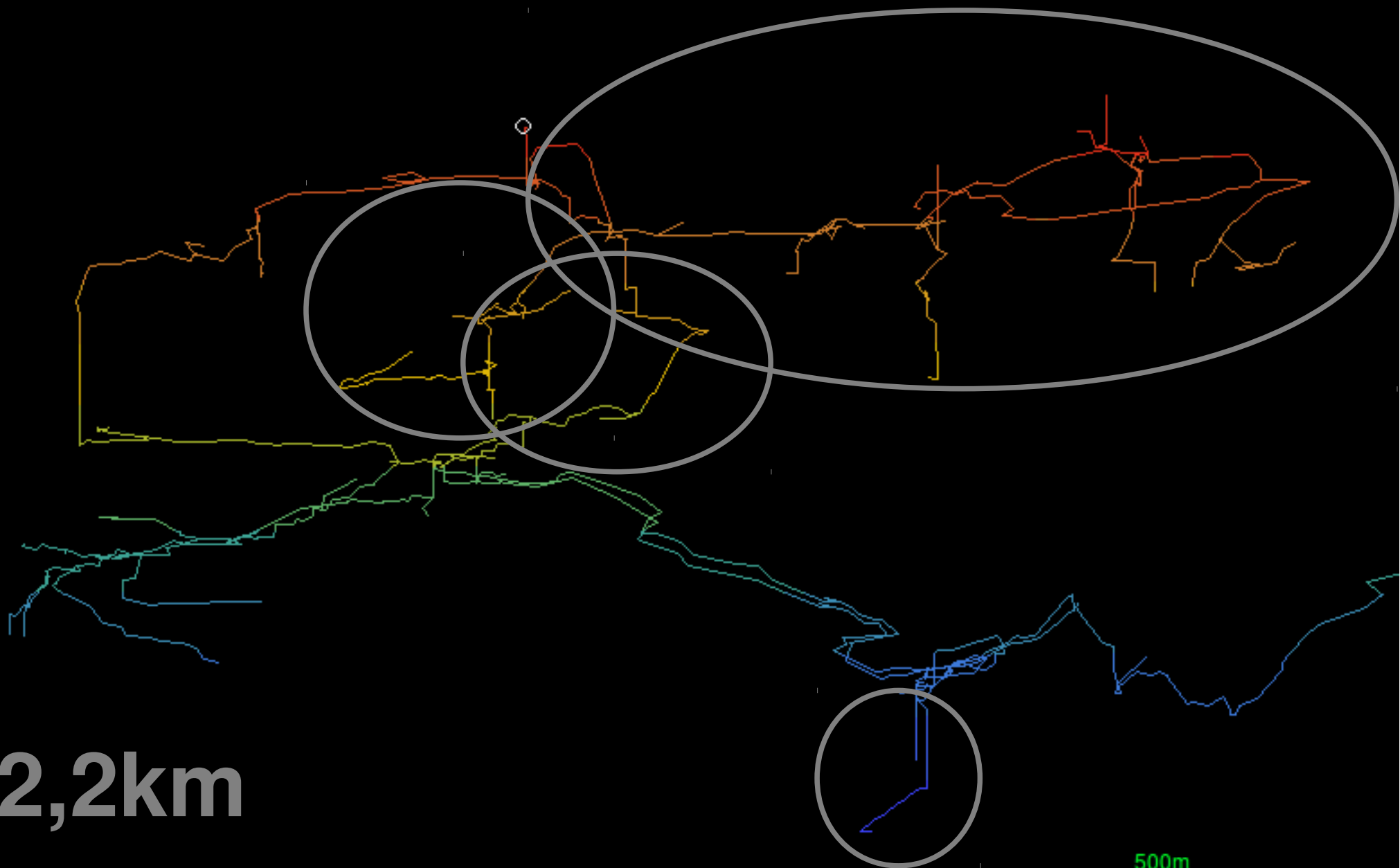


'Plenty Comfort' Camp

Rotating 2x2-person 'hot bedding camp'
Mostly 2-night 3-day camps (2 work days)
→ 12-cavers continuous @ full capacity



Vrtnarija Below -500m





Zimmer (P50m, -543m)

Tolminska Korita





Eggstravaganza (-555m)









Black Knight



**Black Knight
Siphon**







Connection to Envy

**(Sidewinder,
The Crack in Time)**







Leopard

Zimmer (-543m)

ZIMMER

**CAMP
X-RAY**

**PRINCE
CONSORT RD**

WONDERLAND

**PALACE OF
KING MINOS**

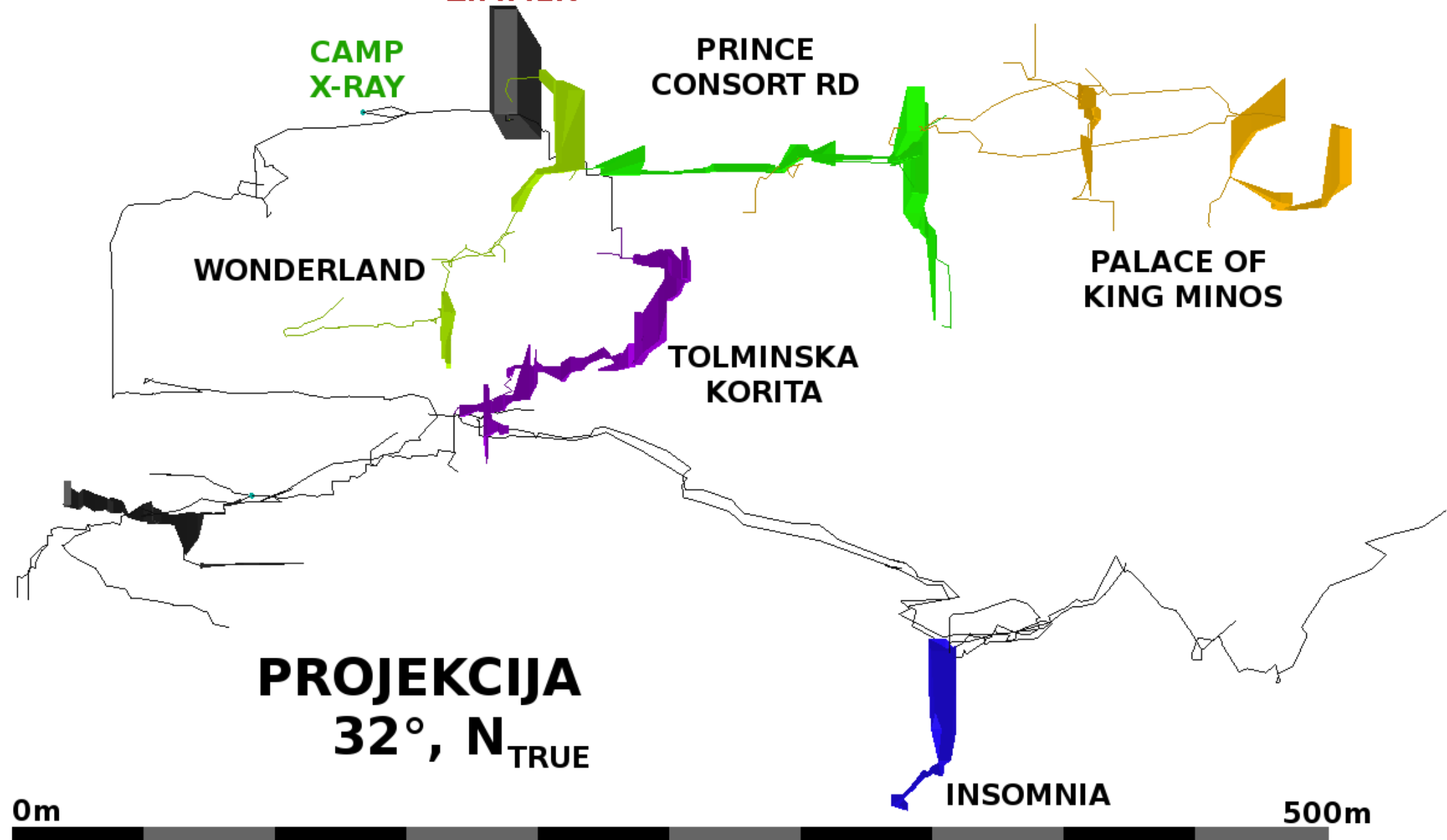
**TOLMINSKA
KORITA**

**PROJEKCIJA
32°, N_{TRUE}**

INSOMNIA

0m

500m











Prince Consort Rd



The Albert Hall

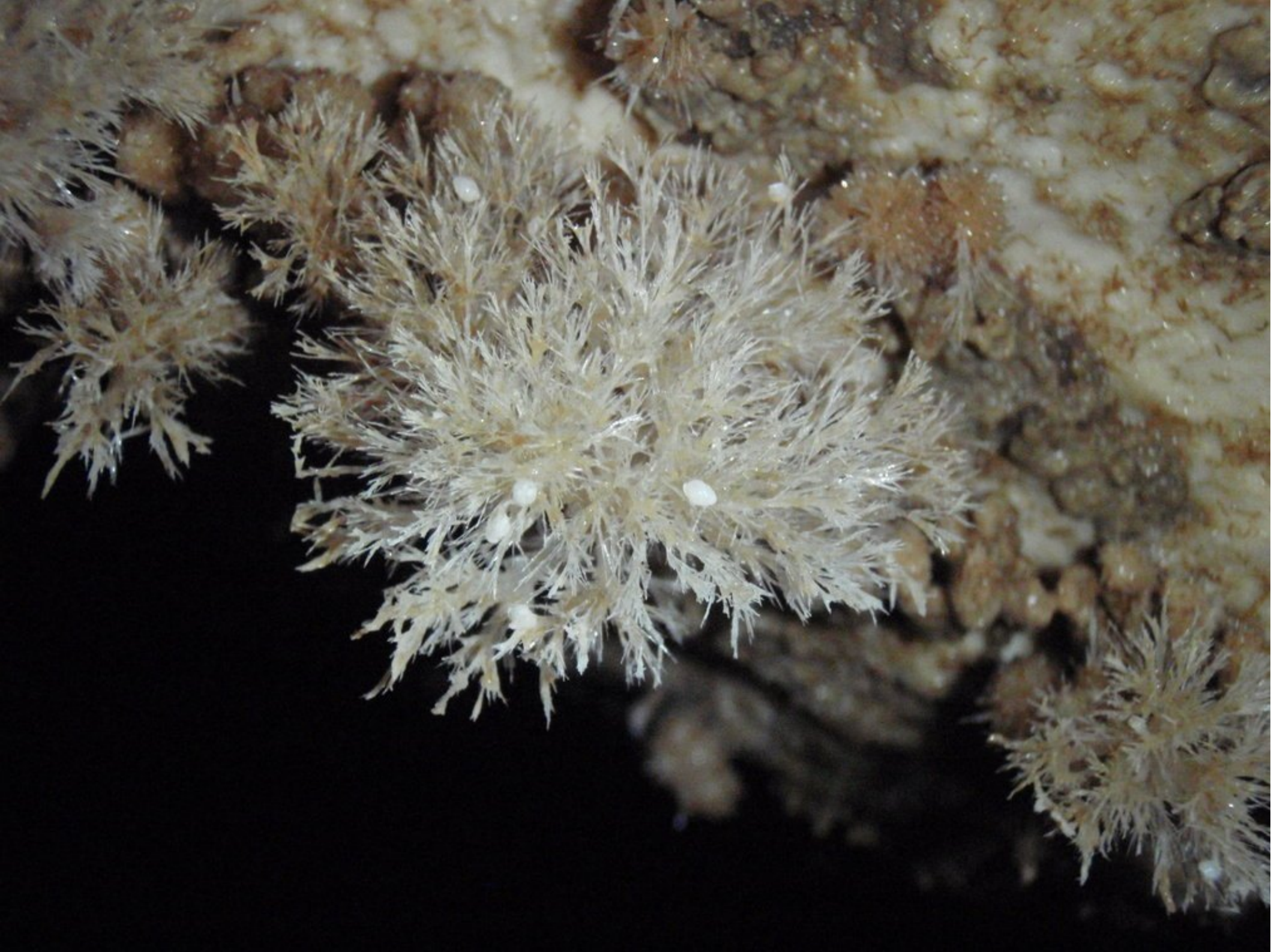






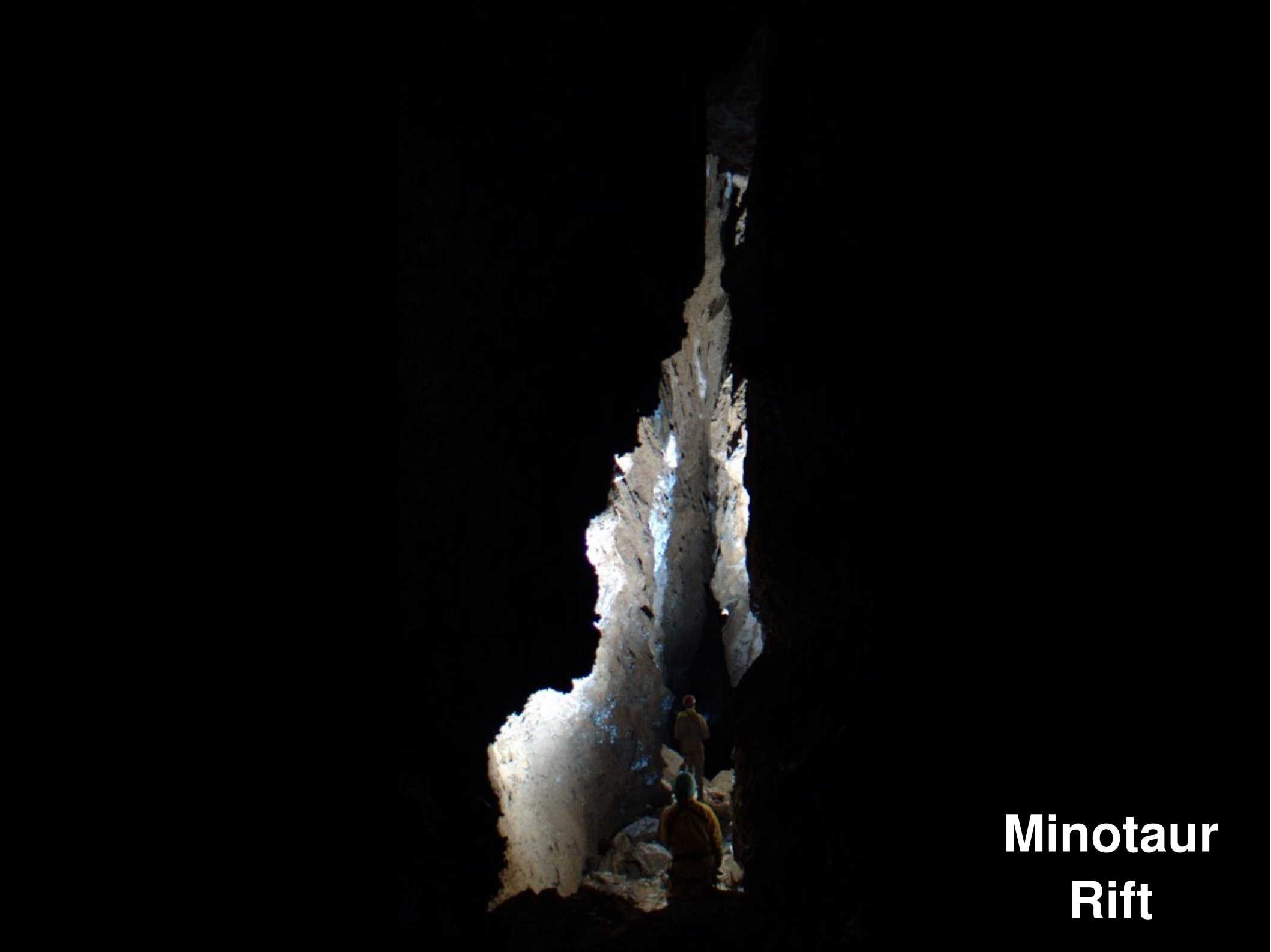
The Palace of King Minos











**Minotaur
Rift**









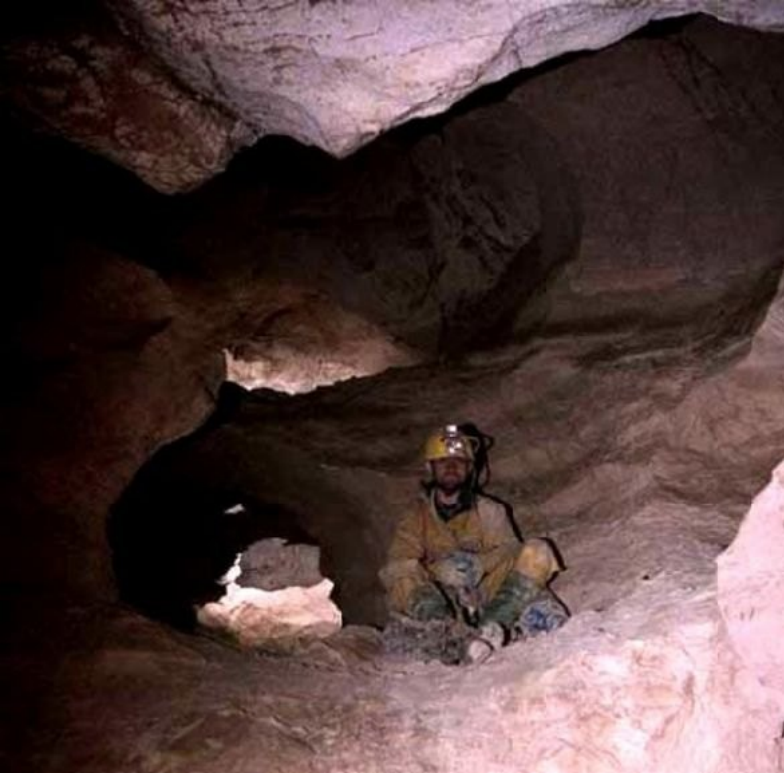




The Queen's Bed Chamber



The Queen's Bed Chamber

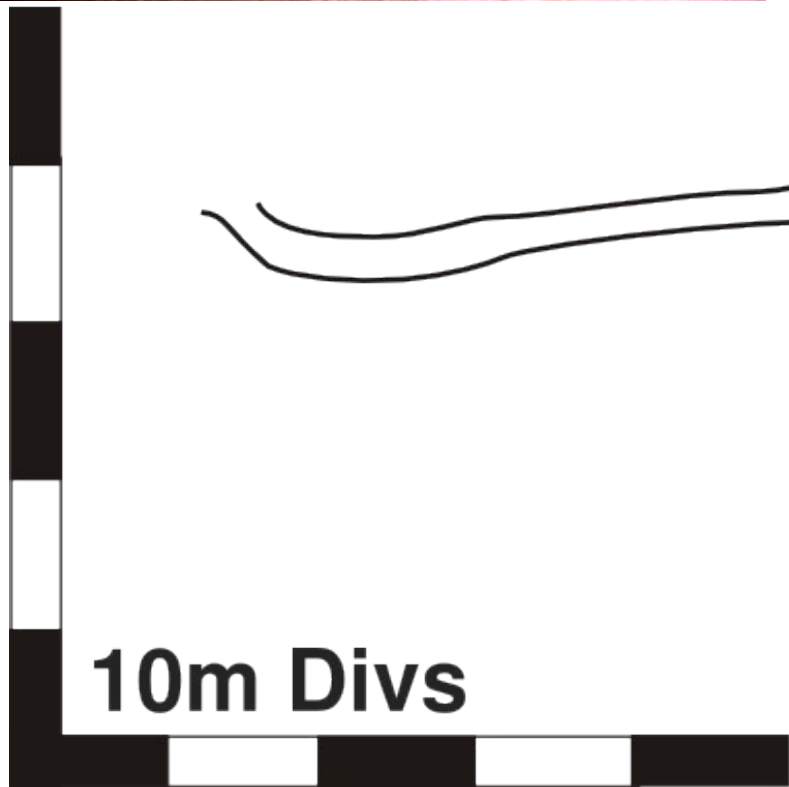


2009: 'Republica Palma de Coco'

