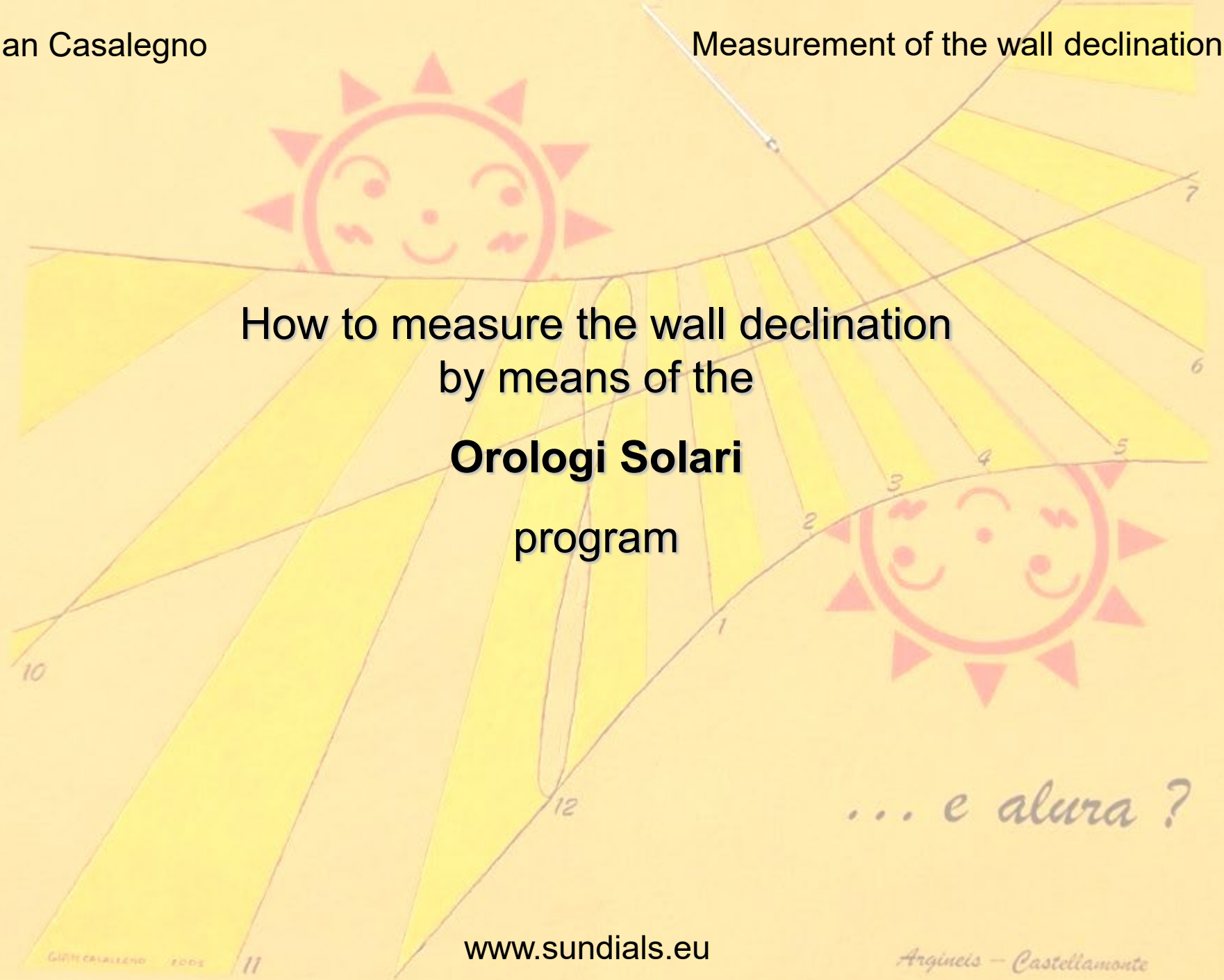


How to measure the wall declination by means of the

Orologi Solari

program

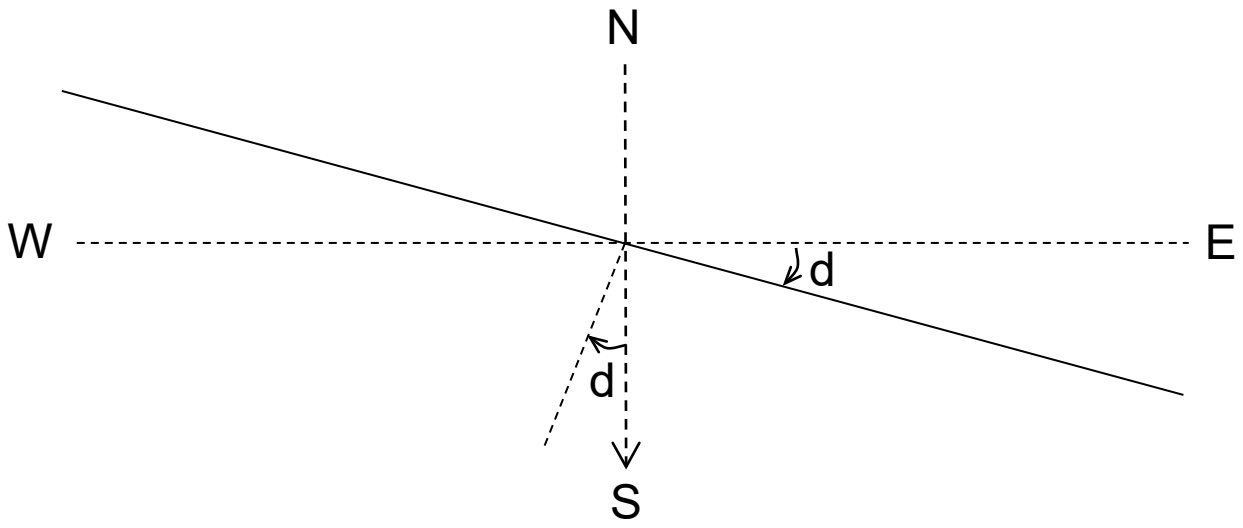
An important point in the design of a sundial is the measurement of the declination of the wall.

Orologi Solari can help to perform this measurement by means of two different methods:

- method of the horizontal table
- method of the dummy style

The following pages show how to use these two methods.

Declination of a wall is defined as the angle between the perpendicular to the wall and the south direction.



