SP 310 – Observing Project #1
Dr. Chris Morgan
Due: Wednesday, January 21

The goals of this observing project are:
(1) To introduce you to or increase your familiarity with the nighttime sky
(2) To introduce you to the use of a Planisphere and your MySky™ device.
(3) To introduce you to some web-based observing resources

Material Needed:
1. Planisphere or other star finding chart
2. Binoculars
3. Prior to going out, locate the position of the planet Venus using:
   http://reference.aol.com/space/stargazing-sky-chart?zip=21402
4. MySky
5. Flashlight

Assignment:
1. **Prior to leaving your room:** Use "Stargazing Sky Chart" link above to locate the current position of the planet Venus relative to the background constellations and mark it on your "January Evening Skies" chart (attached to this document).

2. Find a **dark** spot on the yard which permits a (relatively) unobstructed view of the sky in all directions. Describe your choice of observing location:

3. Using your planisphere or "January Evening Skies" chart, locate the "Big Dipper" in the Northern Sky. Draw an imaginary line through the two stars at the end of the cup. Follow this line higher into the sky until you encounter Polaris, "The North Star". Polaris is at the end of the handle for the Little Dipper. What is your estimate of the altitude of Polaris above the northern horizon? How does this altitude compare to the latitude of Annapolis?

4. Using the information you recorded on the "January Evening Skies" chart, locate the planet Venus in the sky. At first glance, Venus will look just like a very bright star with one exception. Venus doesn't "twinkle". In fact, none of the visible planets twinkle. We'll be discussing the reason for this in class. Hint: Venus is the brightest object in the early evening sky (other than the moon). Confirm you've found Mars using your MySky device.

- Observe Venus using your binoculars. Describe and draw a sketch of what you see.

5. Find the moon. (Be careful not to observe on the night of the new moon). Using the "January Evening Skies" chart or your Planisphere, locate the moon's position relative to a background constellation. Record the following information:

Date/Time:
Object Observed:
Approximate Altitude (angle above the horizon):

7. Observe the moon through binoculars. What phase is the moon tonight? Can you see any of the moon's surface that is not currently illuminated by the sun? Why are you able to see the "dark side" of the moon?

