Join the Amateur Observers’ Society

Sunday October 4th, 2020 at 1:30PM

Guest Presenter from Lowell Observatory:

Autumnal Stars of Arabia – “Tales of the Arabian Nights”

Presentation by Dr. Danielle Adams

Join us as Dr. Danielle Adams, a Cultural Astronomer and Deputy Director at Lowell Observatory in Flagstaff, Arizona, will speak about the rich star lore of Arabia as it was a thousand years ago.

Camels, vultures, goats, ostriches and many other elements of desert life graced the skies of the Arabian desert. Focusing on the stars that are visible in the fall, Danielle will describe several indigenous Arabian star groupings, many of whose star names survive in modern-day star names like Vega, Altair, Aldebaran and Alkaid.

I urge you to take a moment to look up and wonder at these images of the night sky that were forged in the deserts of Arabia some 1500 years ago.
The President’s Message-Sue Rose

Happy Fall! Well, it’s been quite an unusual summer. It’s so nice to see that many members have gone out to observe on their own and even photograph their views. Our intrepid Director of the Susan Rose Observatory on the grounds of Custer Institute in Southold, Bill C, has reopened our observatory utilizing a video eyepiece and projecting the image on a screen outside (provided by Joe M-thank you), maintaining safety for all. There have been many appreciative visitors. Thanks Bill. Normally, we would have had lots of outreach programs. Alas, that was not to be. However, the ability to have online meetings has increased the availability of incredible speakers. Thanks to Jason C, we’ve been treated to a myriad of topics from people all over the country nearly every 2 week for the past 4 months. There aren’t enough words to express our gratitude to Jason for keeping astronomy alive in our hearts, if not in our telescopes, and keeping us in touch with each other, along with the hotline. This is how we will continue to progress for the foreseeable future.

Meetings-In case you missed it, here are the recent and future presenters. Some of the programs have been recorded. Contact Jason for information. We greatly appreciate all those who have graciously given us their time on a Sunday afternoon and for those who we will visit with in the upcoming months.


UPCOMING GUESTS-Oct 4 - Danielle Adams – Resident Staff Astronomer and Deputy Director for Marketing and Communications at Lowell Observatory- Autumnal Stars of Arabia – “Tales of the Arabian Nights”. Dave Prosper – Night Sky Network - Program Manager for Amateur Astronomy Outreach at the Astronomical Society of the Pacific and Ambassador of the Night Sky Network, Dr. Larry Wasserman – Resident Staff Astronomer Lowell Observatory – joining us again to further discuss the ability to determine sizing of astronomical objects thru Occultations, Dr. Hai-Bo Yu – USC Riverside - Theoretical Physicist – Discussion of recent September Paper on the Loss of Dark Matter - https://www.syfy.com/syfywire/why-dark-matter-is-missing-from-these-galaxies, Brother Guy Consolmagno - Director of the Vatican Observatory, and President of the Vatican Observatory Foundation, Joe Rao and Jupiter Joe Martinez. We are always looking for people who wish to share their research, observations, theories, techniques, etc. If you would like to be among this distinguished list, please contact Jason.
All AOS members will be sent a private invitation to attend any upcoming meetings. This is for your use only. If you know of anyone else who would like to attend, please send their email to our Secretary, Bill B, at AOSSecretary@aosny.org, and they will be sent an invitation. Please DO NOT send your invitation to others. This is so we can monitor the number of attendees (we have a limit of 100), and to ensure that the only people who participate are those we were expecting, not like the difficulties that have arisen from other meeting services. We have also been invited to attend online meetings of ASLI, AAA and UACNJ. Details will be posted on our member hotline as they are received. Use of the hotline will be extremely vital during these times of confinement.

**Observing** The season of the bright planets is upon us. Mars has its’ best apparition for the 2020s, Jupiter and Saturn are retrograding across the sky as they head for the great conjunction in Dec. As this is naked eye astronomy, everyone can participate. Draw a chart every few nights with the planets and their surrounding stars so you can chart their movements. Celestial mechanics at work. This is why the ancients thought they were gods since no stars could act in this way. While you’re making those observations, don’t forget about the Globe at Night observations right from home, no travel or permits required. Fill out your forms at www.Globeatnight.org.

