NORTHERN LIGHTS

NORTH CENTRAL REGION OF THE ASTRONOMICAL LEAGUE

Winter 2019 - Series III , Volume 3, No. 3

INSIDE THIS ISSUE OF *Northern Lights*

NCRAL CHAIR'S MESSAGE

This past October I took a week off to enjoy the night sky from Iceland. Several intrepid travelers from my local astronomy club and elsewhere went to that windswept rock in the middle of the Northern Atlantic to observe auroras. We were successful on two evenings. You might want to consider adding a travel dimension to your activities as an amateur astronomer. I've taken several trips to observe astronomical events and sites around the world and it has been most rewarding. I highly recommend astronomical travel.

The winter cold and snow now upon us! During this time of year, I tend to stay indoors more often than not on clear nights – nights when the temperatures plunge far below freezing. During such evenings I spend time thinking about NCRAL and my role as Regional Chair and working on newsletter articles.

As you know, each affiliate's president and ALCor work as part of the Regional Council to manage the operations of NCRAL. Now that I'm in my second year as Regional Chair, I have learned better how to operate using this structure established by our Region's bylaws. During the next three months I want the Regional Council to decide upon the following motions:

- Spend $99 per annum to make the Region's website (https://ncral.wordpress.com/) free from annoying advertisements.
- Formalize the understanding by which the Region provides partial financial support for both the Chair and ALCor to represent NCRAL at AL national council meetings.
- Formalize the guidelines for sharing of expenses and profits between the Region and our convention hosts. See "Expectations, indemnification, and profit sharing" on page 8 of NCRAL's *Convention Planning Guidelines* that can be found through the following URL: http://bit.ly/2SXcLv1

Looking ahead to the NCRAL 2019 business meeting, it is my intention to keep it relatively short. Last spring in Sturgeon Bay, the meeting ran long (90 minutes) because so many agenda items were before the membership. As one attendee noted, "Please bear with the Chair; he's trying to get things accomplished." My plans now call for a streamlined meeting.

This spring, we'll avoid the rollcall of all 36 affiliates and will only call the names of affiliates whose members appear on the convention's registration list. The reading of prior minutes will not be done (they were published in the Summer 2018 issue of ***Northern Lights***), so I will call only for their approval. Please review the Minutes found on the NCRAL website's newsletter archive if you have any questions. See https://ncral.wordpress.com/newsletter-archive/

Several motions will be brought before the membership at the NCRAL 2019 business meeting. These might include amendments to the bylaws and several proposals for things we want to accomplish in the future. For instance, I hope to entertain a motion to adopt four seasonal Messier Marathons and my earlier proposal for an NCRAL-sanctioned *Astronomical Bucket List* observing program. (The draft proposal to the Astronomical League was rejected out of hand because it "isn't an observing program." Go figure.) There will be no pins, but if approved, the Region will hand out certificates of recognition during annual business meetings. These observing activities will hopefully serve as motivators

Astronomicial League President William Bogardus 1949-2018

Astronomical League President Bill Bogardus passed away on Saturday November 24 after a year-long illness. His wife, Kim, was at his side, and his family comforted him over the Thanksgiving holidays.

Bill had been in active service to the Astronomical League ever since he received his Master Observer plaque at ALCon 2006 in Arlington, TX. He encouraged the club he was a member of, the Amateur Observers' Society of New York (AOSNY), to host ALCon 2009. After Chairing that convention, he ran for Astronomical League office, becoming secretary in 2009, then vice president in 2014. This past summer, Bill was elected Astronomical League President.

In addition to his leadership roles in the League, he created and administered the AL Radio Astronomy Observing Program, and administered the AL Master Observer Plaque Program. In 2013, Bill received the G.R. Wright Award for Outstanding Service to the Astronomical League and Astronomy.

A few of his non-League, astronomy-related activities included being chosen in 2016 for the *Astronomy in Chile Educator Ambassadors Program* (ACEAP); and viewing total solar eclipses in China, and the South Pacific. (Of course, he witnessed with his family the August 21, 2017 eclipse from Casper, WY.) He also traveled for southern skies viewing in Bolivia and Chile, and aurora observing in Sweden.

Amateur astronomy was lucky to have had Bill Bogardus play an active role. He will be sorely missed.

for participating in more advanced A.L. observing programs. We will move ahead with these and other proposals to the extent the membership agrees to do so. If you have anything that you'd like to see NCRAL do for its affiliates, drop me an email.

