

Fundamentals of Stargazing – Month 11 Worksheet

Project #1: This month the section on deep-sky observing describes the ten best objects to see in the southern and northern hemispheres for observers in the northern and southern hemispheres, respectively. But some of these objects can be seen even if you are not deep into each hemisphere. For example, the Omega Centauri globular star cluster, a deep-southern object, can be seen by observers in Florida, which is well north of the equator. Pick a few of the objects in the deep-sky section and calculate how far south or north you would have to be (in latitude) to see each object 10° above the horizon. You can look up the declination of each object online.

Project #2: What's the difference between a Type Ia and a Type II supernova? Why can a Type Ia supernova be used to estimate distances to other galaxies?

Project #3: The constellation Crux, the Southern Cross, is not visible to observers south of about 20° N latitude. Yet the ancient Greeks, 2500 years ago, knew these stars and the stars of the southern constellation Centaurus. The latitude of Athens is about 38° N latitude. How were the Greeks able to see these southern stars so long ago?

Project #4: Comets come and go each year. There are nearly always a handful of comets visible, sometimes with difficulty, in a backyard telescope (and often in binoculars in dark sky). You can get updates on which comets are currently visible at Seiichi Yoshida's extremely useful comet web page with weekly updates.

<http://www.aerith.net/comet/weekly/current.html>

To see a comet in, say, somewhat light-polluted suburban skies, it should have an apparent brightness of at least magnitude 8-9. When you read of such a comet that is currently visible, try to find it with binoculars or telescope. If a comet is sufficiently bright, follow it from night to night and watch for changes in brightness, apparent size, and shape and length of the tail. If you can manage higher magnification, look for structure in the head of the comet, and see if it has hoods, jets, fountains, streamers, and a secondary nucleus as it brightens (this generally requires that a comet is relatively bright or close to Earth).