This angle is considered to be negative for a wall that is east declining, positive when west declining.

There are several different methods for declination measurement.

A widely used method is said “horizontal table method”.

Put a small table against the wall and be sure that it is perfectly horizontal.

Put a plumb line against the table.

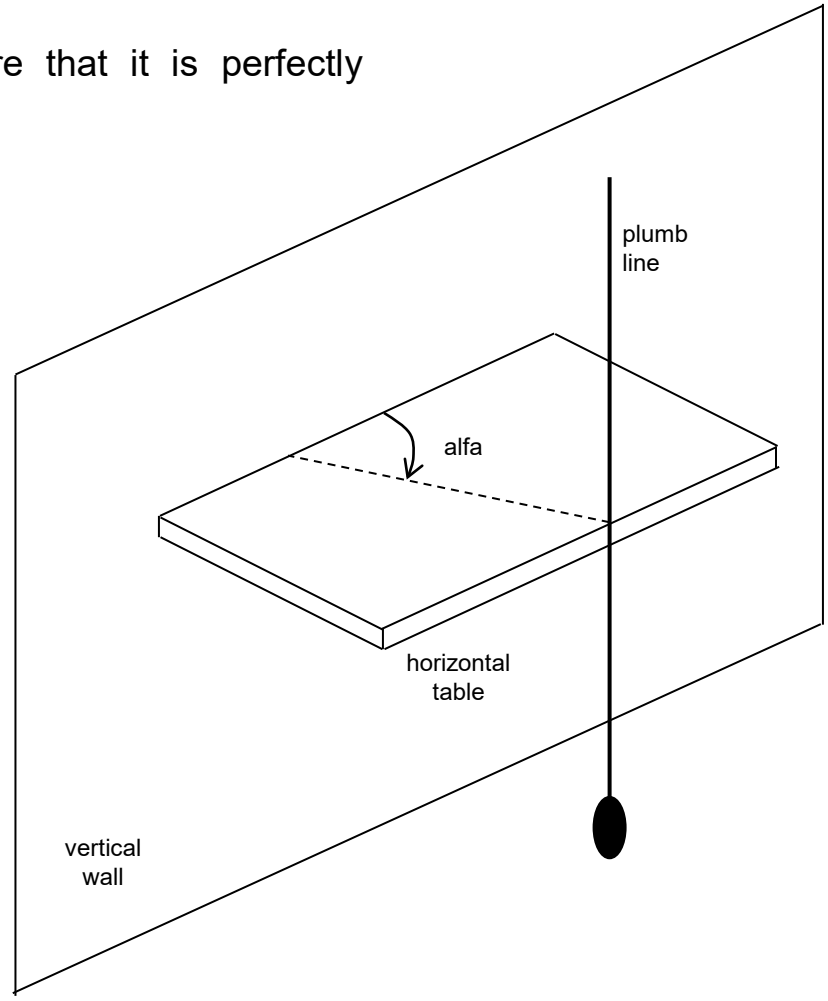
On a blank paper sheet laid on the table record the line of the wall and the trace of the plumb line shadow.