I'm delighted to again be able to share with you the contributions of Jeffrey L. Hunt, a prolific author whose writings again grace this newsletter. Jeff does an outstanding job providing day-by-day descriptions of what to look for in the sky. The amount of work required to produce these articles and diagrams is prodigious. If you are enjoying these articles, please let Jeffrey know by dropping him a note of thanks. Having been a newsletter editor for my club for the past several years, I can tell you that writing is often a thankless task. Just a few, well-timed notes of thanks can provide the type of fuel needed to keep the fires burning.

You might have already heard, but I'm sad to announce that Astronomical League President Bill Bogardus passed away on November 24th. This came as quite a shock to those of us on the National Council who met with Bill during ALCon 2018 in Minneapolis. The A.L. did provide an obituary which can be found to the left. A fuller obituary can be found at http://bit.ly/2SaWH95

I have been in contact with members of the A.L. Council and have learned that Vice President Ron Kramer has stepped up to take over as President of the League in compliance with the Bylaws. I have also heard directly from past president Carroll Iorg that he has accepted the position of Vice President of the League, filling the spot left open by Ron Kramer upon becoming president. Carroll will continue in his position as Media Officer and Convention Coordinator. It's fortunate for the League that we have such a wonderful group of capable and willing people to lead the association.

Looking ahead to spring and warming starlit nights, we can see on the not-so-distant horizon NCRAL 2019. This event, hosted by the Popular Astronomy Club of Rock Island/Moline, Illinois, will take place using information gleaned from our recent post-convention and convention preferences surveys. This event will be better than ever, so mark your calendar now for Friday-Sunday, May 3-5 if you haven't already done so.

Clear skies!

Carl J. Wenning
NCRAL Chair (2017-2019)

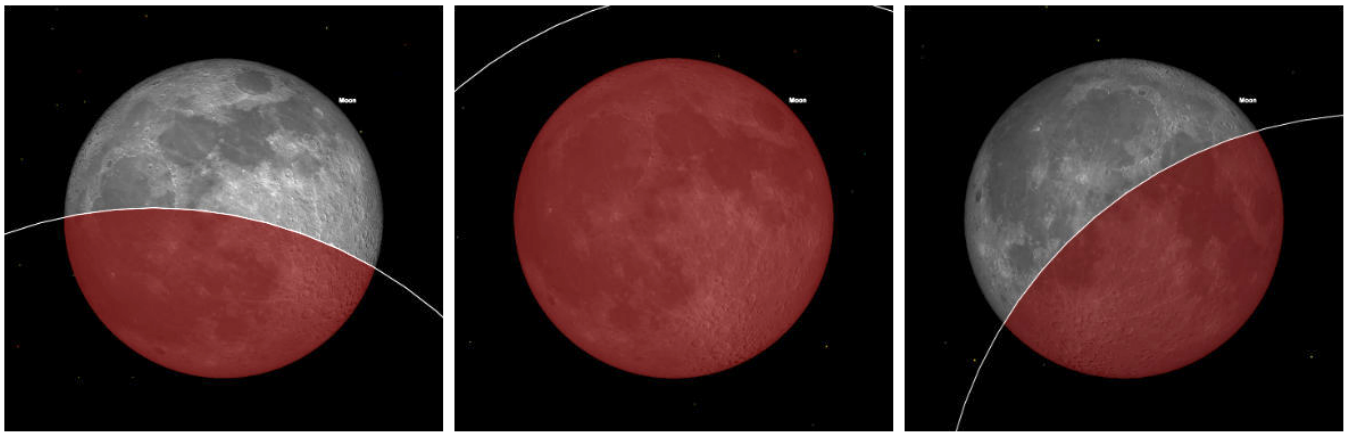
TOTAL ECLIPSE OF MOON JANUARY 20-21

The first full moon of 2019 will undergo a total eclipse on the night of Sunday/Monday, January 20/21. Let's hope for a clear sky. The umbral phase of the eclipse will begin at 10:34 PM. Totality will begin at 11:41 PM, with mid-eclipse occurring at 12:12 AM. Totality ends at 12:43 PM and the moon leaves Earth's umbral shadow at 1:51 PM. The duration of the dark umbral phase of the eclipse will be just under 62 minutes.

