

TIME

This sundial shows *solar time*. The hour marked 12 indicates solar noon – the time when the sun at this location reaches its highest elevation of the day, 1 indicates one hour after solar noon, etc. To get the time shown on your watch or cellphone when daylight-savings time is in effect, add 1 hour, 2 minutes, and 41 seconds to the solar time shown by the sundial.

Three factors relate the time indicated by this sundial to civil time -- the time indicated by your watch or cellphone. This relationship is

$$t_{\text{CIVIL}} = t_{\text{SUNDIAL}} + D - L - EOT$$

$D = +1$ hour when "daylight savings time" is in effect and 0 when not. L accounts for the difference between the longitude 89.86°W of the dial's location and the longitude 90°W used for Central Standard Time; this difference of 0.14° implies that L is 40 seconds. EOT stands for "Equation of Time." This accounts for the earth's noncircular, tilted orbit around the sun. EOT depends where the earth is in its orbit around the sun, that is, on the date, as seen in here graphically:

