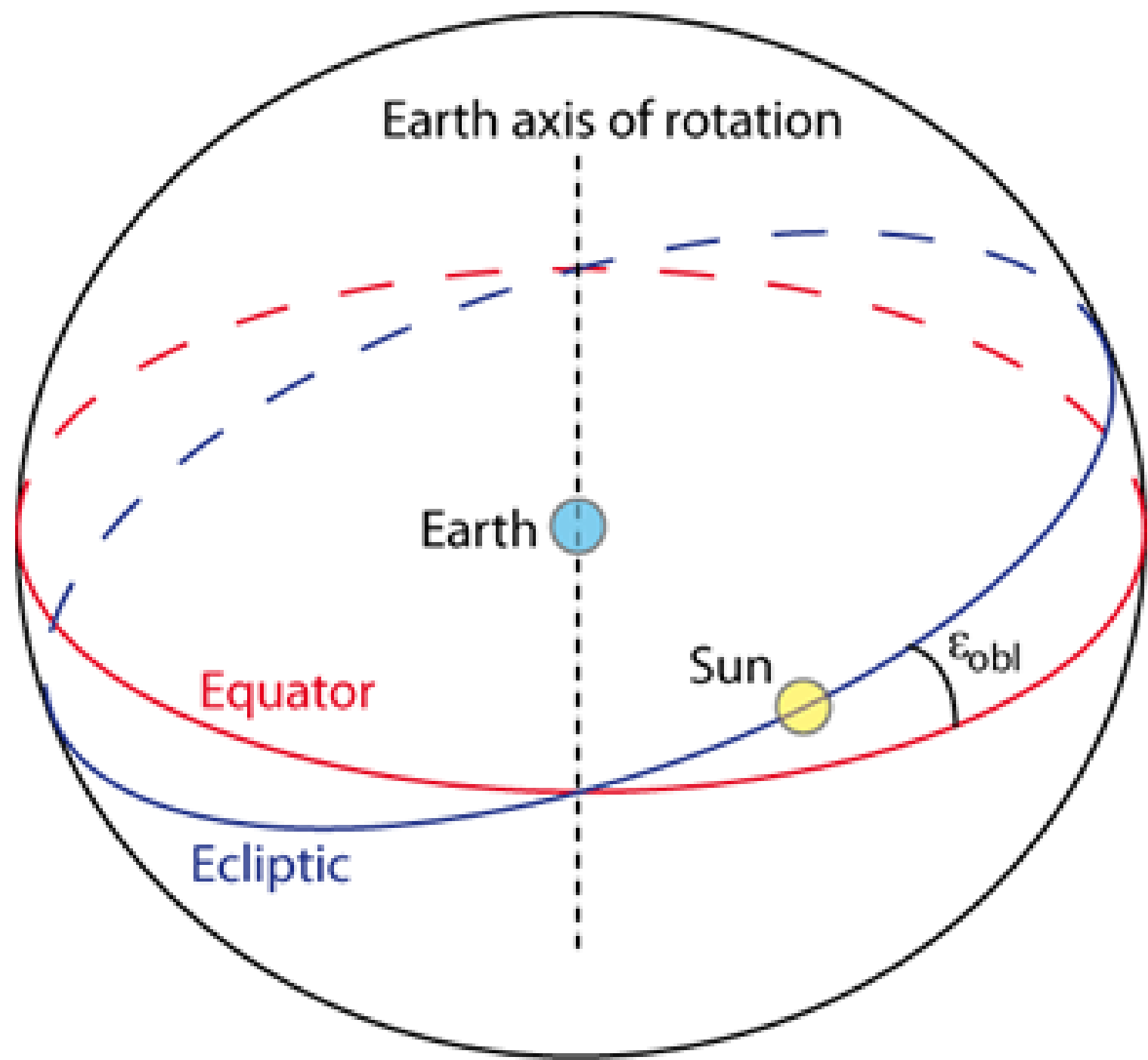
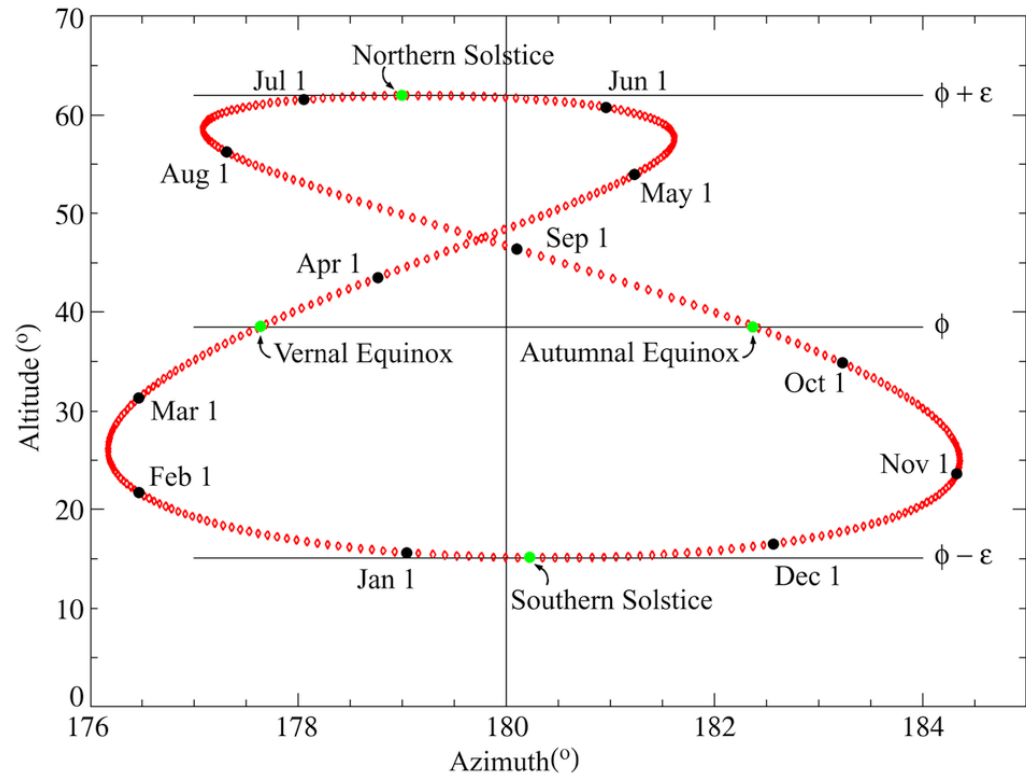
