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NEXT MEETINGS

JULY 31, Friday at 7:30 p.m. Willow Recreation Center
3600 Lexington Drive at Algonquin Road, Hoffman Estates
"Your Latest Astro-Projects: Mounts, Electronics, Optics and Software" Several members of the NSA Club will present their latest and greatest astronomical DIY projects in a show and tell format. Members are encouraged to contact Mark Christensen prior to the meeting to make arrangements to present the fruits of their labors.

AUGUST 28, Friday at 7:30 p.m. Willow Recreation Center
Michelle Nichols of the Adler Planetarium will present "Apollo Mission.” The Apollo Mission was a watershed event in the history of rocketry, space exploration, of the USA and, indeed, all mankind. In this talk Ms. Nichols will explore this historic achievement including the background, the major events of the program, and the implications for both science and space exploration then and now.

The URL to access our home page: http://www.nsaclub.org
NSA private features are on Yahoo groups, to join the club’s Yahoo discussion group:
visit http://groups.yahoo.com/neo/groups/NSAClub/info
Facebook: https://www.facebook.com/nsaclub.org

Thanks to President Mel Robinson for his editorial remarks and observing notes, Jim Ammeson for the minutes of the July 3, 2015 meeting, Ryan Kyle for the observing schedule, and Alan Birkner for the July 26, 2015 Treasurer's report. NASA provides the monthly feature.

Hope many are planning to attend the Wildcat Mountain State Park club campout for some of the time from August 7-17. Watch Yahoo groups for a possible potluck dinner date and plan to join the fun.

We have written a brief article of our Astro VIP (Astronomy Volunteers in the Park) experience this year and included a few photos.

After the meeting, the club will return to Rosati’s at 1770 W. Wise Road, Schaumburg, IL 60193, phone 847-891-5151.

See you at Wildcat,
Edith

Northwest Suburban Astronomers is a not-for-profit corporation chartered by the State of Illinois “to cultivate, foster and promote interest and participation in astronomy.”
FROM OUR PRESIDENT … Mel Robinson
We have once again arrived at our most observing-intensive week of the year – Wildcat Week. The state park system of Wisconsin graciously provides us access to the group camping area at Wildcat Mountain State Park in Ontario, Wisconsin for two weekends and the week between. We can set up our telescopes and leave them aligned for as much or as little of the week as we would like.

Because we have the opportunity to observe over multiple nights, the observing tends to be at a more relaxed pace. For me, it is the chance to spend a lot of time looking at a few objects, and to get to know those objects really well. The daylight hours are definitely more relaxed too. Lots of folks sleep in to catch up from the previous late night. Unhurried departures for a canoe paddle on the river, a bike ride on a local trail, or just lunch at a diner in town are also on the agenda.

Throughout the week, a few interested campers from the main campground stop by to see the telescopes or ask a few questions but we generally have the observing field to ourselves except for the public night. We are hosting a public star party this year on August 8, the first Saturday of Wildcat Week. We will put on a slide show and talk at the amphitheater near the public campground, followed by observing for members of the public through our telescopes.

The public programs have followed a theme over the past few years. Jay Skuban told us about the movements of the Earth, Sun and Stars, the changing skies of the seasons, and finding constellations in the night sky using a star chart and lawn chair. Mark Behrendt told us that there were many telescopes available for beginners who may wish to see more than could be seen just by looking up. Last year, we learned that there are a few bright stars in the night sky that we could use as guideposts to find lots of interesting objects in the summer sky.

This year the program answers the often asked question, how far away it that, or how far can you see with this telescope? Instead of numbers of light years, we will be describing distances in terms of neighborhoods. Starting with things in and just outside of our atmosphere, we will move to our solar system neighborhood, then to our stellar neighborhood. We will locate some objects within the Milky Way and then some objects just outside the Milky Way. Next, we will move to our galactic neighborhood, then our galaxy cluster neighborhood. Lastly, we will mention some of the most distant objects that we can see in a telescope. Hopefully, our guests will learn that globular clusters are farther than star clusters, and that galaxies are farther still.

We have been treated to some incredible views of Pluto in the past week or so. As the massive amounts of data collected by the New Horizons spacecraft is slowly transmitted across the vast distances of space in the coming weeks and months, we should begin to see ever more detailed views and learn extraordinary things about our solar system. It’s nice to see space news on the front page.

