Hong Meigui CES Handbook

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Documentation Overview

Different types of information are recorded in different places. The main places are: survey binder, logbook, and photo database.

After each caving or prospecting trip, the team should do the following:
1. Write a one sentence summary of the trip in the **diary** at the front of the logbook.
2. Record amusing stories in the **logbook**. Please write something for each trip, even if it is only a sentence. This is useful for magazine articles. It will go on the website.
3. Download photos to the expedition computer, and identify them by cave and passage name in the **photo database**.
4. If you found new entrances:
   - Complete an **Entrance Sheet** for each cave and put it in the survey binder.
5. If you surveyed passage:
   - Complete a **Survey Sheet** and put it in the survey binder.
6. Follow the steps on the Survey Trip/Entrance Registers.

Guide to: Survey Binder Contents

1. Each cave (or section of a large cave) has its own clear plastic sleeve in the survey binder.
2. Caves are organized by number
3. Surveys/sections of caves are organized alphabetically
4. The following go in the survey binder:
   - Entrance Sheets
   - Survey Sheets
   - Original survey notes
   - Survey printouts
   - Rigging topos
5. Please use the forms provided, but if you do record any gps logs, survey notes, cave names written down by locals, etc. in your personal journal, please cut the relevant pages out of your journal and file them in the survey binder. Do not take them home with you.

Guide to: Surface Prospecting

Entrance photos

1. Take a **location** (far-away) and **entrance** (close-up) photo for each cave you find. A person or rucksack for **scale** is always a good idea.
2. Record the photographer, roll of film, and frame number along with the cave's GPS data on the Entrance Sheet.

Names

1. Always ask locals to write down the name of any cave or locality.
2. Note the **source and reliability** of the name, ie. local/non-local, literate/semi-literate.

GPSing entrances

1. Set your gps to **UTM WGS84** meters.
2. Aim for an **epe <10m.** In a pinch, anything is better than no fix, but readings worse than 20m are highly suspect.
3. Vertical error is ~5 time that of horizontal error. If your gps shows 3 or fewer satellites, it cannot give an altitude fix for the entrance. If necessary take a second reading from a different position level with the entrance in order to fix the entrance elevation, or use an altimeter if available.
4. **Mark the gps point** at the entrance with red paint or a half-drilled hole so underground surveys can be tied into it. If you can't get a fix at the entrance, **surface survey** to it. If a surface survey is not possible, estimate the distance, bearing and height difference. This is very important for making a map of all the caves of the area.
5. Record the zone, northing, easting, altitude, position error, gps owner, gps model, waypoint name, and position of the reading relative to the entrance on an Entrance Sheet.

Guide to: Surveying

Survey stations
1. Mark stations with **red paint** as often as possible.
2. **Flag and label** junctions and important stations.
3. Avoid cairns. Use stations **on the wall** above the flood line.

Survey notes
1. Each survey should have a **cover sheet**.
2. For horizontal passages or short pitches sketch **plan, extended elevation (running vertical profile), and cross sections**.
3. For shafts sketch 1 or 2 projected elevations/longitudinal profiles (90° to each other) and horizontal cross sections (horizontal slices through the shaft). For complicated shafts, show the generalized shape of the shaft on the plan, and more complicated aspects in the horizontal cross sections.
4. Record LRUD **passage dimensions** at each station.
   - Use the bisector of the angle between the two survey legs.
   - On pitches record **NSEW** (or appropriate angles); also record U or D if meaningful (on ledges/at bottom of pitch).
   - In boulder chokes record LRUD for the **farthest you can see** through the boulders in each direction.
5. **Label and number the top of each sheet** of survey notes with: Date, Cave Number, Cave Name, Survey Name, Sheet Number. (i.e. 2004.02.12 48H-G1-100 Shui Lian Dong "Entrance" 1 of 6)
6. Sketch to **scale** using a **protractor**. Draw a **scale bar** on each page. The plan should also have a **north arrow**.
7. **Record the direction** of each survey leg (i.e. draw an arrow from 57 to 56 if it's a backsight).

Sketching style
1. **Number** all stations on the sketch.
2. Sketch the **rigging** for each pitch on or beside the profile. Show anchor types, rope length, and pitch length.
3. Plumb pitches and climbs and record them on the survey (ie. p7, c6)
4. Note, grade, and describe all **leads**.
5. Record **air flow directions** with date and time.
6. Note the location of any **cave life** seen.

Guide to: BCRA Grades

BCRA gradings for a cave line survey

Grade 1
> Sketch of low accuracy where no measurements have been made

Grade 2 (use only if necessary, see note 7)
> May be used, if necessary, to describe a sketch that is intermediate in accuracy between Grade 1 & 3

Grade 3
> A rough magnetic survey. Horizontal & vertical angles measured to ±2.5º; distances measured to ±50 cm; station position error less than 50cm.

