How to transfer the dial graph to the wall by means of the

Orologi Solari

program

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Argineis – Castellamonte

When the design of the dial is finished, the resulting graph has to be transferred to the wall.

By means of Orologi Solari the following solutions are available :

• directly draw the lines on the wall

• print the graph as a "mosaic" on several paper sheets

• export the graph to a PDF file

The following slides show how to proceed following these three methods.

OS defines the coordinates of each point by means of a cartesian reference frame.

The origin is in the orthostyle base, x axes is horizontal toward right, y axes is vertical downward.
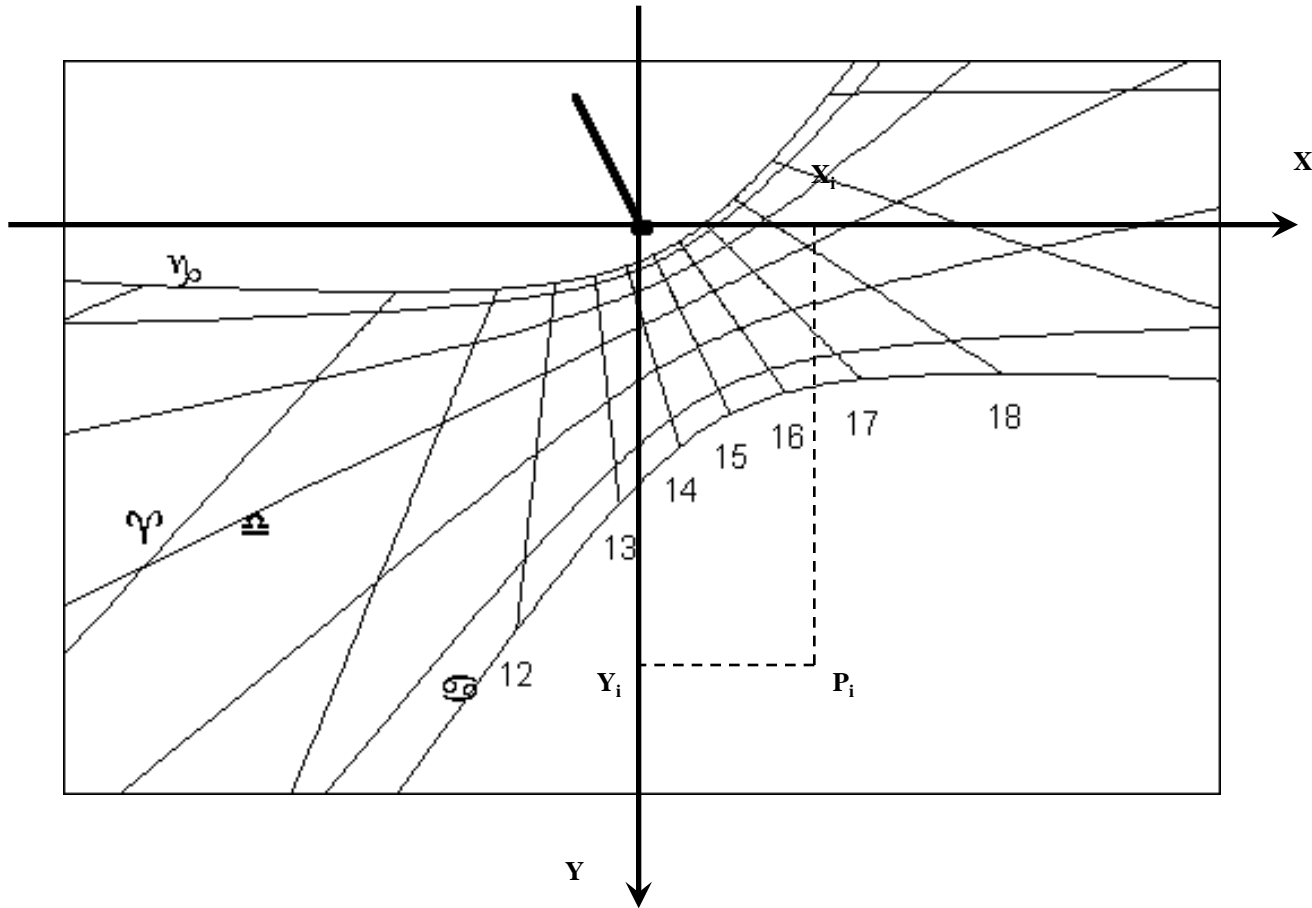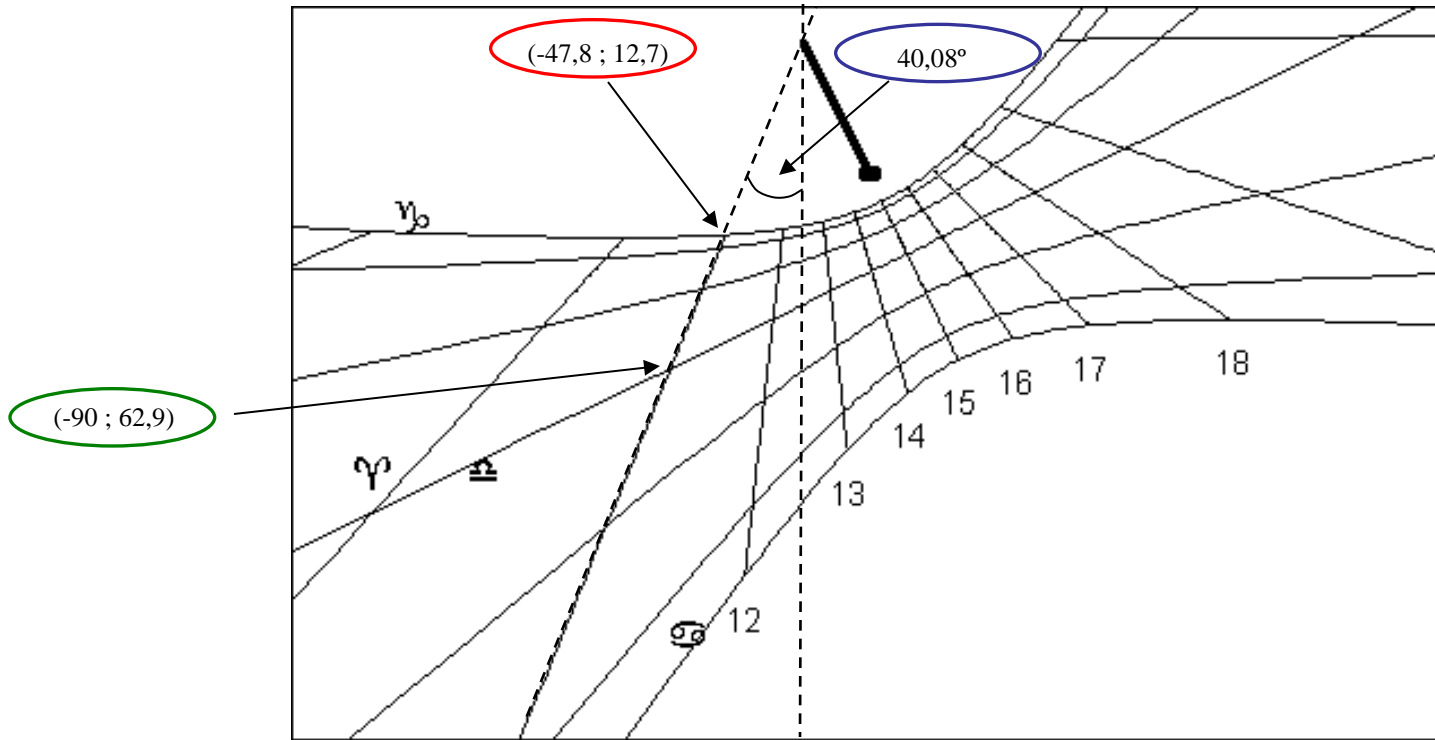
OS can show or print <u>tables</u> with the coordinates of all the crossing points between hour lines and declination lines.