Take note of the exact time and date of the measurement.

By means of a protractor measure the angle **alfa** between the wall line and the shadow.

If the sun azimuth at the instant of the measurement is known, then it is possible to compute the declination of the wall.

Orologi Solari can perform the required calculations and provide the resulting value for the declination.



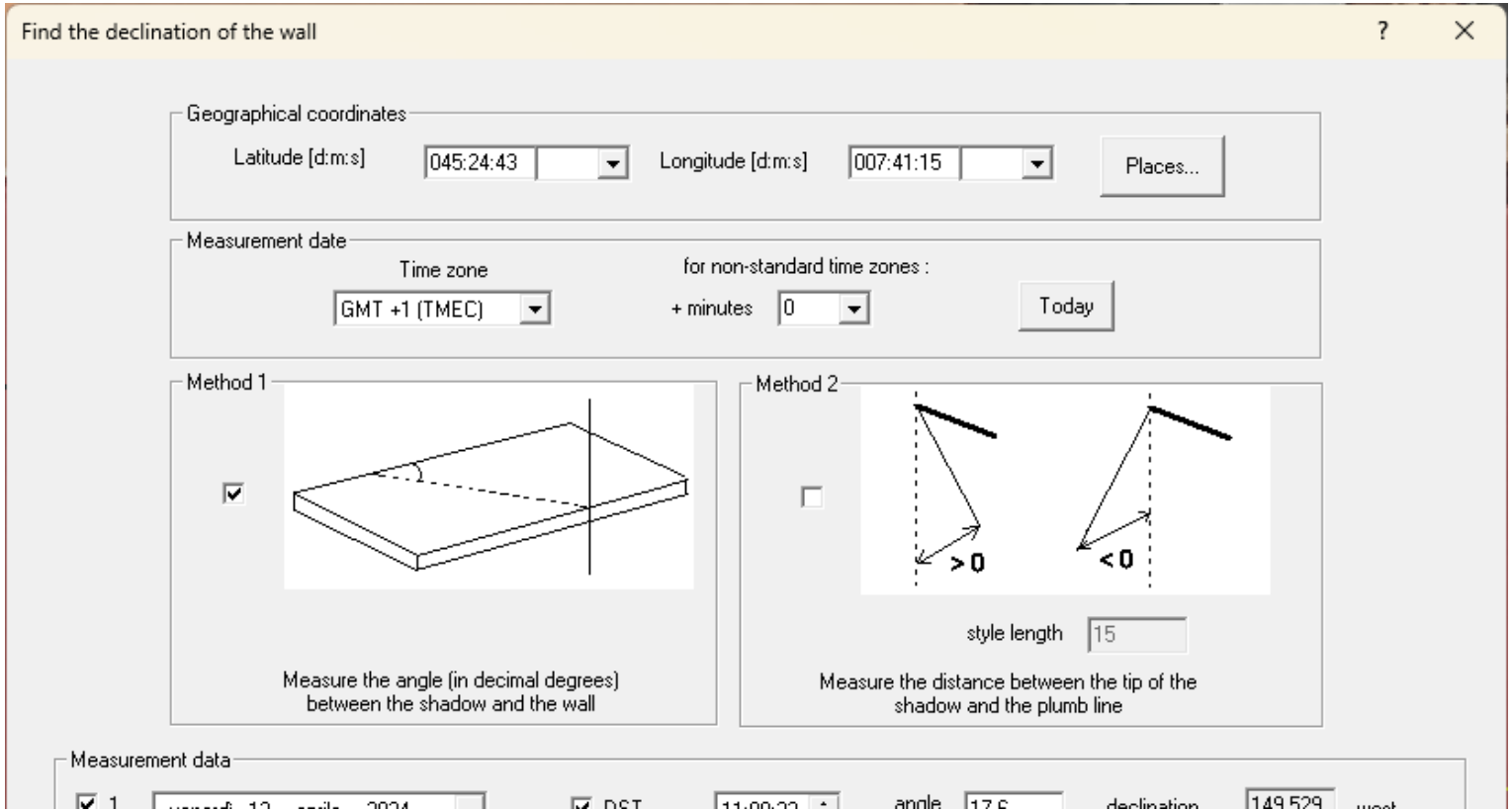
To perform the measurement an instrument similar to the the one shown here can be prepared.