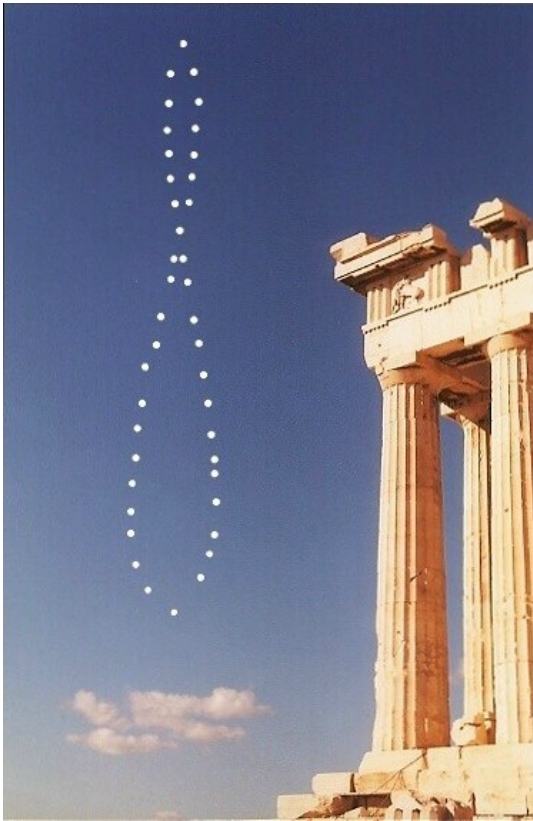


