Homework I: Observations of Moon

The next two slides shows 3 successive observations of the moon. The line from where I stood to the rightmost window, was about 5° north of due east. I measured the altitude and azimuth using methods discussed in class. I tried to make observations at roughly the same time each day. I noted how the location of the moon changed from day-to-day.

The low-light level resolution of my IPhone camera was not good enough to clearly show the phase of the moon, but, by eye, it was clear that the moon was in the *crescent* phase.

2021/09/2, ~6:00am, looking east (95°), waning crescent around 4.5 fists above horizon, 45°, and about 5-10° south of the edge of the window.

2021/09/3, ~6:00am, looking east (95°), waning crescent around 3 fists above horizon, 30° and nearly above the edge of the window

2021/09/3, ~6:00am, looking east (95°), waning crescent around 2.5-3 fists above horizon, 25-30° and nearly above the edge of the window.

2021/09/4, ~6:00am, looking east (95°), waning crescent (nearly new) in the trees around 1.5-2 fists above horizon, 15°-20° and around 5-10° left of the window.

The moon appeared lower in the sky each day, closer to the horizon, and further to the north. This meant that the moon rose later from night-to-night. It was between 10-15° closer to the horizon each night and between 5-10° further north. Because it takes a Celestial object around 24 h to rise, set, and rise again, that is, to travel once around the sky, suggests that the moon rises later each day by around 1 h or so.

On what date would you next expect the moon to rise at roughly 6 am?

