

Days will begin to shorten next week

By Vernon Whetstone

Amateur Astronomer

Happy summer!! Or at least at 5:09 p.m. MDT this evening. That is when the Sun reaches the Tropic of Cancer, the latitude line 23 and one-half degrees north of the equator.

That is as far north as the Sun will appear to move along the horizon. After today it will start to move southward, the days will get shorter, and the nights will get longer.

The average length of daylight, at least for the next several days will be about 15 hours. Then the days will begin to shorten. Not by much, just a minute or two each day, but they will accumulate to earlier sunsets and later sunrises.

If you would like a calendar of the times for sunrise and sunset, and length of day, point your favorite web browser to www.sunrisesunset.com, click on USA, choose your state and your town. Select the month you want the calendar for and click on "length of day."

Print off the calendar, stick it on the refrigerator and you will have a handy reference just in case someone asks you when the Sun will set or how long the day is today.

There is a lot of other information there too that is of interest to astronomers such as time and length of twilight, or how dark it is going to be and when.

There are three usually accepted definitions of twilight, with each being described as the number of degrees the geometric center of the Sun is below the horizon.

Notice, time of sunset or sunrise is not determined by when the top or bottom of the Sun reaches the horizon, but the center.

The first is civil twilight. It lasts until the geometric center of the Sun is six degrees below the horizon. Usually there is sufficient light that objects are still visible and there is no problem walking around. The brightest stars and planets start to appear.

It is called civil twilight because this is the period used to legally define such things as when to turn on (or off) car headlights, and the dividing time between when a crime is considered as being committed during the day or during the night.

The second is nautical twilight. This is when the geometric center of the Sun is six to 12 degrees below the horizon. More stars start to appear but it is no longer possible to see objects well and when at sea the horizon becomes difficult to determine. It the time that I call "dark-thirty," or if it is in the morning it is "zero dark-thirty."

The third category is astronomical twilight. That is when the geometric center of the Sun is 12 to 18 degrees below the horizon.

This is an astronomer's favorite time because the sky is considered dark enough to easily observe stellar objects and stars down to the sixth magnitude can be seen without any magnification.

The time between astronomical twilight and astronomical dawn is when astronomers work making observations and taking photographs. You can see why shortening days are a problem

to astronomers.

SKY WATCH: New moon yesterday. Tomorrow night, Thursday, June 21, a nice lineup of the stars Castor and Pollux in Gemini, the planet Mercury, and a very slender crescent moon will be visible just above the western horizon. The best viewing time will be at about 9 p.m. MDT. By the way, that time is between civil and astronomical twilight so the sky won't be completely dark.

Next Wednesday, June 27, look in the south at about an hour after sunset for a nice conjunction of an almost-first quarter moon, the planet Saturn, and the bright star Spica.

NEXT WEEK: More astronomical blathering.