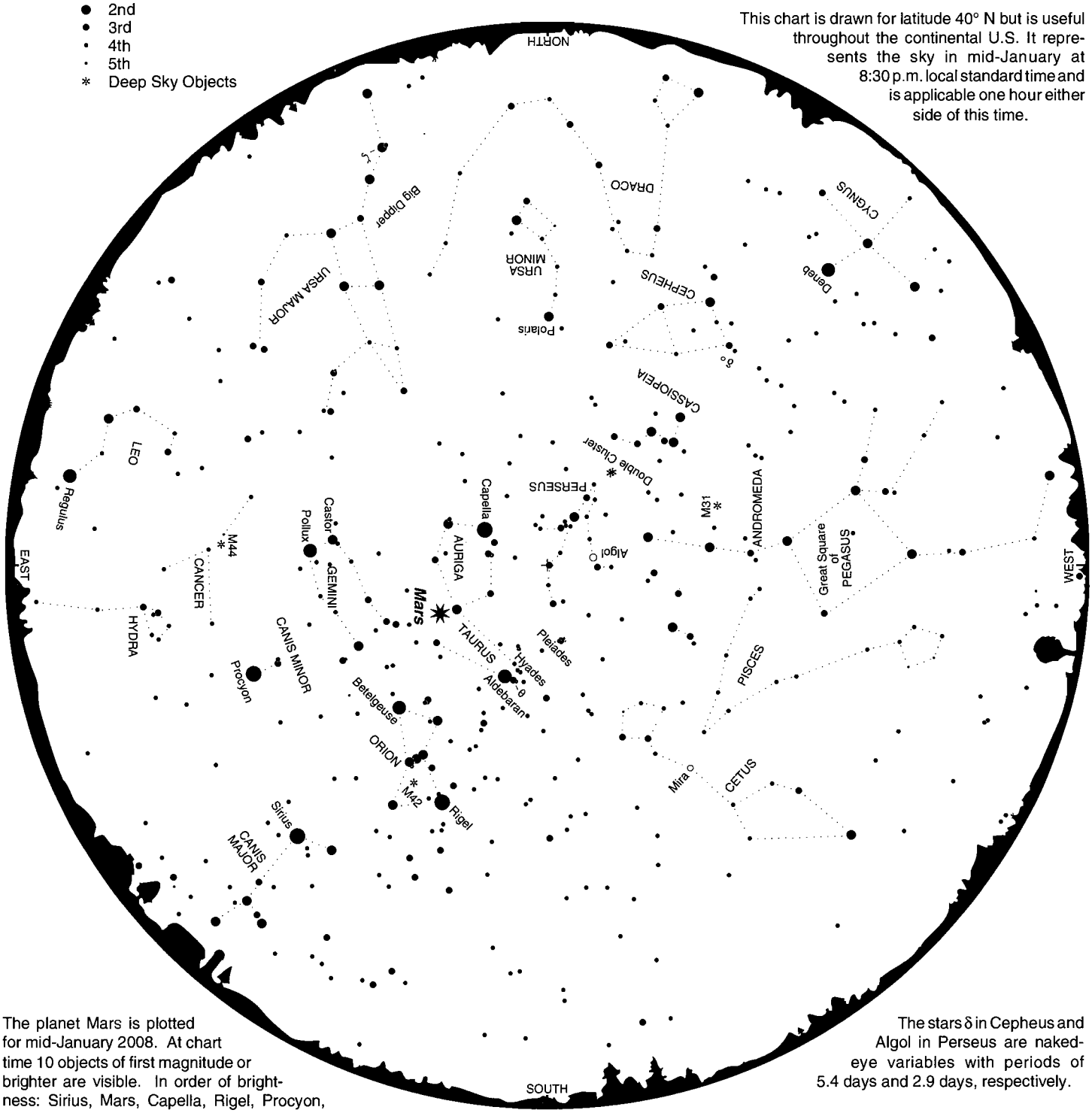
January Evening Skies

Subscription: $11.00 per year, from ***Sky Calendar***, Abrams Planetarium, Michigan State University, East Lansing, MI 48824-1324.

LEGEND
Star Magnitudes

- Zero or brighter
- 1st
- 2nd
- 3rd
- 4th
- 5th
- * Deep Sky Objects

This chart is drawn for latitude 40° N but is useful throughout the continental U.S. It represents the sky in mid-January at 8:30 p.m. local standard time and is applicable one hour either side of this time.



The planet Mars is plotted for mid-January 2008. At chart time 10 objects of first magnitude or brighter are visible. In order of brightness: Sirius, Mars, Capella, Rigel, Procyon, Betelgeuse, Aldebaran, Pollux, Deneb, and Regulus.

Our usual monthly maps are designed for stargazers just beginning to find their way around the sky. This month's map is useful for serious stargazing from dark locations. It contains many more stars, inclusive to magnitude 4.5, and some fainter stars as needed to complete patterns or assist in locating special objects.

A selection of double stars (labeled with Greek letters) and "deep sky objects" is also plotted. All are visible with modest equipment; most are within the range of the unaided eye or binoculars. The double stars, in order of decreasing angular separation, are ζ in Ursa Major, and θ in Taurus.

The stars δ in Cepheus and Algol in Perseus are naked-eye variables with periods of 5.4 days and 2.9 days, respectively.

Four open or galactic clusters are noted: the Pleiades or Seven Sisters, and the Hyades, both in Taurus; the Double Cluster in Perseus; and M44, the Beehive or Praesepe, in Cancer.

M42 is the famous Orion Nebula, a gas cloud out of which stars are forming. M31 is the Andromeda Galaxy, a collection of 300 billion stars located 2 million light years from Earth. Look for both with unaided eye and binoculars from a dark location.