

# Solar declination

The solar declination is given by:

$$\delta = 0.4093 * \sin \left( \frac{2\pi}{365} * J - 1.405 \right)$$

where  $J$  is the Julian day number. The solar declination is needed to calculate the [sunset hour angle](#). The sunset hour angle is needed for the calculation of [possible daylight hours](#).

The solar declination can be calculated with the following Python code.

[solar-declination.py](#)

```
from pylab import *
def declination(J):
    ds=0.4093*sin(2*pi/365*J-1.405)
    return ds
J = arange(1,365,1)
plot(J,declination(J))
ytext = ylabel('solar declination in radians')
xtext = xlabel('Julian day')
show()
```

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