Time and Planning Observations



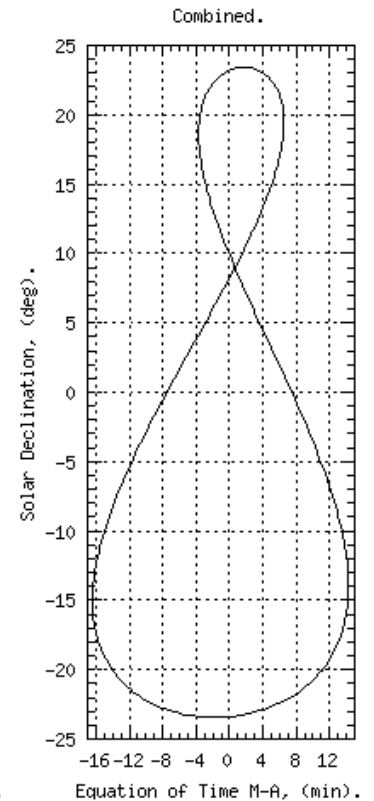
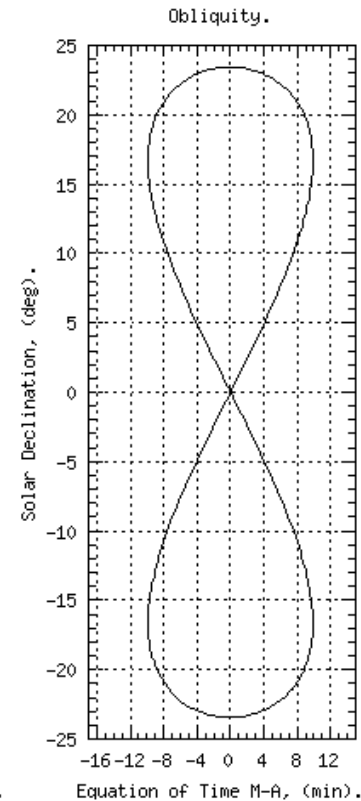
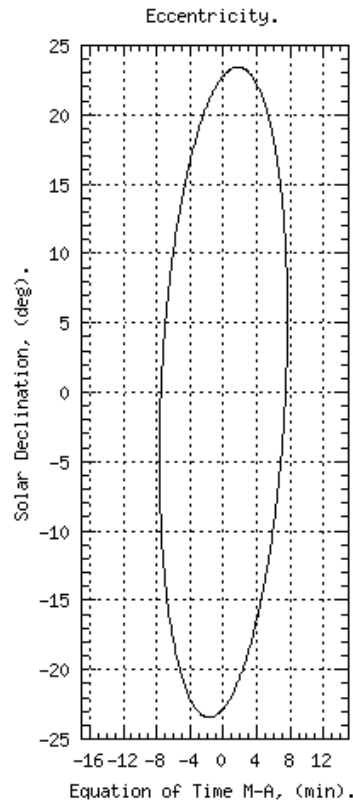
Annalemma