2010: 'Insomnia'

58m vertical extension

(4m more needed to be deepest part of cave)

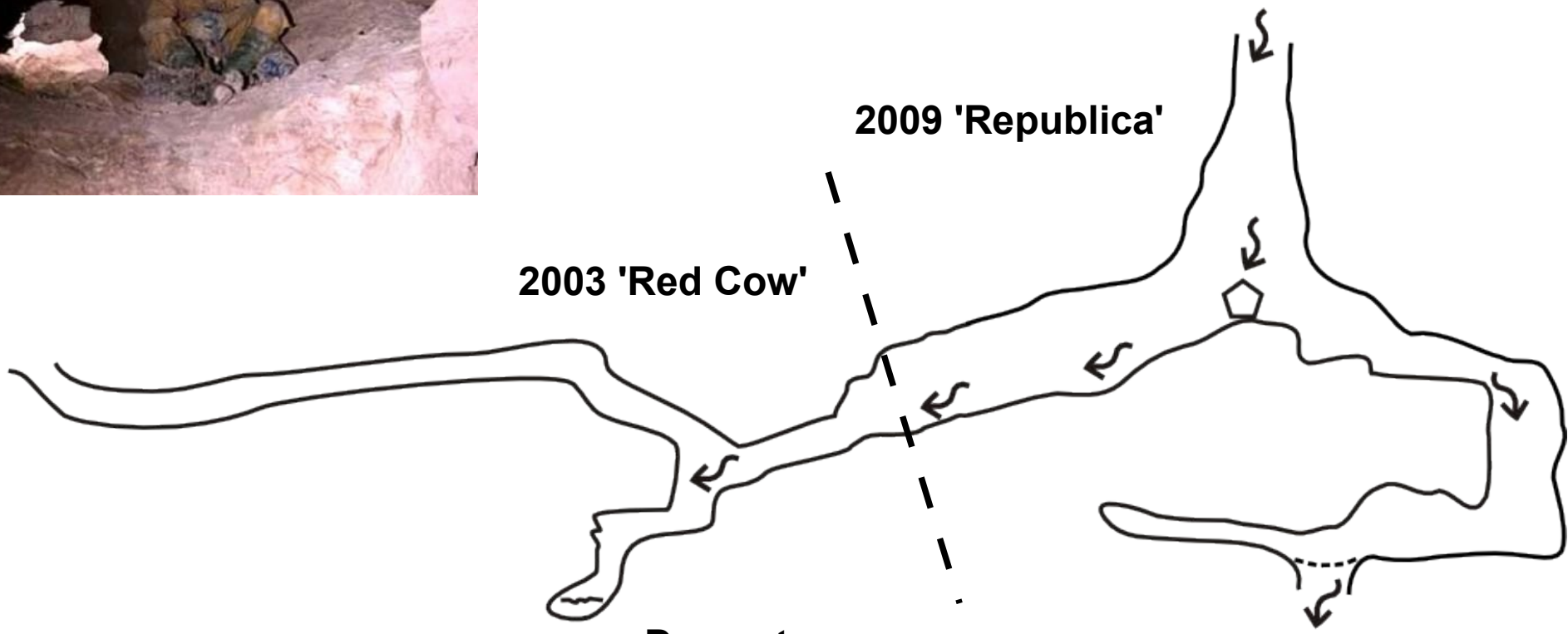


2003 'Red Cow'

2009 'Republica'

**Downstream
Sump (perched)**






**Can see 30-odd
metres down
rift + cascades**



VRTNARIJA

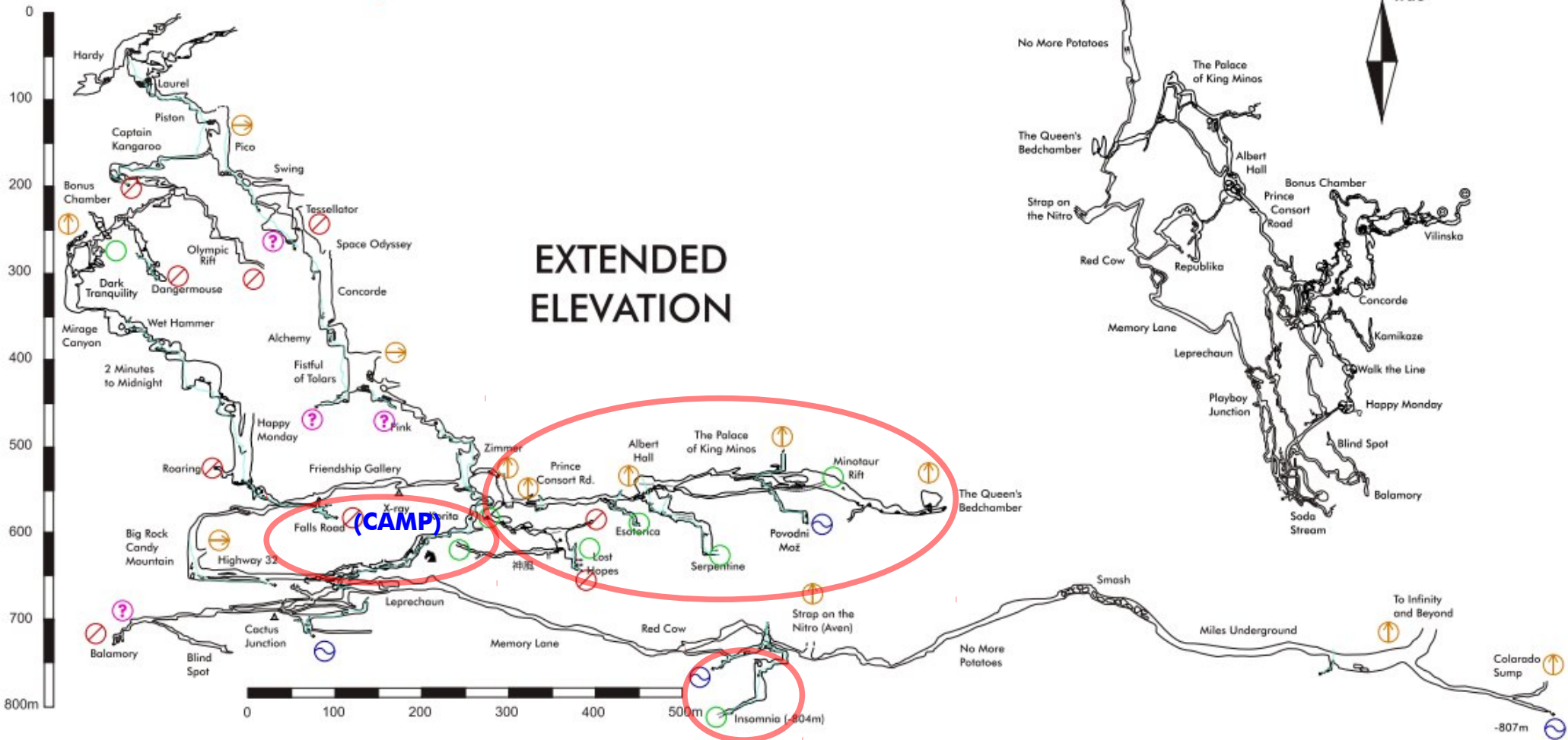
Tolmin, Julian Alps, Slovenia
Altitude 1794m
Depth 807m, Length 8776m
Location 540510 / 512398
Drawn by ICCC/JSPDT 2010
Surveyed to BCRA Grade 4B
Exploration 2000-2010

Guide to the Leads

-  Lead Requires Enlargement
-  Open Lead
-  Sump
-  Climbing Lead
-  Unsure of Situation

2010 +2.2km

PLAN



EXTENDED ELEVATION

-807m

2011: The Lost World

IZGUBLJENI RAJ



Migovec 2011

2011



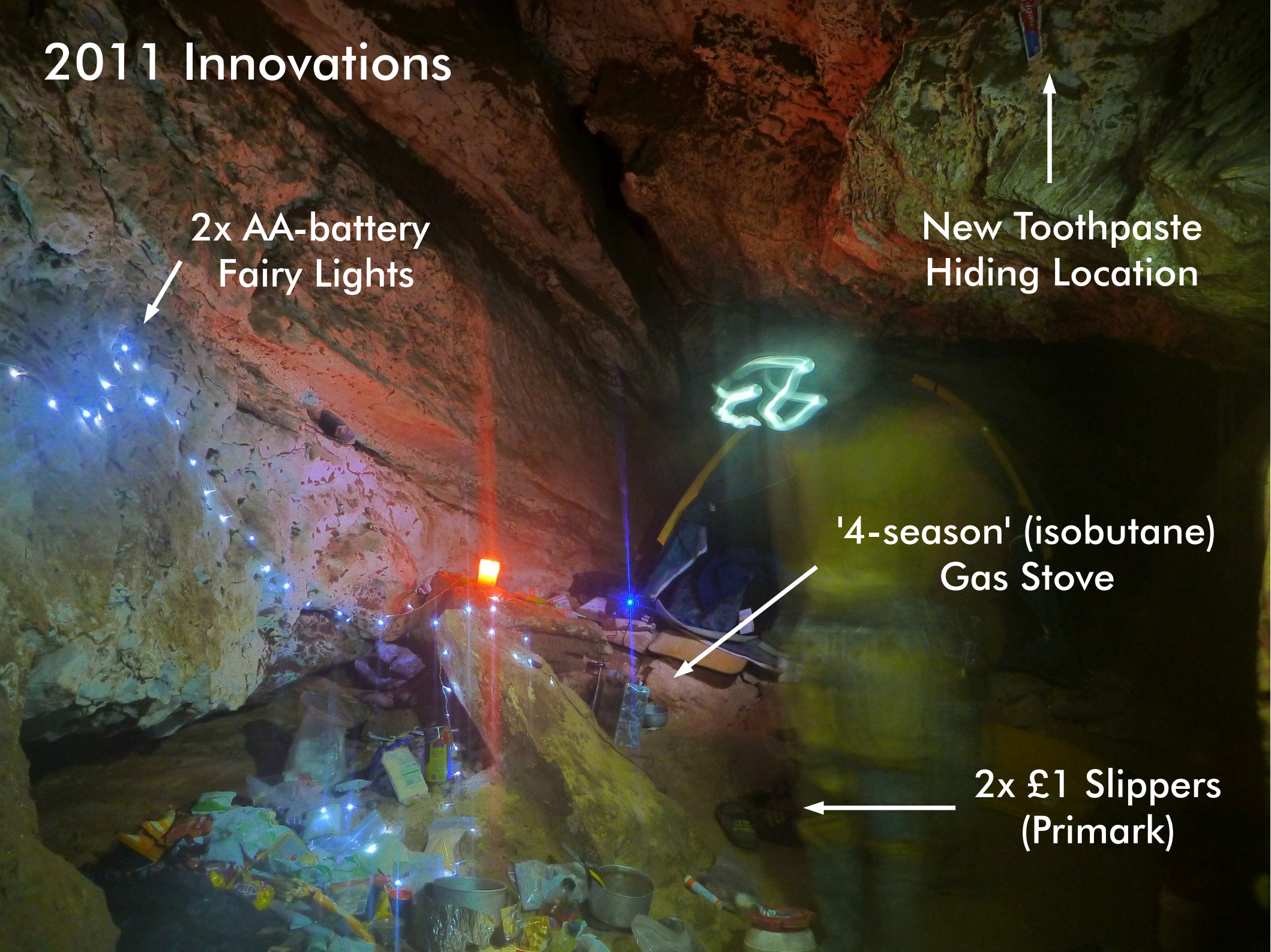
2011 Innovations

2x AA-battery
Fairy Lights

New Toothpaste
Hiding Location

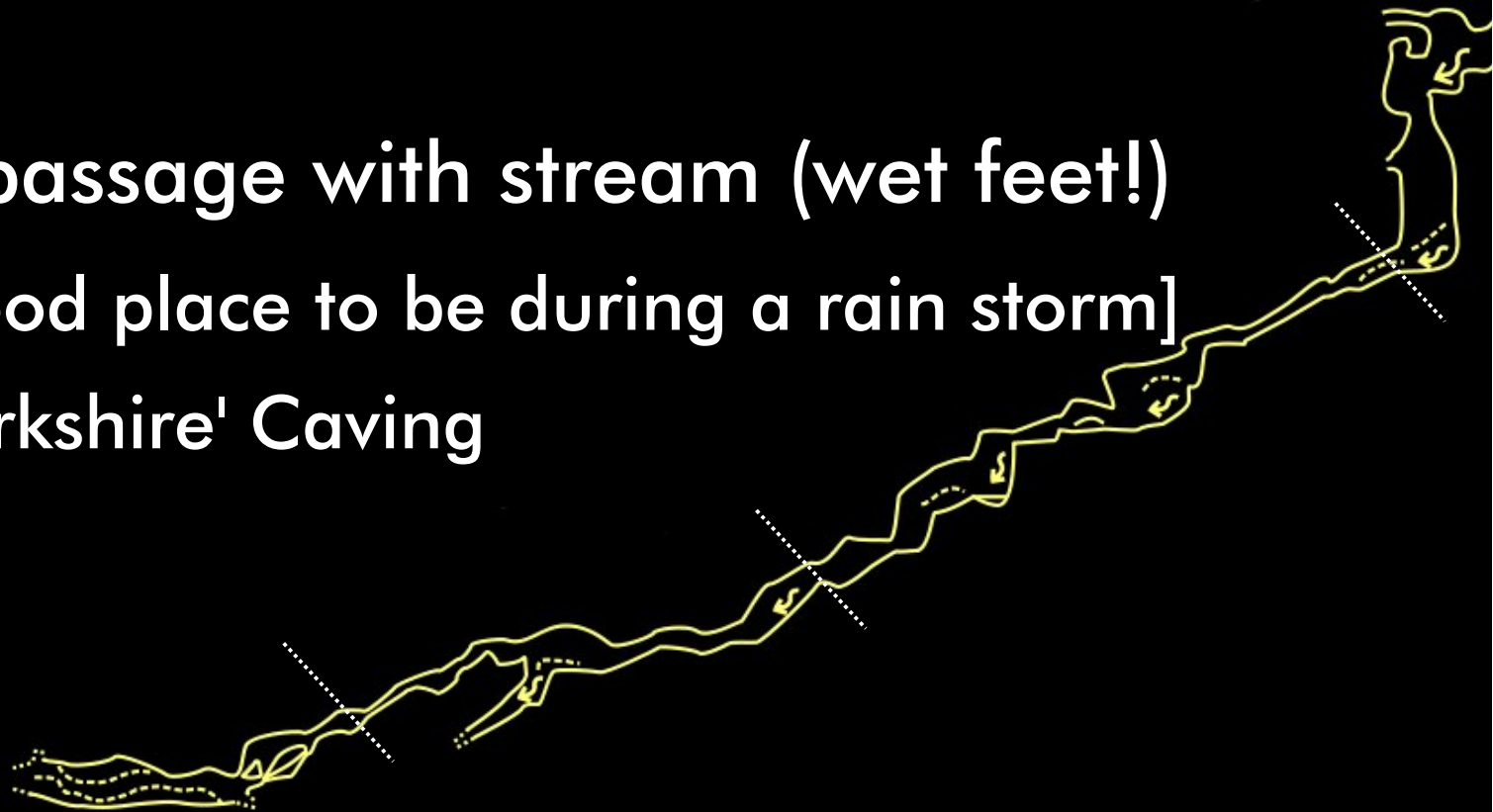
'4-season' (isobutane)
Gas Stove

2x £1 Slippers
(Primark)



Insomnia: The Deep Wet Lead

- ~4—5 hr return from pushing front → camp
- (Insomnia -802m → Day Dreamers -861m → Penguin's Egg -871m → Winter's Journey -888m)
- Confined passage with stream (wet feet!)
 - [Not a good place to be during a rain storm]
- Great 'Yorkshire' Caving



