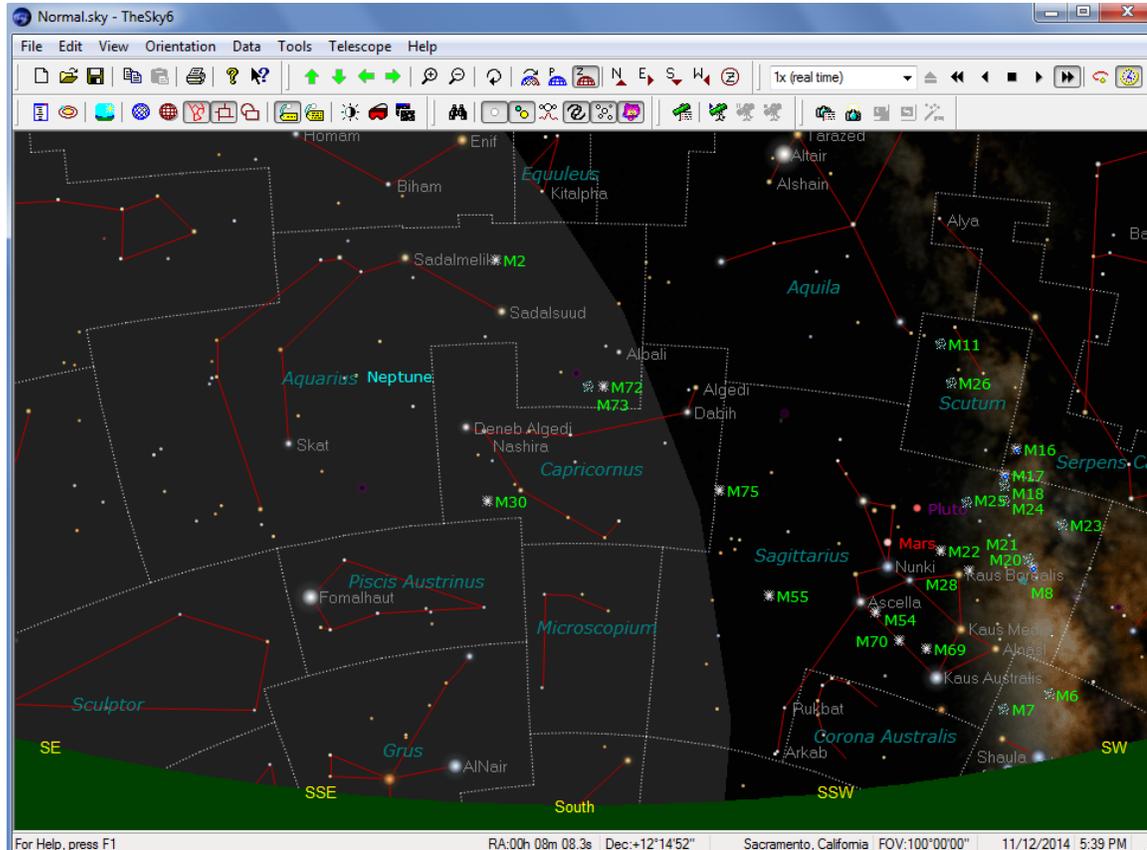# The Sky – An introduction and review

1. **Open TheSky** (version 6, the blue icon) ![icon]. The screen should show the view of the sky looking due south. Even if the sun is above the horizon, the sky will look black and show stars. The green region is the horizon and ground. Notice the viewing directions are labeled along the horizon.
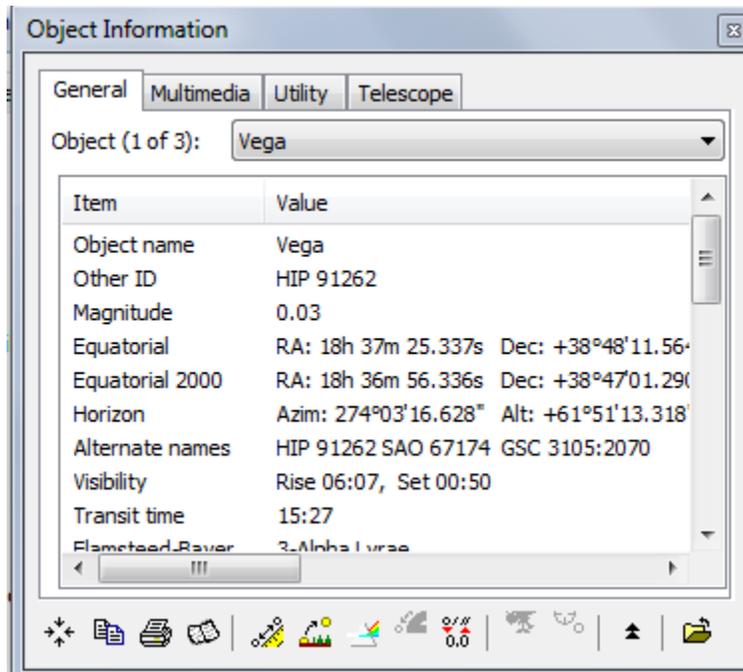

2. **Set the date and time**. For example let's set the date to 3 days from today's date and set the time to 9:00PM. This is done under the menu item Data>Time…. A new dialogue box comes up. To keep the time from drifting make sure you stop the clock Set the time to 9:00pm. Now set the date 3 days from today. Close the dialogue box. If you wish to change location, see #3, otherwise click OK (but read #3 to know how it's done).

3. If you wish to **change location**, select Data>Location. A new dialogue box comes up. Select the tab Predefined Locations. Notice that the Current City is Sacramento. To choose another city in the US, choose United States. Then you can chose from the list of cities, double click on the cities note the change in Latitude and Longitude then click OK to change locations. To select from an international list of cities, choose International (instead of United States).

