

Use the Live Editor to **edit** and **run** this live script in your browser or [download](#) and run it in your MATLAB. Use the buttons in the right margin to show the MATLAB code.

**Challenge:** Can you calculate sunrise and sunset times for your location? (hint: Use the sliders below)

## Estimating Sunrise and Sunset

Estimate sunrise and sunset times for a given longitude and latitude. Using the latitude ( $\phi$ ), the sun's declination ( $\delta$ ) and the solar time correction ( $SC$ ) we can calculate sunrise and sunset times.

$$\text{sunrise} = 12 - \frac{\cos^{-1}(-\tan \phi \tan \delta)}{15^\circ} - \frac{SC}{60} \quad \text{sunset} = 12 + \frac{\cos^{-1}(-\tan \phi \tan \delta)}{15^\circ} - \frac{SC}{60}$$