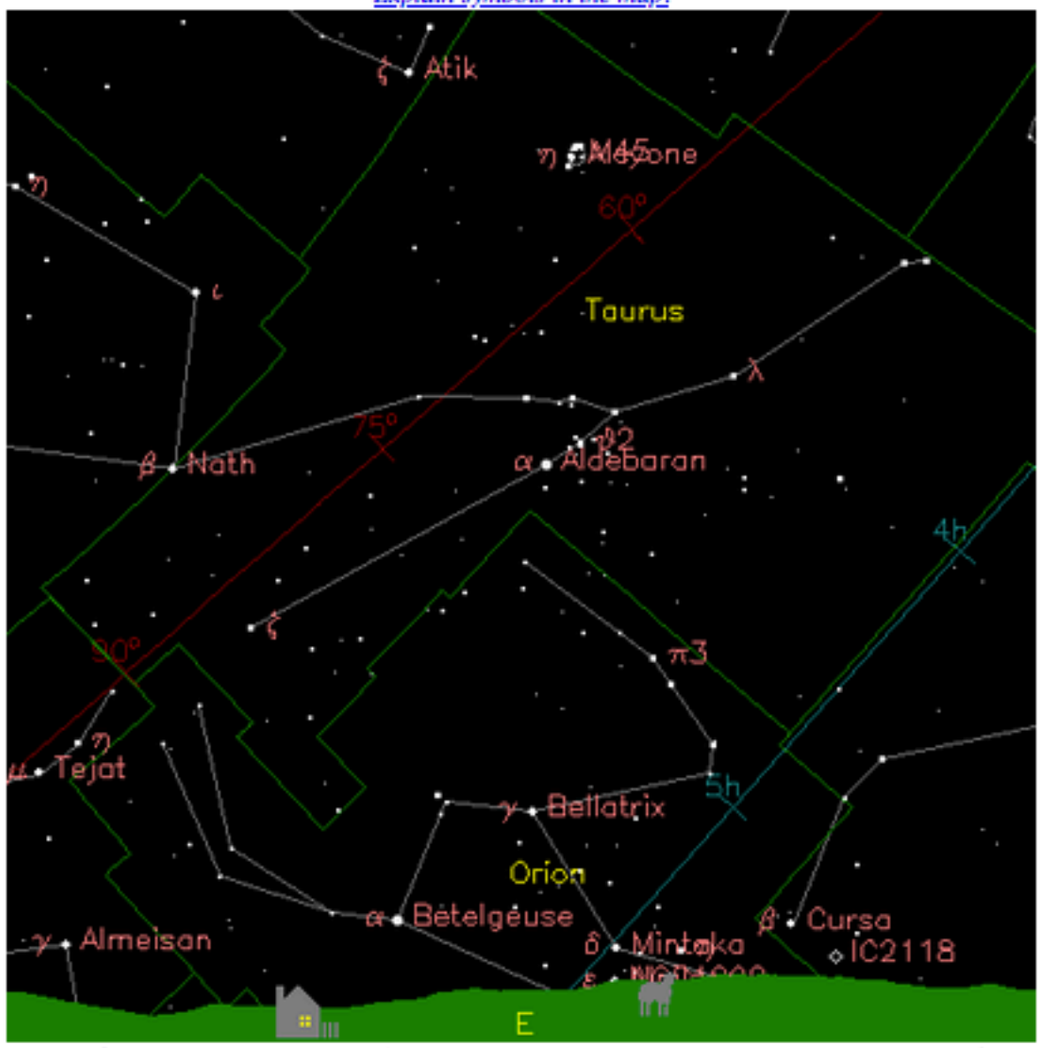
Horizon Maps

The moon appeared lower in the sky each day, closer to the horizon, and further to the north of east. I made four horizon maps, one for the current time and the others for the times of observation. Eugene has longitude = 123° West and latitude = 44° North. The field of view is 45°.

On the website for the maps, the Universal Time (UTC) is the successor to Greenwich Mean Time (GMT), the local time in Greenwich (United Kingdom). At this time, UTC is 7 hours ahead of Pacific Daylight Time (PDT).

View toward horizon from 44°N 123°W, azimuth 90° (E)
Thu 2021 Sep 9 8:51 UTC

Explain symbols in the map.



Pan left *Click in map to aim telescope.* **Pan right**

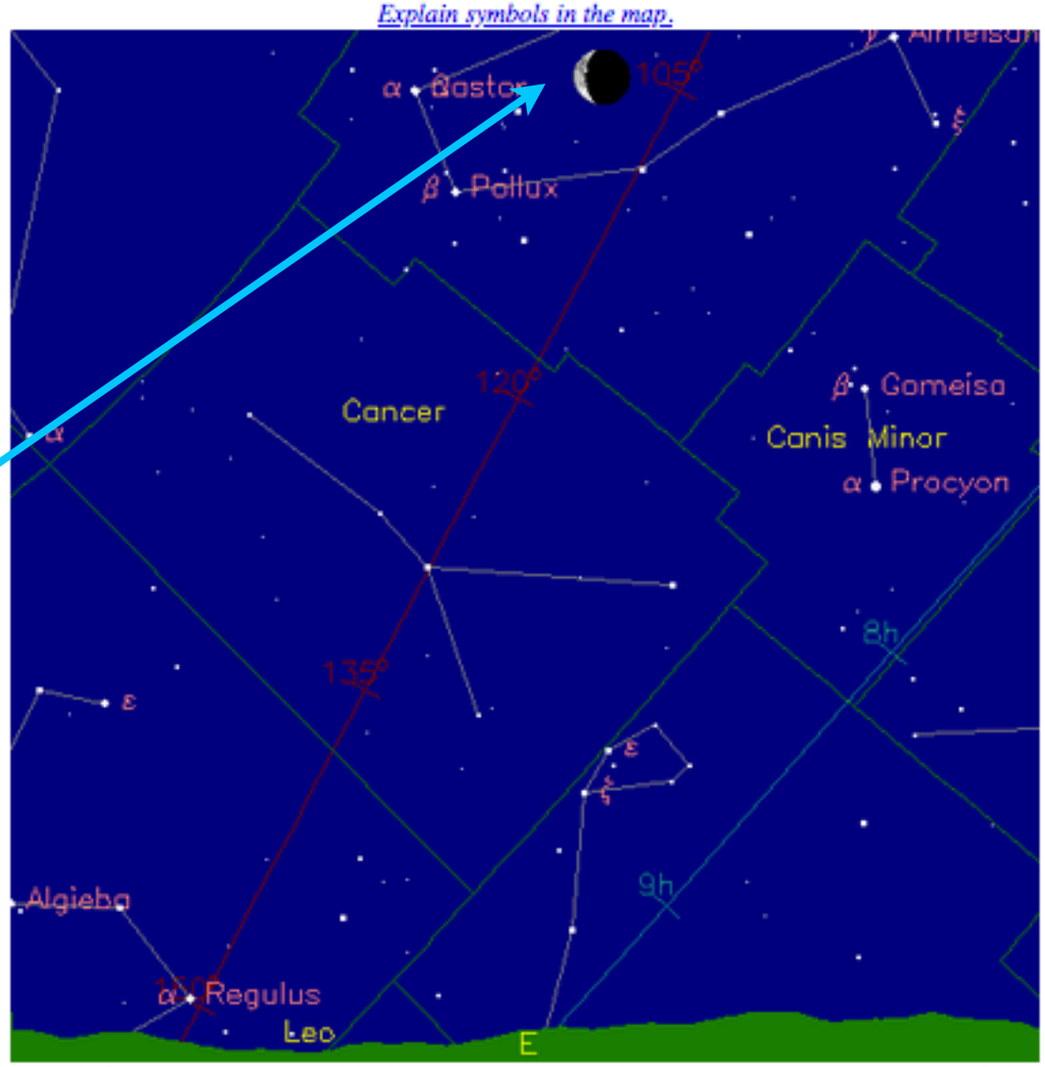
View sky map for this observing site.

