A LOOK AT 2016

2016 could almost be an “astronomical afterthought” to some given the big North American solar eclipse in August of 2017, but there are still many things to see in the sky this year. Let’s take a look.

Unfortunately eclipses aren’t on the list. We’ll have two solar eclipses and two “sort-of” lunar eclipses in 2016 but don’t get your hopes up. The solar eclipse are on March 8 and September 1. The path of Moon’s shadow in March crosses Indonesia and the middle of the Pacific. September’s event is best seen in central Africa (the Congo) and Madagascar. Neither will be seen in the states. Of the lunar eclipses, both are penumbral, meaning the Moon passes through the fainter part of the Earth’s shadow. Unless you’re really looking for it, odds are you won’t even notice these two events. The March 23 event occurs near Moonset and the September 16 event won’t be seen in the states at all.

We will get to see a transit of Mercury this year on Monday, May 9 (finals week for Parkland). In a transit, Mercury appears to pass across the face of the Sun. The last Mercury transit was in 2006. On the 9th, Mercury begins her transit at 6:12am, mid-event is at 9:57am, and it ends at 1:42pm. Obviously take great care of you’re going to look at the Sun and sunglasses won’t cut it. You need special filters. Mercury won’t be able to be seen unless you do have a telescope that’s properly equipped. Mercury’s disk will only be 10” in diameter!

The best time to see the outer planets is during “opposition,” when the planet is opposite the Sun as seen from Earth. This is when the distance from Earth to the planet is at a minimum and thus the planet appears large and bright. Jupiter’s opposition is March 7 this year, followed by Mars on May 21, Saturn on June 2, Neptune on September 2, and Uranus on October 14. Of special note is the Mars opposition in May as these occur every 26 months. On this day Mars will be 46.8 million miles from Earth and thus Mars will appear 18.6” in apparent diameter. Compare this to 15.2” in 2014 and 25.1” during the very close 2003 opposition. Maybe the astro club could do observing from a local park?

The inner planets (especially Mercury) are tougher to follow. Venus begins the year in the morning sky but, from March through May, it is very low, rising in the morning twilight. Venus will pass behind the Sun (from our POV) on June 6 and then head into the evening sky. It will be tough to find until about August, though, as it will set just after the Sun. Venus will be a prominent evening object in southwest as the year ends.

Mercury’s best evening view will occur during the month of April, when the greatest separation from the Sun is April 17. The view from mid-July to mid-August isn’t quite as good (Mercury still sets in the bright twilight) and the second week of December is pretty good. For the early risers, there are three opportunities, though each is view is about the same with Mercury rising as the twilight begins. These dates are the end of January, from the end of May through June, and finally the end of September.

As the planets catch and pass each other, we can see some pretty cool conjunctions. Of note in 2016 is the morning of January 9th when Saturn and Venus will be separated by a half degree in the southeast. A similar event occurs in the evening sky on October 29, though the separation is 3 degrees. Probably the best conjunction will occur on the evening of August 27 between Jupiter and Venus (0.2 degrees) though the pair will be low in the west, setting an hour after the Sun.
thin crescent Moon is near Venus in the evening sky on October 3, November 2, and December 3.

Meteor showers are best seen under a dark sky and so one needs to heed the Moon phase when planning. The best meteor shower of the year (including the Moon phase) is probably going to be the August Perseids (Aug. 12/13) which occur two days past a first quarter Moon (which should set just after midnight). It’s also a Friday night! The January 3 Quadrantids occur during a third quarter Moon. The April Lyrids, November Leonids, and December Geminids occur during a full Moon – that’s not good.

From a spaceflight perspective, the Juno mission reaches Jupiter on the 4th of July after being launched back in 2011. It is expected to make 37 polar orbits around Jupiter in its lifetime. The Mars InSight lander is scheduled to be launched in March from Vandenberg Air Force Base and then land in late September in the Elysium plain on Mars. The lander looks like the ole Phoenix lander and for good reason – they’re using the spare parts from Phoenix! The stationary lander will be a geology mission, studying the Martian interior. On September 3 the OSIRIS Asteroid Return mission will launch towards Bennu, a 1614-foot diameter near-Earth, carbon-rich asteroid, discovered in 1999. On the list of asteroids that could potentially threaten Earth, Bennu is #3.

As far as the CU Astro club goes, the meetings are always on the second Thursday of the month at the Staerkel Planetarium at Parkland at 7pm. The observatory open houses at the CUAS Observatory (south of the Monticello Road on 700E) will start in March. They occur on the Saturday closest to the first quarter Moon, namely March 12, April 16, May 14 (National Astronomy Day), June 11, July 9, August 6, September 10, October 8, and November 5. Put April 29-30 on your calendar, too, for the meeting of North Central Region of the Astronomical League in Bloomington-Normal, hosted by our friends at TCAA. We only have one forest preserve date on the calendar at press time, that being a rendezvous at the Middle Fork Forest Preserve on May 7. We won’t have our Market at the Square assignments until after the new year begins.

Clear Skies, everyone!

Dave Leake
William M. Staerkel Planetarium
CU Astronomical Society