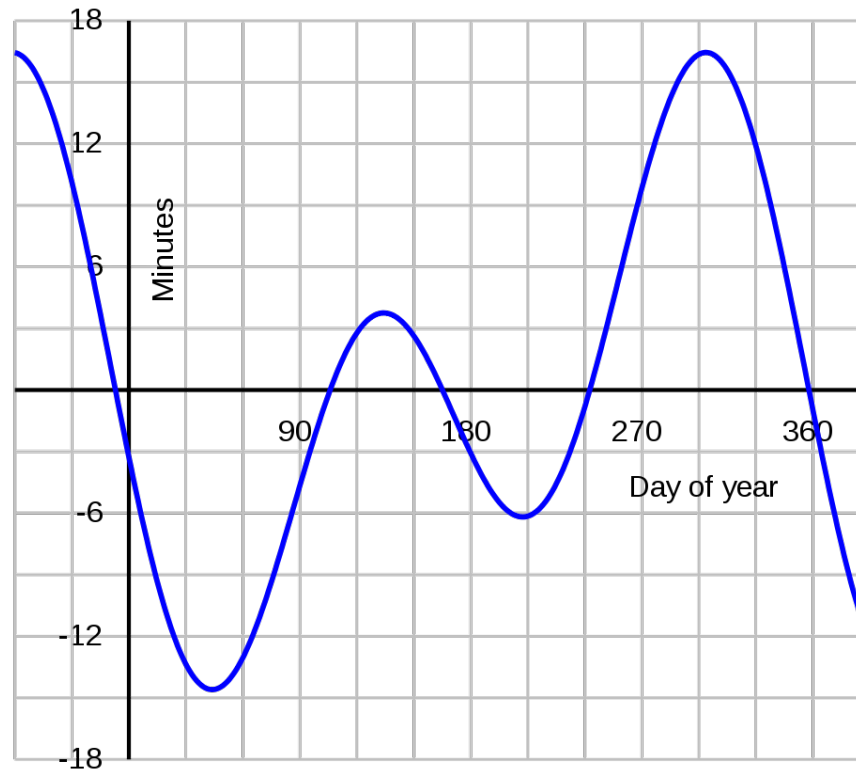
The figure you get when you take a picture every day at the same time throughout the year. Sometimes the Sun runs “fast,” sometimes “slow”

Annalema

Shape caused by:
Eccentricity of
Earth's orbit
Tilt of Earth's
axis ("obliquity")
Tilt of annalema
due to fact that
Earth's closest,
furthest distance
from Sun not
exactly at the
equinoxes.