During the eclipse, the moon will be among the stars of Cancer the Crab. At the beginning of the eclipse, the moon will be located 2/3 way up in the east-southeast for Midwestern viewers. Because the moon will be 0.6 days before the moon reaches perigee, the moon's angular size will appear larger than usual. Some call this a "supermoon."

Because this is not a "central eclipse" with the moon passing through the center of Earth's dark umbral shadow, the moon will not likely take on is characteristic dark, ruddy appearance. The moon will appear dimmer and more "ashen."

The three images below show the moon at the following times: 11:07 PM, 12:12 AM, and 1:17 AM. The ring segment is the boundary of Earth's umbral shadow. The red coloration in the images below is highly exaggerated. [cjw]



NCRAL 2019 CONVENTION: NEWS YOU CAN USE

Time flies when you're having fun! It seems like only yesterday that the Popular Astronomy Club handed out "Hold the Date" sheets at the NCRAL 2018 Convention in Sturgeon Bay, WI. At that time, we announced *Astronomical Voyages of Discovery: Past, Present and Future* as the theme for NCRAL 2019 from May 3 – 4, 2019 in Moline, IL. Since then, a lot has happened with the convention planning committee:

- Sunday, May 5th was added to the schedule
- The NCRAL Business Meeting has been moved to Saturday morning
- Activities were selected to include all four cornerstones of amateur astronomy supported by the Astronomical League: The Art of Observing, The Joy of Outreach, The Coolness of Equipment, and The Science of Astronomy.
- A program was developed which includes (2) Seminars, (11) presentations, (1) Panel Discussion, and field trips to (2) planetariums and (1) observatory
- Generous sponsors were identified to reduce the cost of the convention
- We missed our 1 November "start of registration" goal (not everything happens as planned)

Our planning is complete; now, it's time for you to plan your participation! Here are some things for you to consider:

- Send an email to 2019NCRALInfo@gmail.com with your name, email address, and club affiliation so you can be added to the "1st to Know" distribution list. Join (22) astronomers from two regions that already get information before it's posted to the website
- Review the official website at www.NCRAL2019.org

- Decide if you want the discounted "full registration" or "a-la-carte" pricing
- Register and make hotel reservations
- Pay attention to the "Late Registration" start date of March 15th
- Arrive Thursday evening so you can take advantage of some of the pre-convention activities arranged for Friday morning. Let me know if you will arrive Thursday so your Welcome Bag is available early.

On behalf of the entire Popular Astronomy Club, we wish you nothing but clear skies in 2019.

See you in May!

Mike Gacioch
Chairman, NCRAL 2019

NCRAL 2019

Astronomical Voyages of Discovery: Past, Present and Future

The fine print: Although we're really solid on the following schedule, "stuff" can happen before May. The schedule may change if some of that "stuff" happens.

Day 1		Friday, May 3rd, 2019
Pre-convention Activities	9:00 - 16:00	John Deere Pavilion - Visit the John Deere Pavilion and JD Store
	10:00 - 11:30	John Deere Harvester Works - Factory Tour
	12:00 - 16:00	Rock Island Arsenal - Arsenal Gun Museum Tour
Registration Open	12:00 - 18:00	Pick up packets and get questions answered
Set-up	12:00 - 16:00	Participants bring DIY creations to show, Vendor set-ups
Solar Observing	13:00 - 15:30	Tours of the PACMO & solar viewing
Seminars	13:00 - 14:00	*Best Practices for Community Outreach* PAC Member and attendees
	14:00 - 16:00	*Astrophotography 101* Dino Milani, Terry Dufek, Rusty Case, Mike Ombrello
Kick-off	16:15 - 16:45	*Welcome* Mike Gacioch
		Give Away #1
		Brief History of Popular Astronomy Club Roy Gustafson
DIY Fair/Networking	16:45 - 18:00	Mingle, visit vendors, discuss DIY projects over dinner and cash bar
Dinner	16:45 - 18:00	Heavy Hors d'oeuvres and Cash Bar
Trivia Competition	18:00 - 18:30	Inter-club competition
Presentations 1 and 2	18:45 - 19:45	*A Relativistic Century: Eddington, Einstein, and the Great Eclipse* Lee Carkner (Augustana College)
	19:45 - 20:30	*Voyages of Discovery* Carl Wenning
Drive to Augustana College	20:30 - 21:00	Caravan and gather at John Deere Planetarium
At Augustana College	21:00 - 22:30	Tour John Deere Planetarium and Gamble Observatory
After-hours Activities	21:00 - ?	Dark Sky Observing (Menke Observatory visit, Moon sets ~ 18:46)