Grade 4 (use only if necessary, see note 7)
> May be used, if necessary, to describe a survey that fails to attain all the requirements of Grade 5 but is more accurate than a Grade 3 survey.

Grade 5
> A magnetic survey. Horizontal and vertical angles measured to ±1º; distances should be observed and recorded to the nearest centimetre and station positions identified to less than 10cm.

Grade 6
> A magnetic survey that is more accurate than grade 5, (see note 5).

Notes

1. The above table is a summary and is intended only as an *aide memoire*; the definitions of the survey grades given above must be read in conjunction with these notes.
2. In all cases it is necessary to follow the spirit of the definition and not just the letter.
3. To attain Grade 3 it is necessary to use a clinometer in passages having appreciable slope.
4. To attain Grade 5 it is essential for instruments to be properly calibrated, and all measurements must be taken from a point within a 10cm diameter sphere centred on the survey station.
5. A Grade 6 survey requires the compass to be used at the limit of possible accuracy, i.e. accurate to ±0.5º; clinometer readings must be to the same accuracy. Station position error must be less than ±2.5 cm, which will require the use of tripods at all stations or other fixed station markers ('roofhooks').
6. Grades 2 and 4 are for use only when, at some stage of the survey, physical conditions have prevented the survey from attaining all the requirements for the next higher grade and it is not practical to re-survey.
7. Caving organisations etc, are encouraged to reproduce Table 1 and Table 2 in their own publications; permission is not required from BCRA to do so, **but the tables must not be reprinted without these notes**.
8. In drawing up, the survey co-ordinates **must** be calculated and not hand-drawn with scale rule and protractor to obtain Grade 5.

BCRA gradings for recording cave passage detail

Class A
> All passage details based on memory.

Class B
> Passage details estimated and recorded in the cave.

Class C
> Measurements of detail made at survey stations only.

Class D
> Measurements of detail made at survey stations and wherever else needed to show significant changes in passage dimensions.

Notes

1. The accuracy of the detail should be similar to the accuracy of the line.
2. Normally only one of the following combinations of survey grades hould be used:
    1A, 3B or 3C, 5C or 5D, 6D

Guide to: Survey Cover Sheets

1. **Cave number** (i.e. 48H-G1-100)
2. **Cave name** (if any) (i.e. Shui Lian Dong)
3. **Date**
4. **Survey name** (i.e. Wet Pitch Series).
5. Team members' full **names and jobs** on the survey
6. **Instruments used** (serial numbers + make i.e. Suunto Clino 24515612)
7. **Tape calibration** (i.e. "Tape missing 50cm at start" not the ambiguous "Tape = Tape - 50cm")
8. **Instrument calibration** (if done) or at least a note of any problems such as bubbles or sticking.
9. **BCRA grade** of survey (5c,3b, etc.). Remember you need to measure passage widths for it to be 5c and not 5b.
10. A clear description of any tie-in stations used (i.e. "1 = Shui Lian Dong's Entrance Series station 35")

Guide to: Drawing-up Surveys

1. Use a **sharp pencil**.
2. Write the **number** of *every* survey station clearly.
3. Symbols
   - Use **standard symbols** drawn in the standard way. If you are using your own, idiosyncratic symbol or you are using a shorthand version of a standard symbol, write this in on each page (eg arrow pointing to your symbol and "bedrock" or whatever).
   - For narrow/cluttered passage, draw the stal, etc. symbols **outside the passage walls**.
   - Clearly **distinguish confusable symbols** - sand from mud, pebbles from boulders.
   - Take care to distinguish between large boulders versus **rock pillars** - if necessary, draw an arrow an explain which it is.
   - Clearly distinguish between random boulder symbols and boulders which you have drawn in (the latter are specified to be at that particular shape, size and location and will need to be drawn in by hand - this is time-consuming but useful for distinctive or large boulders).
   - Where possible, draw **clear boundaries** around areas of fill (water, sand, cobbles, mud)
   - Double check that you're using the **change in ceiling height** symbols correctly – the bottom of the T is on the side with the lower ceiling.
4. Make your sketch easy for others to understand
   - It can be difficult to spot pitch and ceiling boundaries in complex areas. Try to keep them clear of other detail and use enough symbols so it is easy to spot which direction they face.
   - If there isn't much room it is better to reduce the number of symbols (or put them outside passage walls) in order to make each one clear rather than shoving them all on top of each other.
   - It can be tempting to shove in all the floor detail symbols since there is often a bit of everything in caves. If the floor is predominantly of one type consider simplifying and only drawing that fill.
   - Distinguish carefully between:

- – A solid patch of one floor type next to a patch of a different type
- – A mixture of the two types throughout.
- – The first should be drawn with boundaries around the patches if possible. The second should be drawn with regularly interspersed symbols (ie mud dashes regularly spaced between boulders.) If it's not clear, write a note.
- If there are two or more partial sketches of the same complex junction, then inevitably, there will be discrepancies between the sketches. In such cases, the surveyors must combine all sketches of the junction into a single set of printouts before the end of the expedition.