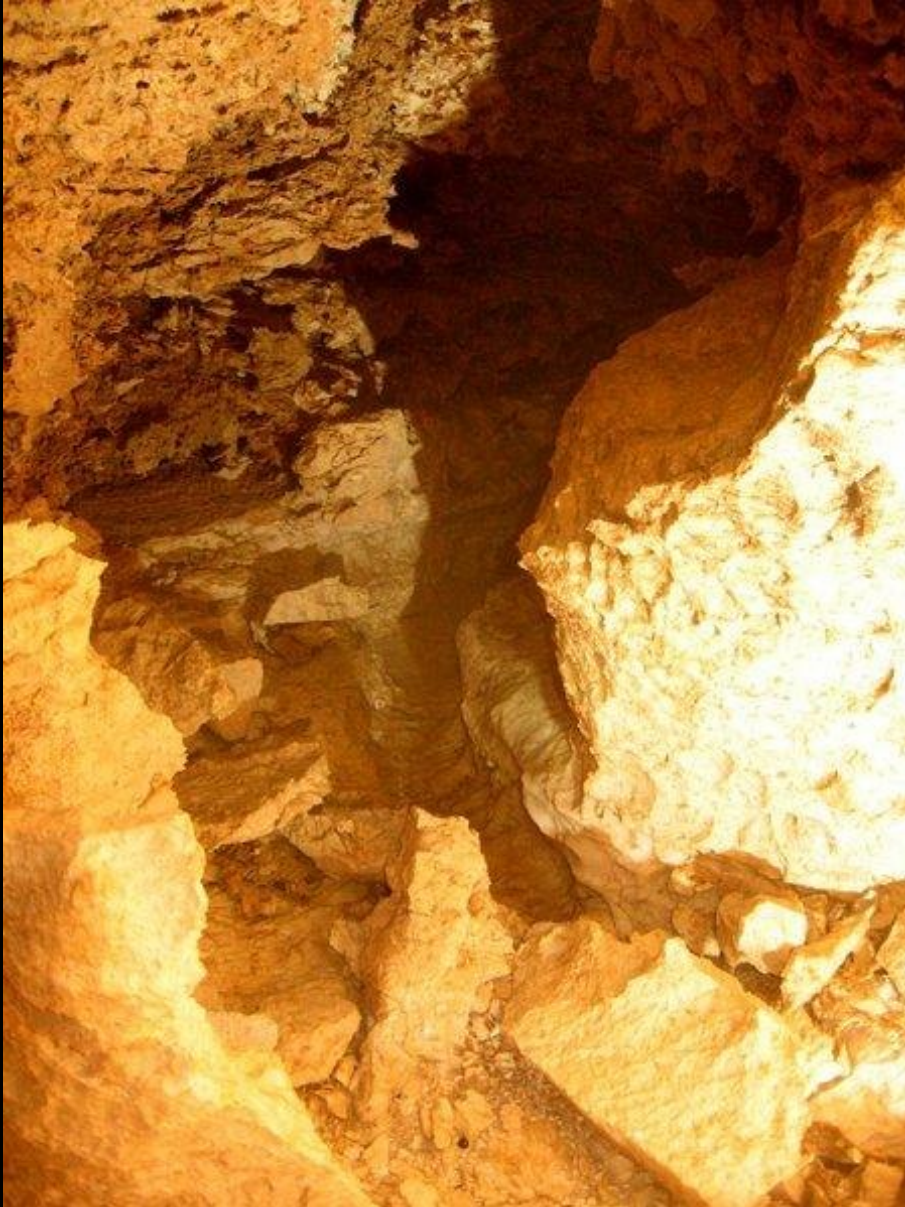
-885m



-888m



Migovec's Usual Tricks

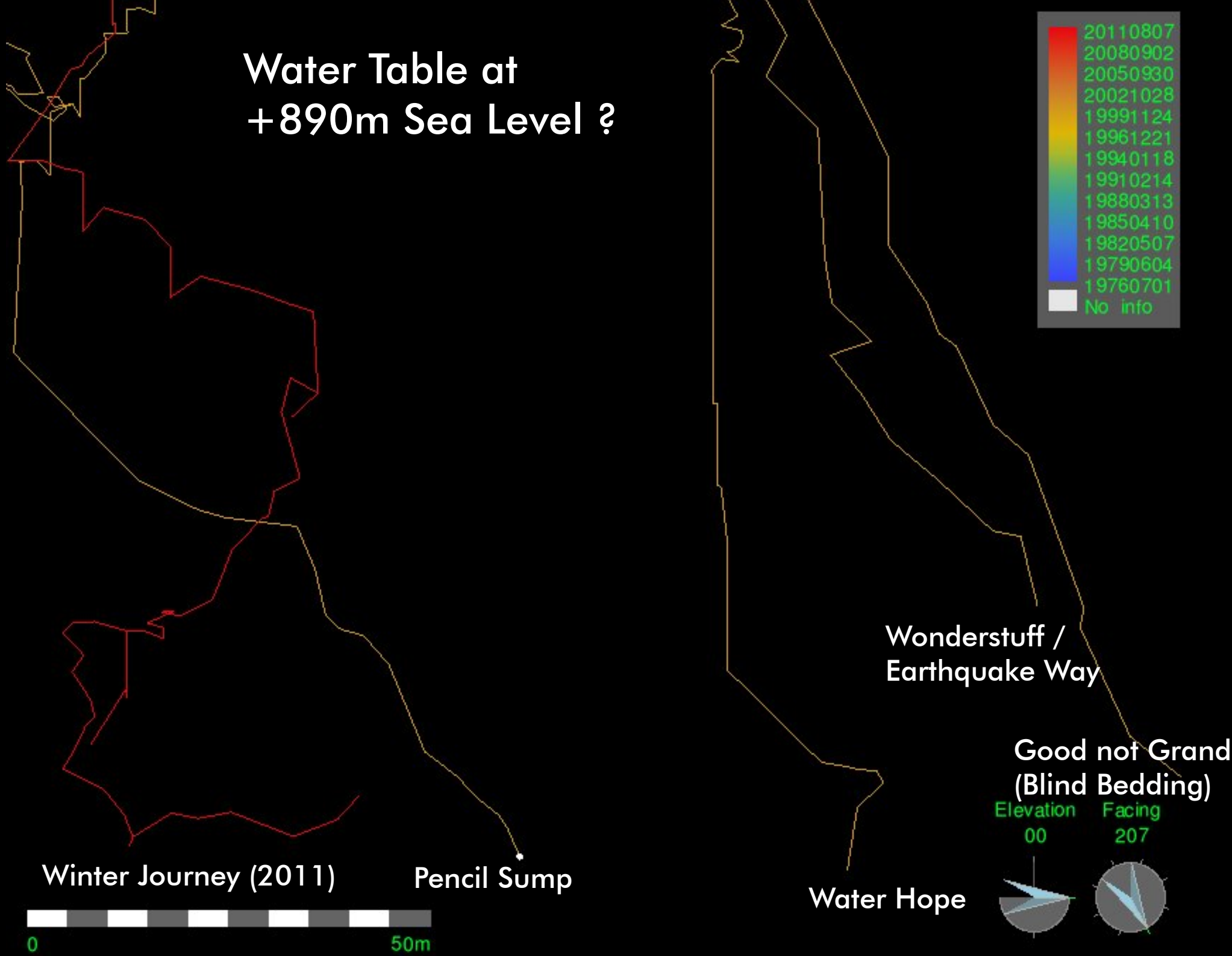


Green Back (Vrtnarija, -297m)



Stalemate (Vrtnarija, -659m)

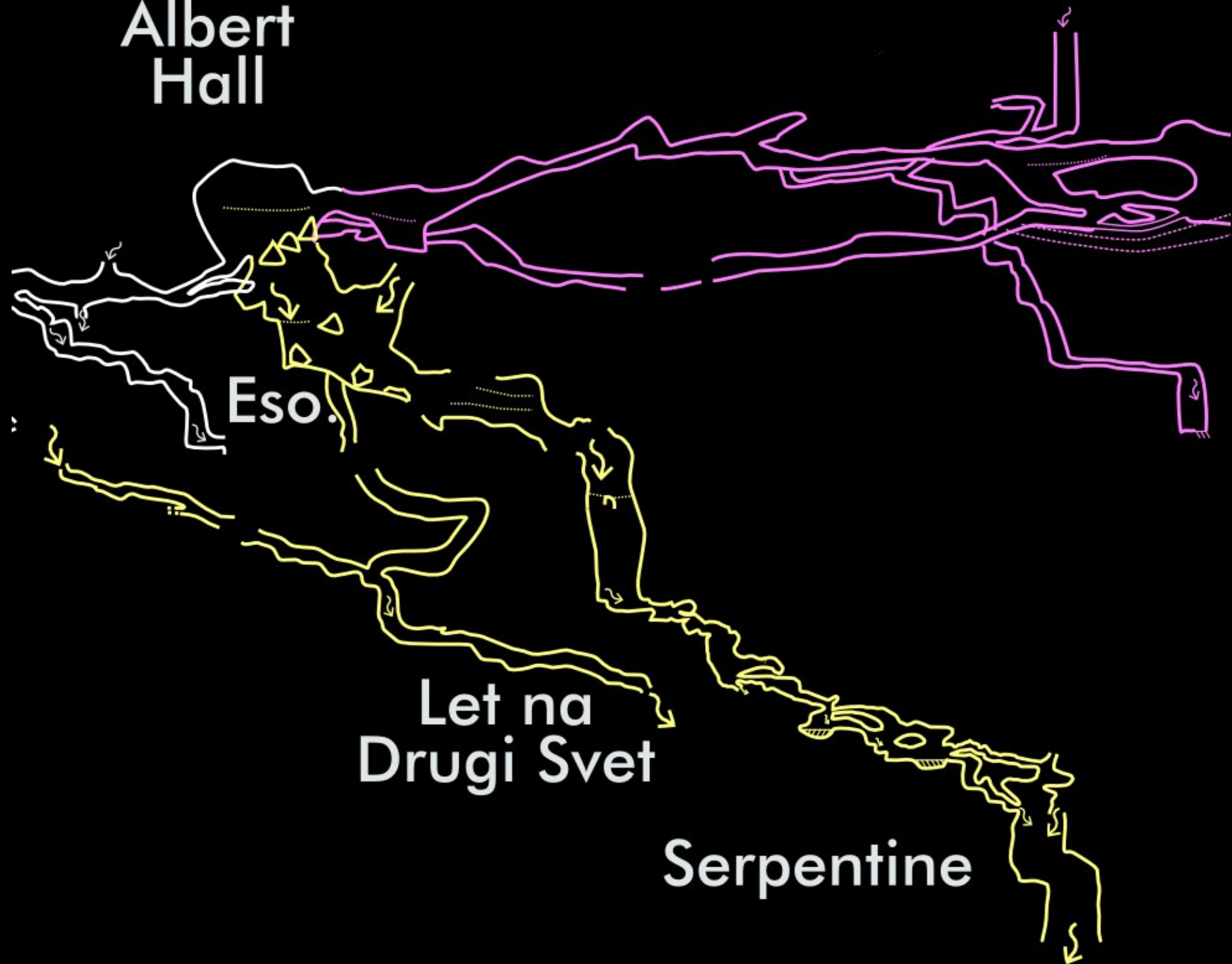
Water Table at +890m Sea Level ?



The Serpentine & Let na Drugi Svet



**Albert
Hall**

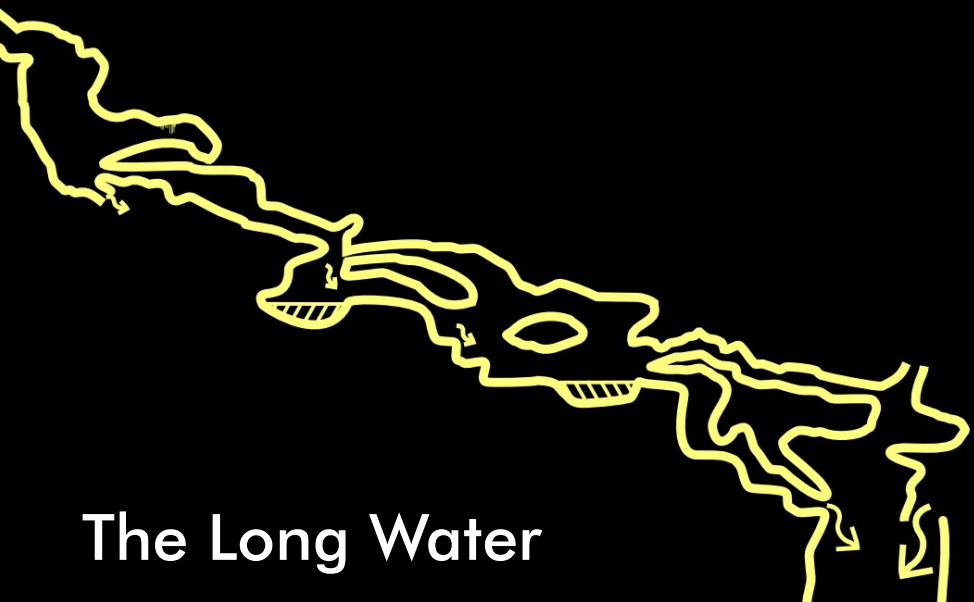


Eso.

**Let na
Drugi Svet**

Serpentine

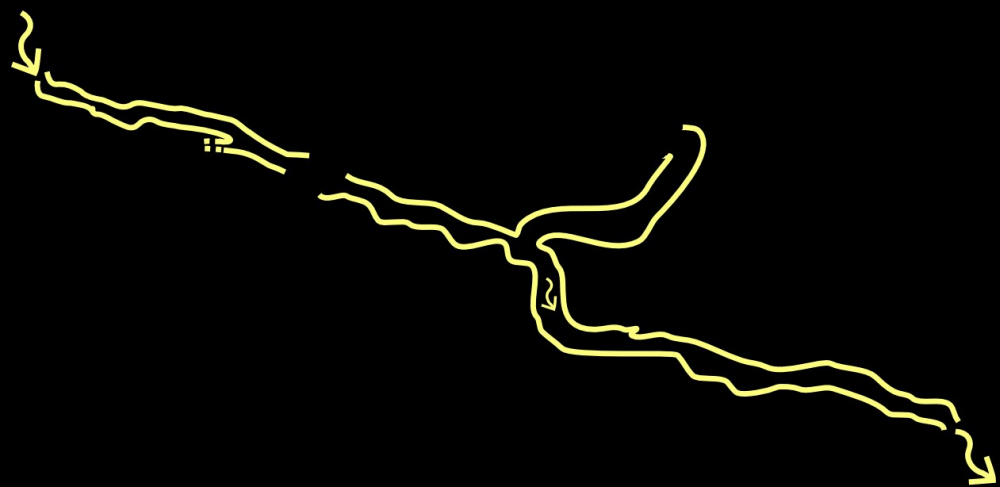




The Long Water

Let na Drugi Svet (Flight to Another World)