Day 2		Saturday, May 4th, 2019
Registration Open	7:30 - 12:00	Pick up packets and get questions answered
Breakfast/Networking	7:30 - 9:30	Continental Breakfast and networking
NCRAL Business Meeting	8:00 - 9:00	Give Away #2
		Carl Wenning
Brief Day Overview	9:15 - 9:30	Mike Gacioch and Alan Sheidler
		Give Away #3
Presentations 3 and 4	9:45 - 10:45	*A Discussion of Historical Tests of General Relativity* Robert Mutel, University of Iowa
	10:45 - 11:45	*Meteorites: Messengers from Space and Time* Paul Sipiera, Planetary Studies Foundation
Group Photo	11:45 - 12:15	Meet at PACMO for Group Photo
Lunch/Networking	12:15 - 13:00	Soup, Salad, Sandwich Buffet
		Give Away #4
Presentations 5 and 6	13:00 - 14:00	*Voyages of Discovery in Radio Astronomy* Esteban Araya, Western Illinois University
	14:00 - 15:00	*Gravitational Waves* Robert Mitchell, Saint Ambrose University
Break/Networking	15:00 - 15:30	Stretch break
Presentations 7, 8 and 9	15:30 - 17:00	*Our Coolest Stellar Neighbors: the Role of M Dwarf Stars in the Search for Earth 2.0* Katie Melbourne, student, Yale University
		Tweeting to the stars with the Burke-Gaffney Observatory and learning about galaxy evolution using simulations Tiffany Fields, student, St. Mary's University, Nova Scotia
		Asteroid Research at the Monmouth College Adolphson Observatory Bridgette Davey, student, Monmouth College
Networking	17:00 - 17:30	Cash Bar
Banquet	17:30 - 18:45	3-Entree Dinner Buffet
Awards	19:00 - 19:15	Give Away #5
		Astro League awards and introduction of keynote speaker
Keynote	19:15 - 20:15	*Different Views of the Sky; American Indian Views of Astronomy (and a look at where we are going in the future)* Steven Spangler, University of Iowa
Closing Remarks	20:15 - 20:30	Mike Gacioch and Alan Sheidler
After Hours Activities	20:30 - 12:00	Evening Observing Session with PACMO (Sunset is 8:02, new moon)
	21:00 - ??	Dark Sky Observing (Menke Observatory visit, Moon sets ~ 19:50)

Day 3 (morning)		Sunday, May 5th, 2019
At Bettendorf High School	9:00 - 10:00	*Panel Discussion: Involving Students in Astronomy* Ian Spangenberg, Chris Like, Alan Sheidler and students
		Give Away #6
At Bettendorf High School	10:00 - 11:00	Tour Bettendorf HS planetarium Chris Like

The convention planning team has been very busy in the last couple of months to finalize everything. They have created and now announce a website for on-line registration and program information. It can be accessed at www.ncral2019.org. Here you will find the speaker bios, presentation summaries, pricing and other information. Please note the early-bird registration deadline of March 15th. Registration after this date will be more expensive. Register today to save help with planning.

QUILT SHOW CONCURRENT WITH NCRAL 2019

Family members often travel with convention participants. Some don't attend more than convention meals to hear the keynote address. As a result, it is nice to know that there are other activities in the surrounding areas that take place concurrently with other convention events. Please note that concurrent with NCRAL 2019 the Sinnissippi Quilters, a quilting guild in Rockford, IL, (about 120 miles from Moline, IL) will be holding Quilt Show 2019 May 4 and 5 with the theme "Out of This World."

The Quilters note, "The theme quilt category for our show will be sun, moon, stars, skies, spaceships, and space travel of all kinds. Possibilities are endless! Many of us remember the first moon landing in July 1969, and 2019 will be the 50th anniversary of that historic event. One of the Special Exhibits at our show will be a portion of the "Fly Me to the Moon" quilt collection that honors the moon landings and all space travel. We will exhibit about 50 of the 179 quilts." For more information, visit https://sinnissippiquilters.org/.