5. Printing out the line plot
   - Adjust the printout to fit as much as possible onto a single piece of paper (it is very time-consuming to add a tiddly three or four leg survey onto another sketch and it can take much longer than for a big sketch to work out where it fits in)
   - Whenever possible draw up on printouts as opposed to graph paper as this makes the computer-based drawing up much easier.

6. Check the elevation, plan and cross-section for **consistency** (i.e. don't draw the passage 10m wide in the elevation and 5m wide in the plan.)

7. If two passages overlap, draw them on **separate sheets for clarity**. This makes the computer work easier.

8. If there's enough space, draw the **rigging** directly on the elevation printout. Also note pitch locations and lengths on the plan.

9. Above all it's better to get it done sooner rather than later. All surveys must be drawn up as clean copies (on printouts) before you leave the expedition.

Guide to: Outputing Postscript Centerlines for use in Illustrator

If this is your first time to use printps to output postscript, you'll need to do the following:

- Look in Program Files/Survex/

- Copy print.ini and name the new file myprint.ini

- In myprint.ini you need to create a "paper size" that is big enough so that you can (virtually) print the whole cave on one sheet. To create the new paper size, do the following:

```
; =========================================================

[ps_huge]
like=base

; name of font to use for text
font=Times-Roman

; font size in points
font_size=10

; name of font to use for labels
font_labels=Helvetica

; line width in points
line_width=0.1

; left edge to left margin (mm)
mm_left_margin=8.1

; left edge to right margin (mm)
mm_right_margin=5000.0

; bottom edge to bottom margin (mm)
mm_bottom_margin=8.1

; bottom edge to top margin (mm)
mm_top_margin=5000.0

; =========================================================
```

- Then set the ps_huge paper size as the default for printps. (This will not affect printing through aven.) Change the "[ps] like" value to the following:

```
; =========================================================

[ps]
```

```
like=ps_huge

; ========================================================
```

- Finally, tell printps to output to a file:

```
; default for MS Windows
output_mswindows=Printout.ps
```

Once printps is configured correctly, do the following to get plan and elevation postscript files from survex:

- Select the 3d file you want to convert to postscript.

- Choose "Open With".

- Browse to "Program Files/Survex/printps.exe"

- You should get a black box prompting you to choose plan or elevation.

- Make your plan/elevation, scale, etc. choices.

- The black box should close, and you'll find a file called Printout.ps in the same directory as the 3d file.

- Rename Printout.ps, as the next time you open with printps in the same directory, it will overwrite Printout.ps

- You should be able to import Printout.ps into Illustrator. Some tips:

  o don't link it.

  o once you've imported the postscript file, zoom out and use the arrow to select the bounding box and box of text. Delete them.

Guide to: Using HMG Cross Section Arrows in Illustrator

- Make a background fill of grey "Interior" style.

- Duplicate the shape of the background in the layers palette, then move the new shape below the old background and apply the "White background - plan" style. This sticks out a bit beyond the walls of the passage and makes it so the line of the cross section arrow doesn't actually touch the passage walls, which could be confusing.

- Make a new layer for Cross Section Arrows. Put the layer beneath the White background you've just created.

- For each cross section, select one of the two cross section arrows. They can be hard to see in the symbols palette since they're just long thin lines, but you should find them just after the red Spot Height symbol. One goes left, the other right. The convention is that the arrowhead should always be pointing "up" towards the top of the page.

- Break the link to the cross section arrow symbol.

- After you break the link, you'll see a point partway along the long straight part of the arrow. Place that point on the passage wall on the opposite side of the passage to where you'll be placing the cross section drawing.

- Use the cut tool to cut the long bit of the arrow to a sensible length.

- Use the pen tool and Smart Guides (CTRL-U) to extend the arrow horizontally from where you cut it. The convention is that the angle here should always be at least 90 degrees.

- Place the bottom of the cross section next to the end of the horizontal part of the arrow line.

Guide to: Labels in Illustrator

- Labels such as "dig" and "sump" are lowercase by convention. (Passage names get capitals).

- There's a green "Label tie" style for lines to connect such labels to the survey.

Guide to: Calibrating Instruments

1. Calibrating is a hassle, but it is the best way to catch problems with the instruments which could make a whole trip's worth of reading worthless.
2. Pick a point at base camp and sight to an obvious distant landmark. Use the same spot to calibrate your instruments at least once an expedition and ideally every time you leave base camp to go surveying.
3. For top camps which change regularly, chose two points about 10m apart and do fore + back sights. You'll spot any problems with the clino immediately, and will notice day-to-day changes in the compass.