This month we’ll also be treated to a second full Moon, commonly known by the public as a “blue” Moon. This one on Halloween, oooooooo spooooky. Of course, to us, there’s nothing spooky about it, or rare. They usually happen at least once a year, thanks to some months have 31 days. Regardless of the reason, it’s a good opportunity to keep the moon in the public eye. A bit too bright to observe unless you have a filter though.

**AOS Calendar**-It’s that time of year again when we discuss this highly successful and informative AOS publication. I guess we need a consensus, however. Since we are not meeting in person, all calendars would have to be mailed which increases the cost to $18. I need to see if there is interest in doing it this year. Without a reasonable number, we can’t get this low a price. Let me know ASAP.

**Observers’ Handbook from RASC-John P.** our contact for obtaining this yearly publication at a reasonable cost, is not able to commit this year. I think he sends out about 100. Is there someone in AOS who would like to take on the job, either for us or John’s whole list? Let me know ASAP.

**Sagamore Hill Observatory**-It would appear that our highly successful events at this classic location have come to an end. We are incredibly grateful for the time we had there and understand that the world has changed. We will let you know of any changes in the future.

**Jones Beach Observatory**-Things have changed here as well. The new building we were expecting to move into has been built but has no room for us. The old building is being used by the virus testers. We are working on other observing possibilities so stay tuned.

**Star Gazing Permits**-They are still available from the NYS Parks Dept, either by mail or in person at offices in Bethpage, Jones Beach or Robert Moses. This would allow you to observe in designated areas after sunset. Many of our members have been doing this since outreach has been canceled. Rest rooms are not open in the winter. Not sure of the current status. They expire Dec 31 when new ones for 2021 will need to be purchased. Due to the lack of available observing locations, it may be a good idea to get a permit. They are for the vehicle, not the people, and you must have some star gazing equipment, such as a chart. Bring a bucket and sealable plastic bags. 😊

Hoping to see everyone at our online meetings. The next one is Sunday, Oct 4, 1:30pm.

**Remember, the only dumb question is the one you don’t ask.**

**Friends are like stars. You don’t always see them,**

**but you know they are always there!**

Please, everyone, be safe and be careful. We will get together at some point. Till then,

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The AOS expresses its deepest appreciation to Custer Institute for hosting our Suffolk Observatory and the Sierra Club, Long Island Group, for the 20” telescope, http://newyork.sierraclub.org/longisland/
Amazon Smile Donation to AOS
Thanks to everyone who make their purchases through Amazon Smile. It costs nothing extra for you and AOS gets a small donation from every purchase. If you have questions, please contact our Treasurer.

City of Stars on Facebook!-Linda P
Many of you may have heard of my City of Stars tours, mostly walking excursions sponsored by the AOS, to visit astronomy-related sites in Manhattan. These tours were inspired by an article written by Dr. Neil deGrasse Tyson in the Jan 2002 issue of Natural History magazine. We’ve created a Facebook page, City of Stars - New York City, in which we have expanded Tyson’s original list to 42 sites, mostly in Manhattan but also in surrounding areas, with brief descriptions, photos, maps, and links for further information. I hope you will visit City of Stars - New York City! www.Facebook.com/CityofStarsNYC

Astronomy Outreach Toolkit from NSN
AOS is once again the recipient of an astronomy toolkit from the Night Sky Network. These “astronomy in a box” programs are available to all members for outreach use. Discuss with Linda P. This one is especially significant for AOS. The toolkit is dedicated to the memory of Bill B, “dear friend of the Astronomy in Chile Educator Ambassador Program team”, also past President of the Astronomical League, long time AOS member and former AOS President and Vice-President. The observatories in Chile are featured in some of the themes of the toolkit. https://nightsky.jpl.nasa.gov/download-view.cfm?Doc_ID=664 Near the bottom of the page is a link to the “Big Astronomy” web site. Their movie debuted on Sept. 26. www.youtube.com/watch?v=Z5cHe7x8WY, www.youtube.com/watch?v=9GT4mQZ430.

