



Observing Saturn and Mars in July

Pick any evening in July, around 9:30, and face the southern horizon. You should see three relatively bright objects, apparently close together: two of these are the planets Saturn and Mars and one is the star Antares. Depending on the specific day, the relative positions of the three celestial objects will look slightly different, and the Moon may or may not be nearby. The three Stellarium sky charts show the positions of the planets on July 1st, 15th, and 31st.

Try to look at the two planets through a telescope. Viewing Saturn through a telescope is always a treat, because you can usually see Saturn's rings. If you don't have access to a telescope, check if the observatory at Queen's University is having an Open House in July. Although Mars is somewhat less impressive than Saturn when seen through a telescope, its distinctive reddish hue is definitely worth a look though the lens of a telescope. The amount of detail you see on the red planet (see the Hubble Space picture) will depend on the current sky conditions and the light pollution in your area. In August, Saturn and Antares will appear to pass by Mars on the sky (it is the relative motion of Earth and Mars that creates this effect).



A picture of Mars taken with the Hubble Space Telescope this past spring (NASA, ESA, the Hubble Heritage Team).

Weather is always a consideration before going outside for an evening of observing. Many amateur astronomers refer to multiple weather forecasts to get an idea of the weather before packing up their gear and heading outside. One forecast that is particularly useful is the Clear Sky Chart, available online: <http://cleardarksky.com/csk/>. It forecasts not only the cloud-cover and darkness, but also more specific forecasts like the "seeing" and transparency of the night sky. The latter will determine how much detail you can see on Mars, for example. The Clear Sky Chart is so popular that you can find a chart for over 5000 places in the world. And yes, there is a specific Clear Sky Chart just for Kingston. <http://goo.gl/ciQ6Ab>

Another thing to consider when looking for Saturn and Mars this month is the phase of the Moon. On the

one hand, the glare from an almost full Moon will wash out the light from many stars in the sky, making the planets easier to spot. On the other hand, if the Moon is bright and also very close to the planet (on the plane of the sky), then your eye might not be able to perceive both the Moon and the planet at the same time. A simple way to see the planet under those conditions is to block out the Moon with your hand – let your eyes adjust to the darkness again and voila! you should be able to see the planet.

Finally, if you want to impress your friends with some quick astronomy facts about Saturn, Mars, and Antares, here are a few: Mars' average distance from the Sun is 1.5AU (that's 1.5 times the Earth-Sun distance), and Saturn's average distance from the Sun is 9.6AU. Also, Saturn is so large that more than 700 Earths could fit inside it. As for the star Antares, it is a supergiant star – if it were at the centre of our solar system, its surface would extend past the orbit of Mars!