NCRAL LOGO CONTEST ENTRIES

The Summer 2018 issue of ***Northern Lights*** contained a call for proposals for an NCRAL logo approved by the Regional Council (https://ncral.wordpress.com/newsletter-archive/). At that time, the following procedures were set forth to govern the selection process:

Guidelines: (truncated)

11. Drafts will appear in the Winter 2019 issue of ***Northern Lights***. Readers will then be asked to vote for the best three logos and offered the opportunity to make further suggestions for revisions.
12. The three revised drafts receiving the most votes will be published in the Spring 2019 issue of ***Northern Lights***. No resubmission is necessary.
13. At the NCRAL 2019 convention in Moline, IL, the assembled members of NCRAL will vote on the top final draft. The 3rd place award winner will receive a prize of $25, 2nd place $50, and 1st place $75 plus the benefit of knowing that their draft logo in finished form will be the one to represent NCRAL.
14. Up to $350 will be allocated to render the formal artwork and produce scalable image files. Any trademark becomes the property of NCRAL. NCRAL will use the finished logo in any fashion deemed reasonable by the Executive Officers.

Criteria:

The final draft artwork that is chosen on the basis of the actual NCRAL logo will have the general characteristics:

1. Simple – The simplest logos are those that people will recognize immediately and remember the best.
2. Scalable – The logo should be simple enough to be able to be scaled down or up and still look good.
3. Impactful – The logo should capture the viewer's attention and leave a positive impression; the logo should look good in both color and black & white renditions.
4. Relevant – The logo should be relevant to who we are as NCRAL; it must have a meaning that obviously relates to astronomy.
5. Accurate – The logo should be astronomical accurate to the extent possible.

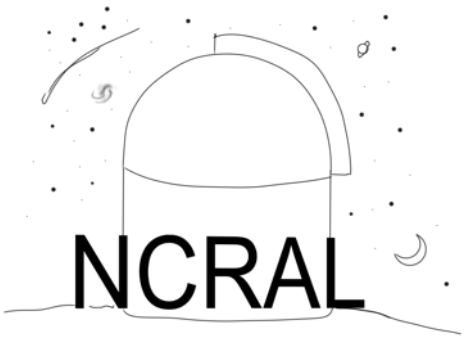
We are now in the second phase of the logo contest. Seven drafts (including one new version) were proposed by four different individuals. Original graphics or revisions are shown on the next page. We will now begin voting for the top three designs based upon step 11.

The three drafts receiving the most affirmative votes will be published in the Spring 2019 issue of ***Northern Lights***. These will then be presented at NCRAL 2019 where a single winner will be chosen by physical ballot. A finalized version will then be produced for use by NCRAL if necessary.

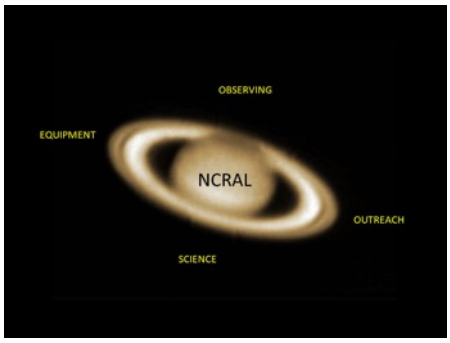
VOTING FOR TOP THREE DRAFT LOGOS

Vote now to indication your top three (3) picks for draft logos. You must enter your email address in order to vote. This vote will merely serve to reduce the number of draft logos to the three most acceptable at this time. Vote either "yes" or "no" to approve the concept presented in each draft logo. Do not vote "yes" for more than three (3) logos; you may vote for only 1 or 2 logos if you prefer.

Be certain to click SUBMIT at the end of the voting process so that your votes are recorded. Our pole is now open for voting and closes at 11:59 PM on Friday, February 15, 2019. You may cast your vote(s) using the following case-sensitive URL: http://bit.ly/2Rs94RY. The actual vote for the best draft logo will take place during the NCRAL 2019 convention, May 3-5, in Moline, IL. We will then use printed ballots.

