

Cheap Observer's Report Planetarium Programs

By Alex McConahay

Last month's Cheap Observer column was about paper and ink star atlases. This month it is about computer programs that do the same thing (and a lot more).

Computer star atlases are commonly called "planetarium" programs for obvious reasons.

They certainly have several advantages over the traditional ink and paper versions.

- You can change their scale, allowing you to zoom in on a small area, or step back for a wide view.
- You can enter the name of an object, and the program will find it and display it.
- You can click on an object, and its label will pop up, usually accompanied with data regarding its precise location, rise and set times, what catalogues contain it, its common and other names, magnitude, distance....and sometimes a photo.
- You can use colors to highlight different types of objects, or even color of stars
- You can decide what you want to see (constellation borders or stick figures, RA Hours/Dec lines, labels)
- You can decide what type of objects you want displayed (turn on solar system, or asteroids, or stars down to sixth magnitude or twentieth—it is your choice)
- You can customize to your location and equipment, asking it to show the field of

Google offers a version of a sky atlas at <http://www.google.com/sky/>. They have patched together thousands of sky images that you can navigate just like Google Earth. You can zoom in and out, change to different spectra (infrared, visible, rX-ray), display the constellations and other things. Not too handy in the field, but fun to play with.

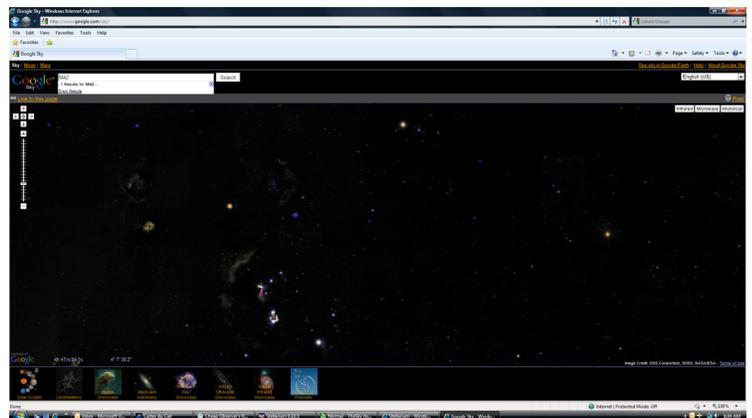
- view of your camera, telrad, or scope.
- You can add catalogues to get more and different types of objects.
- You can change the date, time, and location to see the sky as it will look as the various objects (or the observer) move around.
- You can print out customized star charts with just what you want.
- You can update with new asteroid or comet-discoveries, and other details
- You can control your telescope

On the other hand:

- They take some electricity to run
- They have relatively small displays
- They require some relatively delicate equipment (a laptop compared to a map book)
- They can't (easily) be held over your head!!!

Just gazing through the list of pluses and minuses, it appears that the laptop and planetarium program easily wins. But, those minuses can loom pretty large out on the observing field, and there is still a place for the ink and paper star map.

If you google "Free planetarium software" you will find page after page of links. One of those links <http://freeware.intrastar.net/planetarium.htm> contains at least 22 free programs to load into your computer. The web page comments on the strengths of the various programs, and provides links for downloads. I won't try to repeat that here.



I have not tried most of those programs, and really do not intend to. I use my old reliable The Sky. So old and reliable I am using release 5, some two releases ago. It dates from 2000, although I have updated it at the Software Bisque website since then. My copy came with a camera I purchased, and is at Level 4, the most feature filled version, allowing for astrometry, plate solving, and photometry.

The more current version, The Sky X, will set you back \$99 for the limited student edition and \$263 for the professional edition. The student edition allows you to do quite a bit of what you use a star atlas and planetarium program for: looking up locations, getting star information, printing star charts, changing dates, times, observing locations, and so forth. The more expensive editions allow telescope control, astrometry and photometry (when using a camera), and have larger databases.

See this photo and the one at the bottom of the next page for the differences between the display on *Cartes du Ciel* and Stellarium. *Cartes du Ciel* is the more established. It actually has more features than Stellarium. However, Stellarium is simply prettier and sleeker than *Cartes du Ciel*.