As an example in the following table french hour lines coordinates (x,y) are shown. When these points are marked on the wall and connected together, hour lines and day lines are obtained.
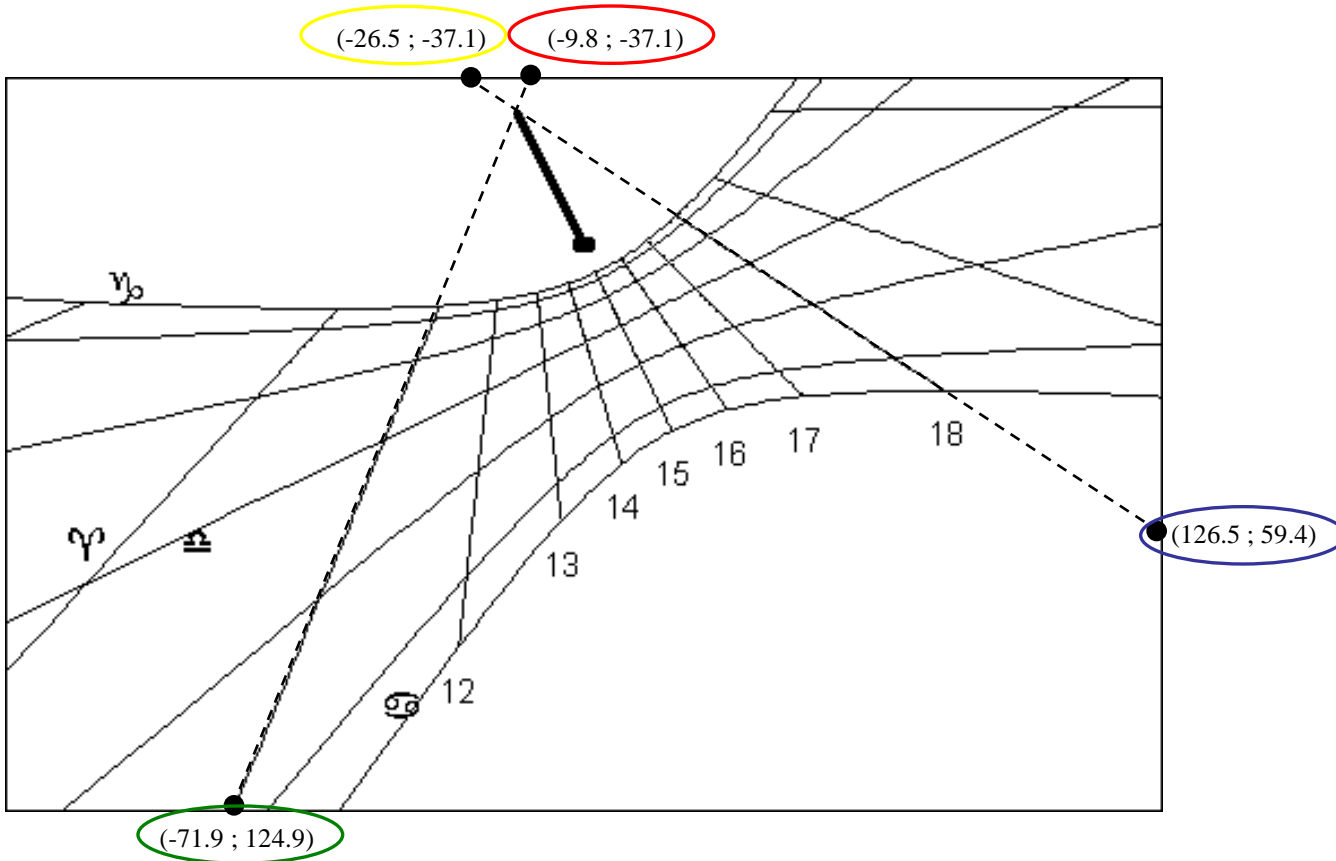
For straight lines (as french lines are) it is also possible to make use of the "angle" parameter which is the angle between the hour line and the meridian line and "distance" that is the distance from the point to the base of the polar style.