Follow the following steps to compute the declination with Orologi Solari.

Run the program, select “Tools” and “Wall declination”.

In the window that is shown below insert the geographical coordinates (or select the place from the available list by clicking “Places”).

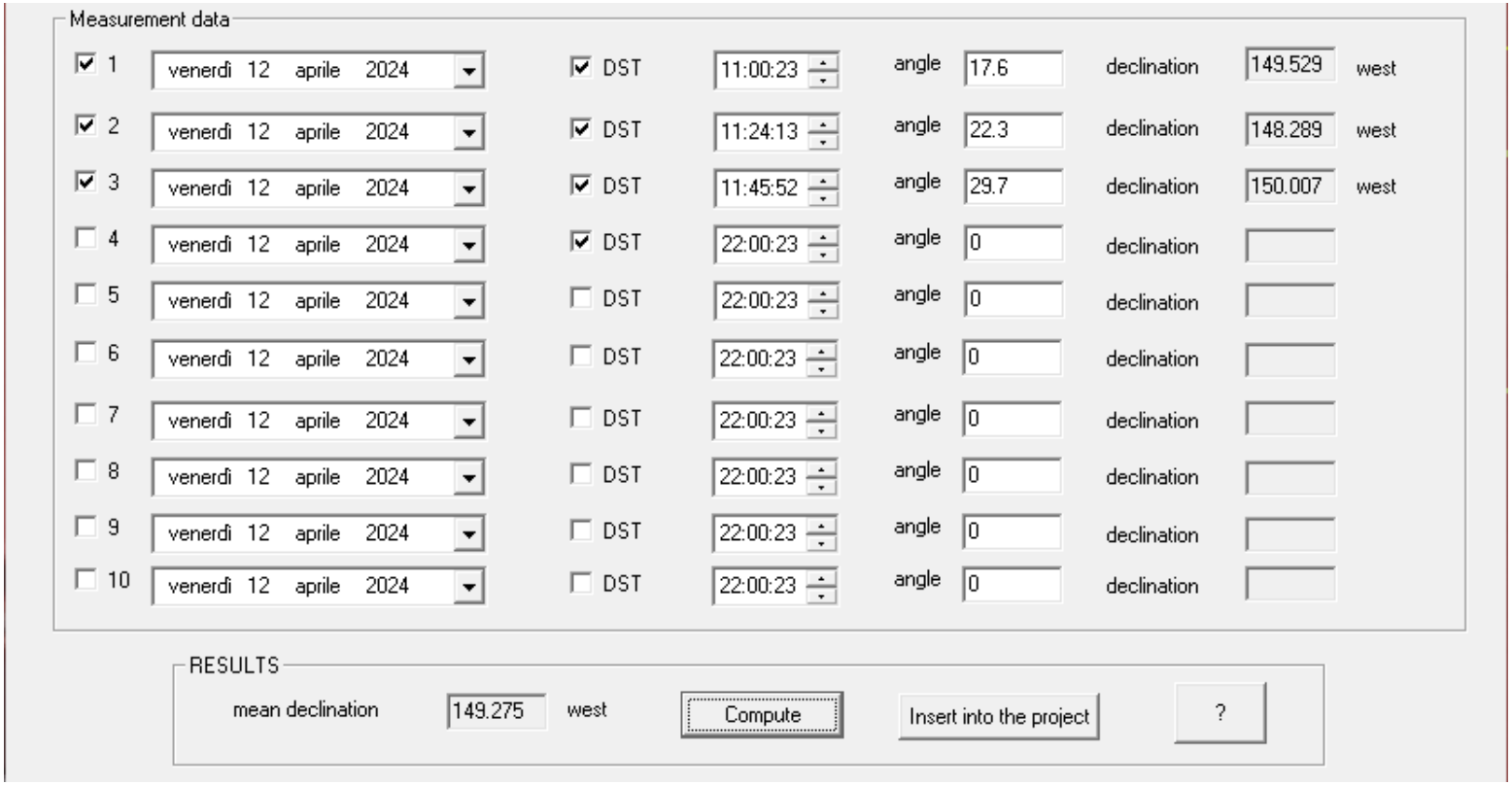
Then select the time zone for your place and the measurement type you want to use (Method 1 for the horizontal table method).