Our observing challenge for the past month is the large and bright Coathanger asterism. I hope you got a chance to have a look in binoculars or a wide field telescope.

For August, we turn our telescopes southward to one of my favorite bright nebula objects – the Swan Nebula. Also known as the Omega Nebula, Checkmark Nebula, Horseshoe Nebula, M17, and NGC 6618, the glowing gas cloud is at magnitude 6 and a distance of 5000 light years in Sagittarius. Check it out, do you see the swan?

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**Treasurer’s Report**
Alan Birkner
July 26, 2015

**Beginning Balance** $7,274.07

**Income**
- Membership Dues 71.91

**Expenses**
- Celestial Log 8.40

**Ending Balance** $7,337.58
OBSERVING DATES
August 7-17  Wildcat Mt. State Park
August 8  PUBLIC @ Wildcat
August 7-8  Marengo Ridge
August 14-16  Afton
August 21-22  Coral Woods
September 12  PUBLIC @ Afton
September 19  PUBLIC @ Marengo Ridge
October 1 and 9  PUBLIC @ libraries

Observing Notes – August 2015

The night-time show for August is all about the Perseid meteor shower. The Perseid meteors will be visible for about a week on either side of the peak night. This year, the peak is predicted for the evening of August 12 to the morning of August 13. The new Moon is on August 14, assuring a moonless night for maximum visibility of the meteors. There are likely to be a fairly large number of meteors on the nights leading up to the peak and on the nights following the peak. Expect to see a meteor about every minute from dark skies for a few hours on either side of the peak time of 3 a.m. on August 13.

Sharing the spotlight with the Perseids is Saturn. Saturn is high in the sky in the evening. The rings are tilted at 24 degrees, near their maximum, providing us with a fine view of the ring structure. The planet is at quadrature to us, which permits us to see the shadow of the planet on the rings, providing a 3D effect for our views this month. Look to the southwest between the constellations Libra and Scorpius. Saturn’s moons Titan, Tethys, Dione and Rhea are visible in back yard telescopes.

Neptune is at opposition on August 31 in the constellation Aquarius. Neptune will be about 3.4 degrees southwest of Lambda Aquarii at magnitude 7.8. Neptune has a bluish disk at magnification, assuring that you found the planet and not a nearby star.

Uranus is a magnitude 5.8 disk in the constellation Pisces. Uranus is about 0.6 degrees from Zeta Piscium. Look for the blue-green disk.

Pluto has gotten a lot of attention in the past month, with first time ever clear images of its surface being received from the New Horizons space craft. To the amateur astronomer Pluto presents a challenge, requiring a dark sky, an eight inch or larger telescope, and sketching the star field on multiple nights to confirm the sighting. From our point of view, Pluto is between the stars Xi¹ Sagittarii and Xi² Sagittarii.

Comet C/2014 Q2 Lovejoy is in Draco at magnitude 8.

Comet 141P/Machholz is moving from Auriga to Gemini during August as it nears the Sun on August 24. On August 6 – 12, it moves through the star field including open clusters M36, M37 and M38. Predictions are that it may reach 8th magnitude.

Comet 22P/Kopf moves through Virgo.

Comet C/2012 US10 is passing near Alpha Centauri at the end of August and could become a naked eye comet by December.

Ceres is moving through Sagittarius at 8th magnitude in August.

Other asteroids to look for include Metis in Aquarius, Vesta in Cetus, Eunomia in Pegasus, Amphitrite in Aries, and Pallas in Hercules.

Mars and Venus are morning objects in late August.

The Moon is just past full on August 1, at last quarter on August 6, new Moon on August 14, at first quarter on August 22, and full Moon on August 29.

Minutes of the July 3, 2015 Meeting

Jim Ammeson, Secretary

31 people present

At 7:40pm, Mark Christensen (VP of Programs) welcomed everyone to the first of the two July meetings the club will be having this year. He then introduced the speaker for the evening, Gary Ross of the Grand Rapids Amateur Astronomical Association. Gary took the floor and began his presentation entitled: “The Rehabilitation of Percival Lowell.” The presentation covered the history of our concepts of life on Mars.

At 9:02, Mel Robinson (President) opened the business meeting; given the late hour, he said the business section would be a quick one. A brief discussion of the Pluto flyby was had.

