MicMac Tutorial CEREMA Interface March 29 and 30, 2016
CEREMA Normandy Center

Prerequisites: trainee workstations under Ubuntu installed with MicMac, the CEREMA interface, the data tree structure for practical work, CloudCompare and exiftool.

1) **Presentation slideshow :** Photogrammetry, MicMac (Tapioca, Tapas, Malt), the interface.

2) **Practical work :**

1. Getting started with the interface

1. File/New Site 2. MicMac/

Choose photos: the 4 photos under Exo1_Gravillon 3. MicMac/Launch MicMac: a 3D cloud is displayed. Close CloudCompare1 .

4. MicMac/Malt Options: Choose a master image for Malt (1.JPG).
5. MicMac/Launch MicMac: validate 'launch Malt' 6.

examine the result under CloudCompare 7. MicMac/

Launch MicMac: to be able to relaunch Malt with other options 8. MicMac/Options Malt: zoom level = 1, draw a mask on 1.JPG 9. MicMac/Launch Micmac: validate 'launch Malt'

10. Examine the result under CloudCompare
11. Edit/List/view the 3D images at zoom level 32.

2. Take a measurement on the cloud 1.

File/New Site 2. MicMac/Choose

photos: the 5 photos under Exo2_Carotte.

3. MicMac/Calibration Options: Use maximum zoom.
    1. Define a horizontal line (on the plate, photo 33)
    2. Define a horizontal plane (photo 33, on the marble, not too big)
    3. Define a distance: 150 mm between the end of the marks 20 cm and 5 cm on photos 33 and 51 [2]. The accuracy of the measurements depends on it.
4. MicMac/Tapas Options: uncheck “stop after tapas”
5. MicMac/Malt Options: choose master image 33, zoom level = 4 , and draw a fairly wide mask targeting the carrots.
6. MicMac/launch Micmac: wait to visualize the dense cloud (the 2nd).
7. Perform the measurement of the upper core in CloudCompare (consult the coordinates3 of points on the white core then on the black core: evaluate the average height of the two surfaces and estimate the difference)4

3. Process image files without exif, several master images 1. File/New Site

2. MicMac/Choose photos: .tif under Exo3_Boudha. Accept the

convert to jpg format. Read the message about the absence of exif.

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1 Systematically close CloudCompare after each viewing.

2 For example photo 33: beginning in 131 - 2891, end in 1951 - 409.
and photo 51: beginning in 198 - 1795, end in 3532 - 539.

3 In CloudCompare: Select "3D cloud model" and the "point list picking" icon

4 Measured with a caliper graduated in 0.02 mm, the black carrot measures 25.26 mm and the white 26.38.

3. Tools/Edit photo exif: 1. Brand:
   CANON
   2. Model: Canon EOS 5D (pay attention to case)
   3. Focal length in mm: it is not known, it can be evaluated by examining the 'look' pictures. Put a value around 100 mm.
   4. Equivalent focal length in 35 mm: the size of the sensor being 24x36 this focal length is equal to the focal length in mm.
4. Tools/Camera name and focal length: check that the exif update has taken into account and that the camera is known to MicMac (in the DicoCamera.xml file). Check sensor size.
5. MicMac/Malt Options: Choose 2 master images (71 and 92) to view the 2 sides of the Buddha. Trace 2 masks, limit overlaps. Zoom 2.
6. MicMac/Tapas Options: uncheck shutdown after tapas
7. MicMac/Launch MicMac.

4. Process photos with 2 different focal lengths, place 2 subjects in the same mark.

1. File/New Site.
2. MicMac/Choose photos: .JPG under Exo_4_Zhenjue.
3. Tools/all photo focal lengths: identify photos with a focal length of 24 mm (photos 17, 21 and 22)
4. MicMac/Tapas Options: choose 24 mm focal length photos for intrinsic calibration. Uncheck the “stop after tapas” box
5. MicMac/Malt Options: choose master images 28 and 34; Zoom 4. Step of mask.
6. MicMac/Launch MicMac: validate the warning message on focal lengths.

5. What to do if tapas does not find an orientation?

1. File/New Site
2. MicMac/Choose photos: the 4 photos under Exo_5_Absence_Orientation
3. MicMac/Launch Micmac. Notice the lack of direction.
4. Help/A few tips: consult the paragraph: If MicMac cannot find of point cloud.
5. Tools/Quality of the photos of the last processing: note that a photo is poor quality (5.JPG)
6. MicMac/Choose the photos: click on 'reset the site' then do not keep than the 3 good quality photos.
7. MicMac/Tapioca Options: All, scale up: -1 for entire image.
8. MicMac/Tapas Options: uncheck “stop after Tapas”
9. MicMac/Malt Options: zoom 2, master image 1.JPG.
10. MicMac/Launch Micmac: note that an orientation has been found.

3) Ultra-fast presentation of the functions not practiced:

1. File menu: open, rename, export, import
2. Edit menu: Display the status of the site, view the photos, the options, the traces, clouds, concatenate clouds
3. MicMac/Options Menu: 3D Mask, GPS Points
4. Video menu: decompress a video, select photos
5. Tools menu: update DicoCamera
6. Settings menu: display the settings, associate the essential tools 7. Help menu: to get started, help, about

4) A point on the diffusion, the installation, the forum.

1. http://logiciels.ign.fr/?Telechargement,20
2. http://forum-micmac.forumprod.com/

List of pictures:

Exo 1 Gravel:

1.JPG
2.JPG
3.JPG
4.JPG

Exo 2 Carrots:

DSC06633.JPG
DSC06651.JPG
DSC06652.JPG
DSC06653.JPG
DSC06659.JPG

Exo 3 Buddha:

IMG_5571.tif
IMG_5572.tif
IMG_5573.tif
IMG_5576.tif
IMG_5577.tif
IMG_5592.tif

Exo 4 Zhenjue:

DSC_3117.JPG
DSC_3121.JPG
DSC_3122.JPG
DSC_3127.JPG
DSC_3128.JPG
DSC_3129.JPG
DSC_3133.JPG
DSC_3134.JPG

Exo 5 no orientation:

1.JPG
2.JPG
3.JPG
5.JPG