French		Winter			Equinox			Summer			Intercept 1		Intercept 2	
hour	angle	distance	x	y	distance	x	y	distance	x	y	x	y	x	y
0:00														
0:30														
1:00														
1:30														
2:00														
2:30														
3:00														
3:30														
4:00														
4:30														
5:00														
5:30														
6:00														
6:30														
7:00														
7:30														
8:00	-86.62	299.7	-312.2	-10.9							-123.5	-22.1	126.5	-36.8
8:30	-75.11	134.2	-142.8	5.9							-123.5	0.8	19.0	-37.1
9:00	-63.12	86.2	-89.9	10.4	1235.8	-1115.3	530.1				-123.5	27.4	3.7	-37.1
9:30	-51.26	65.0	-63.7	12.1	208.5	-175.7	101.9				-123.5	60.1	-2.4	-37.1
10:00	-40.08	54.0	-47.8	12.7	119.5	-90.0	62.9				-123.5	102.7	-5.9	-37.1
10:30	-29.95	47.7	-36.9	12.8	88.3	-57.1	47.9	582.5	-303.8	476.1	-8.1	-37.1	-101.5	124.9

French		Winter			Equinox			Summer			Intercept 1		Intercept 2	
hour	angle	distance	x	y	distance	x	y	distance	x	y	x	y	x	y
0:00														
0:30														
9:00	-63.12	86.2	-89.9	10.4	1235.8	-1115.3	530.1				-123.5	27.4	3.7	-37.1
9:30	-51.26	65.0	-63.7	12.1	208.5	-176.7	101.9				-123.5	60.1	-2.4	-37.1
10:00	-40.08	54.0	-47.8	12.7	119.5	-90.0	62.9				-123.5	102.7	-5.9	-37.1
10:30	-29.95	47.7	-36.9	12.8	88.3	-57.1	47.9	582.5	-303.8	476.1	-8.1	-37.1	-101.5	124.9

For straight hour lines OS gives one more possibility: <u>intercept points</u>.
These are the crossing points between the hour line and the dial border lines.
These coordinates also are referenced to the base of the orthostyle.

(-26.5 ; -37.1)   (-9.8 ; -37.1)

(126.5 ; 59.4)

(-71.9 ; 124.9)

Frer	Intercept 1		Intercept 2	
hour	x	y	x	y
0:00				
0:30				
1:00				
1:30				
2:00				
2:30				
3:00				
3:30				
4:00				
4:30				
5:00				
5:30				
6:00				
6:30				
7:00				
7:30				
8:00	-123.5	-22.1	126.5	-36.8
8:30	-123.5	0.8	19.0	-37.1
9:00	-123.5	27.4	3.7	-37.1
9:30	-123.5	60.1	-2.4	-37.1
10:00	-123.5	102.7	-5.9	-37.1
10:30	-8.1	-37.1	-101.5	124.9
11:00	-9.8	-37.1	-71.9	124.9
11:30	-11.1	-37.1	-48.7	124.9
12:00	-12.1	-37.1	-29.4	124.9
12:30	-13.1	-37.1	-12.6	124.9
13:00	-13.9	-37.1	2.6	124.9
13:30	-14.7	-37.1	16.9	124.9
14:00	-15.5	-37.1	30.9	124.9
14:30	-16.3	-37.1	45.1	124.9
15:00	-17.1	-37.1	59.9	124.9
15:30	-18.0	-37.1	76.0	124.9
16:00	-19.0	-37.1	94.2	124.9
16:30	-20.2	-37.1	115.7	124.9
17:00	126.5	109.1	-21.6	-37.1
17:30	126.5	83.4	-23.8	-37.1
18:00	126.5	59.4	-26.5	-37.1

It is possible that you are interested to a point that is not included in any of the OS available tables.
This happens f.i. if you are interested to the intersection between the meridian line and italic lines.
In these situations it is still possible to know the coordinates of that point by moving the mouse on the point and then reading the coordinates in the small box at the bottom of the display.
By zooming in, reading accuracy can be increased as desired.