Guide to: Printing with the BJ30

1. Take the **cover off** the printer before you use. This makes it much easier to load the paper.
2. If your computer can't find the printer, try using a **different USB port**.
3. Always correct your survey for **magnetic declination** before printing it.
4. Print the survey line plot with both station **crosses and legs**. This makes it easier to align in any computer drawing package.
5. Print on **A4** paper. Larger paper just means more hassle when it's time to scan it.
6. If possible choose a **round-number** (ie. 45, 90, 180) for the projection of the elevation. This will make it easier to check for consistency with the plan and cross sections.
7. Print the line plot at the **same scale** you used in the cave.
8. Always **check the line** on the edge of the paper to make sure it's printed straight.

Guide to: Documentation with Digital Photos

1. Download your photos daily to Erin's silver laptop.
2. To save space, cull photos:
   - Surface shots: delete crap/uninteresting/duplicate photos
     Be harsh.
   - Underground shots: delete crap photos
     Go easy.
3. Identify caves and passages using the photo database spreadsheet.
4. Caption and grade the photos if time permits.

Guide to: Using the Stretcher

1. Lay out main stretcher.
2. Lay backboard on top, with head end at correct end; make sure all straps are available; connect backboard to stretcher.
3. Place cervical collar on patient. Leave helmet on.
4. Lay patient on backboard, inside sleeping bag or bivvy bag if possible.
5. Fasten backboard straps round torso.
6. Fasten leg loops (avoiding genitalia).
7. Fold in head flaps, inserting padding if necessary.
8. Fit forehead and collar straps.
9. Fit foot loops, crossing them over; adjust buckles; if leg injuries are present, you might omit one or both of these.
10. Buckle horizontal stretcher straps, starting at the feet.
11. Pass the head closure straps through the eyelets and adjust the rollover until it is just clear of the casualty's head.
12. Repeat for the foot closure straps, and adjust until the rollover just touches the casualty's feet.

Guide to: Collecting Cave Life

Locations
1. Guano of bats or birds, even as scattered faeces.
2. Wood or other vegetal debris on clay or rocks.
3. Surface of small or even minute puddles.
4. Roots hanging or crawling on the soil of the cave.
5. Clay banks, humid walls, speleothems.

Mailing Live Fish
Take the fish to an aquarium fish market, find a storekeeper to help you, transfer the fish into a relative bigger plastic bag, you don't need too much water, then fill in pure oxgen, seal it (they can do that very well), then mail it by air-mail.

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Guide to: End of the Expedition

- Survey equipment
  - Clean and check all survey instruments. Record problems in the logbook. Thow away pouches with broken zippers.
  - Clean and refill nail varnish pots (use syringe). Thow away broken ones. Replace syringes after use.
  - Thow away marker pens which don't work
  - Clean survey tapes, paying particular attention to mud around rollers. Replace any worn-out rollers. On the inventory note down how many metres are missing from the start of the tape.
- Office:
  - Throw away pens and pencils which don't work.
  - Wipe down and dry out the kettle.
  - Charge, wipe with damp cloth, and re-label (if needed) all rechargeable AA's and AAA's.
  - Wipe down electrical cords, speakers, printer, multiplugs, etc. with a damp cloth.
- Camping equipment
  - Wash all pots and pans in dettol or milton.
  - Estimate boxes, etc. of cave food left.
  - Dry clean sleeping bags.
- Rigging equipment
  - Clean rope protectors and check for holes.
  - Clean and dry slings, check for damage.
  - Clean, water-test, and patch drybags. Circle all holes in marker pen and label shagged drybags "Beyond Repair". Note in logbook.
  - Clean tacklesacks. Check for holes, worn out tethers, broken drawstrings, and worn shoulder straps. Repair.
  - Clean hangers and maillons. Oil maillons. Put 20 identical hangers and maillons on each red string.
  - Wash, check, and dry ropes. Cut and relabel damaged ropes. Make note of both old and new rope lengths.
  - Remove thrubolts from hangers. Sort into same length/diam store in same-length sets of 50, leave
- General guidelines for packing up

- Use the inventory sheets provided. They simplify data entry and make it easier to keep the club inventory up to date.
- Note down:
  - Equipment damaged, left in situ, abandoned, lost, retired, stolen, etc. (give specifics for expensive items such as drill batteries, drills, survey instruments, etc.)
  - New equipment purchased by the expedition.
  - Equipment in need of repairs which cannot be completed during the current expedition.

