Daylight hours

The maximum possible daylight hours can be calculated as:

$$ N = \frac {24}{\pi}*\omega_s $$

where ω_s is the sunset hour angle in radians.

The following Python code demonstrates the calculation of possible daylight hours based on the calculation of sunset hour angles that depend on the calculation of solar declination

daylighthours.py

```
from pylab import *
from numpy import *
def daylighthours(latitude,J):
    ds=0.4093*sin(2*pi/365*J-1.405)      # to be replaced by class
    sha=arccos(-tan(latitude)*tan(ds))   # to be replaced by class
    dh=24/pi*sha
    return dh
latitude=23
J=arange(1,365,1)
plot(J,daylighthours(latitude,J))
ytext = ylabel('daylight hours')
xtext = xlabel('Julian day')
show()
```