

## Northeast – 7:15pm



### Three Targets in the Northeast

- (1) Delta Cephei is near the staff of Cepheus above. It has a five-day cycle and is the prototypical Cepheid.
- (2) The Double Cluster is below Cassiopeia sitting in her chair in the center above.
- (3) The Andromeda Galaxy is in Andromeda. In the upper right is two of the four stars of the Great Square of Pegasus. Follow a chain of three bright stars from the lower-left corner of The Great Square to Andromeda's waist and knee (Alpheratz, Mirach, and Almach). Above Mirach is the Andromeda Galaxy.

Brian Hill will have the College's 7" Questar riding a MyT mount trained on Delta Cephei.

Hans de Moor will tell you a bit about the Double Cluster and have it showing in the College's newest and finest refractor, a Stellarvue 115T riding on his Losmandy GSM-8 mount.

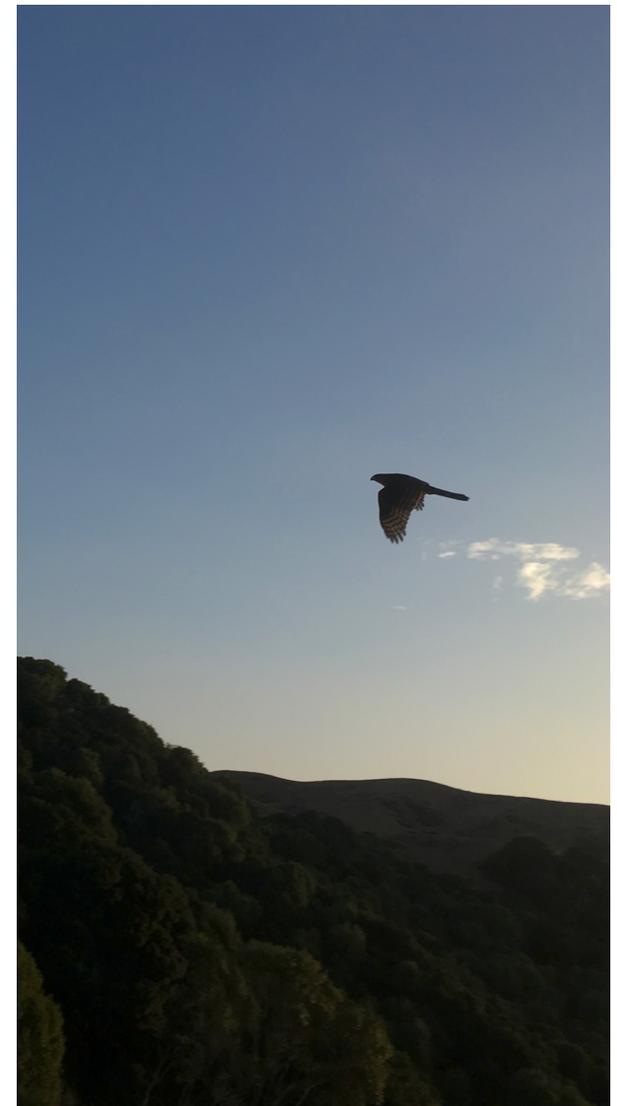
Larry Nuti will be showing the Andromeda Galaxy (M31) and possibly its smaller companion (M32) in his 10" Dobsonian reflector.