The club has acquired new lanyards for our name tags, and a new image for the background is being considered. Any suggestions for the image from the members would be appreciated. Mel then asked if there were any visitors, though there were none. A motion was made to pass the previous meeting’s minutes, which passed. Mel reminded everyone that Wildcat is coming up, beginning on August 7th. The next month’s observing challenge object is the Coathanger Asterism (Collinder 399).

The next meeting (the 2nd meeting of July), will be a series of presentations by members on various astronomical projects. Mark Christensen asked for members to email him if they are interested in participating.

The meeting was adjourned at 9:15pm.

A Third Season at Great Basin National Park

Tom & Edith Auchter

We are in our seventh week at Great Basin in Nevada and having a record year. There have been 4,545 visitors to the astronomy programs since our arrival. We have a three hour solar observing shift with the park’s new Lunt 80mm single stack and Edith’s 80mm refractor and five hour night sky observing shift every Tuesday, Thursday, and Saturday. Extra time to meet our 32 hours each week can be spent on cave tours, working the Star Train from the historic Nevada Northern Railway, activities with children such as making scale model solar systems, or observing sessions at the campgrounds which have been very well received. We were fortunate to see the huge M6.5 solar flare erupting from sunspot AR2371 on Monday, June 22, that produced a moderately strong blackout of short wave and low frequency radio signals over North America.

There was a very wet spring, but it turned sunny the day we arrived. There is lush vegetation everywhere and the desert is greener than the previous two years. We have
seen more wildlife this year including badgers, burrowing owls, a greater sage grouse, a golden eagle, an American three-toed woodpecker, kit foxes as well as the usual jack rabbits, mule deer, turkeys, and many species of birds and butterflies. We have taken many beautiful hikes including a 5.45 mile hike with Edith’s brother Jerry and sister-in-law Kathy during their visit. Our private, after hours cave tour was spectacular. Several weeks earlier, we had the opportunity to tour another nearby cave which was like being inside a geode.

On the Brightness of Venus by Ethan Siegel

Throughout the past few months, Venus and Jupiter have been consistently the brightest two objects visible in the night sky (besides the moon) appearing in the west shortly after sunset. Jupiter is the largest and most massive planet in the solar system, yet Venus is the planet that comes closest to our world. On June 30th, Venus and Jupiter made their closest approach to one another as seen from Earth—a conjunction—coming within just 0.4° of one another, making this the closest conjunction of these two worlds in over 2,000 years.

And yet throughout all this time, and especially notable near its closest approach, Venus far outshines Jupiter by 2.7 astronomical magnitudes, or a factor of 12 in apparent brightness. You might initially think that Venus’s proximity to Earth would explain this, as a cursory check would seem to show. On June 30th Venus was 0.5 astronomical units (AU) away from Earth, while Jupiter was six AU away. This appears to be exactly the factor of 12 that you need.

Only this doesn’t explain things at all! Brightness falls off as the inverse square of the distance, meaning that if all things were equal, Venus ought to seem not 12 but 144 times brighter than Jupiter. There are three factors in play that set things back on the right path: size, albedo, and illumination. Jupiter is 11.6 times the diameter of Venus, meaning that despite the great difference in distance, the two worlds spanned almost exactly the same angular diameter in the sky on the date of the conjunction. Moreover, while Venus is covered in thick, sulfuric acid clouds, Jupiter is a reflective, cloudy world, too. All told, Venus possesses only a somewhat greater visual geometric albedo (or amount of reflected visible light) than Jupiter: 67 percent and 52 percent, respectively. Finally, while Venus and Jupiter both reflect sunlight toward Earth, Jupiter is always in the full (or almost full) phase, while Venus (on June 30th) appeared as a thick crescent.

All told, it’s a combination of these four factors—distance, size, albedo, and the phase-determined illuminated area—that determine how bright a planet appears to us, and all four need to be taken into account to explain our observations.

Don't fret if you missed the Venus-Jupiter conjunction; three more big, bright, close ones are coming up later this year in the eastern pre-dawn sky: Mars-Jupiter on October 17, Venus-Jupiter on October 26, and Venus-Mars on November 3.

Keep watching the skies, and enjoy the spectacular dance of the planets!