Guide to: Chinese Map Numbers

The northern hemisphere is divided into zones 4deg N-S by 6deg E-W. Each zone has a number and letter. The numbers are the same as for UTM zones, with 1 corresponding to 180d-176d W and Zhongdian (100d W) in $(180d+100d)/6d + 1 = 47$. The letters start at the equator with A corresponding to 0d-4d N and go up so Zhongdian (27d N) is in $27d/4d + 1 = 7 = G$. There are 2 map zones in each UTM zone (so G-47 and H-47 are both in 47R). Sometimes G-47 is represented as 7-47

Each map zone is further divided into 144 1:100,000 sheets each 20 minutes N-S by 30 minutes E-W. The sheets are numbered from left to right and top to bottom, so near Zhongdian you have:

.. H-47-138 H-47-139 H-47-140 H-47-141 ..
.. G-47-6   G-47-7   G-47-8   G-47-9   ..
.. G-47-18 G-47-19 G-47-20 G-47-21 ..

For the 1:50,000 series, a modifier is appending to the 1:100,000 map names to specify a quadrant. So you have:
  G-47-7-A G-47-7-B
  G-47-7-C G-47-7-D
Often Chinese or Cyrillic is used instead of A,B,C,D.

Guide to: Cave Numbers

Each cave is assigned a unique cave number consisting of prefix (ie 49H-A4) and number. The prefix corresponds to the label of the Chinese 1:100.000 map which covers the area of the cave's entrance. The maps are labeled using a simple formula   described in the Guide to: Chinese Map Numbering. To determine the prefix for a cave, all you need is the locatin of the entrance in latitude and longitude.

The cave prefix is in the format AB-CD where:
> A is the number of the UTM zone (ie. 49)
> B is the letter of the half-zone, starting at the equator
> C is

Sample prefix for different areas:

	E	N	Map number		Short version
Benzilan:	99.3	28.2	H-47-139	=132+ 7	47H-L7
Caobo:	113.4	27.1	G-49-35	= 24+11	49G-C11
Fugong:	98.8	26.9	G-48-42	= 36+ 6	48G-D6
Guilin:	110.4	24.7	G-49-113	=108+ 5	49G-J5
Gongshan:	98.7	27.7	G-48-6	= 0+ 6	48G-A6
Houping:	107.9	29.6	H-48-96	= 84+12	48H-H12
Hongchiba:	109.1	31.5	H-49-15	= 12+ 3	49H-B3
Jingxi:	106.7	23.0	F-48-34	= 24+10	48F-C10
Leye:	106.5	24.8	G-48-118	=108+10	48G-J10
Louta:	109.5	29.2	H-49-100	= 96+ 4	49H-I4
Lushan:	102.9	30.1	H-48-62	= 60+ 2	48H-F2
Liuku:	98.8	25.8	G-47-78	= 72+ 6	47G-G6
Miyi:	102.2	26.9	G-48-37	= 36+ 1	48G-D1
Nandan:	107.6	25.0	G-48-108	= 96+12	48G-I12
Shilin:	103.5	24.6	G-48-124	=120+ 4	48G-K4
Tian Xing:	107.9	29.2	H-48-108	= 96+12	48H-I12
Xinhua:	111.3	27.9	G-49-7	= 0+ 7	49G-A7
Zhangjiajie:	110.3	29.1	H-49-101	= 96+ 5	49H-I5
Zhongdian:	99.6	27.8	G-47-8	= 0+ 8	47G-A8

Lookup tables:

Zone 47:	96	97	98	99	100	101	102
Zone 48:	102	103	104	105	106	107	108
Zone 49:	108	109	110	111	112	113	114
2nd prefix #:	1 2	3 4	5 6	7 8	9 10	11 12	

24 28 32
  A0
  B12
  C24
23 27 31
  D36
  E48
  F60
22 26 30
  G72
  H84
  I96
21 25 29
  J108
  K120
  L132
20 24 28

Guide to: Photo Naming and Resolution

Expedition photos are archived on the web and shared with all expedition members.

Photo naming conventions
All photos should be named in the format 'zd22-01.typ', where 'zd22' is a uniquely assigned prefix, '01' is the image number and 'typ' is the file type, likely to be jpg or tif.

Each roll of film or collection of up to digital 100 photos by a single photographer will be assigned a unique 'zd' prefix (or 'tx' prefix for Tian Xing, 'ly' prefix for Leye, etc.).

So if Andrew has 250 digital photos they should be supplied as:

- zd00-00 through zd00-99
- zd01-00 through zd01-99
- zd02-00 through zd02-49

Then Fleur's 2 rolls of slide film should be supplied as:

- zd00-01 through zd00-36
- zd01-01 through zd01-36

Wherever possible the image number should correspond to the marked frame number for print/slide film. So exposure 20 on Fleur's second roll would be zd01-20.jpg and the first picture on the roll might be frame number 1. This makes it easier to ask for reprints and rescans. Gaps in the image/frame numbers are expected and acceptable.

