# Intro to Cartes du Ciel

Cartes du Ciel is free software available for download on the Internet and you may acquire for your personal use the same version that we use in this lab by visiting the Cartes du Ciel website. Installation is straightforward and takes only a few minutes. The documentation, as with much open source software, is not as detailed as that provided with programs that you pay for, but we've found Cartes du Ciel to be well-featured and relatively easy to use. We recommend Cartes du Ciel to anyone who's looking for desktop-based planetarium software on a budget. We hope that your will find this introduction to Cartes du Ciel to be a useful takeaway from today's lab.

To use Cartes du Ciel for this exercise open the program and click **Setup** on the menu bar that runs along the top of the screen, then select **Observatory** from the pull down menu. Make sure that the latitude, longitude and Time zone are all correct for Ann Arbor (shown right). Once this has been done close this box, select **Setup** once again, and this time select the **Date/time** option from the pull down menu. Uncheck the **Use system time** box (if it is checked) and then click the **Tonight** button. This will create a chart of the way that tonight's sky will appear shortly after sunset based on the computer's system time and date (make sure that these are correct).
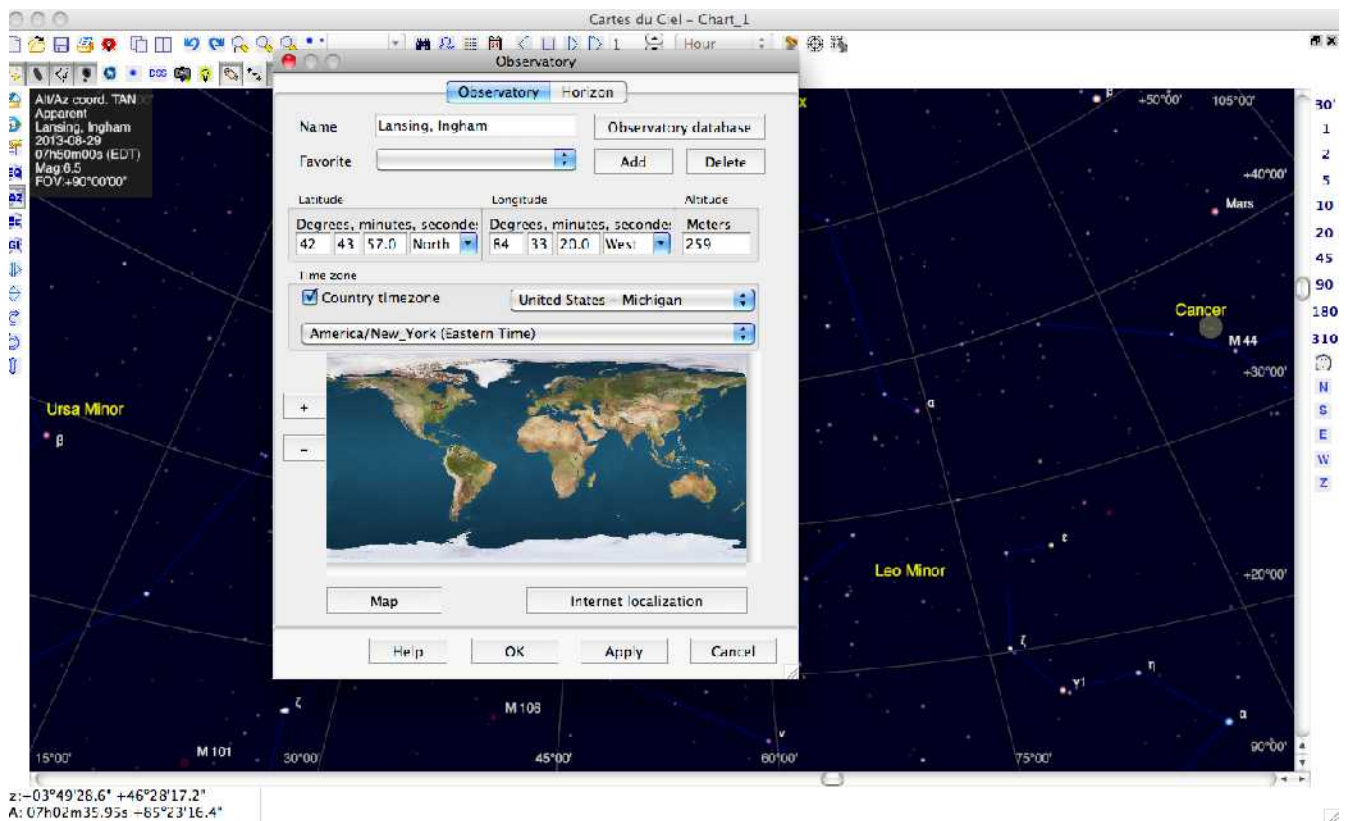
Next make sure that the display menu (on the bar below the menu bar) has the same items selected as shown in the screen shot below. The sky should have a color close to black if everything is setup correctly and the system time and date are correct. Locate the **increment** and **decrement** buttons near the center of the menu bar and make sure that the increment/decrement settings are 1 hour (as shown below). Decrement the chart 1 hour by clicking the decrement button and the sky color should lighten. This indicates that the chart is set to display the sky at twilight. One more decrement should lighten the sky to its lightest blue, indicating very early evening. The twilight time on *Cartes du Ciel* (displayed as local sidereal time near the upper left of the chart) should correlate with the predicted time of sunset you obtained using your Planisphere. You'll want to begin your search for visible planets during this time.

