



An easy naked-eye Cepheid variable star

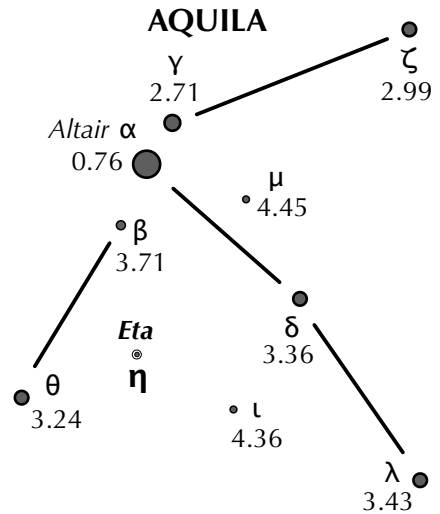
Eta Aquilae

Observing Activity



Where is Eta Aquilae in the sky?

- On summer evenings, the bright star Altair shines high in the south. (In the fall, Altair lies in the west.) It is the primary star of the constellation Aquila.
- Much of Aquila stretches southwest of Altair.
- Theta lies at the southeastern tip of Aquila's eastern wing.
- Eta is 60% between Delta and Theta.



Your Observing Project

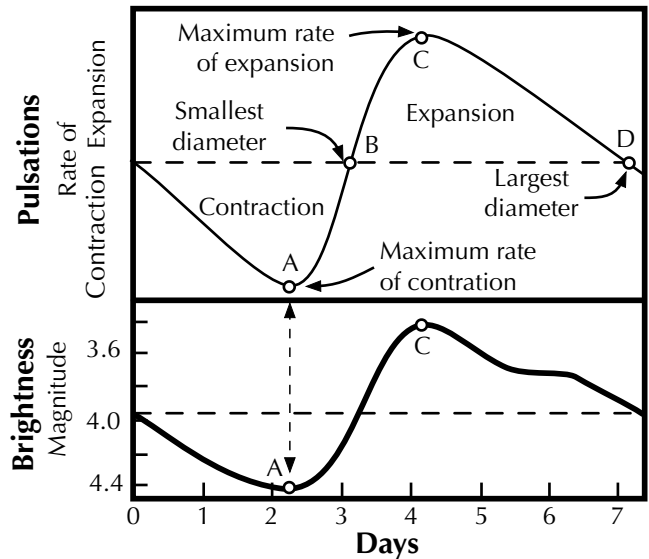
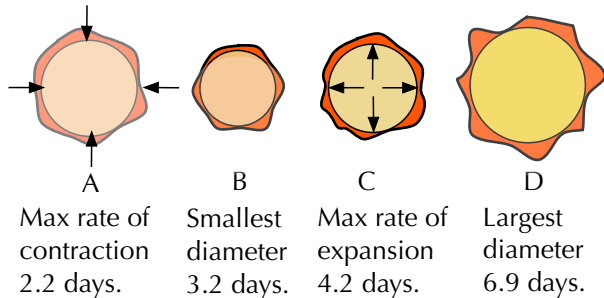


Use binoculars!

Recording your observations

- Record date and time. Convert to decimal days.
- Using binoculars will help.
- Compare the brightness of Eta with Delta and Iota. Estimate its magnitude by interpolating between the magnitudes of Delta and Iota.
3.36 – as bright as Delta
3.9 – midway between Delta and Iota
4.36 – as faint as Iota
- Plot the brightness vs. decimal days.

Pulsation Cycle of Eta Aquilae



What you are seeing

Cepheid light curve

- Rapid rise to maximum followed by a slower fall to minimum.
- In some cases, as with Eta, the descending portion shows a bump, a brief slowing decline in brightness.
- The bump is common for Cepheids with periods about 6 days. Eta's period is 7.2 days.

- Minimum brightness occurs at the maximum rate of contraction.
- Smallest diameter occurs between the maximum rates of contraction and expansion.
- Maximum brightness occurs at the maximum rate of expansion.
- Largest diameter occurs between the maximum rates of expansion and contraction.
- Only a 10% difference between maximum and minimum diameters.

Examine the Eta Aquilae reports at the American Association of Variable Star Observers:
app.aavso.org/webobs/results/?star=000-BCT-763&num_results=200