Astronomy Magazine Subscriptions for AOS Members
For Astronomy and Sky & Telescope, it’s $34 for one year, $60 for two. You can only order through our Treasurer, Harvey M. http://www.aosny.org/MagazinePage.htm

Amelia Earhart Scholarship PhD programs
Zonta.org has $10,000 scholarships available for qualifying women in the Aerospace Sciences. Contact Dr Karen Siegel at 516 482-4288. Applicants may apply for the 2021 Amelia Earhart Fellowships at https://zontainternational.awardspring.com/. Applicants must apply and submit all materials by 15 November 2020 to be considered for the 2021 Amelia Earhart Fellowships.

The American Association of Variable Star Observers https://www.aavso.org/

The 109th Annual Meeting -- Now Virtual
"Planning for the Future"

Your safety is our priority! After careful consideration, and based on the continuing outbreak of the Coronavirus in the US and its impact on our community’s (in)ability to travel, we’ve made the decision to transition the 109th AAVSO Annual Meeting to a virtual event!
We are still committed to delivering quality events, celebrating AAVSO science, discussing observing techniques, and sharing exciting news on variable stars. Registration is now open; register here. Events this year include:

- AAVSO Spectroscopy Workshop: October 31, November 6, 7, & 8
- AAVSO Data Mining Workshop: November 1
- 109th AAVSO Annual Meeting: November 13, 14 & 15
- If you wish to give an oral or poster presentation at the Annual Meeting, we are now accepting abstracts; please click here for guidelines and submit your abstract by September 30. Furthermore, on Nov. 14, we will be presenting the outcome of our strategic planning process, shaping a bright future for the AAVSO community. Please mark your calendars and join the discussion!
Notes from Our Observatories

Observatory at Jones Beach State Park Nature Center (Observatory West)
Our facility here has been closed for some time due to planned construction. The entire plan has changed. The new building where the Nature Center was to relocate at Field 2 is not suitable. The old building was not demolished and is being used for virus testing staffers. What will happen when that ends is not known. We are in the process of determining if it can be used in the evening. Stand by for updates.

AOS Observatory East (Susan F. Rose Observatory)-Dir. Bill C, Operator Alan C Open to the public every clear Saturday night on the grounds of Custer Institute in Southold. Additional help is welcome; private observing can be made afterward. Contact Bill for equipment training. Observing is strictly digital on a monitor outside the observatory until further notice.

Stargazing in the NYS Parks-Stargazing permits are still available for purchase but expire Dec 31. It's a good idea to put a note on the hotline and let others know you're going so you might get some company, socially distanced of course. No eyepiece sharing. ALWAYS tell someone where you will be. You might also call the NYS Police at 631-669-2500 to let them know you'll be there. PLEASE, make sure it is in your cell phone in a speed dial. This may be your only place to observe for the foreseeable future. Restrooms are not open during the winter so be prepared.

Observing Projects for Month http://www.theskyscrapers.org/october

Globe at Night https://www.globeatnight.org/
The Night Sky This Month – October 2020 https://cosmicpursuits.com/night-sky-this-month/

October 2020 guide to the bright planets

The Orionid Meteor Shower Will Light Up the Sky With Shooting Stars This October
It's one of the best astronomical shows of the year. By Stefanie Waldek


If your idea of a perfect fall night includes stargazing, you're in luck. The Orionid meteor shower puts on a spectacular display each October. At its peak, which typically occurs between Oct. 20 and 24, the shower produces around 15 shooting stars per hour, though up to 70 per hour have been recorded during particularly robust years. While some meteor showers are more prolific — August’s Perseids event, for instance, regularly dazzles with about 60 shooting stars per hour — the Orionids’ shooting stars have a special quality. Though they’re incredibly fast, zipping through the atmosphere at 41 miles per second, they often leave behind a trail that lingers in the sky for a few seconds or even up to a minute. Curious how to catch the show? We’ve got all the details right here.

What is the Orionid meteor shower? - The Orionid meteor shower happens as we pass through the trail of Halley’s Comet. As bits of dust and debris from the famous celestial object enter our atmosphere, they become meteorites, leaving a blazing trail for stargazers to see. It is named the Orionid meteor shower for the point in the sky that it originates from — a spot near the constellation Orion.