# Astronomy Night

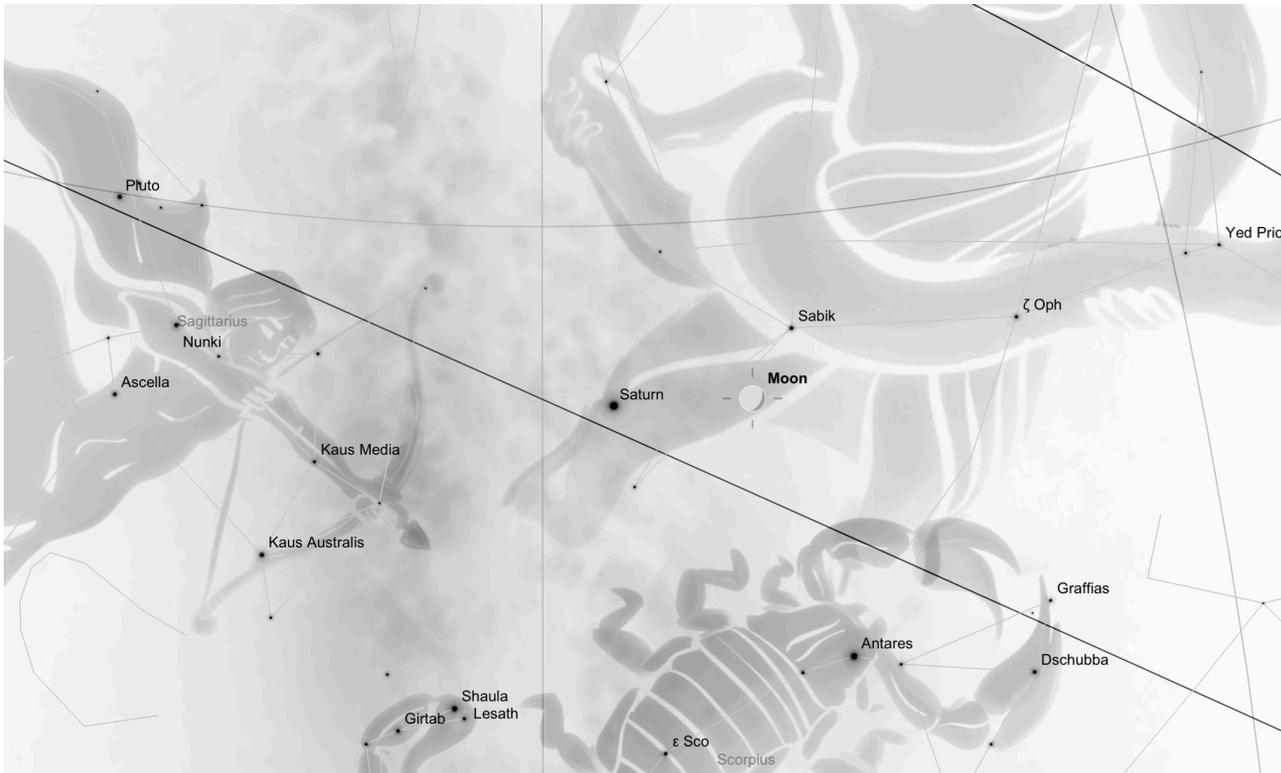
Saint Mary's College of California

SMC Observatory Pad

October 23rd, 2017, 6:30pm



## Southwest — 6:45pm



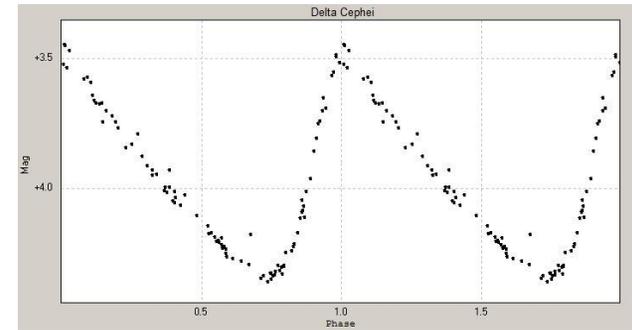
## Bright Objects in the Southwest

After the Sun has set, orient yourself by locating the Big Dipper and the Little Dipper in the north. Find Fomalhaut, solitary and bright in the southeast. Straight overhead is Deneb, in Cygnus the Swan. Deneb, Vega and Altair form The Summer Triangle. These three are bright enough to stand out even in urban locations.

Once oriented, turn southwest and compare what you see with the chart above.

- (1) The Crescent Moon is more than three days old and is in the groin of Ophiuchus.
- (2) To the left of the Moon very near the ecliptic lies Saturn.
- (3) Bright stars in this area include Antares which is the Heart of Scorpio. Antares will soon be setting behind the hills, while the three stars forming the bow of Sagittarius will stay up longer: Kaus Borealis, Kaus Medea and Kaus Australis. The bow of Sagittarius is aimed at the scorpion's body.

## The Cepheid Variables



The Cepheids were studied extensively in the early 1900s. From nearby Cepheids, such as Delta Cephei, their properties were rigorously determined.

Delta Cephei ranges by almost a full magnitude in brightness: from about 3.5 at its brightest to 4.4 at its dimmest. It does this very consistently with a complete cycle every 5.4 days.

Slowly it was recognized that there were many Cepheids, and their behaviors were extremely consistent with one another.

Henrietta Leavitt working under Edward Pickering at the Harvard College Observatory was able to make such an accurate catalog of the nearby Cepheids that when she turned her attention to the Magellanic Clouds it became possible to determine their distance.

Unlike other nebula, such as the Double Cluster, which is known to be in our own Galaxy, the Magellanic Clouds were recognized to be outside of the then-known Galaxy.

This paved the way for Hubble's discovery that we were but one in a sea of rapidly receding galaxies.