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$(x, y) = (-12.93 , 46.98)$
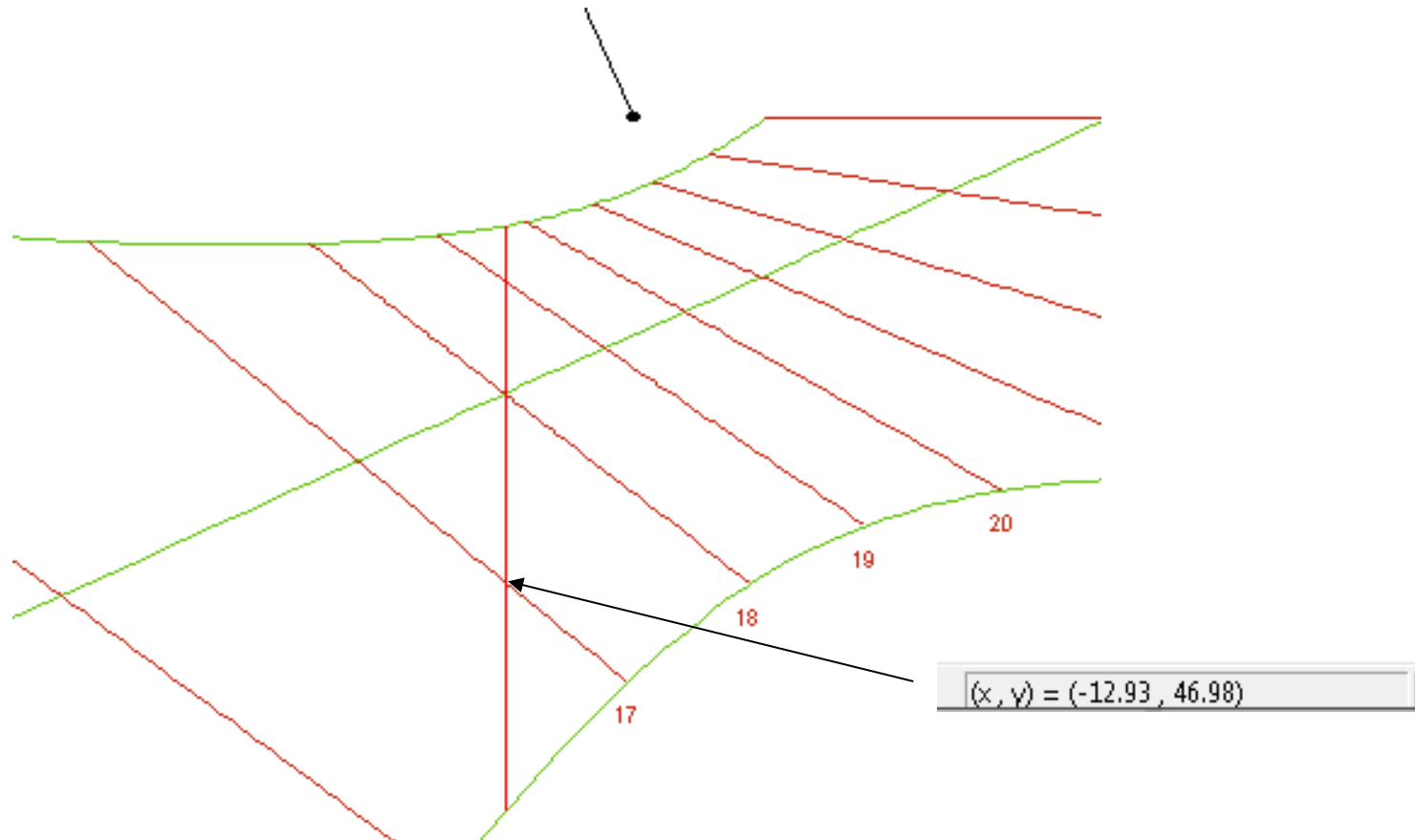
Instead of drawing lines on the wall OS permits you to have a 1:1 print that can then be trasferred to the wall.
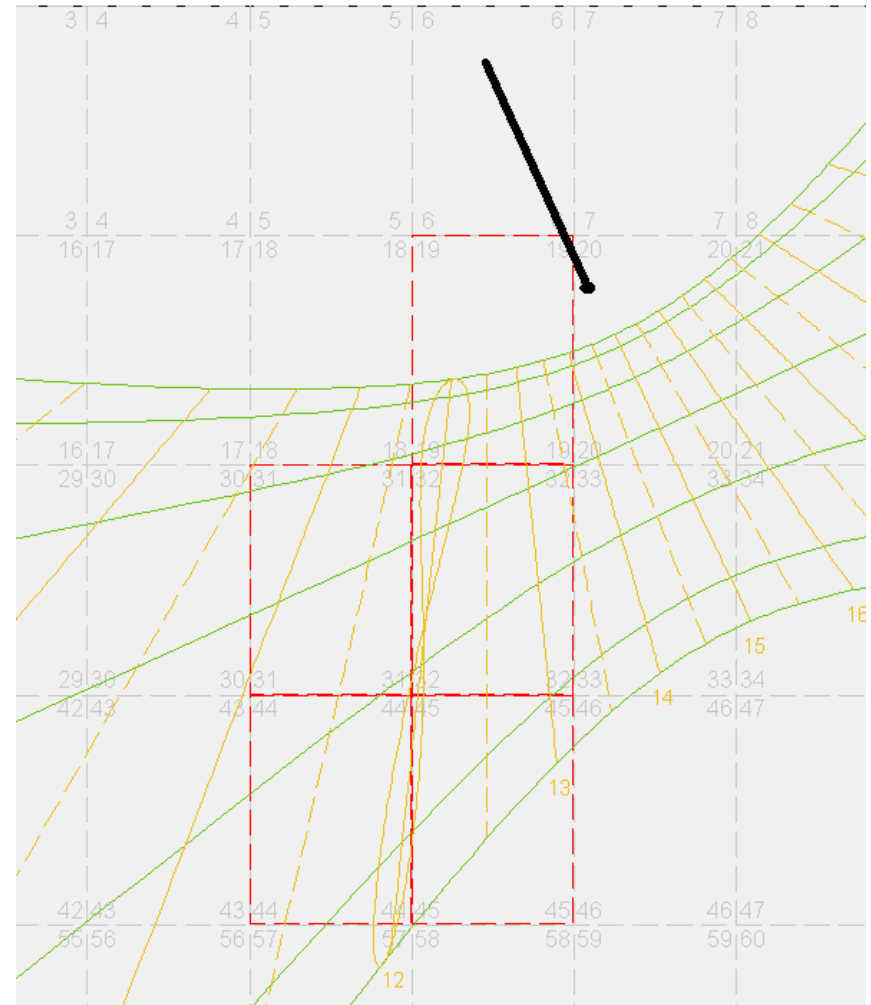The first method you can follow is to have a mosaic print.