In the «Measurement data» section, enter up to a maximum of 10 measurements of the alpha angle (explained on the previous pages): date, possible use of daylight saving time, measured angle.

By clicking on the «Calculate» button, the declination value obtained for each of the entered measurements is computed. Furthermore, the «average declination» field displays the average value of the measurements.

Finally, the «Put into the project» button inserts the average declination value thus obtained into the current project.



A second method that is widely used is the so called “dummy style” method.

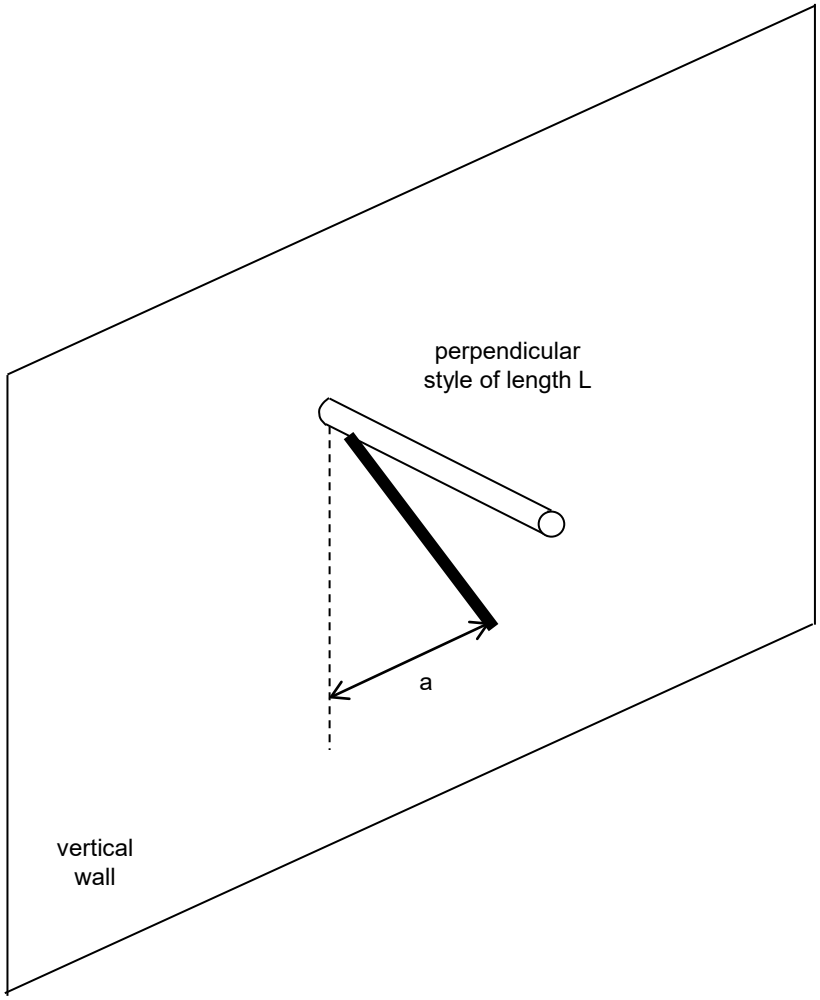
Place a style of length L perpendicular to the wall.

Measure the distance **a** between the tip of the style shadow and the vertical line from the style base.