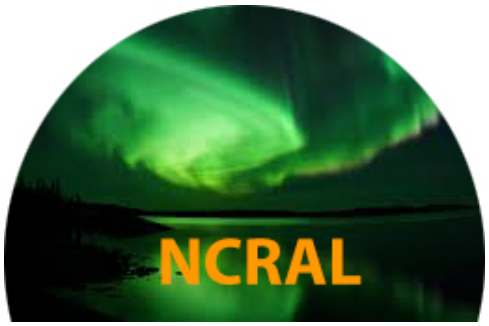


SUBMISSION #1 (ABOVE)



SUBMISSION #2 (ABOVE)

SUBMISSION #3 (ABOVE)



SUBMISSION #4 (ABOVE)

NCRAL

North Central Region Astronomical League

SUBMISSION #5 (ABOVE)

SUBMISSION #6 (ABOVE)

SUBMISSION #7 (ABOVE)

2018 AL/OPT Imaging Awards

Your editor takes great pleasure in announcing that one of NCRAL's own, James Wehmer of the Champaign-Urbana Astronomical Society (Illinois), had his solar system submission selected as first place winner in this the year's AL/OPT Imaging Award competition. James submission, "Total Solar Eclipse Sequence" was taken August 21, 2017. His image, a composite of solar views, appears in the December 2018 issue of ***Reflector***. See page 16. Congratulations to James for a job well done!

A worthy Astronomy Club project:
Do good. Influence young minds.

Astronomy clubs often ask how they can benefit their communities. Outreach is certainly one way. Here is another.

Libraries are commonly one of the first places people visit to learn about particular subjects such as the stars and planets. (Many amateur astronomers began their celestial journey at the library.)

If you feel that the collection at your local library is woefully inadequate or out-of-date, **why not ask your club to donate interesting and informative – and current – astronomy related materials?** You just might influence a young mind!

CUAS Summit a Great Success

Astronomy club members from across Illinois attended the September 29th Amateur Astronomy Summit hosted by the Champaign-Urbana Astronomical Society. It was a really rewarding experience for those who gathered with amateur astronomers from around Illinois include the following clubs: Champaign-Urbana Astronomical Society (CUAS), the U of I Astronomical Society (UIAS), Rockford Amateur Astronomers (RAA), and Popular Astronomy Club (PAC).

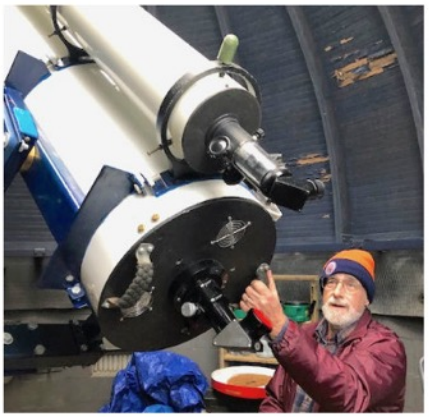
The event began with a flea market of interesting astronomical items followed by an afternoon session of talks at William M. Staerkel Planetarium on the campus of Parkland College. CUAS's Jim Wehmer spoke about *Refurbishing the CUAS 16-inch Cassegrain Dome Telescope*, NCRAL Regional Chair Carl Wenning (TCAA) spoke about *Benefits of NCRAL Membership*, PAC's Alan Sheidler and Mike Gacioch described *NCRAL 2019: Voyages of Discovery*, and CUAS's Erik Johnson gave a tour of the night sky using the planetarium's star projector.

Following a 10-minute break, those assembled heard the following talks: *Wireless Telescope Control* by CUAS's Scott Glick, *A Library Telescope Program* by RAA's Keith Short, and *In the Footsteps of Edward E. Bernard* by RAA's Walter Pronkowski. All of the talks quite interesting an informative. It appears that our members can away with new insights and inspirations that have potential for our own club.

Following the talks at the planetarium, we travel about a dozen miles to the CUAS Prairie Winds Observatory where we toured the facilities and enjoyed a complimentary picnic dinner hosted entirely by CUAS. The sky was overcast, so there was

no observing. Attendees begin dispersing shortly after 7:00 PM thankful for this event and looking forward to another such event next year. The TCAA thanks the CUAS for hosting the Amateur Astronomy Summit and members of the TCAA look forward to doing so next year.