Update

Explain controls in the following panel.

View toward horizon from 44°N 123°W, azimuth 90° (E)
Thu 2021 Sep 2 13:00 UTC

Explain symbols in the map.



moon, roughly 45° above east point on horizon.

Pan left *Click in map to aim telescope.* Pan right

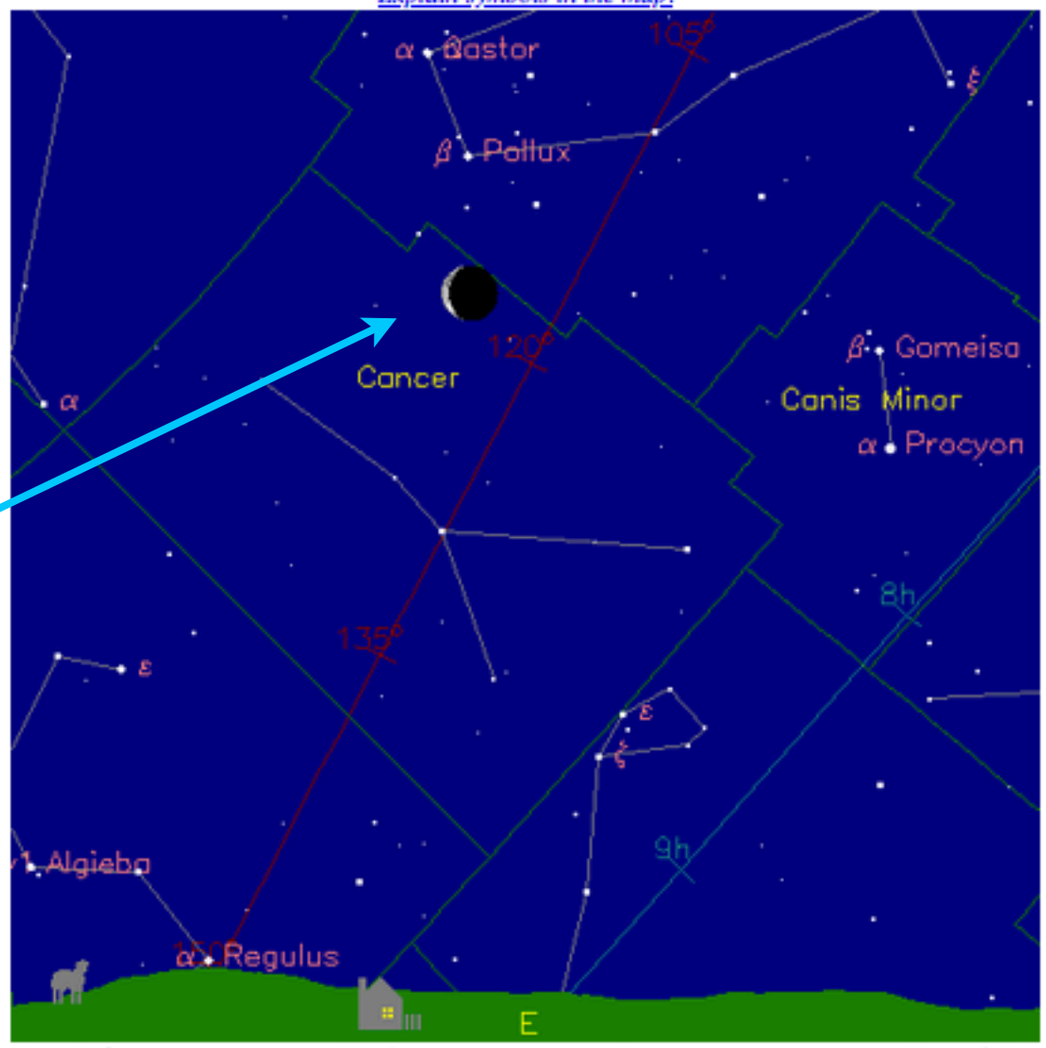
View sky map for this observing site.