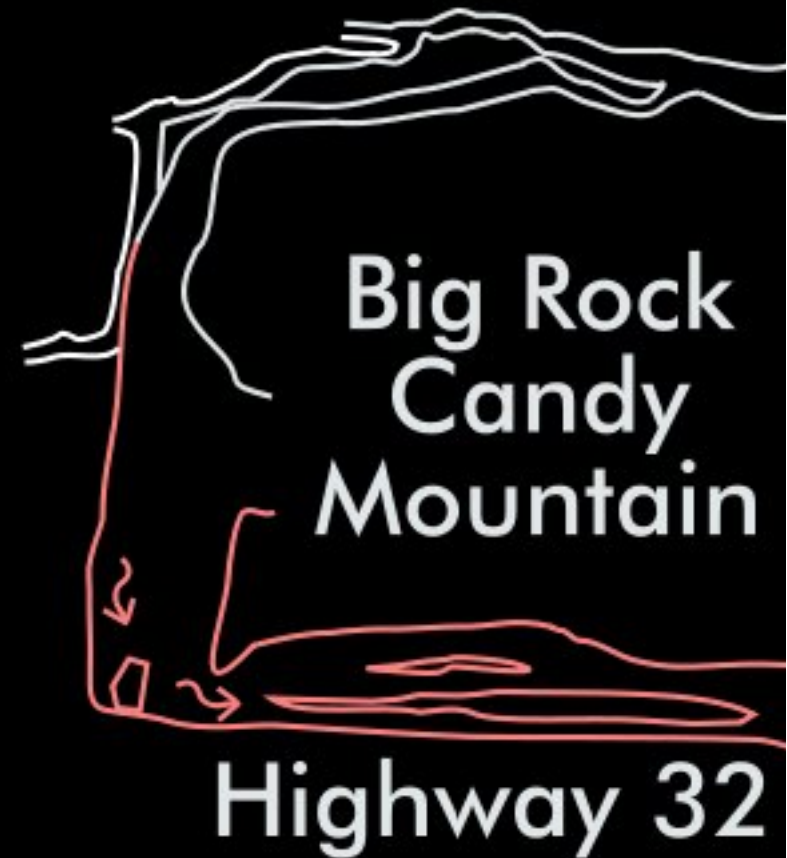
Queen's Bedchamber



Cheetah Swing

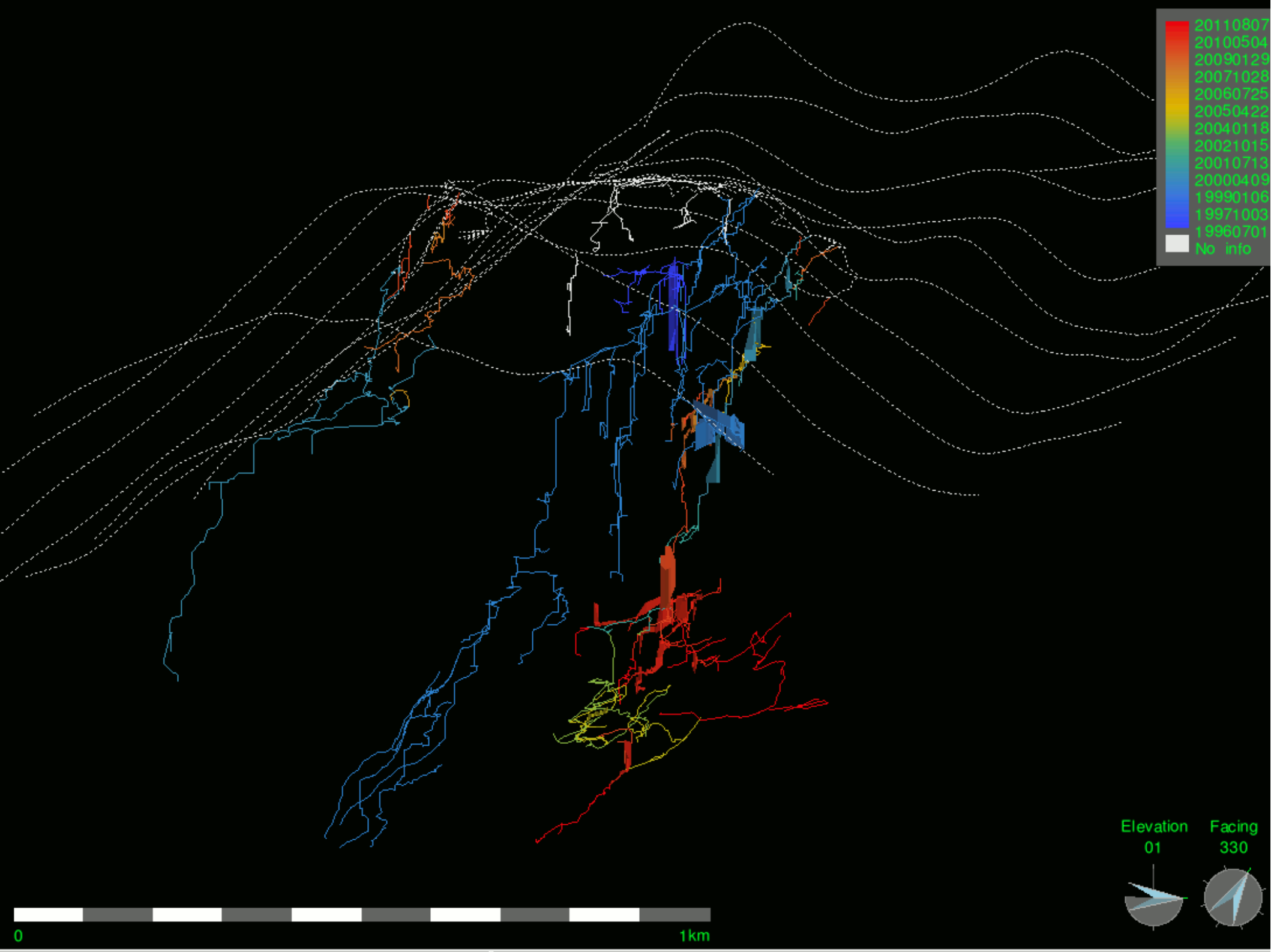
Lower Pleasures

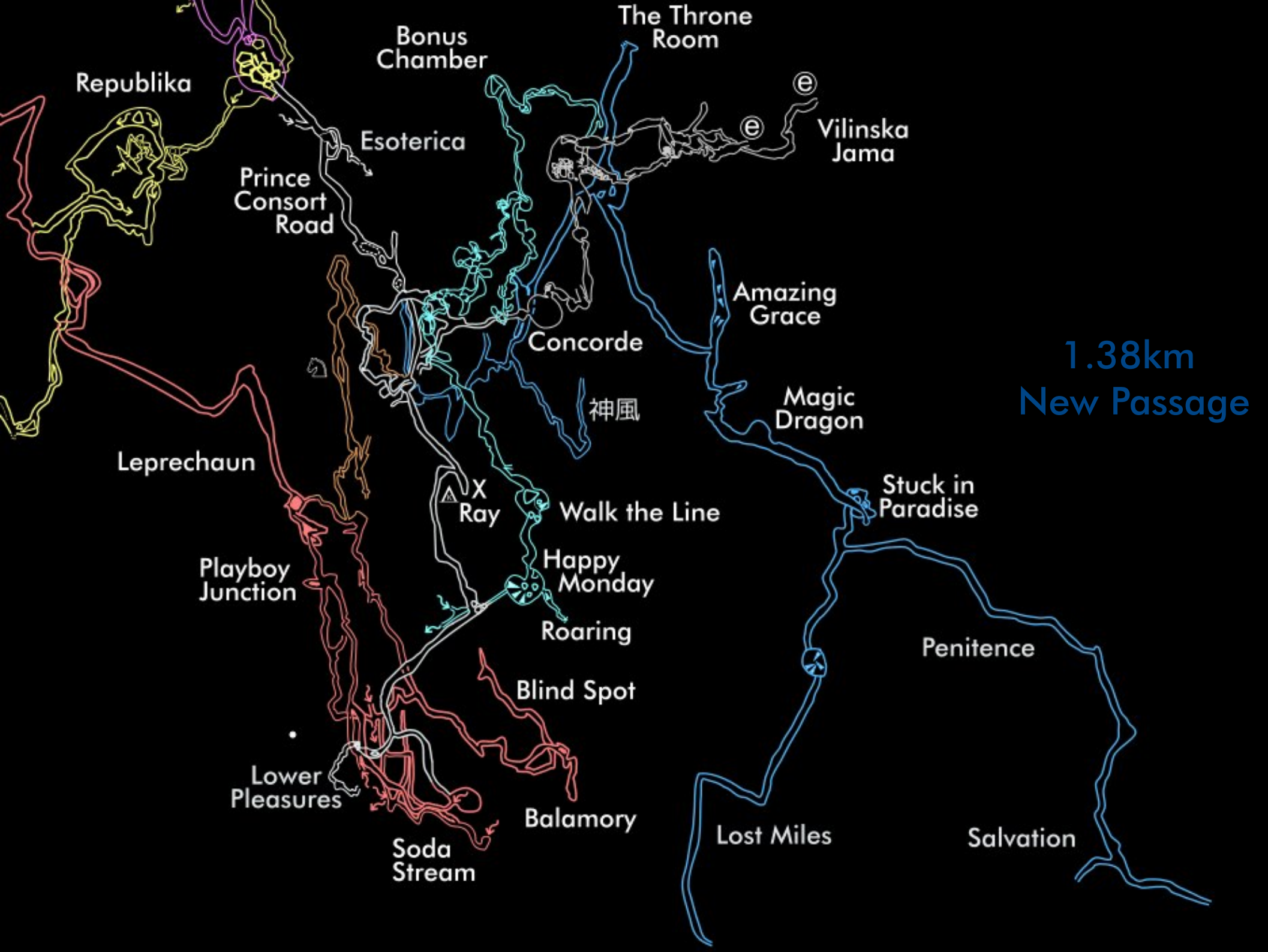
A dig that went!



Kamikaze







Stuck in Paradise (P69m)



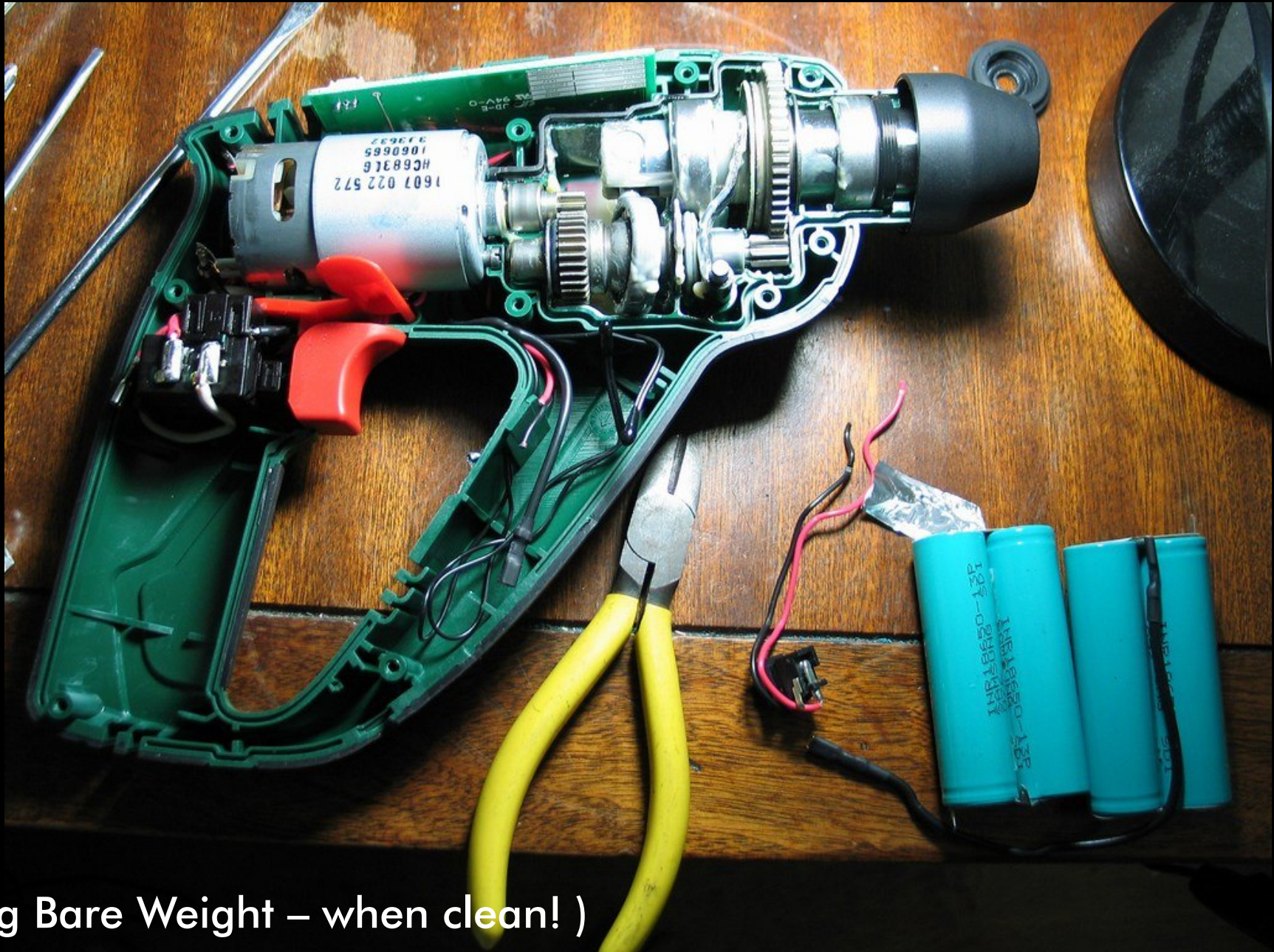
Stuck in
Paradise

Bosch's Uneo



Bosch 'do it' UK

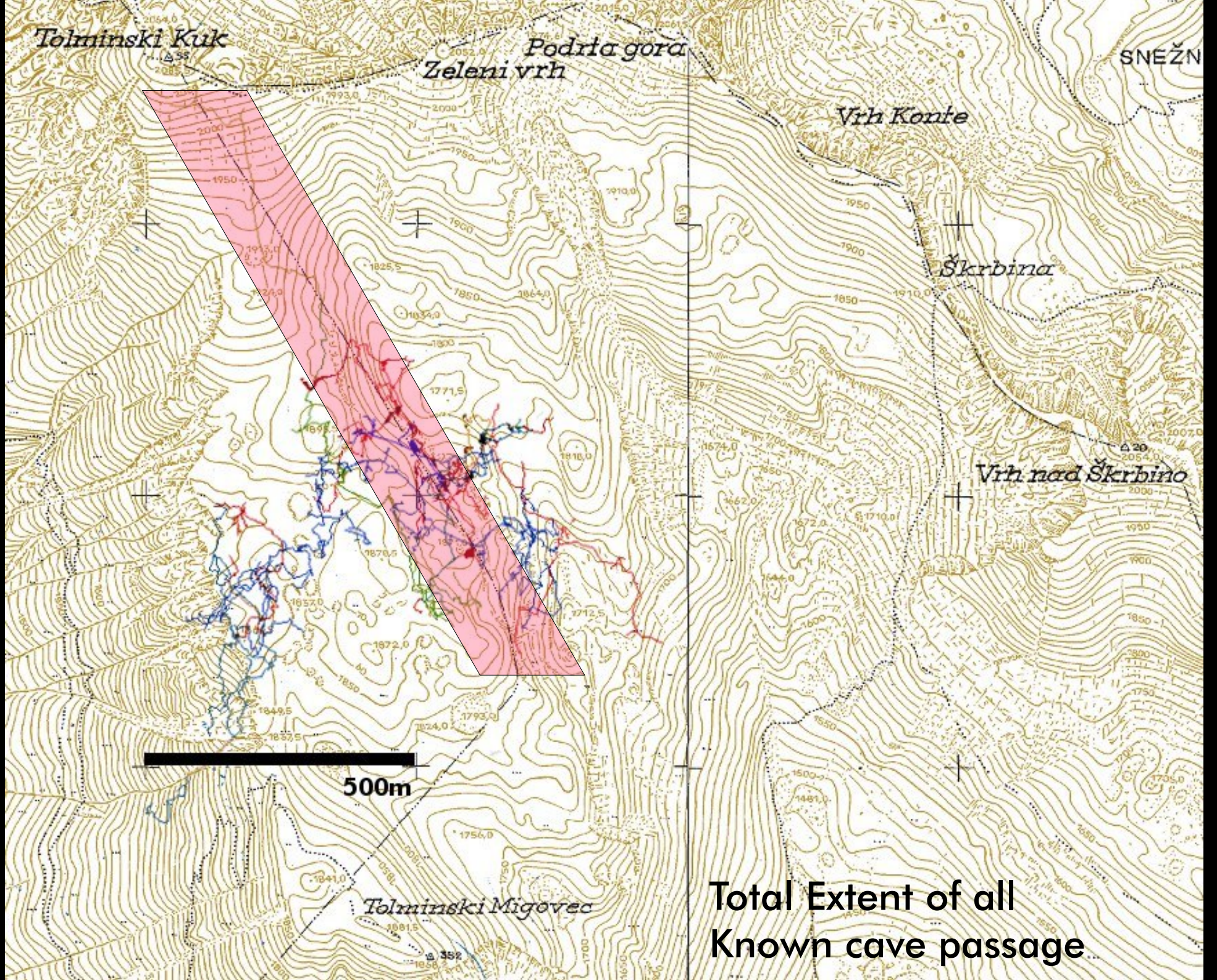
A Caver's Uneo



(900g Bare Weight – when clean!)

50+ Bolts, 200m rigging later...



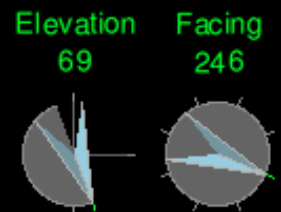
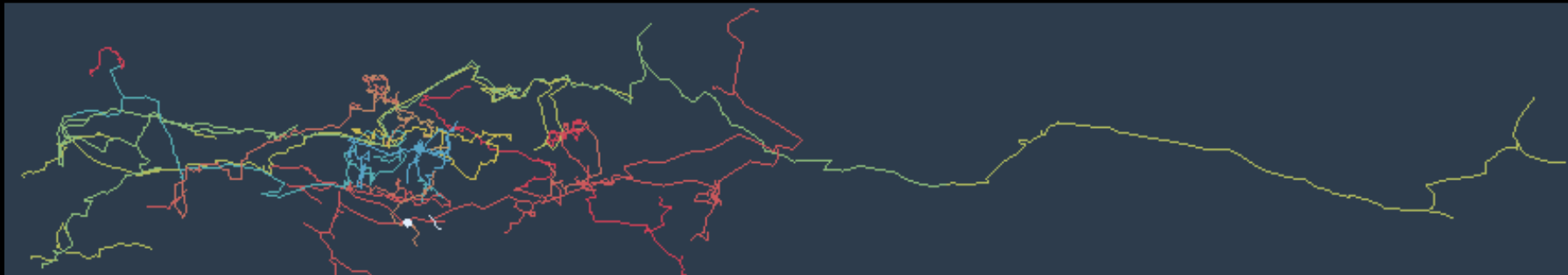


Total Extent of all
Known cave passage

The Vrtnarija Slab

1.1km

0.2km








VRTNARIJA

Tolmin, Julian Alps, Slovenia
 Altitude 1794m
 Depth 807m, Length 8776m
 Location 540510 / 512398
 Drawn by ICCC/JSPDT 2010
 Surveyed to BCRA Grade 4B
 Exploration 2000-2010