When is the Orionid meteor shower? - The meteor shower usually occurs from Oct. 2 through Nov. 7, with a peak between Oct. 20 and 24. In 2020, the peak will occur after midnight on Oct. 21, though you’ll still see plenty of meteors the evening before and after. And this year, viewers are in luck — the moon will be in its waxing crescent phase during the peak, which means moonlight won’t drown out the meteors. On top of that, the moon will actually set in the evening, so the skies will be as dark as possible for ideal viewing.

How can I see the Orionid meteor shower? - For starters, you’ll want to position yourself as far away from light pollution as possible. Sit outside for at least 20 minutes so that your eyes can adjust, then look up at the sky toward the Betelgeuse star in the Orion constellation. (In the Northern Hemisphere, it’ll be in the southeastern sky, and in the Southern Hemisphere, it’ll be in the northeastern sky.) The best time to see the meteors will be just before dawn, but any time between midnight and dawn will do. And if you can’t find Orion, don’t worry — you can usually see meteors all across the sky.

When is the next meteor shower? - Following the Orionids, the next major meteor shower is the Leonids, which will peak between the evening of Nov. 16 and morning of Nov. 17.
FOR SALE!!!

Linda P-I am selling my Skywatcher 120 ED refractor. It includes the hard case, 2” star diagonal with 1 1/4” adapter, dovetail on tube, and tripod with altaz mount. Attached photos. Hardly used, asking $800. For inquiries, contact me off-line at lprince2@verizon.net.

Attachments available on AOS hotline only:

- 1A Skywatcher120ED APO.jpg
- Skywatcher120ED APO-2.jpg
- Skywatcher120ED APO-4.jpg
Summer Triangle Corner: Altair by David Prosper

Altair is the final stop on our trip around the Summer Triangle! The last star in the asterism to rise for Northern Hemisphere observers before summer begins, brilliant Altair is high overhead at sunset at the end of the season in September. Altair might be the most unusual of the three stars of the Triangle, due to its great speed: this star spins so rapidly that it appears "squished."

A very bright star, Altair has its own notable place in the mythologies of cultures around the world. As discussed in our previous edition, Altair represents the cowherd Niulang in the ancient Chinese tale of the "Cowherd and the Weaver Girl." Altair is the brightest star in the constellation of Aquila the Eagle; while described as part of an eagle by ancient peoples around the Mediterranean, it was also seen as part of an eagle by the Koori people in Australia! They saw the star itself as representing a wedge-tailed eagle, and two nearby stars as his wives, a pair of black swans. More recently one of the first home computers was named after the star: the Altair 8800.

Altair's rapid spinning was first detected in the 1960s. The close observations that followed tested the limits of technology available to astronomers, eventually resulting in direct images of the star's shape and surface by using a technique called interferometry, which combines the light from two or more instruments to produce a single image. Predictions about how the surface of a rapidly spinning massive star would appear held true to the observations; models predicted a squashed, almost “pumpkin-like" shape instead of a round sphere, along with a dimming effect along the widened equator, and the observations confirmed this! This equatorial dimming is due to a phenomenon called gravity darkening. Altair is wider at the equator than it is at the poles due to centrifugal force, resulting in the star's mass bulging outwards at the equator. This results in the denser poles of the star being hotter and brighter, and the less dense equator being cooler and therefore dimmer. This doesn't mean that the equator of Altair or other rapidly spinning stars are actually dark, but rather that the equator is dark in comparison to the poles; this is similar in a sense to sunspots. If you were to observe a sunspot on its own, it would appear blindingly bright, but it is cooler than the surrounding plasma in the Sun and so appears dark in contrast.

As summer winds down, you can still take a Trip Around the Summer Triangle with this activity from the Night Sky Network. Mark some of the sights in and around the Summer Triangle at: bit.ly/TriangleTrip. You can discover more about NASA's observations of Altair and other fast and furious stars at nasa.gov.

The image on the right was created using optical interferometry: the light from four telescopes was combined to produce this image of Altair's surface. Image credit: Ming Zhao. More info: bit.ly/altairvsmodel

Altair is up high in the early evening in September. Note Altair's two bright "companions" on either side of the star. Can you imagine them as a formation of an eagle and two swans, like the Koori?
This article is provided by NASA Space Place. With articles, activities, crafts, games, and lesson plans, NASA Space Place encourages everyone to get excited about science and technology. Visit spaceplace.nasa.gov to explore space and Earth science!