Select "File", "Mosaic print", "scale factor" and insert the value of the dial measurement unit.

Then select "File", "Mosaic print", "Display multi-pages".

In the graph, that is now divided into pages, select with a right button click the pages you want to print.

Selected pages will then be put into evidence by a red contour.

Dimension and orientation of pages depend on the setting of the default Windows printer.

In order to print selected pages, select "File", "Mosaic print", "Print".

Each page will be printed with a reference number printed in the four angles of the page.

Paper sheets can then be connected each other in order to reproduce the complete graph.
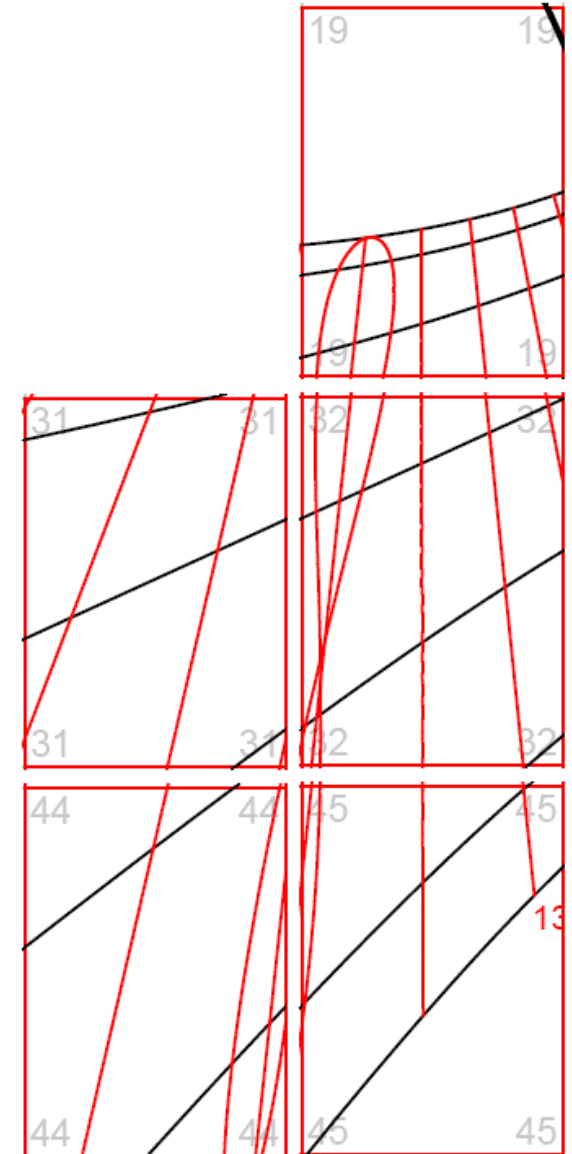
As an additional method to obtain a 1:1 printing, OS permits to export the graph into a PDF file.