4. **Moving around the sky.** Once everything is set, one can move the sky around by clicking on the Green arrow icons at the top of the screen.

   One can also look in the 4 cardinal directions of N, E, S, W. To do that click on the appropriate lettered buttons at the top of the Sky6 window.
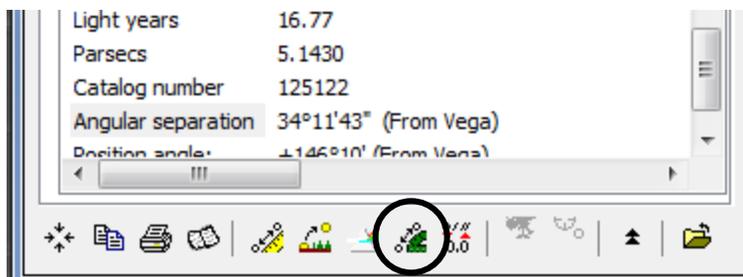
N E S W Ⓩ . The Z button means looking toward the zenith (overhead). Our "standard" direction will be looking south (S).

5. **Object Information.** Now find a named star on the screen (such as Sirius or Vega, scroll around if need be) and click on the star. A box of information appears on the screen, this is called a *dialogue box* (see below). At the top of this dialogue box is information such as the Name of the object, Magnitude, Declination, Right Ascension, Altitude and Azimuth. Within the dialogue box (where the scroll bar is) there is other info such as Flamsteed/Bayer designations and Spectral classifications, and (if you scroll down) the rise, set and transit times of the object selected. To center on the object selected click on the ✳ icon in the lower left corner of the dialogue box.