2010 +2.2km

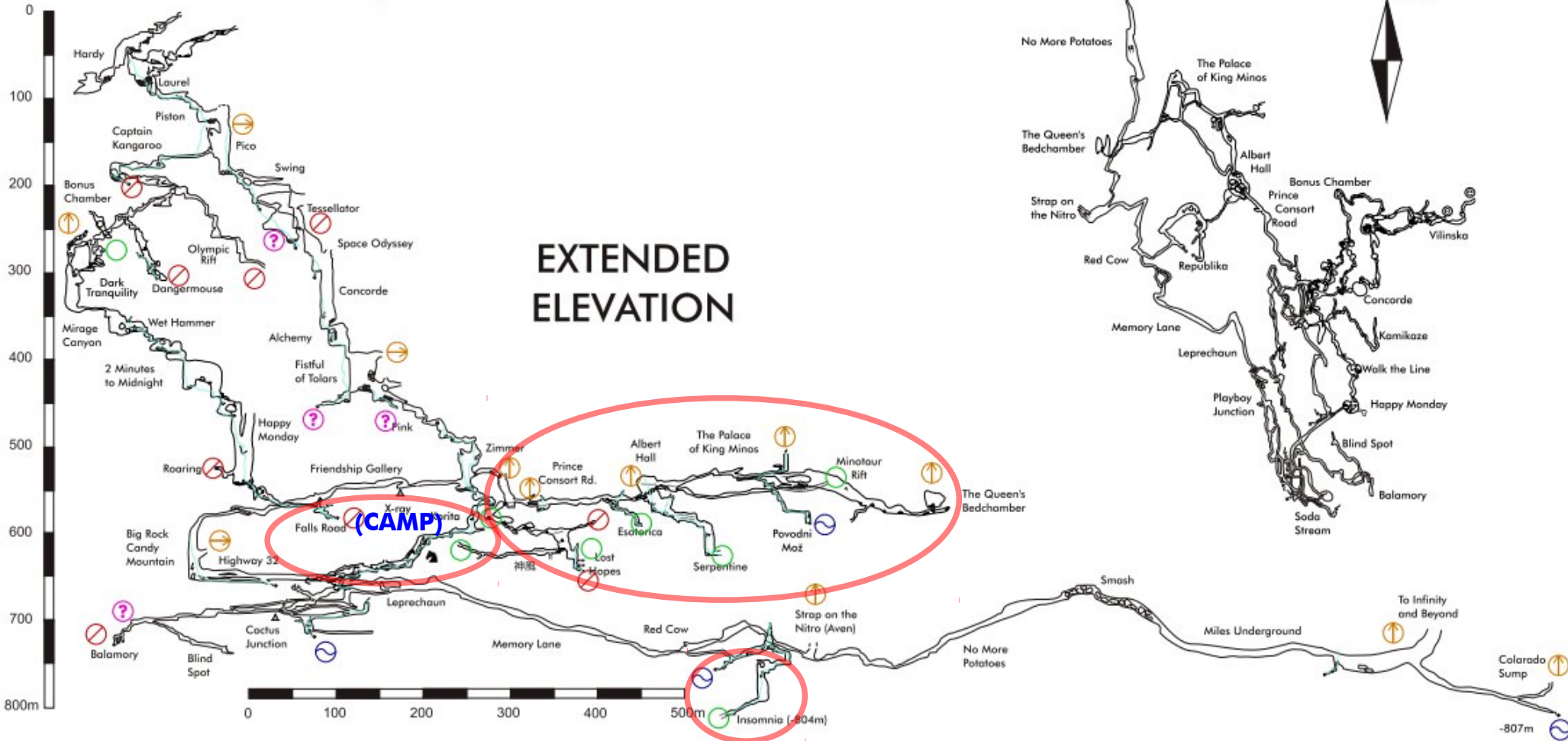
Guide to the Leads

-  **Lead Requires Enlargement**
-  **Open Lead**
-  **Sump**
-  **Climbing Lead**
-  **Unsure of Situation**

PLAN



EXTENDED ELEVATION



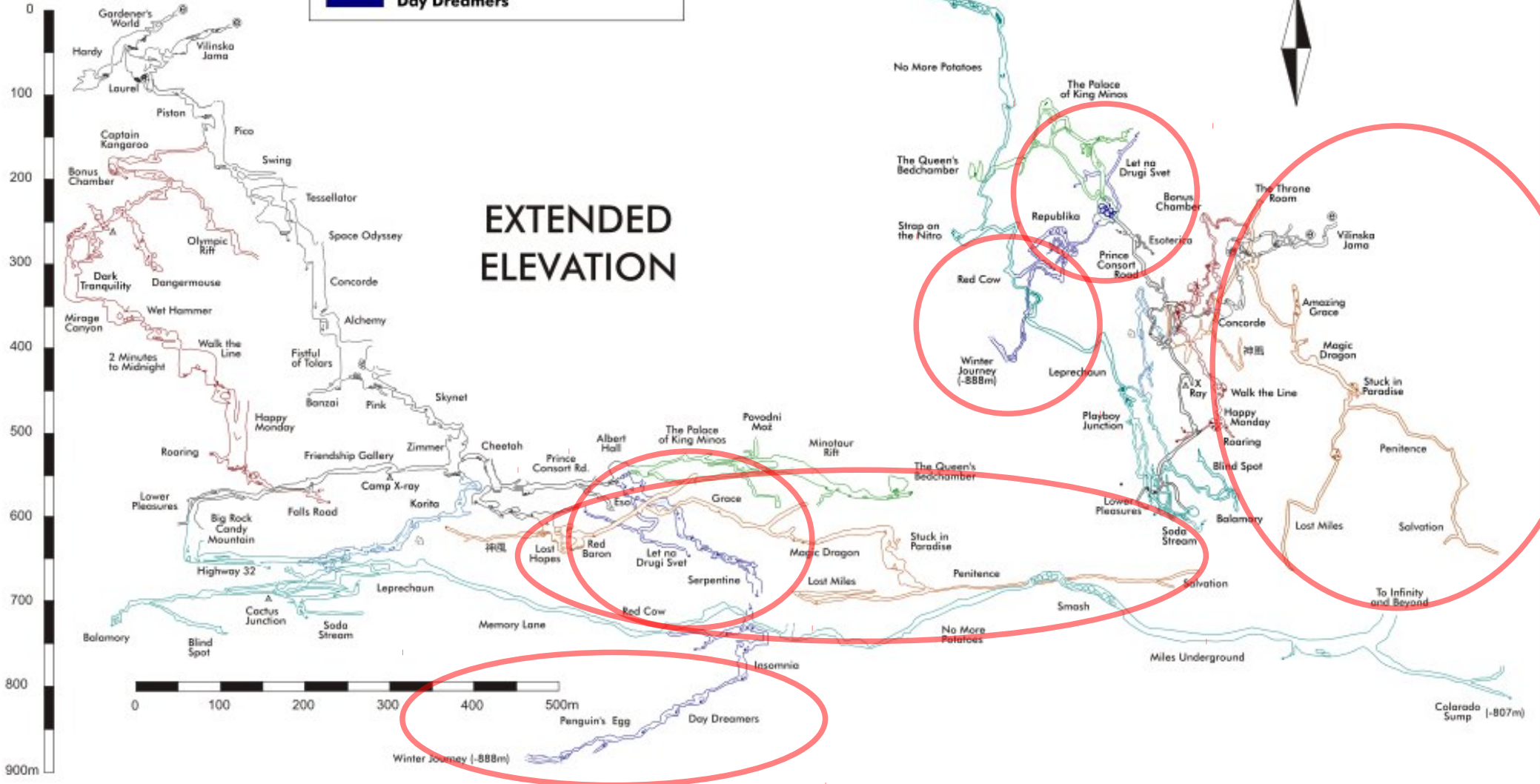
VRTNARIJA

Tolmin, Julian Alps, Slovenia
 Altitude 1794m
 Depth 888m, Length 11025m
 Location 540510 / 512398
 Drawn by ICCC/JSPDT 2011
 Surveyed to BCRA Grade 4-5B
 Exploration 2000-2011

- Entrance Series to Fistful
- Captain Kangaroo
- Friendship Gallery / Consort
- Palace of King Minos
- Tolminska Korita
- Kamikaze / Stuck in Paradise
- The Serpentine / Let na Drugi Svet
- Deep 2003/2004 Extensions
- Day Dreamers

2011 +2.2km

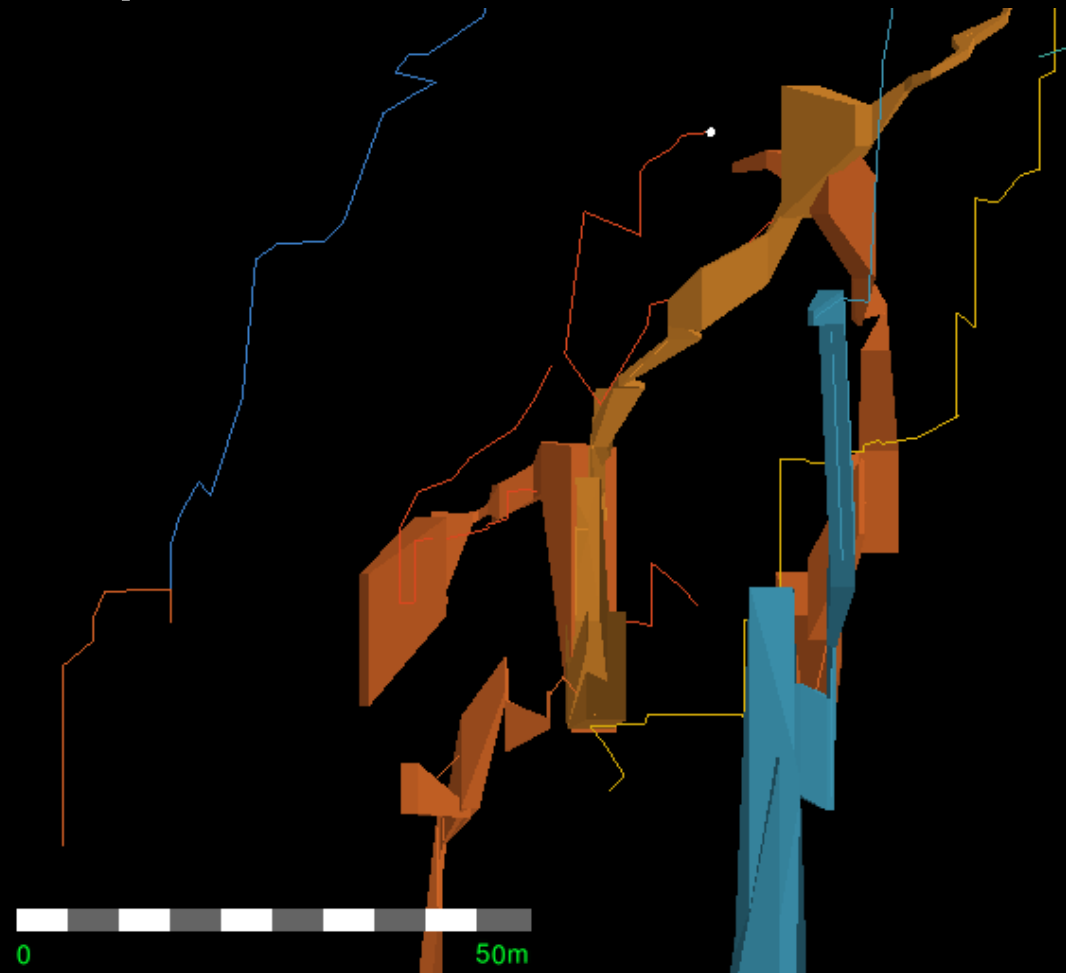
PLAN





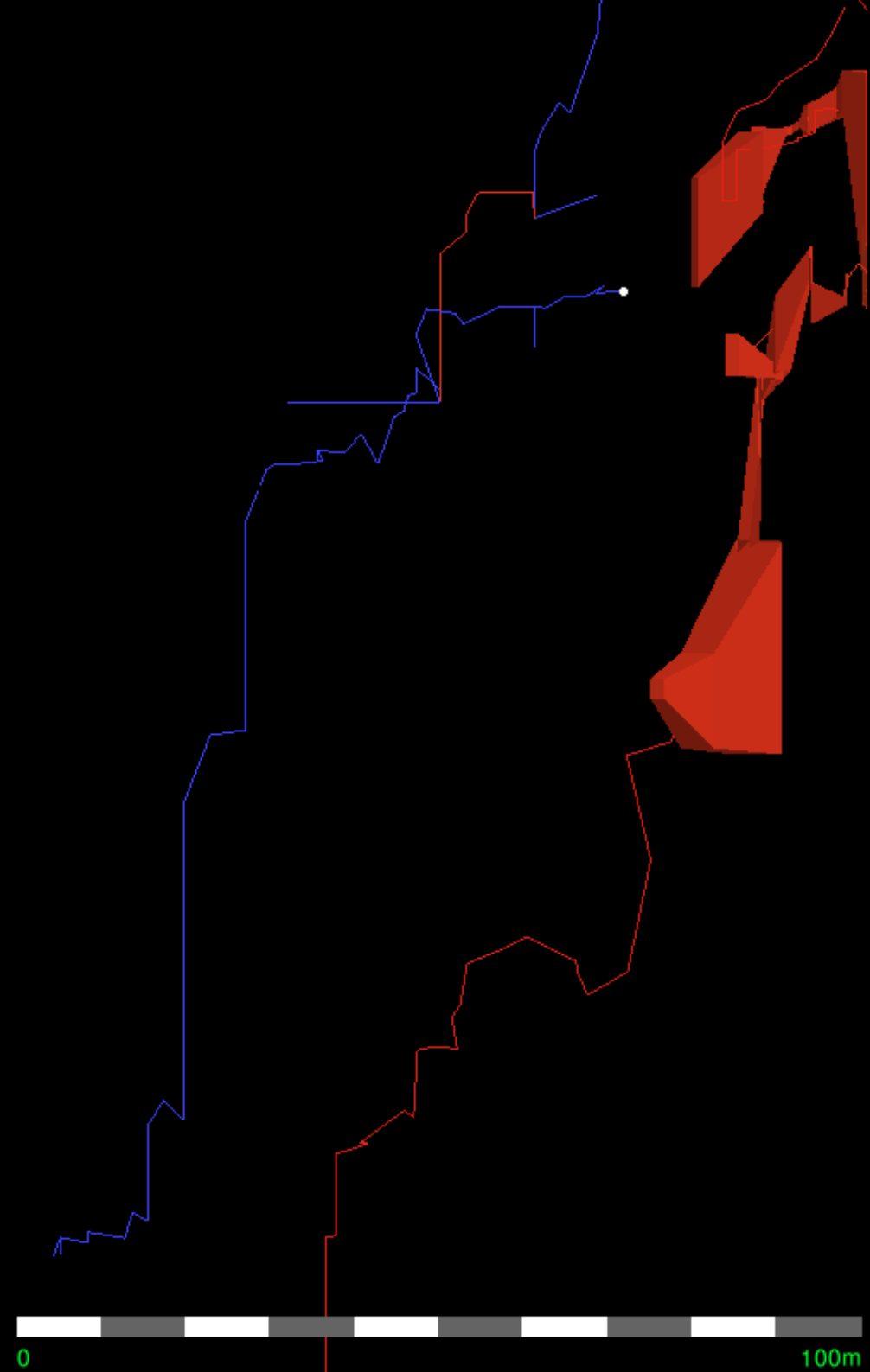
Did Someone Mention the Connection?

- Vrtnarija to Kavkna Jama: 25–75m separation
 - Connection has been major aim since 2008–



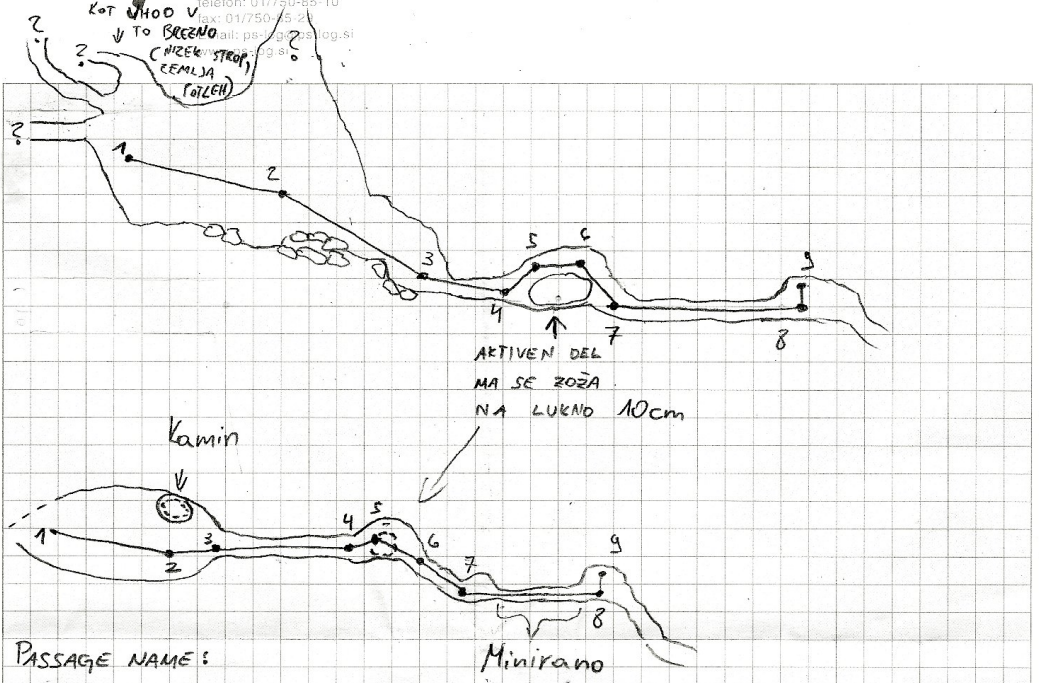
October 2011 Super Action





Climb carried out in
M2 in 2008 reduced
separation further!

But stopped at
squeeze...