Resolution for photos/scans
Images on the website are 800 pixels along the longest side. If your photos are going to be used in a publication, they need to be higher resolution, which will be archived off-line. For Descent, Chris Howes says:
"Publication requires files at 300 dpi and sized to 9.5cm wide (in whichever orientation it is). Do not sharpen the image in scanning, which is in tiff format. After sizing, resave as a jpg using medium compression (a 5 or 6 in Photoshop terms). " [that is 1004 pixels across].

Guide to : Using Chinese in Reports and Surveys

So you need to use a few Chinese characters in your report or survey... It's not as hard as you may think.. If you want a vector outline to import into your report (as opposed to a gif/jpg/png, which will look crap), do the following in Win XP with chinese character support enabled (the EN/CH box in the task bar) and Illustrator installed:

Note: this is not a good way to deal with longer bodies of text.

1. Use the language bar to select chinese character input in notepad. Type the characters you want into notepad.
2. Use the language bar to select chinese character input in Illustrator. Make sure you have a Chinese font selected. I suggest SimSun or MSSun as it is the one commonly used in Chinese scientific reports.
3. Cut and paste the chinese characters from notepad into Illustrator. Note, this will only work if both programs are set for chinese character input. If you're geting gibberish, that's probably the problem.
4. In Illustrator, select the text you have just entered. Then select the menu item Text -> Create Outlines. You should now have a bunch of vector outlines instead of text.
5. Save the Illustrator file as a pdf.
6. Repeat for each phrase, name, etc. that you want to use in the report.

Guide to: Opening Survey Instruments

Survey-meister Wookey recommends the following method for opening survey instruments. Proceed at your own risk as it's easy to break the capsules!

You open the body by using a press the same diameter as the hole (a socket (as in 'socket set' for spannering cars) can usually be found that is a reasonable fit). First remember to undo the grub screw in the end of the instrument to release the capsule. Then press the capsule out using the socket if you have something to hold the body without touching the aluminium plate, or tap it out carefully with a hammer/rubber mallet if not.

You get the back plate, a spring washer the capsule and the O-ring. The backplate just pops back in when you've finished although if you disassemble it too many times the plates gets loose and prone to falling out.

Guide to: Prices in China

Rough prices as of summer 2006. Expect to pay more in airports and on trains. All prices in RMB

Phonecalls

Local call	0.2 first 5 minutes
National call	0.2-0.3 / minute
UK call	3.6 / minute
US call	2.4 / minute

Food and Drinks

Coke/Pepsi	2.5 / tin
Coke/Pepsi	3 / .5L bottle
Coke/Pepsi	5 / 1.5L bottle
Water	1-1.5 / .5L bottle
Water	2-2.5 / 1.5L bottle
Noodles	2-3 / bowl
Fried noodles	3-4 / plate
Local beer	3 / bottle
Baozi (big)	0.5 each
Baozi, jiaozi (small)	1 for 4
Dough sticks, other snacks	0.5-1 each
Meat dish	6-15
Veggie dish	3-8
Fried rice	3-4
Steamed rice	0-1 /person
Tea in restaurant	-0-
Milk/yoghurt	2-3 / carton

Transport

Local taxi	1-1.5 / km
Motorbikes	1 / km (what was Hongchiba?)
Breadvan for a day	500-600

Accommodation

Farmhouse accommodation	0-10 / person / night
Dorm room in local hotel	10-15 / person / night
Standard twin room in local hotel	20-40 / room / night

En-suite twin room in local hotel   40-60 / room / night

Repairs

Sewing   1 per area of stitching
Shoe repairs   <10

Misc

Toilet paper   1 / roll
Cheap smokes   3 / pack
Typical (upper middle class) smokes 10-15 / pack

Guide to: Finding a Place to Stay

招待所 (zhāo dài suǒ) – Guesthouse, usually suitably scabby

住宿 (zhù sù) - Lodging / accommodation (used as verb)
☐ ☐ (bīn guǎn) - Guesthouse
旅店 (lǚ diàn) - Small hotel
旅 (lǚ guǎn) - hotel
酒店 (jiǔ diàn) - Posher hotel
大酒店 (dà jiǔ diàn) - Even posher hotel

Guide to: Medicine Names

☐ 普拉明 (luo pu la ming) – Loperamide
布洛芬 (bu luo fen) – Ibuprofen
曲多(qu ma duo) – Tramadol h

Guide to: Scanning and Archiving

At the end of the expedition everything is scanned and saved to the external harddisk. Save the scans to the ExoShare

Scan resolutions and naming conventions are as follows:

- Surface notebooks: 200 dpi greyscale, save as

    ```
    surfacenotes/tianxing/20060718-yekang/pagenumber.png
    ```

- Logbook: 200 dpi greyscale, save as

    ```
    logbookscans/tianxing2006/pagenumber.png
    ```

- Logbook graphics, to be used in : 100 dpi greyscale/colour as appropriate, save as

    ```
    logbooks/tianxing2006/entrydate.jpg
    logbooks/tianxing2006/20061019.jpg
    logbooks/tianxing2006/2006102001.jpg
    logbooks/tianxing2006/2006102002.jpg
    etc.
    ```

- Maps: 400 dpi colour

    ```
    Maps/maptype/tianxing/mapname/sheetnumber.tif
    ```

For cave 48H-I12-40 (Qikeng Dong), "streamway" survey trip, the filenames would be as follows:

- Entrance sheets: 200 dpi greyscale, save as

    ```
    entrancesheets/tianxing/48H-I12-40-qikeng_01.png
    ```

- Survey notes: 200 dpi colour (if sketch on blue lines) or greyscale, save as

    ```
    surveynotes/tianxing/48H-I12-40-qikeng/streamway/00_cover.jpg
    surveynotes/tianxing/48H-I12-40-qikeng/streamway/01_notes.jpg
    surveynotes/tianxing/48H-I12-40-qikeng/streamway/02_sketch.jpg
    etc.
    ```

- Survey printouts: 200 dpi greyscale, save as

    ```
    surveyscans/tianxing/48H-I12-40-qikeng/plan-streamway-p1.jpg
    surveyscans/tianxing/48H-I12-40-qikeng/plan-streamway-p2.jpg
    surveyscans/tianxing/48H-I12-40-qikeng/elev-streamway.jpg
    etc.
    ```

Guide to: Scanning Surveynotes

1. open Photoshop CS
2. select File-Import-CanoScan LiDE 20/N670U/N676U...
3. in 'Main' tab:
   > Select source: Platen
   > Color Mode: Grayscale *** The software remembers all other settings but this one!***
   > Output Resolution: 200 dpi
   > Paper Size: Full Platen
   > Selection Width: 11.88 Height:17.67 Units: centimeters
   > Scale: 100%
4. place notes to be scanned face down, head down, at the near right hand corner of the platen (there's an embossed arrow by this corner)
5. click Scan
6. repeat 4 and 5 for each sheet of notes

7. select image to be saved
8. select File-Save for Web
9. for notes on waterproof paper:
   > choose PNG-8, Selective, 8 Colors (the software should remember these settings)

   for notes on blue-gridden paper
   > choose JPG, Medium
10. click Save, and save the file in a directory for its cave in
    > survey notes*expeditionarea**cavename**surveyname*\
    > ie. surveynotes\tianxing\48H-I12-40-qikeng\acheron\
11. use the following conventions for naming the files, *xx_name* where *xx* is the page number, starting at 00, and *name* is cover, notes, or sketch, depending on the content of the page. For example:
    > 00_cover.png
    > 01_notes.png
    > 02_sketch.jpg
    > 03_notes.png
    > ...
12. repeat 7, 8, 9, 10,11 for each image

The above should usually result in a good, clear image with size <100kb.
Occasionally it's necessary to play with settings in the 'Color' tab of the scanner window to get a clear scan (usually if the notes are very muddy or the writing very faint)

Entrance Sheet Registry

Date	Cave number	Notes labeled and filed	1-sentence summary in diary	Amusing stories in logbook	Photos down-loaded	Entrances identified in photos	GPS data typed into survex
Record each entrance sheet as it is filed.							

Survey Trip Summary Sheet

Date	Survey name	Notes labeled + scanned	Sentence in diary	Amusing stories in logbook	Photos download + ID'd	Surveys + rigging drawn up	Passage + rigging described	Surveys scanned

.

❑ **Typed into database**   **Date: 2006 /** __ __ **/** __ __

<div align="center">

Calibration Point Name: _____

</div>

CALIBRATION SHEET

Record official values for calibration points here. This information will be used to correct altimeter and other readings.

Map location of calibration point

Zone: __ __ __	Easting:
Altitude: __ __ __ __ m	Northing:
Datum:	Estimated accuracy:
Map name/source:	

Calibration point description

Landmark Name: _____

LANDMARK SHEET
Record landmark information here.

Map location of landmark

Zone: __ __ __	Easting:
Altitude: __ __ __ __ m	Northing:
Datum:	Estimated accuracy:
Map name/source:	

GPS reading at landmark (use WGS84, UTM, metres)

Zone: __ __ __	Easting: __ __ __ __ __ __	Owner:
GPS Alt.: __ __ __ __ m	Northing: __ __ __ __ __ __	Model:
Waypoint Name:	Estimated Position Error / Number of Satellites:	
Location of reading relative to entrance: (at entrance, or bearing/distance)		

Altimeter reading at landmark

Altimeter Altitude: __ __ __ __ m	*Calibrations*	*Time*	*Altitude(m)*
Time of Reading:	Calibration 1		__ __ __ __
Calibration point:	Calibration 2		__ __ __ __
	Alt. from map	✂	__ __ __ __

Landmark description

Calibration Sheet Number: _____

ALTIMETER CALIBRATION SHEET

Record the calibration values for the altimeter at a known calibration point at the beginning and end of the trip.