Consider where planets would first appear in the night sky – somewhere along the ecliptic. Use the **E**, **S** and **W** buttons on the right side of the screen to toggle between these quadrants of the sky. These are your **Cardinal Points**. The ecliptic should be visible in all three of these quadrants. Are any planets visible anywhere along the ecliptic at this time? If so are they close to the sun? You'll have to use the planet visibility chart along with distance from the sun to estimate if planets are visible during twilight. Only the brightest planets will be visible if they are close to the sun during twilight (or dawn).

Now use the **increment** button to scroll through the night hour by hour, examining the East, South and West quadrants each time, observing any planets that appear along the ecliptic during the night. Do this until dawn. Note that we are not interested in the north quadrant of the sky. Why is this so?
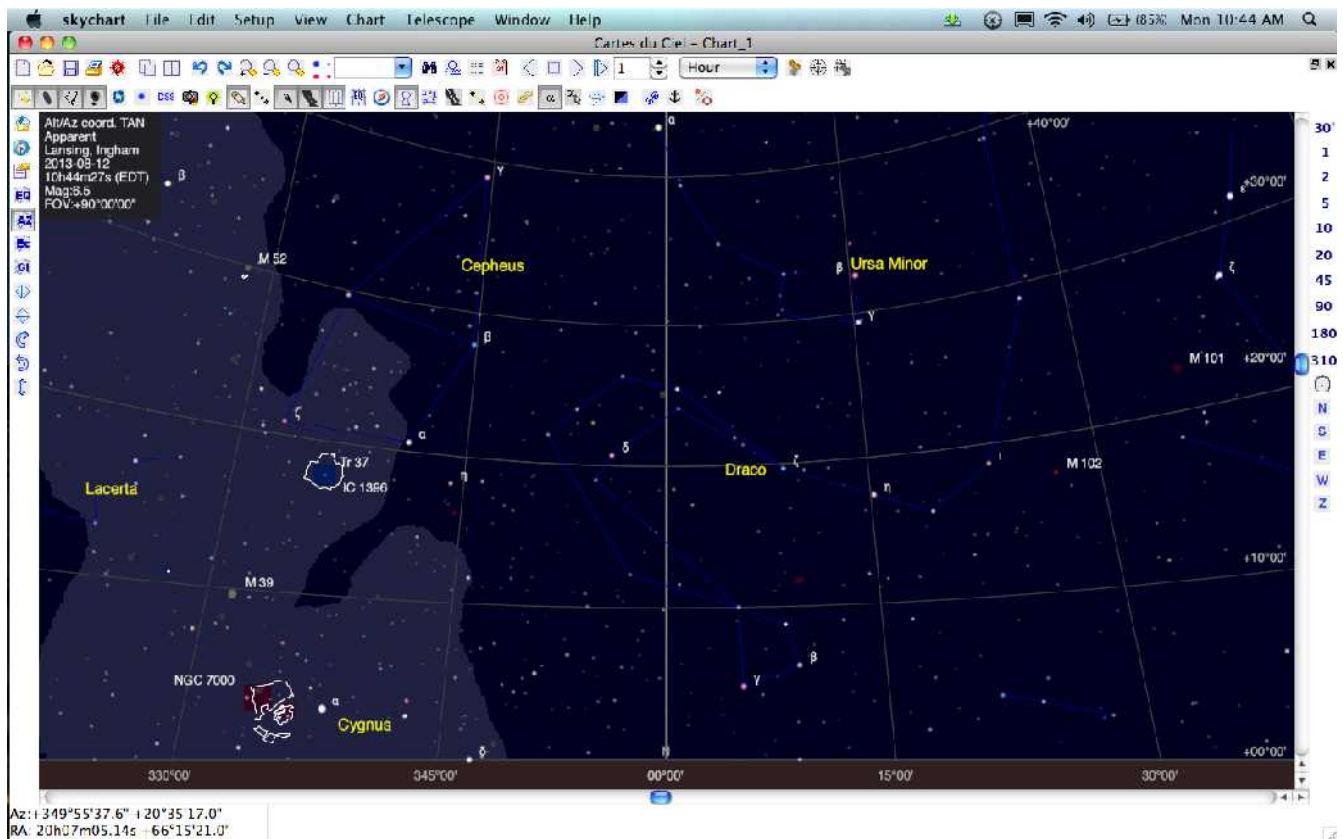
When you need to find an object you can use the search function. From the edit menu use the advance search.
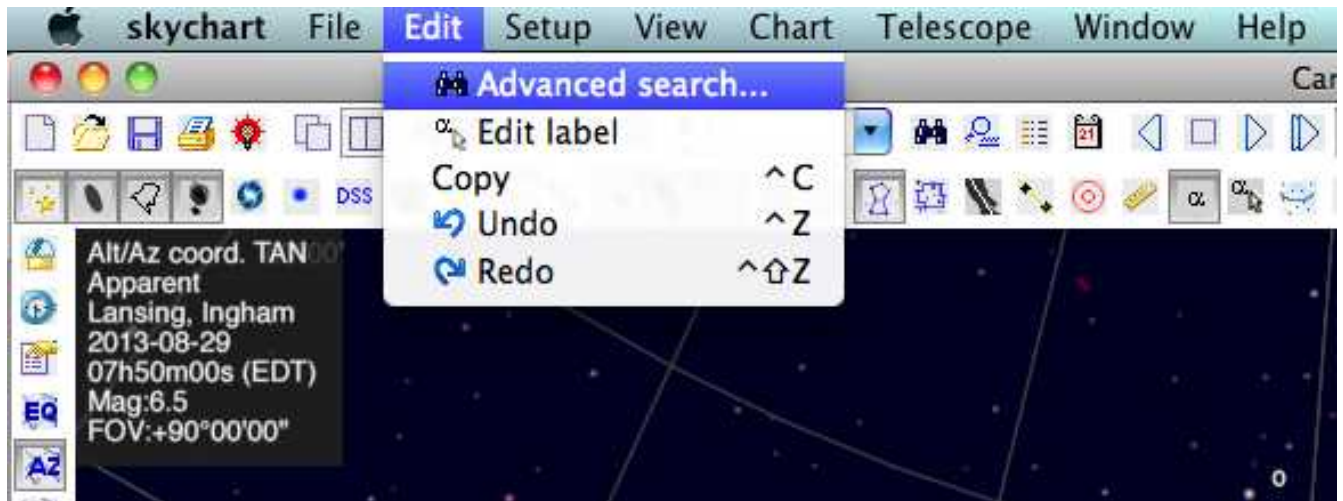
Search for Polaris, the north star.
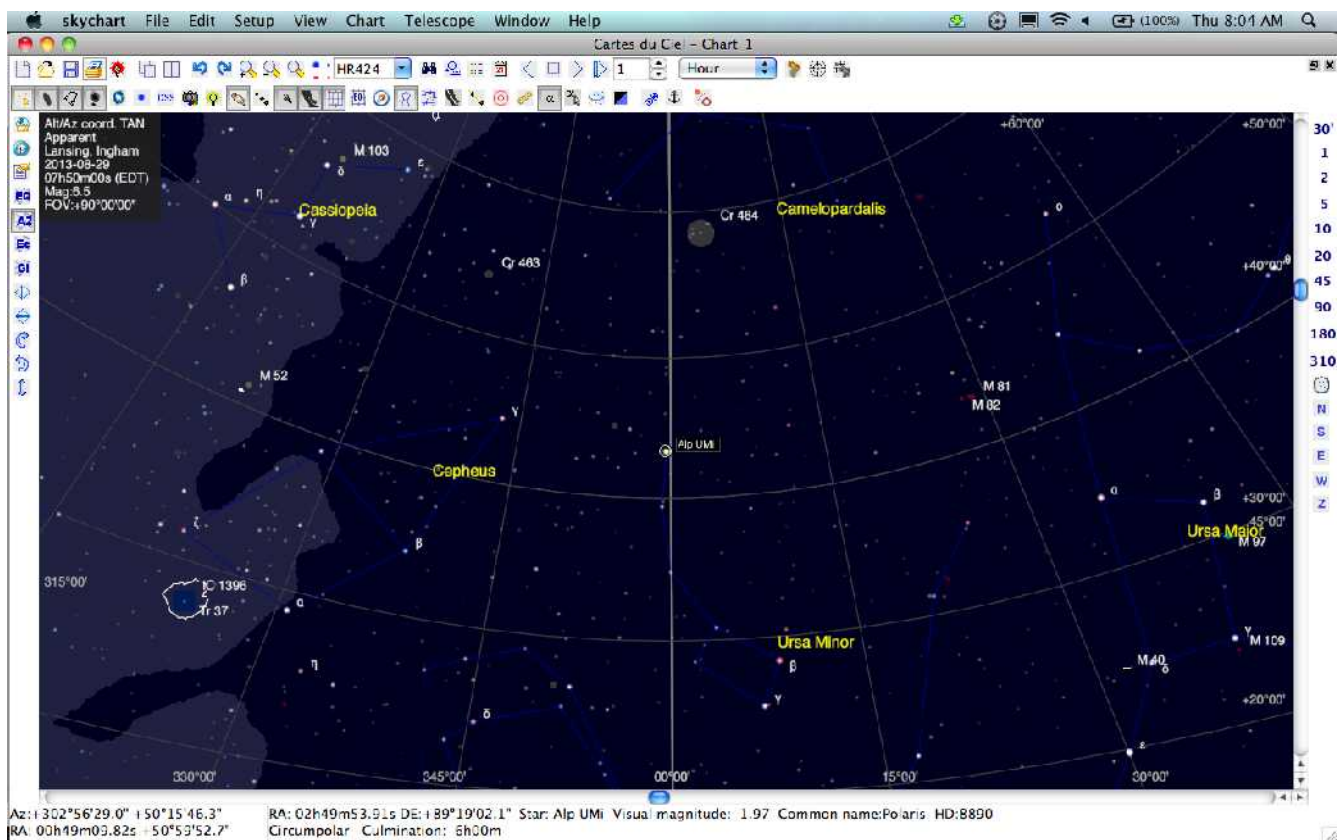
At the bottom of the screen is information about the object.

Now find the following objects: (Write down their information on each object)

1) Orion Nebula
2) Mizar
3) M51
4) Regulus
5) Spica
6) M86
7) M101
8) Capella
9) Alcor
10) Swan Nebula
11) NGC 1981
12) Andromeda Galaxy
13) Vega
14) Cygnus X-1

Zooming in on an object can show objects that are further away. The objects that are on the screen have a limiting magnitude of 6.5 . Your eyes in the darkest areas of the world can see down to magnitude 8. Most urban area are only 3.0!

To zoom look for the

or make a "drag box" on your screen and click return. You only have certain catalogs of objects on your computers. You can not zoom out to the edge of the known universe.

Go explore the program. **Please do not save** at the end when you close the program.