PASSAGE NAME:
 -Napsihiran rov

DATE: 28/1/12

Tape: FRATNIK
 Book: RILE
 Instruments: Izi

st. 1 is P.S.S.
 st. 9 is st. 12
 wizard of oz

Page: 1/1

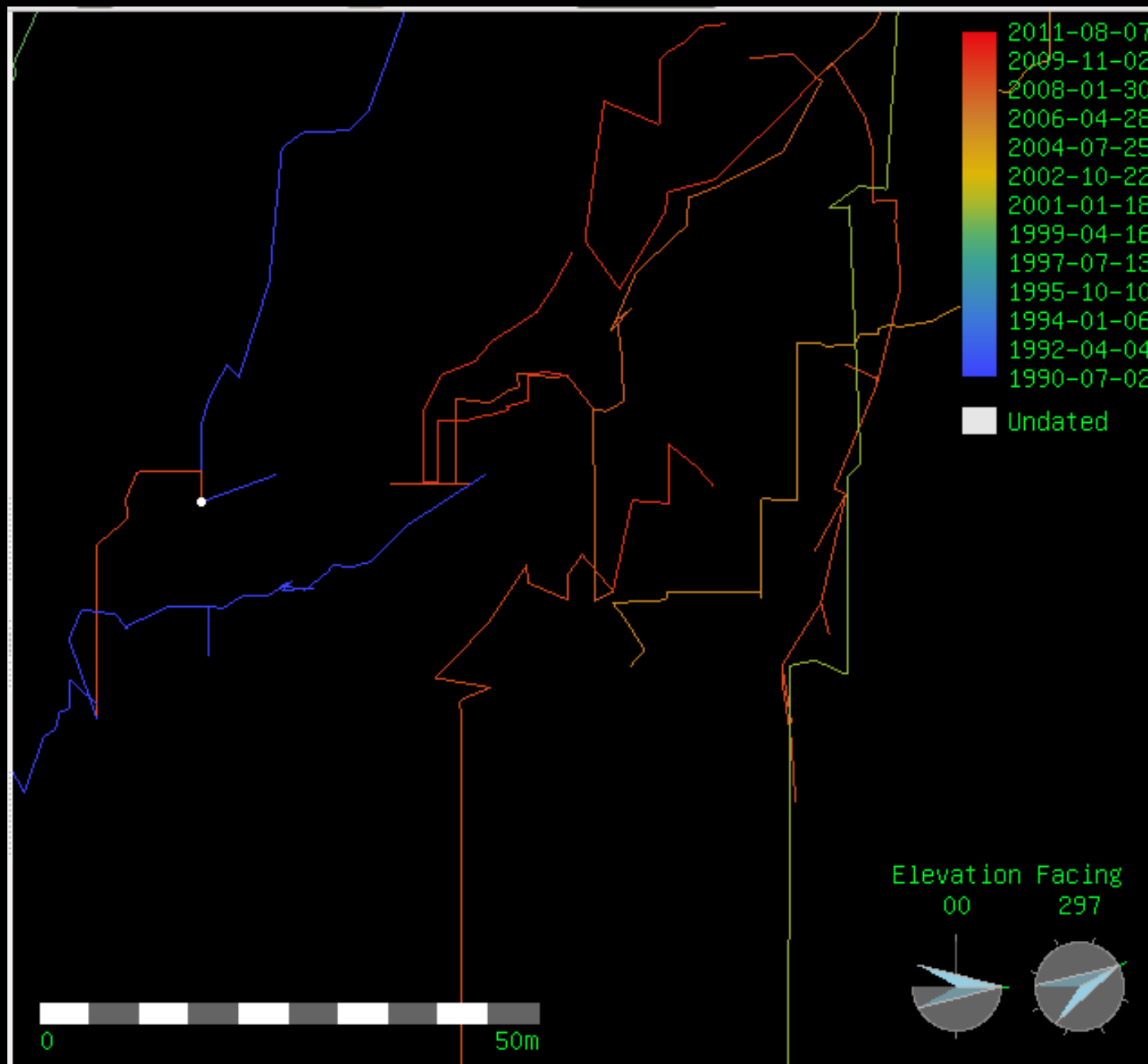
ST	C.	CL	L	R	U	D	S
1	110	110	3	0/5	10?	∅	1
2	1015	178	-30	0/5	0/5	10?	2
3	5106	185	-44	0/2	2/2	0/2	3
4	3184	148	-9	0/5	0/5	0/3	4
5	1194	183	+7	0/5	0/5	0/3	5
6	1126	147	-33	0/13	0/12	1	6
7	3147	164	-31	0/12	0/13	0/2	7
8	5107	144	+4	1	0/2	0/8	8
9	1151	68	+17	1	0/4	0/8	9

JSPDT Trips: November, Christmas Eve & 28/1/12

Napsihiran Rov

'Angsty' Passage

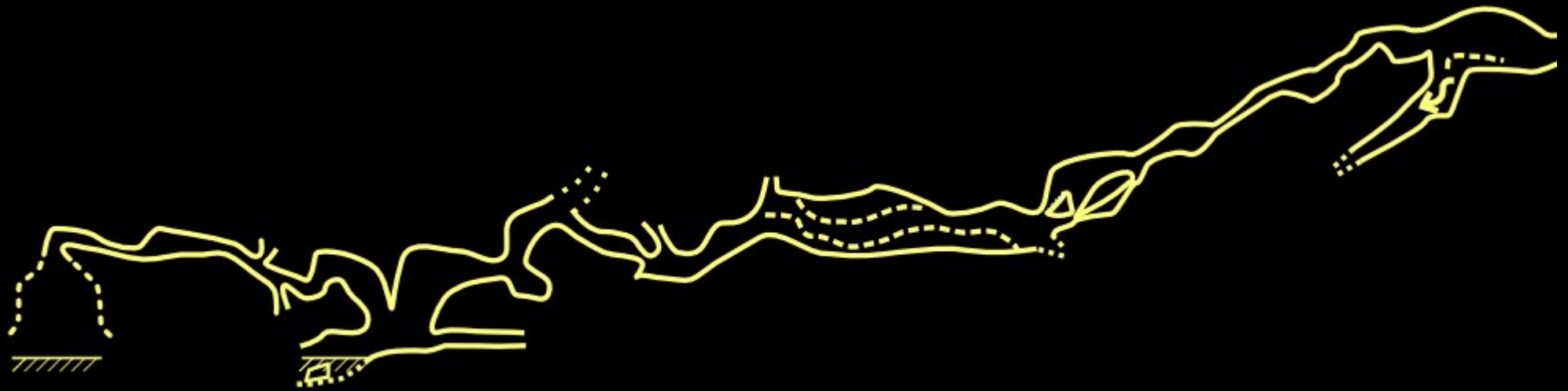
So close it overlaps!



2012: Follow the Wind



Watership Down - -900m Vrtnarija



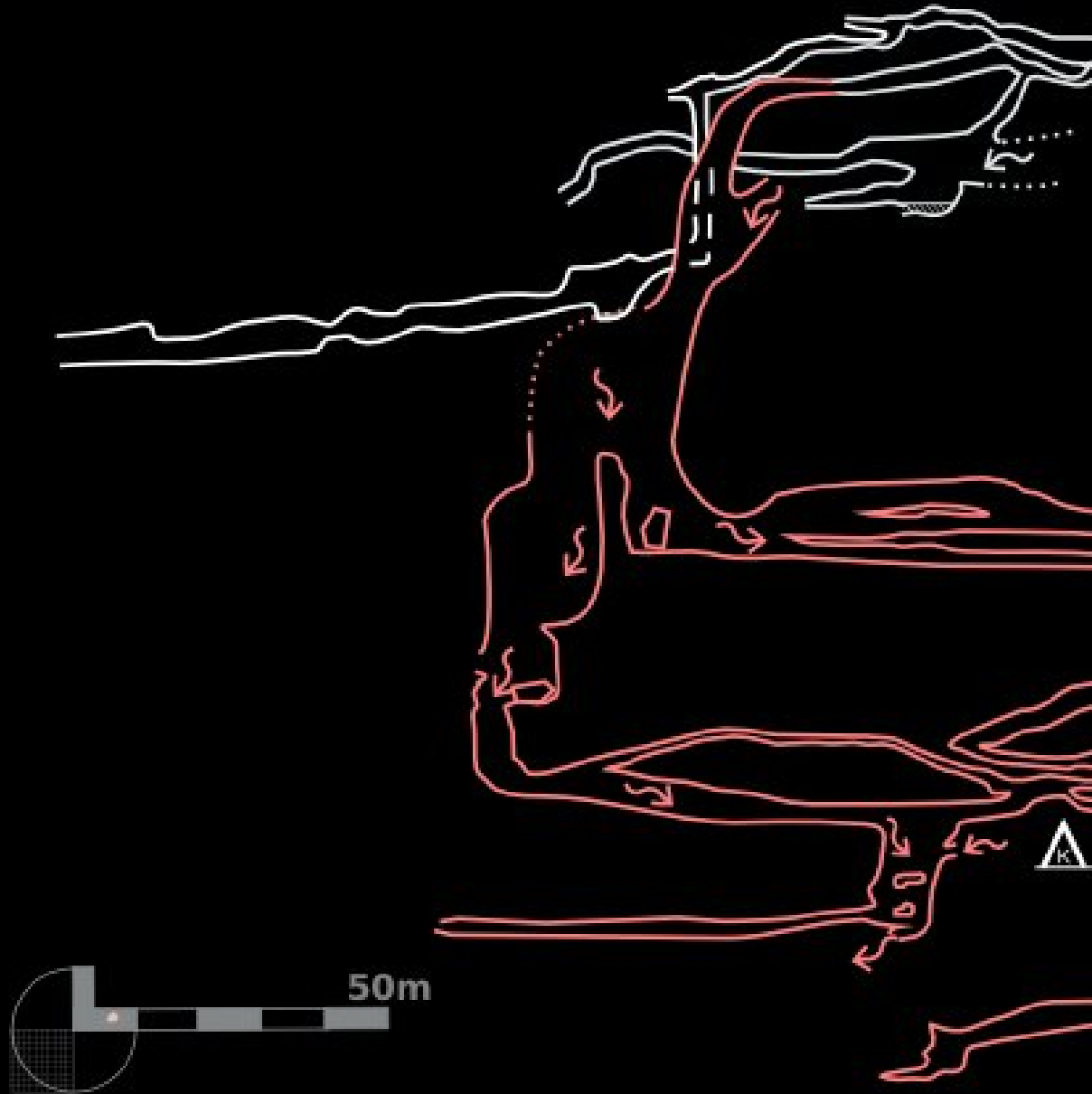
Many leads

Sumps – static (but changing water level?), perfectly clear, deep and very very blue

Only two trips here – further exploration requires a 2nd camp

50m

Stagger Lee

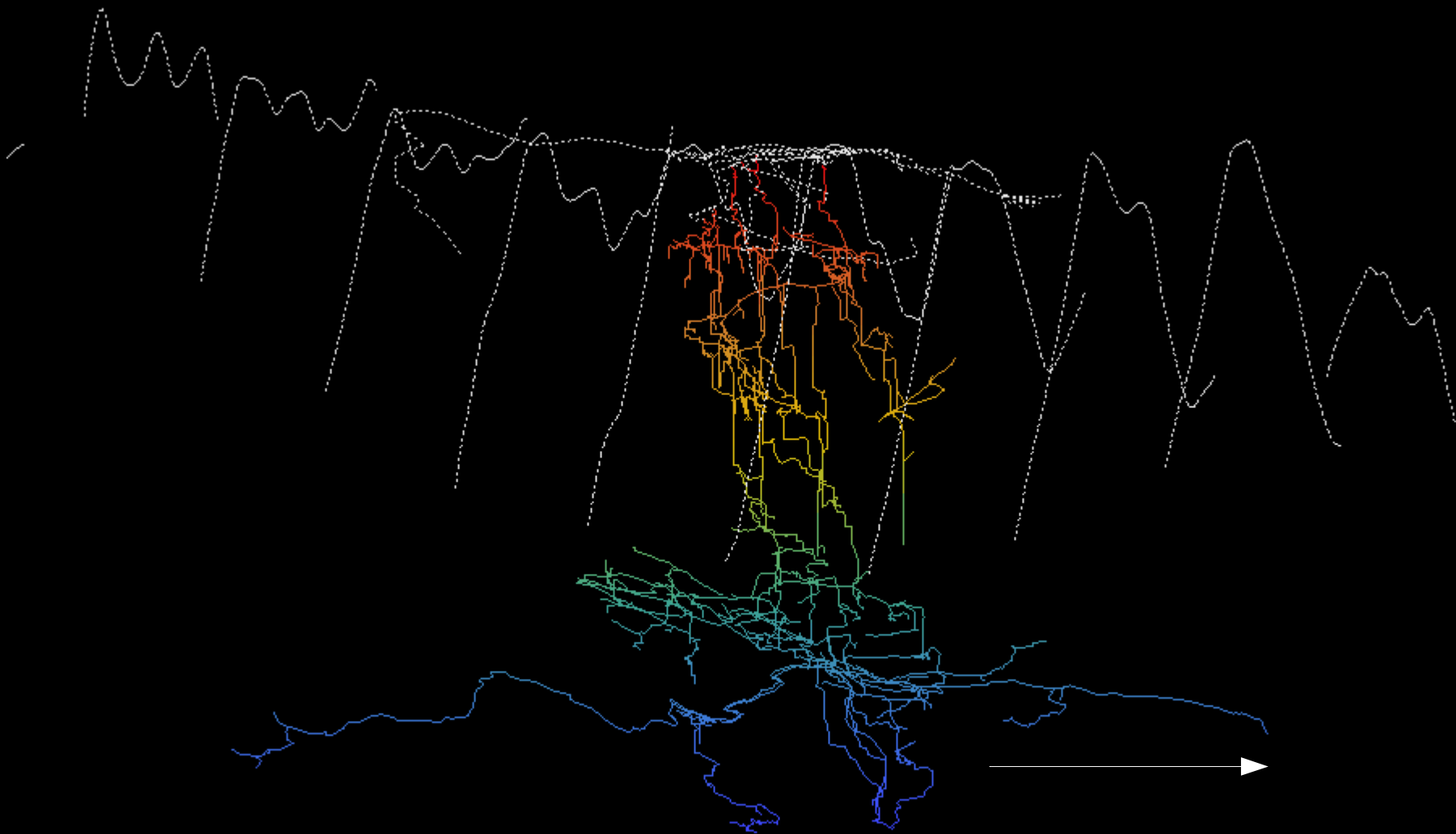




Brave New World



Passage from Kuk to Migovec



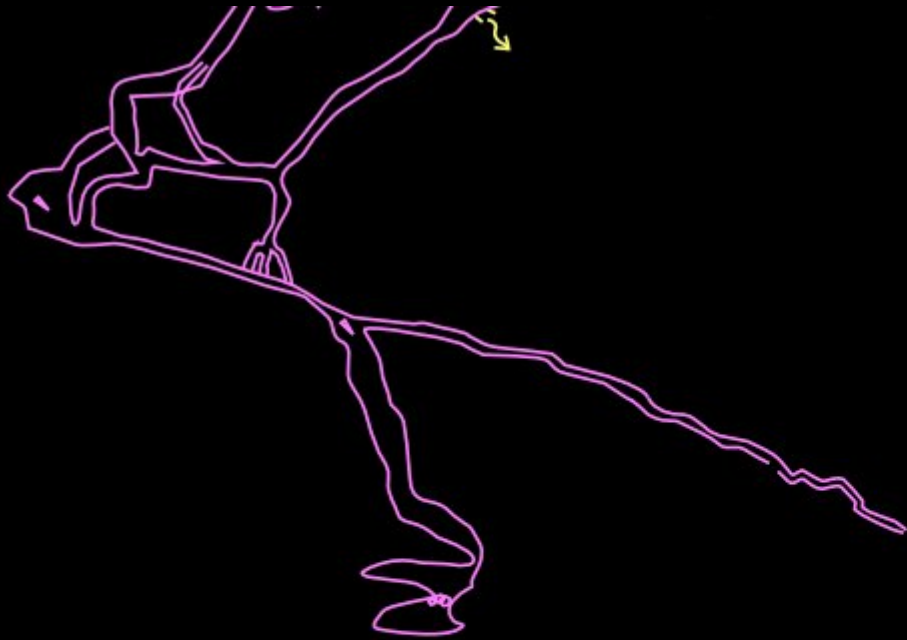
Kavkna Jama (M2)



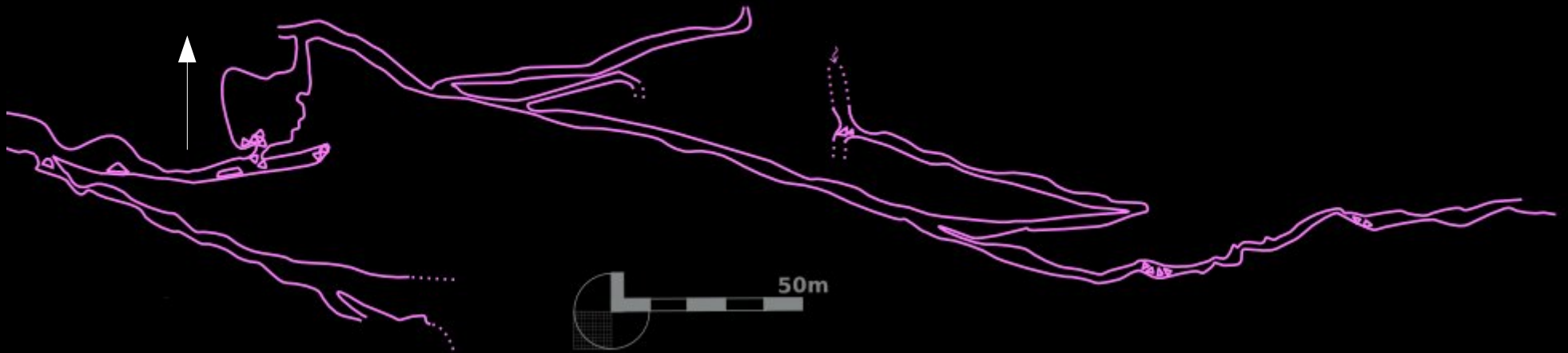


Best Laid Plans...