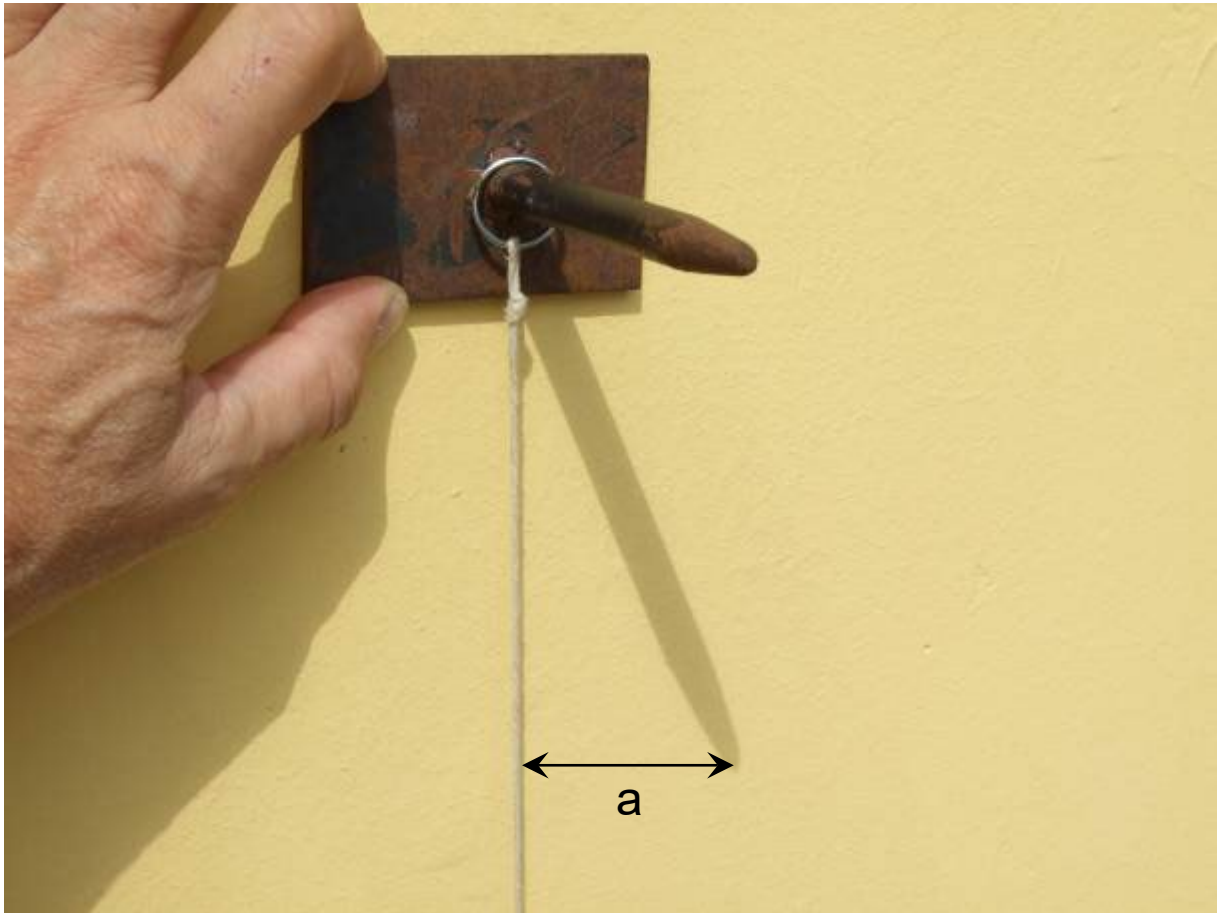
Take note of the exact measurement time and date.

If the sun azimuth at the instant of the measurement is known, then it is possible to compute the declination of the wall.

Orologi Solari can perform the required calculations and provide the resulting value for the declination.



To perform the measurement an instrument similar to the the one shown here can be prepared.