Object Information

General | Multimedia | Utility | Telescope

Object (1 of 3): Vega ▼

Item	Value
Object name	Vega
Other ID	HIP 91262
Magnitude	0.03
Equatorial	RA: 18h 37m 25.337s Dec: +38°48'11.56
Equatorial 2000	RA: 18h 36m 56.336s Dec: +38°47'01.29(
Horizon	Azim: 274°03'16.628" Alt: +61°51'13.318
Alternate names	HIP 91262 SAO 67174 GSC 3105:2070
Visibility	Rise 06:07, Set 00:50
Transit time	15:27
Flamsteed-Bayer	3-Alpha Lyrae

A Dialogue Box

6. **Finding the angular separation between two objects**. Now select a second named star and click on it. Another dialogue box appears with information about that star. Click on the green protractor at the bottom of the dialogue box. When you do so, you'll see highlighted within the dialogue box the angular separation (in degrees, arcminutes and arcseconds) from the object you have currently selected to the object you had most recently selected.

| Light years	16.77
Parsecs	5.1430
Catalog number	125122
Angular separation	34°11'43" (From Vega)
Position angle:	+146°10' (From Vega)

7. **Finding an object.** Instead of randomly searching for an object using the scroll bars (or arrow icons), you can find a desired object by hitting the F key and typing its name into the Find box. Alternatively, one can click menu item Edit>Find or click on the Find icon ⚏. Find either M27 or M42.

8. **Changing the View.** TheSky has two views of the sky which are accessed by the [P] [Z] buttons at the top of TheSky window. There is one called Zenith Up (Z) in which the horizon is visible (this is the default). The is also a view that has the North Celestial Pole Up (P) and orients the stars like they are on your SC001 chart and removes that horizon. This can useful if you wish to view an object that winds up the below the horizon.

9. **Zooming in and out.** To zoom in or zoom out of the star field, click on the appropriate magnifying glass icon ⊕ ⊖. To zoom in on a specific star/object/location, either click on the object or Find it (see #7 above) and then use the centering icon ⛶ in the dialogue box. Now zoom in on the object.

10. **Filters.** Right Click on a star that is not connected to a constellation line or inside a nebula. When you do you should get the following menu which includes Display Properties of Star. Select that and this should appear:
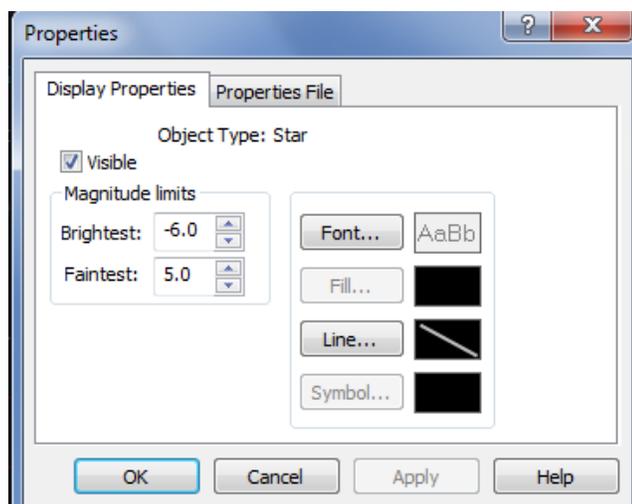
This allows you select which objects will appear on the screen and set how faint of stars will appear on the screen. The Faintest magnitude of 5.0 is a good limit, but if you wish to see more stars set that to a higher number. Setting it to 30 will show all the stars. Some of the fainter stars will not appear until one zooms in closer. You can change other properties (such as constellation boundaries or constellation figures) by right clicking on them.

To toggle the labels, press the label icon 🏷️ 🏷️

11. **Time step feature**. One can step forward or backward in time by using time step buttons (located just above the stars on the upper, right side). The default time step is 1x (real time). Change this to one hour (by clicking on the ▼ next to the time interval and selecting "one hour"). If you now press the ▶ button, the sky will advance one hour. If you press ⏩ the sky will march forward continuously at one hour per frame. Pressing ◀ will cause the sky to step backwards and ⏪ will "play" the sky backwards. The time interval can be changed by selecting a different interval (by clicking on the ▼ next to the time interval) and/or typing in a new time interval. For example, if you wanted to choose 2 hours to be your interval, change 1 Hour to 2 Hour. This is the easiest way to go from say 9PM on a certain night to 11PM on that same night (as opposed to going to setting the date and time as in # 2.

Close the program and <u>do not save</u>.