Update

Explain controls in the following panel.

View toward horizon from 44°N 123°W, azimuth 90° (E)
Fri 2021 Sep 3 13:00 UTC

Explain symbols in the map.



moon, a little north of east, altitude roughly 30° or so.

Pan left *Click in map to aim telescope.* **Pan right**

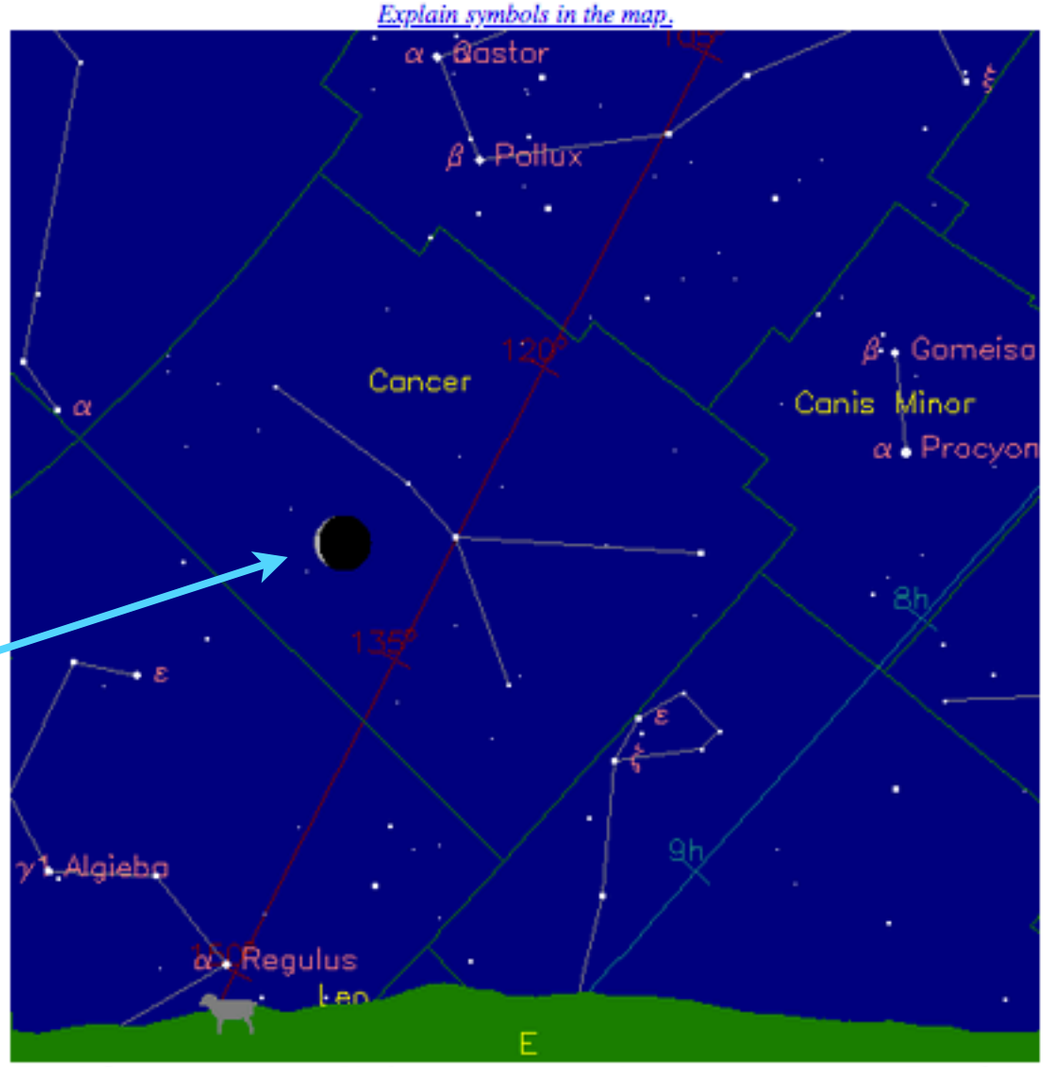
View sky map for this observing site.

Update

Explain controls in the following panel.

View toward horizon from 44°N 123°W, azimuth 90° (E)
Sat 2021 Sep 4 13:00 UTC

Explain symbols in the map.



moon roughly 20° degrees altitude and north of east.

Pan left *Click in map to aim telescope.* **Pan right**

View sky map for this observing site.

Update

Explain controls in the following panel.