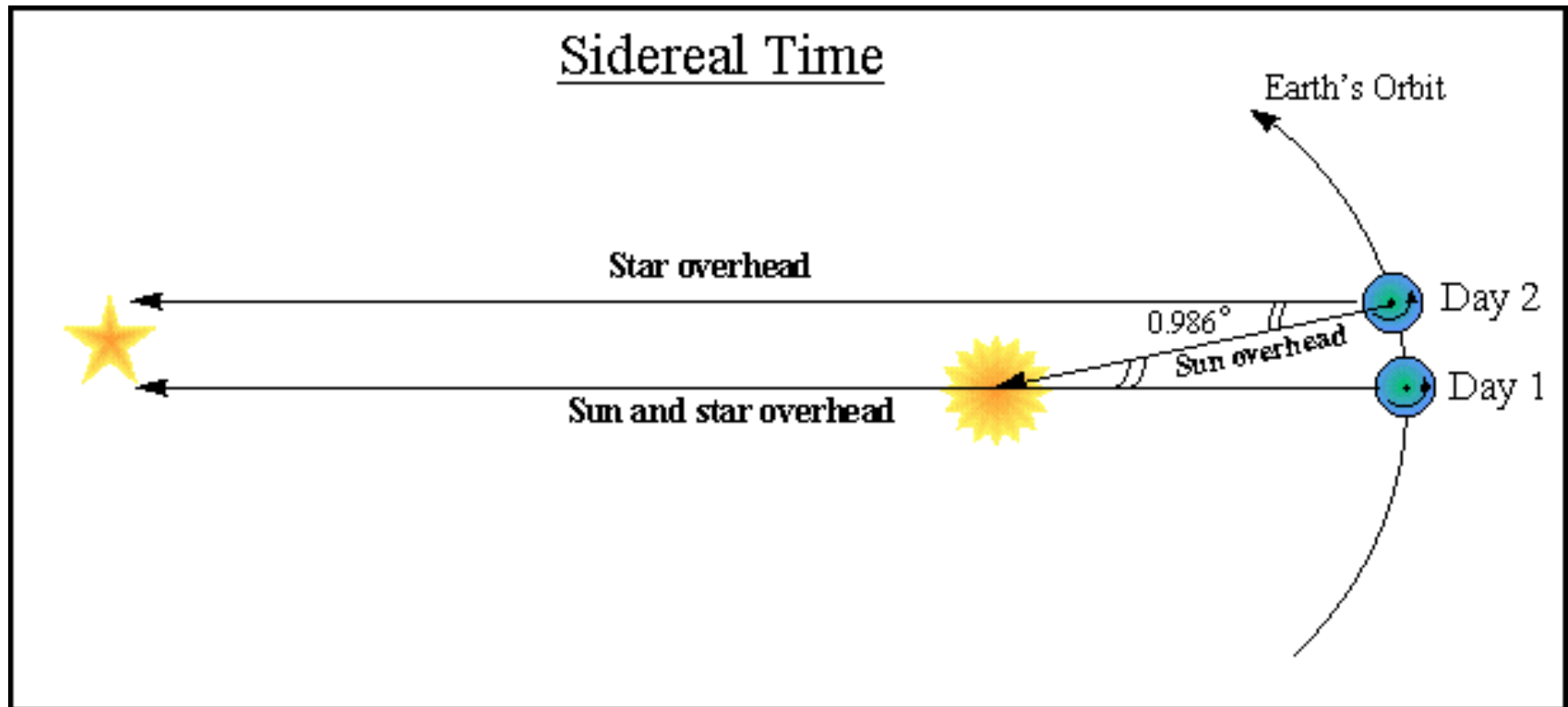


Equation of Time



Tells you the amount of time the Sun is running fast or slow (the annalema) throughout the year.

Sidereal Time



A sidereal day is about 23h 56m long.

Every sidereal day the Sun is at the same place in the sky.

The Sun is found 4 minutes of RA different each day.

2h per month = 4m per day.

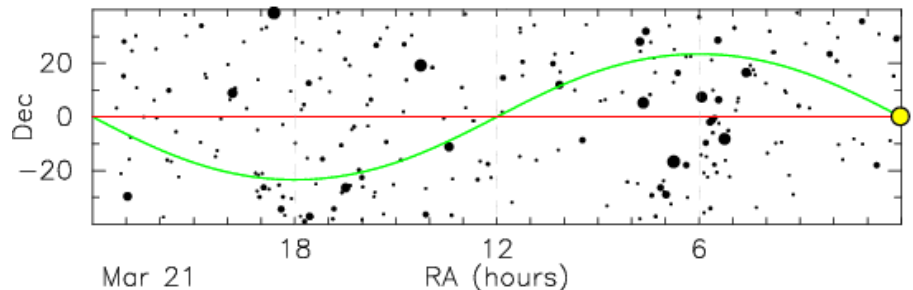
Local Sidereal Time (LST)

The RA of an object on your meridian is by definition the LST!!

$$HA = LST - RA$$

LST is the hour angle of the vernal equinox at your location

The Sun is found 2 hours advanced in RA each month, SO THIS IS THE DIFFERENCE BETWEEN LST and “normal” time!



LST Calculators

<http://>

www.iiap.res.in/personnel/reks/software/javascript/calclst.php

<http://www.wwu.edu/skywise/skymobile/skywatch.html>

Easiest to remove the longitude complication, for comprehension.

On the Vernal Equinox, at Greenwich England, the Sun is at 0h RA. The RA of an object on your meridian is the LST, so when the Sun is on your meridian (noon), the LST is 0h. LST must catch up 24 hours a year, so 6 months later on the fall equinox the LST and Solar time must be identical.

Adding longitude complicates things further!