Observe the Skies Near Mars by David Prosper

October is a banner month for Mars observers! October 6 marks the day Mars and Earth are at closest approach, a once-every-26-months event. A week later, on October 13, Mars is at opposition and up all night. Mars is very bright this month, and astronomers are eager to image and directly observe details on its disc; however, don’t forget to look at the space around the planet, too! By doing so, you can observe the remarkable retrograde motion of Mars and find a few nearby objects that you may otherwise overlook.

Since ancient times, Mars stood out to observers for its dramatic behavior. Usually a noticeable but not overly bright object, its wandering path along the stars showed it to be a planet instead of a fixed star. Every couple of years, this red planet would considerably flare up in brightness, for brief times becoming the brightest planet in the sky before dimming back down. At these times, Mars would also appear to slow down its eastward motion, stop, then reverse and head westward against the stars for a few weeks, before again stopping and resuming its normal eastward movement. This change in the planet’s movement is called “apparent retrograde motion.” While all of the planets will appear to undergo retrograde motion when observed from Earth, Mars’s retrograde appearances may be most dramatic. Mars retrograde motion in 2020 begins on September 10 and ends on November 16. You can observe its motion with your eyes, and it makes for a fun observing project! You can sketch the background stars and plot Mars as you observe it night after night or set up a photographic series to track this motion. Does the planet move at the same rate night after night, or is it variable? As you observe its motion, note how Mars’s brightness changes over time. When does Mars appear at its most brilliant?

NASA has tons of great Mars-related resources! Want to know more about apparent retrograde motion? NASA has an explainer at: https://mars.nasa.gov/all-about-mars/night-sky/retrograde/. Find great observing tips in JPL’s “What’s Up?” videos: https://www.youtube.com/playlist?list=PLTiv_XWHnOZrT_ppDGI7t_lI3yjD417d1. Check out detailed views with NASA’s HIRISE satellite, returning stunning closeups of the Martian surface since 2006: https://hirise.lpl.arizona.edu/. NASA’s Curiosity Rover will be joined in a few months by the Perseverance Rover, launched in late July to take advantage of the close approach of Mars and Earth, a launch window that opens two years: https://www.nasa.gov/perseverance. Calculate the ideal launch window yourself with this handy guide: https://www.jpl.nasa.gov/edu/teach/activity/lets-go-to-mars-calculating-launch-windows/. The Night Sky Network’s Exploring Our Solar System handout invites you to chart the positions of the planets in the Solar System, and NSN coordinator Jerelyn Ramirez recently contributed an update featuring Mars opposition! You can download both versions at https://nightsky.jpl.nasa.gov/download-view.cfm?Doc ID=243. Young astronomers can find many Mars resources and activities on NASA’s Space Place: https://spaceplace.nasa.gov/en/menu/educators/mars/. Here’s to clear skies and good seeing for Mars’s best appearance until 2033!

(left) If you are paying this much attention to Mars, you’re likely curious about the skies surrounding it! Find Mars in the constellation Pisces, with constellations Aries, Triangulum, and Cetus nearby. Aries may be the only one of these dimmer patterns readily visible from light-polluted areas. The Pleiades rises shortly after Mars. Dim Uranus is found close by, in Aries. If you are observing Mars up close, use the same eyepiece to check out Uranus’s tiny blue-green disc. If you are uncertain whether you spotted Uranus, you didn’t see it! Unlike stars, Uranus doesn’t resolve to a point at high magnifications.

(right) The path of Mars during the last five months of 2020. Notice the retrograde motion from September 10 to November 16, with prime Mars observing time found in between. October 6 is the day of closest approach of Earth and Mars, “just” 38.6 million miles apart. Images created with help from Stellarium: http://stellarium.org
NASA’s Curiosity Rover Sharpens Paradox of Ancient Mars  

Blue jets studied from Space Station  
[http://www.esa.int/Our_Activities/Human_Spaceflight/iriss/Blue_jetsstudied_from_Space_Station](http://www.esa.int/Our_Activities/Human_Spaceflight/iriss/Blue_jetsstudied_from_Space_Station)