Select "File", "export graphic to", "vector file", "PDF" ed insert the value of the dial measurement unit.

The PDF file can be printed in a printing center on a single paper sheet or maybe on large sheets to be connected together.
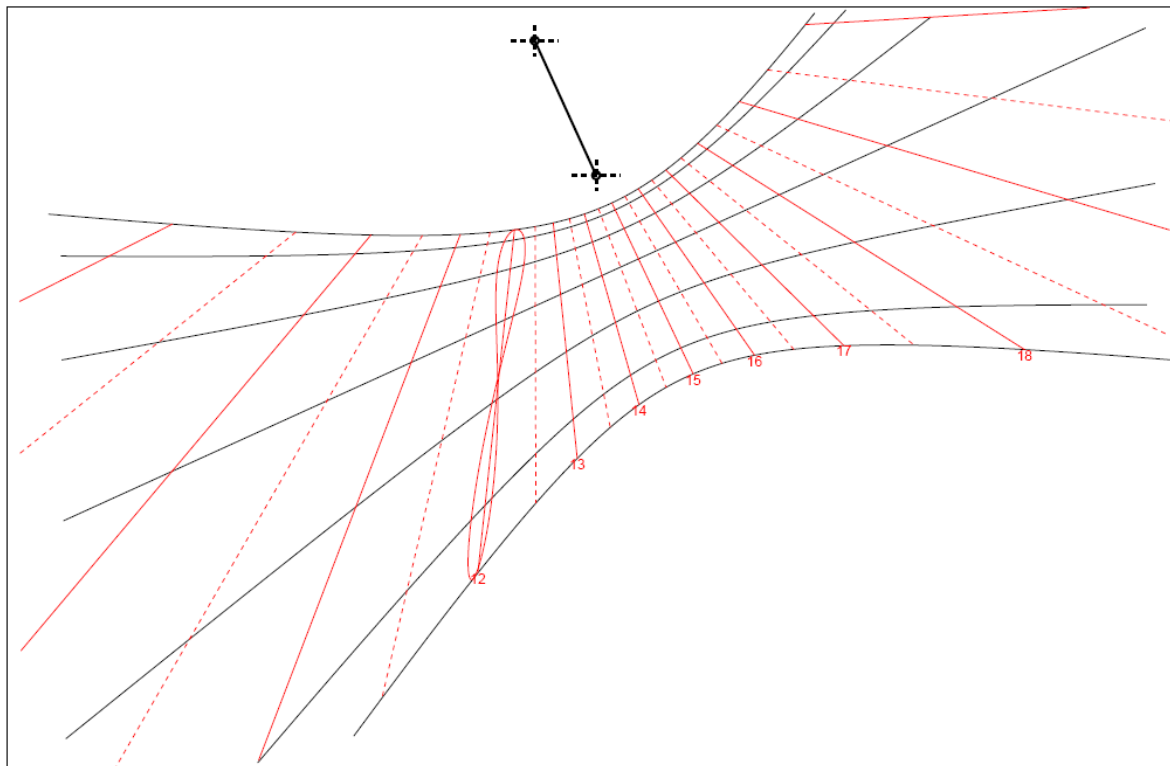
In order to transfer the graph on the wall, a method called "spolvero" can be used.

By means of a pin make several small holes in the paper sheet, one after the other, following the printed lines.

Then position the sheet on the wall taking care of the correct orientation.

Then take a cotton flock, put it inside of a cloth together with a dark powder (charcoal, graphite…) and pass it over the sheet. Gently hit over the holes in order to have the powder penetrate and mark the wall.

At the end remove the paper sheet and connect points together to have all the lines drawn.