Minotaur Rift & The Guillotine



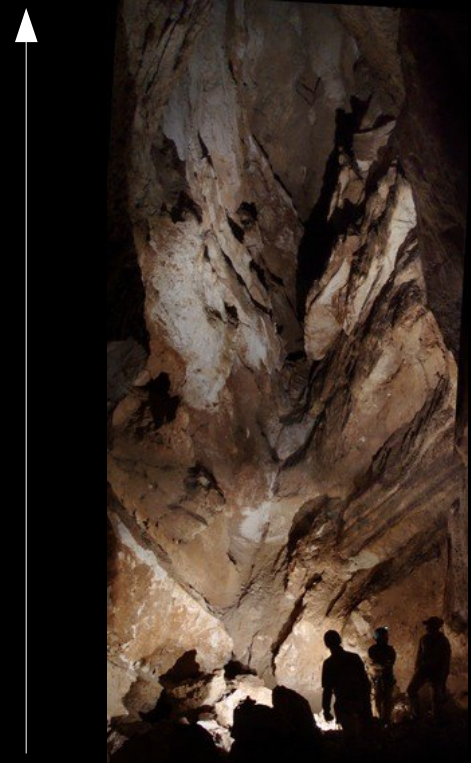
'Apollo' to the 'Milky Way'



2010: Queen's Bedchamber Found
2011: Two Trips bolt climbing
2012: Two further bolt climbing trips

40 8mm rawl bolts (?)
2 Force-Ten tent poles used as mud belays

Total Achieved: +28m



Waste of Time?



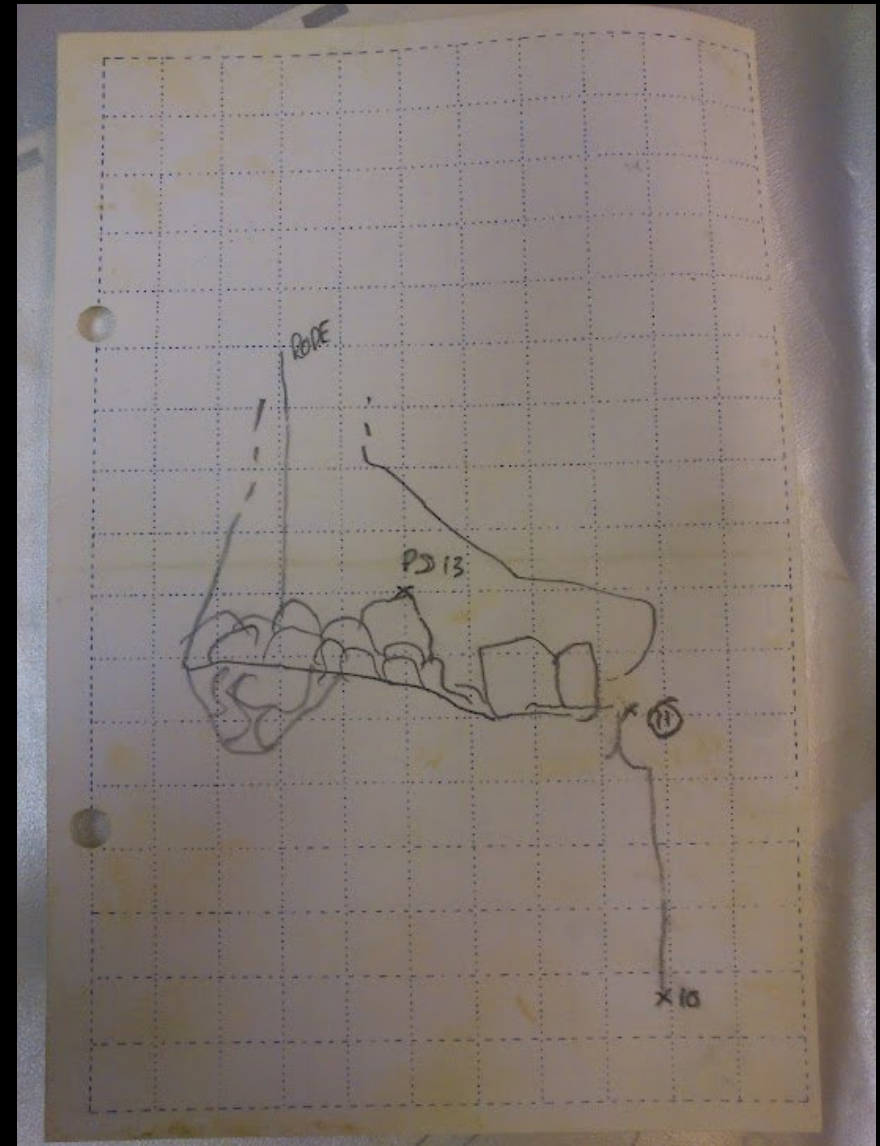
700m of passage...

Just wander into System Migovec?

On the last pushing trip...
Of the last camping trip...

"So altogether, it was a very lucky pushing trip; I originally wanted to do the traverse at the top of the Apollo climb to get to the other side of the phreatic, but the cable of the drill broke, so we decided to have a look at this passage. One instance when a broken cable helps :)) " - GA

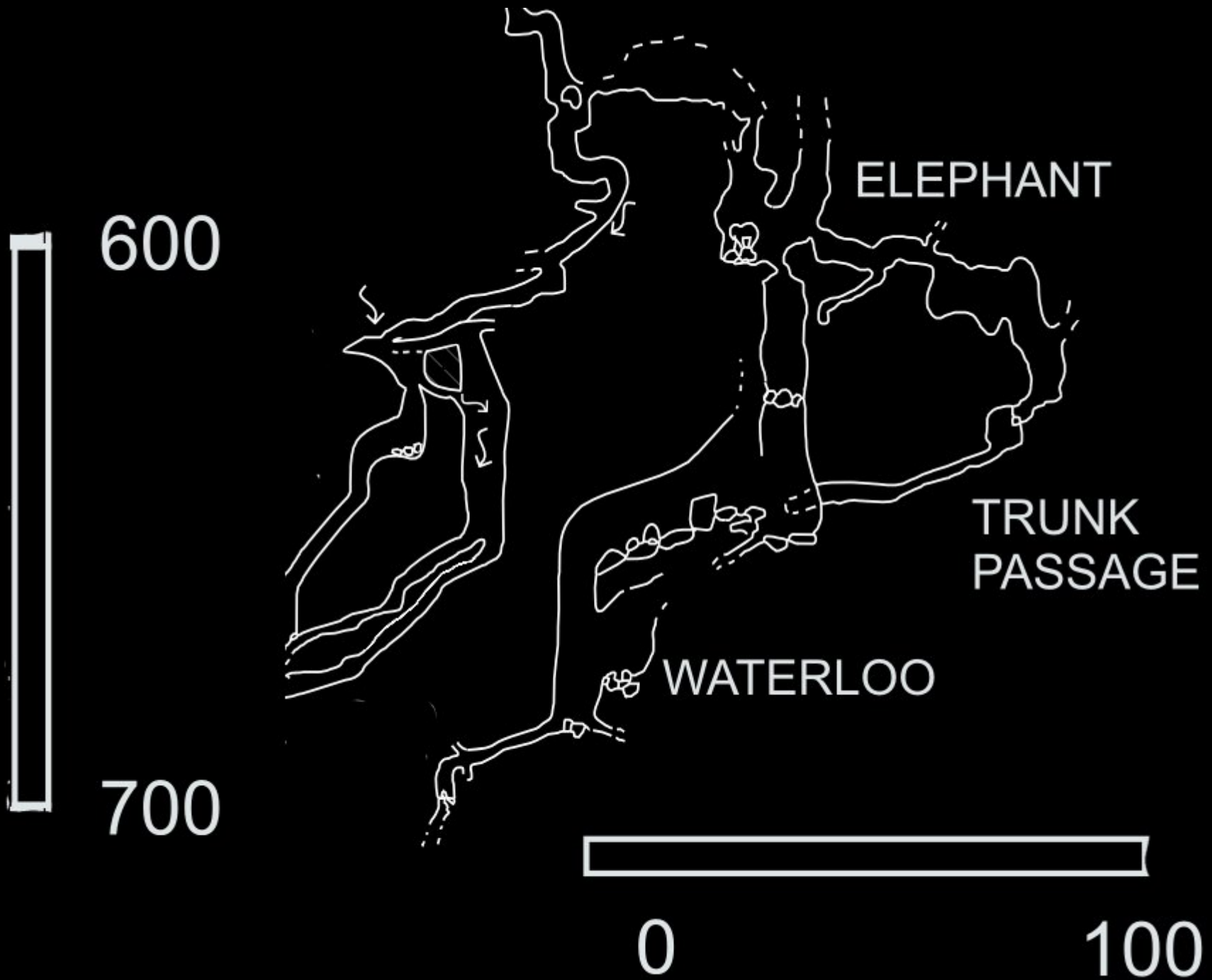
"...in 98 they came from Waterloo chamber, they saw the pitch and dropped down it... Had they climbed up 1 m on the ledge and walked a further 2 m, they could have found all the horizontal developments below Cheetah..."



Waterloo original sketch



1990s – push for
the magic kilometre





Things went a little bit crazy... up in the mountains.

Nov najdaljši jamski sistem je pod Migovcem

Podzemni labirint v Tolminsko-bohinjskih gorah je dolg 24.900 metrov, raziskanih je še pet kilometrov več.

Blaž Močnik, Tolmin
čet, 16.08.2012, 18:00



Raziskovanje jamskega sistema pod Tolminskim Migovcem. Foto Arhiv Jamarska sekcija PD Tolmin Foto: Delo Foto

Things went a little bit crazy... in the Slovene press.



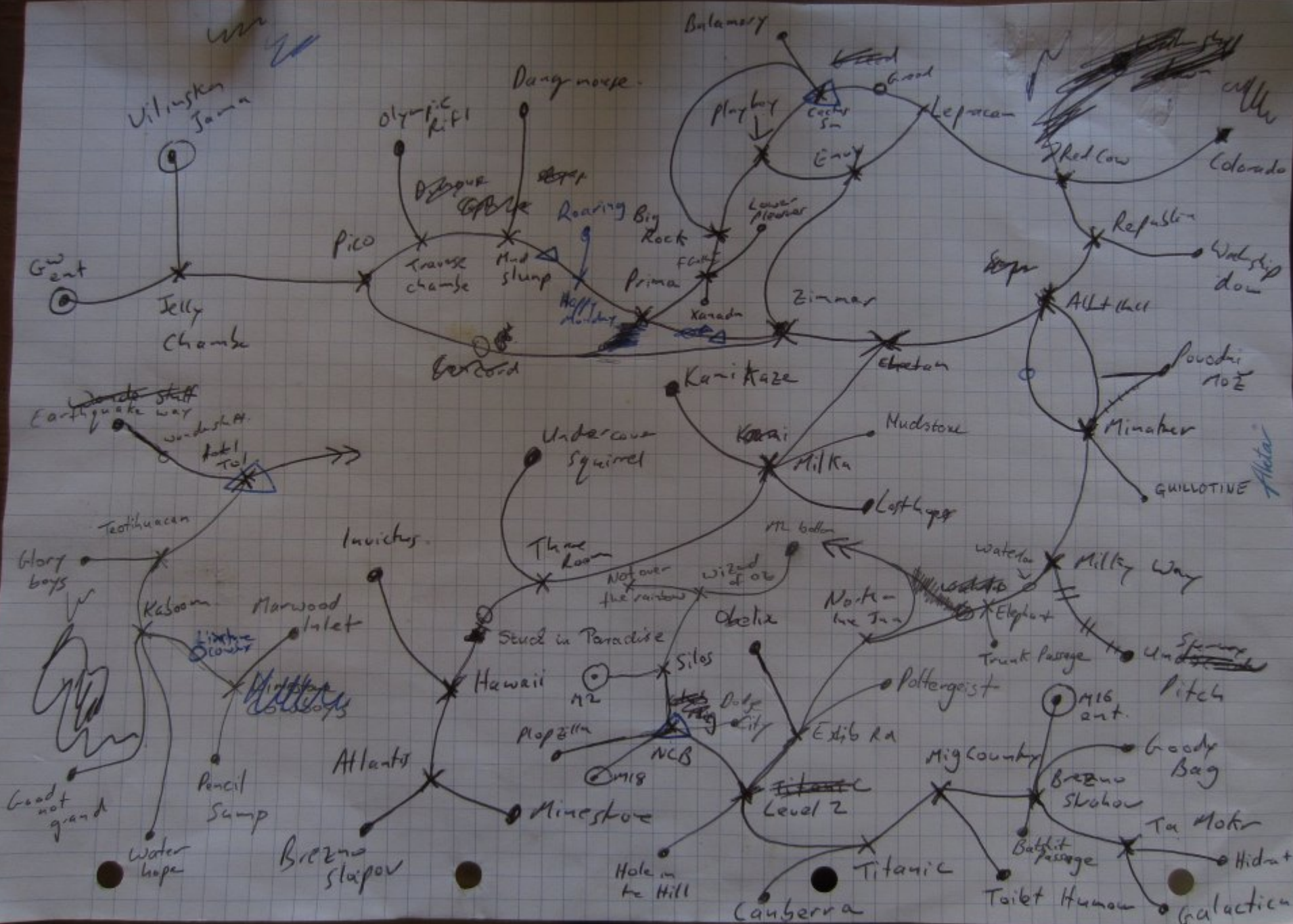


& a TV crew waiting in Tolmin

Many cakes, many many parties...