One Role of Mars Orbiter: Check Possible Landing Sites  

Shedding Star  
[http://www.esa.int/spaceimages/Images/2017/02/Shedding_star](http://www.esa.int/spaceimages/Images/2017/02/Shedding_star)

It’s Never ‘Groundhog Day’ at Jupiter  

Swirling spirals at the north pole of Mars  
[www.esa.int/Our_Activities/Space_Science/Mars_Express/Swirling_spirals_at_the_north_pole_of_Mars](http://www.esa.int/Our_Activities/Space_Science/Mars_Express/Swirling_spirals_at_the_north_pole_of_Mars)

CryoSat reveals lake outbursts beneath Antarctic ice  
[www.esa.int/Our_Activities/Observing_the_Earth/CryoSat/CryoSat_reveals_lake_outbursts_beneath_Antarctic_ice](http://www.esa.int/Our_Activities/Observing_the_Earth/CryoSat/CryoSat_reveals_lake_outbursts_beneath_Antarctic_ice)

NASA Receives Science Report on Europa Lander Concept  

NuSTAR Helps Solve ‘Rapid Burster’ Mystery  

Angling up for Mars science  
[www.esa.int/Our_Activities/Operations/Angling_up_for_Mars_science](http://www.esa.int/Our_Activities/Operations/Angling_up_for_Mars_science)

India Launches Record-Breaking 104 Satellites on Single Rocket  

Disappearing Dark  
[https://atthu.utah.edu/facultystaff/the-disappearing-dark/](https://atthu.utah.edu/facultystaff/the-disappearing-dark/)

NASA, UCI Reveal New Details of Greenland Ice Loss  

A Valentine: From Cassini with Love  

Door out of silence  
[http://www.esa.int/spaceimages/Images/2017/02/Entrance_to_Hertz_chamber](http://www.esa.int/spaceimages/Images/2017/02/Entrance_to_Hertz_chamber)

Asteroid Resembles Dungeons and Dragons Dice  

Spacecraft shadow  
[http://www.esa.int/spaceimages/Images/2017/02/Spacecraft_shadow](http://www.esa.int/spaceimages/Images/2017/02/Spacecraft_shadow)

Spitzer Hears Stellar 'Heartbeat' from Planetary Companion  

NASA-funded Website Lets the Public Search for New Nearby Worlds  

Setting Sun on Space Station Solar research  
[http://www.esa.int/Our_Activities/Human_Spaceflight/Research/Setting_Sun_on_Space_Station_Solar_research](http://www.esa.int/Our_Activities/Human_Spaceflight/Research/Setting_Sun_on_Space_Station_Solar_research)

Planetary Moons Formed By Giant Impacts Outside Our Solar System Could Be Detected By Kepler  

Hubble Witnesses Massive Comet-Like Object Pollute Atmosphere of a White Dwarf  

Descent into a Frozen Underworld  

Scientists Shortlist Three Landing Sites for Mars 2020  

Antarctic Expedition Will Hunt for 'Missing' Meteorites  

Lasers Could Give Space Research its 'Broadband' Moment  

Home from home  
[http://www.esa.int/spaceimages/Images/2017/02/Home_from_home](http://www.esa.int/spaceimages/Images/2017/02/Home_from_home)

Black Hole Makes Material Wobble Around It  

SpaceX Tourists: To the Moon  

NASA Statement About SpaceX Private Moon Venture Announcement  

Getting to Know Meteors Better  
[https://newscenter.lbl.gov/2017/02/24/getting-know-meteors-better](https://newscenter.lbl.gov/2017/02/24/getting-know-meteors-better)

NuSTAR Helps Find Universe's Brightest Pulsars  

Blast from the past  
[http://sci.esa.int/hubble/58848-cosmic-blast-from-the-past](http://sci.esa.int/hubble/58848-cosmic-blast-from-the-past)

NASA Data Show California's San Joaquin Valley Still Sinking  

Martian Winds Carve Mountains, Move Dust, Raise Dust  

Supernova aftermath  
[www.esa.int/Our_Activities/Space_Science/Highlights/Supernova_aftermath](http://www.esa.int/Our_Activities/Space_Science/Highlights/Supernova_aftermath)

NuSTAR Spots Temperature Swings of Black Hole Winds  

A Galaxy on the Edge  