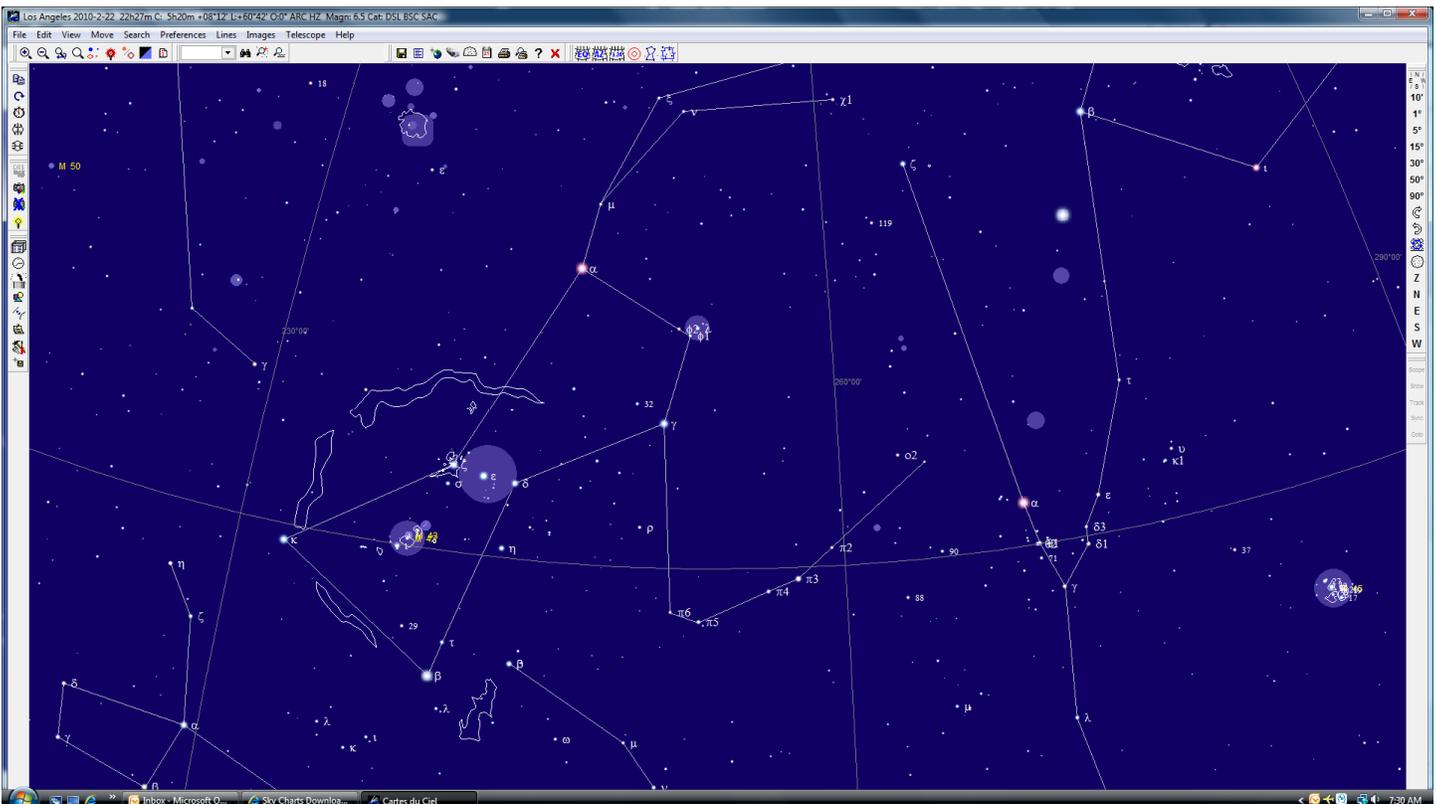
For the Cheap Astronomer, two programs deserve a special mention.

Cartes du Ciel (Map of the Heavens) is the most established of the freeware planetarium programs. It was developed by a French group starting a decade ago and is currently on revision 2.76. You can download all 3.9 Meg from links at <http://www.stargazing.net/astropc/index.html> .

Stellarium is a more modern, and not quite as well established or capable, planetarium program. It is a much larger download, with version 0.10.5 being available at 45 Meg from <http://www.stellarium.org/> .

I have downloaded and installed both on several computers, and have had no glitches

As I said earlier, I do not intend to thoroughly



test or report on the intricacies of these two programs, and any of the other of the two dozen or so available for free. I would say, though, that if I did not have The Sky, I would start with *Cartes Du Ciel* for the serious work. It allows printing of star charts, apparently more robust telescope control (the help section on Stellarium for this function has the instruction "See ??"), and stronger support.

On the other hand, Stellarium is *so* pretty. It has twinkling stars. I can control the number of meteors I want flashing across the sky, I can change to Navajo or Chinese identifications of the constellations...(the list goes on). And here, I have to give a shout-out to fellow RAS Outreach Junkie, Carl Bernhardt, who frequently shows off Stellarium on his netbook at outreach events. People are always impressed. It is simply a beautiful display.

Stellarium's feature list (at right) is very impressive. *Carte du Ciel's* has even more to offer, just about matching my version of The Sky.

Sky

- default catalogue of over 600,000 stars
- extra catalogues with more than 210 million stars
- asterisms and illustrations of the constellations
- constellations for twelve different cultures
- images of nebulae (full Messier catalogue)
- realistic Milky Way
- very realistic atmosphere, sunrise and sunset
- the planets and their satellites

Interface

- a powerful zoom
- time control
- multilingual interface
- fisheye projection for planetarium domes
- spheric mirror projection for your own low-cost dome
- all new graphical interface and extensive keyboard control
- telescope control

Visualisation

- equatorial and azimuthal grids
- star twinkling
- shooting stars
- eclipse simulation
- skinnable landscapes, now with spheric panorama projection

Customisability

- plugin system adding artificial satellites, ocular simulation, telescope configuration and more
- add your own deep sky objects, landscapes, constellation images, scripts...