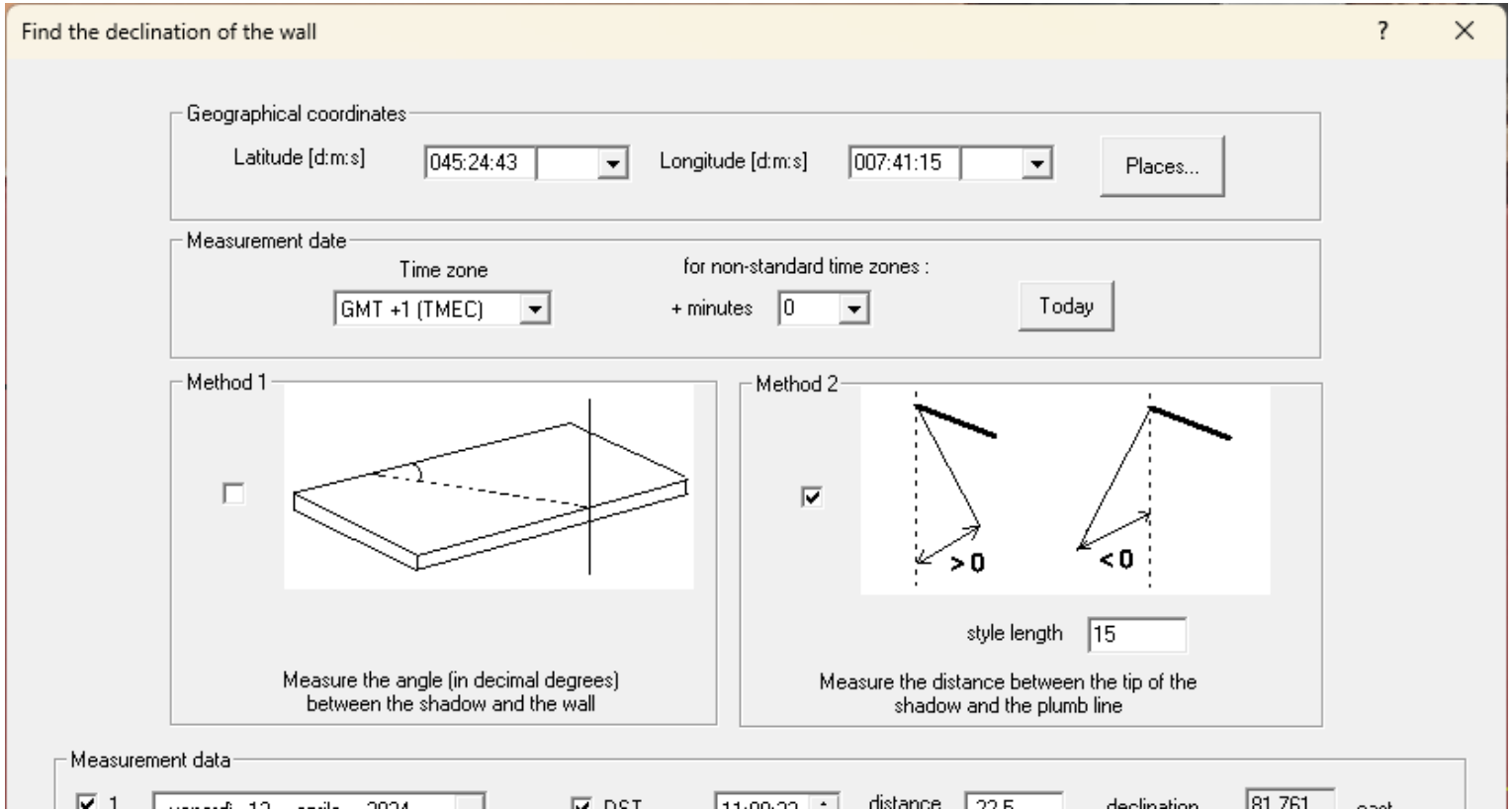


To compute the declination value with Orologi Solari execute the following steps.

Run the program, select “Tools” and “Wall declination”.

In the window displayed below, enter the coordinates of the place (or select the location from the available list by clicking on "Places").

Then select the time zone in use in your place and the method used for the measurement (Method 2 for the dummy style method). Also enter the length of the style that is used.



In the «Measurement data» section, enter up to a maximum of 10 measurements as explained on the previous pages: date, possible use of summer time, measured distance.

By clicking on the «Calculate» button, the declination value obtained for each of the entered measurements is computed. Furthermore, the «average declination» field displays the average value of the measurements. Finally, the «Put into project» button inserts the average declination value thus obtained into the current project.