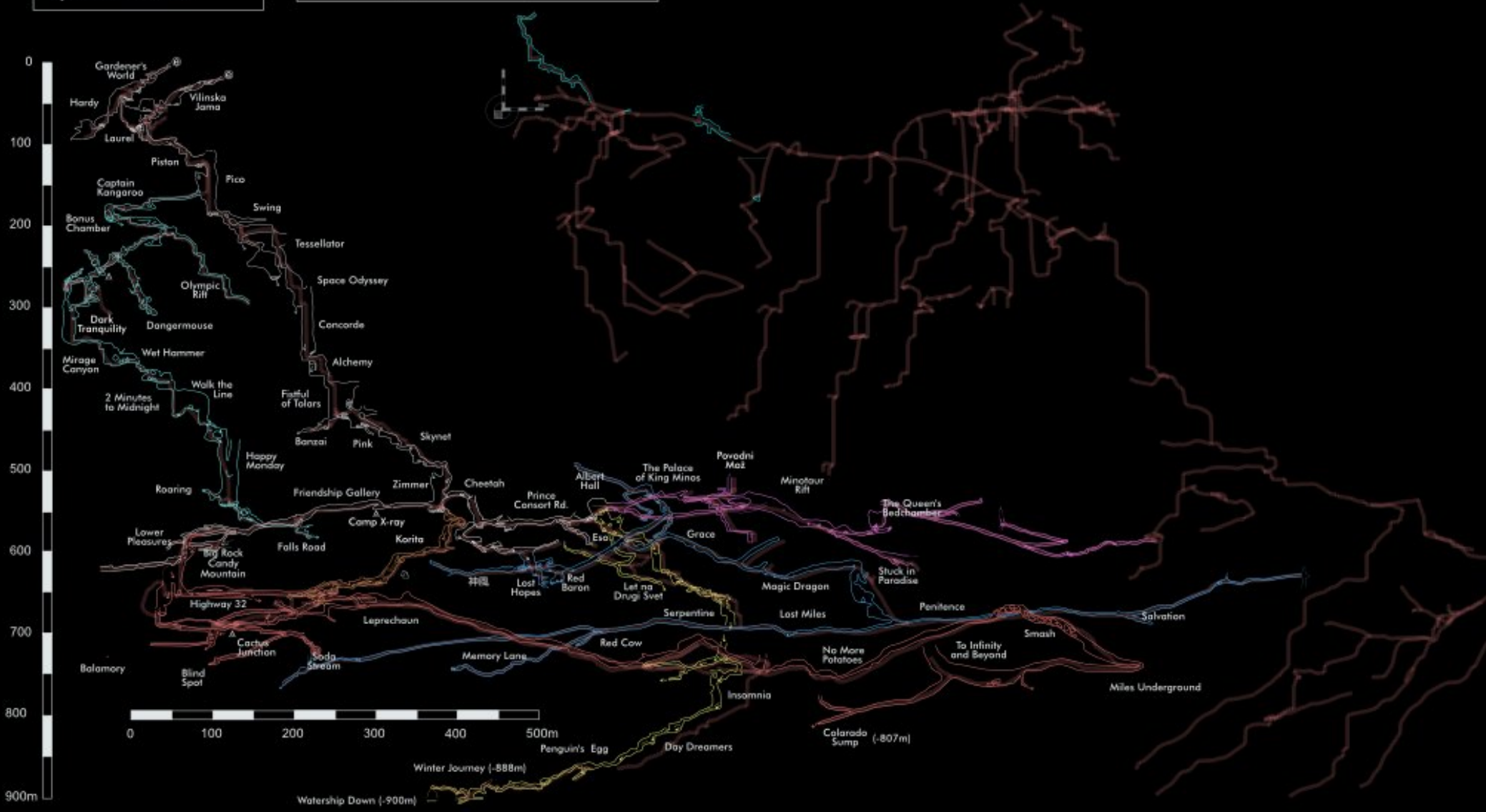


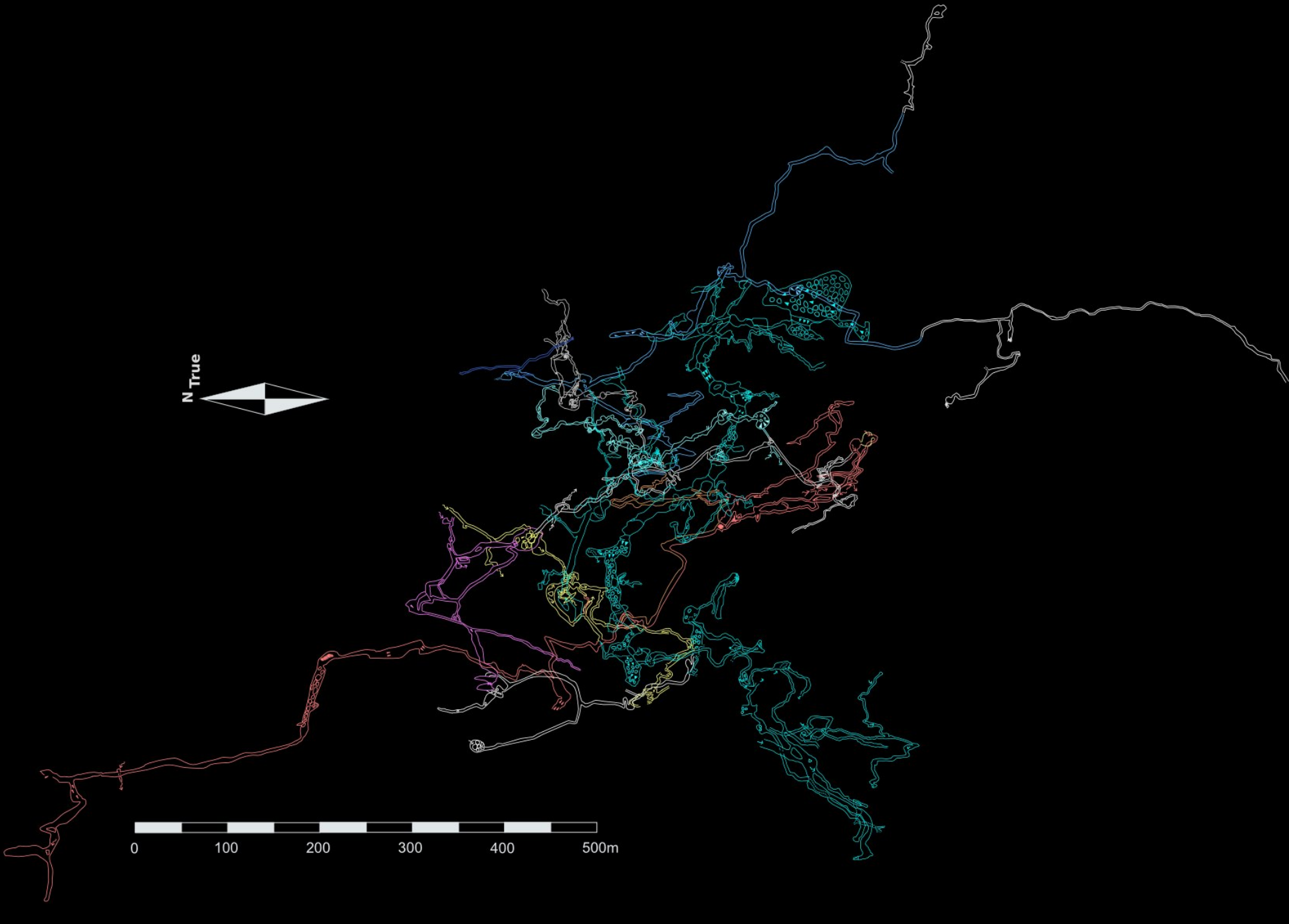
VRTNARIJA

Tolmin, Julian Alps, Slovenia
 Altitude 1794m
 Depth 888m, Length 11025m
 Location 540510 / 512398
 Drawn by ICCC/JSPDT 2011
 Surveyed to BCRA Grade 4-5B
 Exploration 2000-2011

- Entrance Series to Fistul
- Captain Kangaroo
- Friendship Gallery / Consort
- Palace of King Minos
- Tolminska Korita
- Kamikaze / Stuck in Paradise
- The Serpentine / Let na Drugi Svet
- Deep 2003/2004 Extensions
- Day Dreamers

25.5 km Polygon Length
 972 m deep





Cave Geek Stats

- 5181 survey stations, 4305 legs
- 18 km plan / 12.4 km vertical
- All large loop closures are 1-2% error
 - (most in horizontal)
- As we have inexperienced surveyors & purely hand instruments, we can only assume that the Central Limit Theorem is on our side!

2012 Achievements

2.666 km of new passage (all below -500m)

11.0 km Vrtnarija + 11.8 km SysMig →

25.5 km System Migovec

(Longest in Slovenia! 8)

Postonjska Jama: 20.570 km

Spacious sumps 972 m deep and accessible

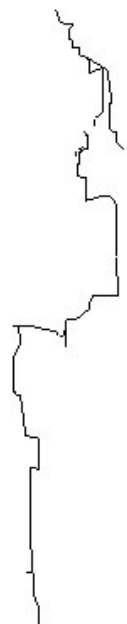
Leads multiplied, but also further dispersed



Finally the connection!

Ten years a forlorn hope, five years a promise

0
100
200
300
400
500
600
700
800
900

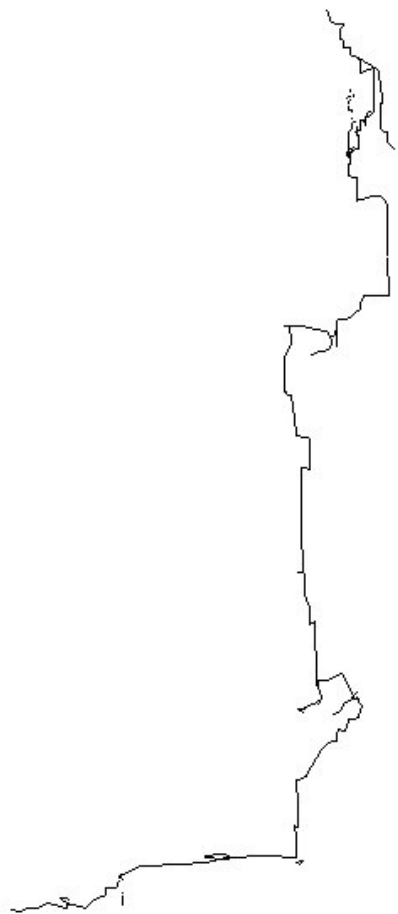


2000

0.79km

-393m

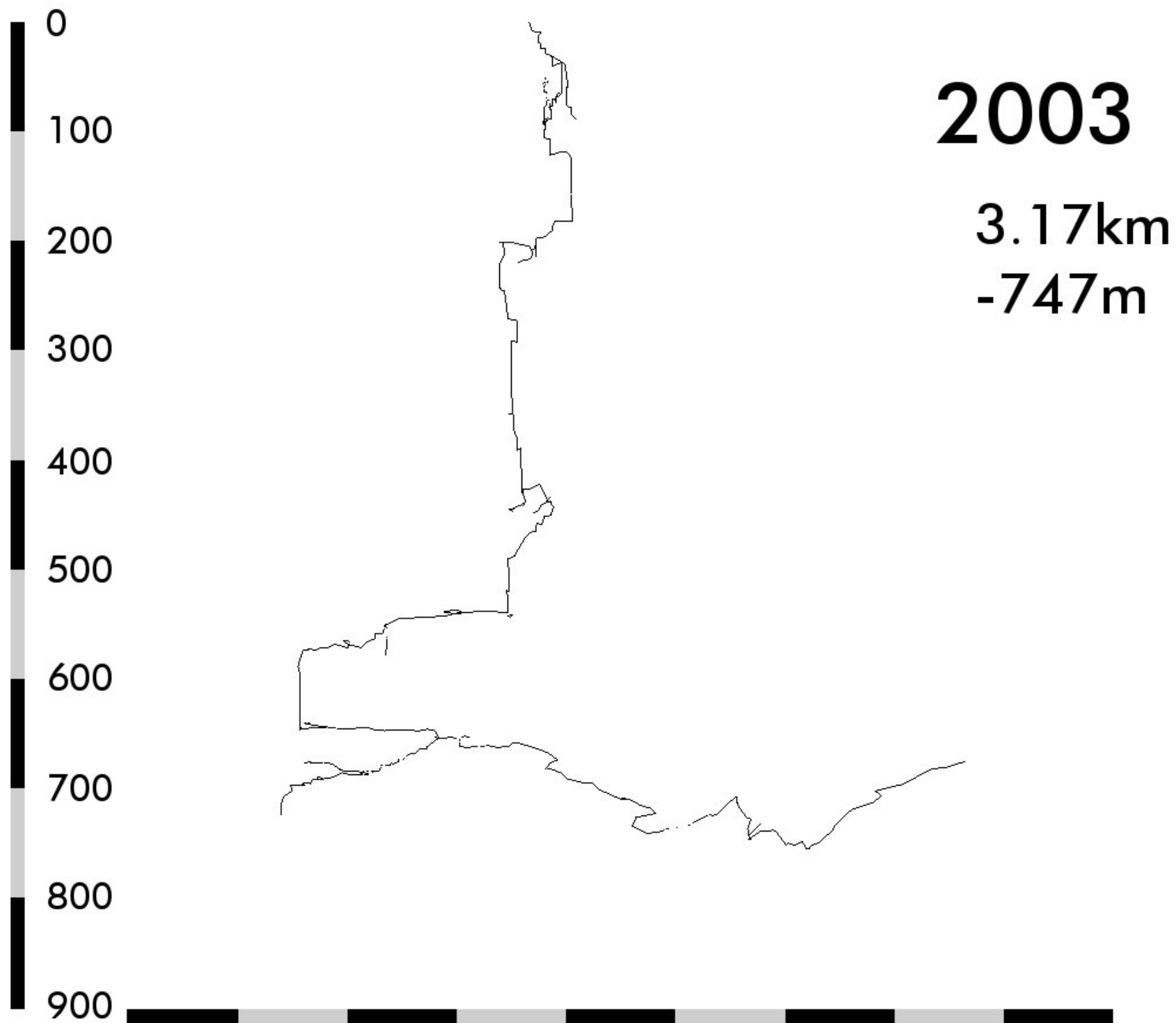
0
100
200
300
400
500
600
700
800
900

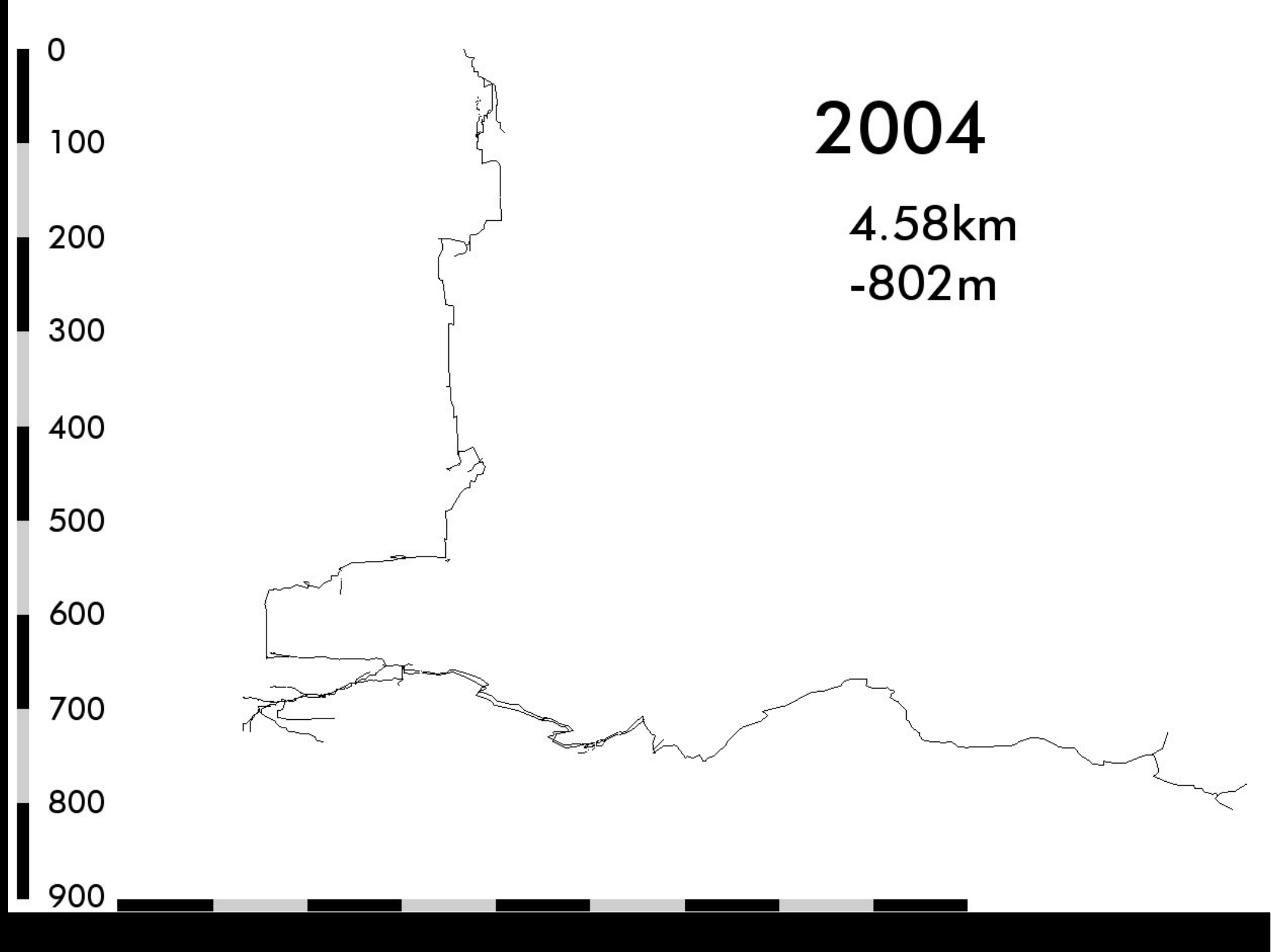


2001

1.68km

-574m





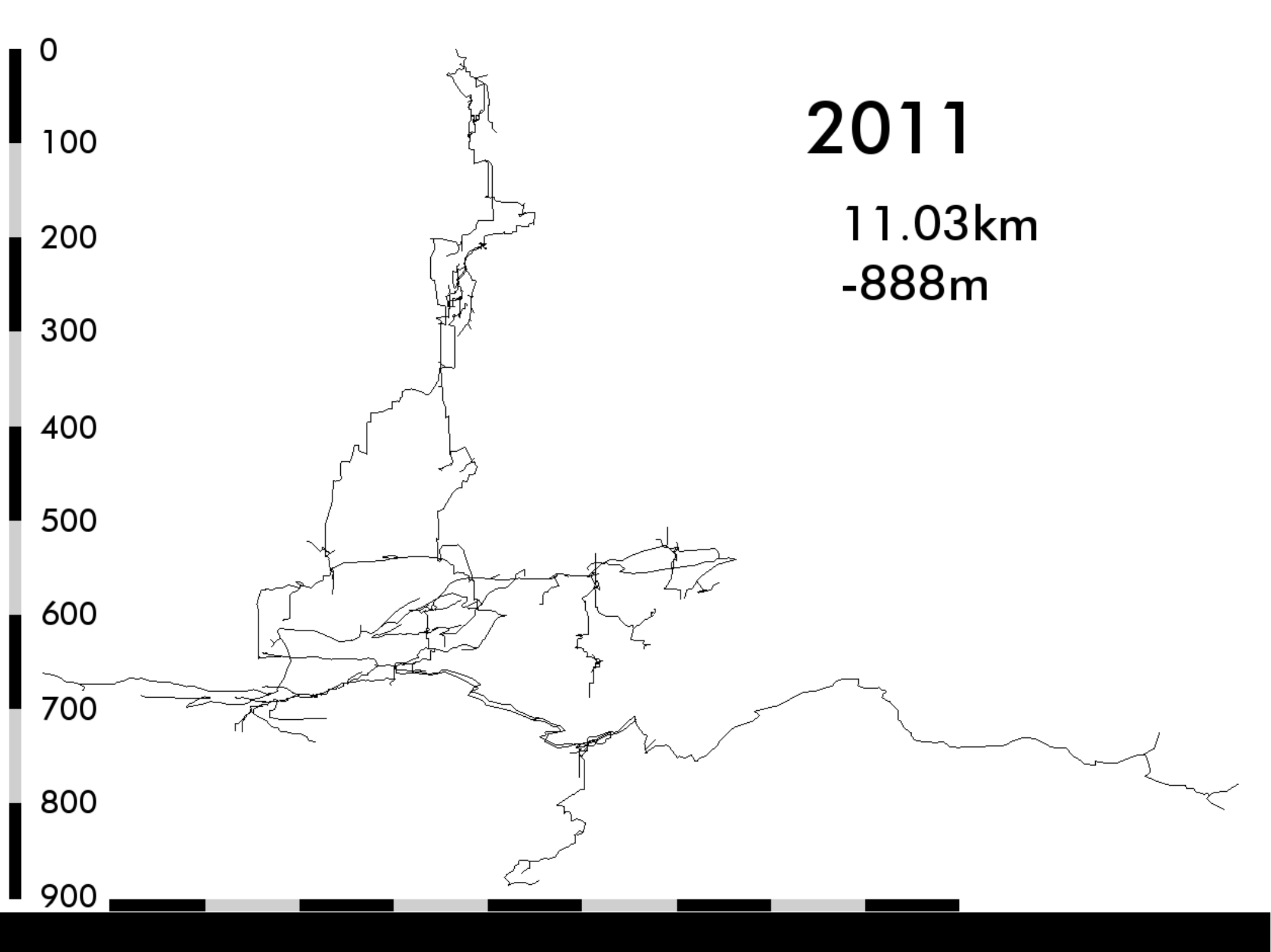












Thanks for Alex Pitcher Support



Rhys



Sam

Oli...



& Saber



2013... ?

We will almost certainly be returning

Rebolting System Mig -300 → -600m a
likelihood

Camp where?

Suddenly in a position to answer lots of
unknowns from the 90s at -600m SysMig

Lots to do @ 7-900m deep in Vrtnarija

2013... New Caves

Four (non current IC!) NPC members came out and looked properly at the surface...

Need some experience to judge which of 100s of potential surface digs + small caves are worth the effort.

'Kuk Pot' now a going concern North of Kuk

Acknowledgements 2012

Ghar Parau Foundation

& Alex Pitcher Awards

Imperial College Union – Transport Grant

Beast – Underground Camp Comf (2009)

Kelly Kettle [We didn't burn it, honest.]

JSPDT, PDT & Triglav National Park

~100 covers over 15 years!



We'll be back!

Vrnili se bomo!