Altimeter model:	*Calibrations*	*Time*	*Altitude(m)*
	Calibration 1		__ __ __ __
Calibration point:	Calibration 2		__ __ __ __
	Alt. from map	✂	__ __ __ __

❑ **Typed into database**   **Date: 200_ / _ _ / _ _**

Cave Number: _ _ _ - _ _ _ - _ _ _

ENTRANCE SHEET

Each entrance should have an Entrance Sheet. If you enter the cave, also fill out a separate Survey Sheet. Fields in **bold** should be filled in while you are at the entrance, others the same day.

__Cave name__ (note source)

Characters: 洞名(写清楚)   Checked? ❑   Phonetic/guessed:

Pinyin: Checked? ❑   Translation: Checked? ❑

__GPS reading at entrance__ (use WGS84, UTM, metres)

Zone	Easting	Northing	GPS Alt:
_ _ _	_ _ _ _ _ _ _	_ _ _ _ _ _ _ _	_ _ _ _ _ m

Waypoint Name:	Estimated Position Error / Number of Satellites:	GPS Model:	GPS Owner:

Location of reading relative to entrance: (at entrance, or bearing/distance)

__Location/entrance photos__ (include person or rucksack for scale)

Location Photo (show landscape)   *Entrance Photo (show shape of ent)*

Camera:	Image Number:	Camera:	Image Number:

__Location description__ Describe how to get to the cave from well-known landmarks.

Location sketch

Entrance/passage description
Give the size, appearance, wet/dry, etc. If the cave was surveyed, write the passage description on a separate survey sheet.

Entrance sketch

Prospects and tackle needed
If the cave was descended, list rigging/tackle used on a separate survey sheet.

Special observations
Note cave life, human artefacts, etc.

Recce team (full names)

Cave Number: __ __ __ - __ __ __ - __ __ __

SURVEY SHEET

Each survey should have a Survey Sheet. If two surveys are in the same passage, fill out two sheets.

Passage name	Trip name

Sometimes the same passage is surveyed on two or more trips, or two or more passages are surveyed on the same trip. In survex, use *title to indicate the passage name. For example:

    *begin acheron1   << Trip name
    *title "Acheron Streamway" << Passage name
    ..
    *end acheron1

Passage description Give a general description of the passage plus observations on geology, water flow, etc. This is the scientific description. Stories and adventures go in the logbook. Underline leads, grade them A-C and list tackle needed., i.e. pitch undescended [B, 30m+drill]. For passages with more than one trip, only write one description and note "see <trip name> sheet" on other survey sheets.

Rigging topo
Include rope lengths and note thrubolt or spit. Either draw here, or note "on centreline" and draw around centreline printout. Draw in pencil and update after every change to the rigging – don't wait until the rigging is "perfect."

Special observations
Note cave life, draught, temperature, human artefacts, paleoflow, etc.

Author(s) (full names)

□ Notes labeled and filed □ Data typed in + checked
□ Notes scanned □ LRUD typed in + checked

1 /___

SURVEY NOTES COVER SHEET

Header (repeat this info at the top of each sheet)

Cave Number : __ __ __ - __ __ __ - __ __ __
Cave Name :
Survey Name :
Date : 200__ / __ __ / __ __

Jobs and Team Members (give full names)

Notes :
Instruments :
Tape :
_____ :

Instruments Used (models and serial numbers)

Compass :
Clino :

Inst. Calibrations	Calibration point:
Foresight:	Backsight:

Tape missing __ . __ __ m from start.
Stations marked with _____
LRUD's measured where possible? Y / N

Tie-in Stations (continue on back if needed)

Current Survey	Tie-in Survey	
Station Name	*Survey Name*	*Station Name*

❑   Data typed into database

SPECIMEN SHEET

Specimen Number # : __ __ __ __

Vial # : __ __ __	Cave #: __ __ __–__ __ –__ __
Date : __ __ / __ __ / 2006	Station # : __ __ __ __
Collectors :	Photo # : __ __ __ __
# Observed : __ __	# Collected : __ __

Description : _____

_____

Environment : _____

_____

Other notes : _____

_____

Identification   Common name:

	Best guess	*Confirmed identification* (source :)
Phylum		
Class		
Order		
Sub-Order		
Family		
Genus		
Species		