This was the third such annual event. It originated in 2015 with the TCAA hosting a mini conference in an effort to develop camaraderie among fellow amateur astronomers. It was hold again in 2016 by the TCAA. There was no such event in 2017 due to the total solar eclipse gathering at Camp Ondessonk in southern Illinois. Illinois amateurs are already looking ahead to next year when the TCAA might host this mini conference or astronomy summit once again. Waynesville Observatory, the TCAA's dark skies observatory, then should be entirely functional and a wonderful sight to behold. It includes 10", 16", 20", and 24" telescopes.



CALL FOR NOMINATIONS:

EXECUTIVE OFFICERS – CHAIR, VICE CHAIR, REGIONAL REP TO THE AL, NCRAL REGION AWARD, NCRAL NEWSLETTER EDITOR AWARD

It's never too early to start thinking about the nominations process for this spring's **Executive Officer** elections. Assembling a slate of officer candidates last minute can be difficult, if not impossible, as seen at the business meetings at Lanesboro, MN, and Sturgeon Bay, WI. In the first case, only prolonged and repeated calls for nominations resulted in candidates for some offices. In the second case, no nominations were received, and the selection of a new secretary-treasurer was handed off to the Region's Executive Officers.

Also worthy of note is the fact that our last regional chair held the position for 12 years and the last regional secretary-treasurer held the position for 10 years. They did so most graciously because no one was willing to stand for election. Regardless, according to the NCRAL bylaws, no officer should succeed himself/herself more than two times for a maximum serial term of 6 years (chair and vice chair) or 9 years (secretary-treasurer and representative to the Astronomical League). Fortunately, no one is term-limited this coming year, but this does not mean that those currently holding positions will be willing to stand again for election.

According to NCRAL bylaws, in 2019 we must elect both Regional chair and vice-chair to two-year terms. We need to elect a Regional ALCor to a 3-year term. In compliance with the Region's bylaws, the Regional Chair plans to appoint a Nominations Committee in compliance with the Bylaws sometime this autumn. Note the following from the Article V, Section 2, of the Bylaws:

> *The NCRAL Chair shall appoint a nominating committee chair who will not be eligible to stand for election to any NCRAL office. The nominating committee chair shall select, from among the NCRAL membership, one or more candidates for each office to be elected and the committee chair shall issue a report to the NCRAL Chair prior to the Regional business meeting or the lapse of one (1) year following the previous convention. Additional nominations may also be made by any NCRAL member to the committee chair and provision shall be made for nominations from the floor at the Regional Business Meeting of Article VII.*

If you are willing to be serve as a member of this nominations committee, please contact the current Regional Chair directly at carlwenning@gmail.com

In addition, we should also start thinking about nominations for the **NCRAL Region Award**. Do you know someone who has dedicated his or her time and energy to promoting astronomy? Wouldn't you like to let them know they are appreciated for their hard work? This is your chance! This award recognizes exceptional individual effort and meritorious service to amateur astronomy through the member's local astronomy club, public outreach, the NCRAL, or the Astronomical League.

The Regional is now calling for nominations for both the 2018 and 2019 Region awards. Unfortunately, a call for 2018 nominations was not sent out. In addition, there was one nomination that was carried over from the previous year that should have been considered, but the current leadership did not find out about it until a chance conversation revealed it after NCRAL 2018.

Using the guidelines and submission forms below, we have made it easier than ever to nominate someone you feel deserves this award. This award will be presented in a special ceremony concluding the dinner banquet, of the next Regional convention, NCRAL 2019, to be held at Moline, IL, Friday/Sunday, May 3-5.

<u>The Rules for nomination are now set as follows:</u>

1. The individual must be a member in good standing, either through an AL/NCRAL-affiliated society or as a current member-at-large in the North Central Region.
2. The three current regional officers and the regional representative are NOT eligible for this award. Past winners are also ineligible for this award.
3. The regional officers and the regional representative are the voters and will base their decision on the information provided. Each member votes independently and will use his/her best judgment. All decisions are final.
4. The winner will be contacted not less than 30 days in advance of the NCRAL meeting at which the award will be presented. The winner will not be publicly revealed until the time of the presentation. Those not selected, will not be revealed.

5. All non-winning nominations will be kept on file for two years after initial submission. After such time, a new nomination needs to be competed.

There are many deserving candidates within NCRAL. It is our hope to have a least one nomination from each society of the Region. We look forward to receiving your nominations by the date of the March equinox. If there are any questions, please contact Vice Chair John Attewell via phone or email using the contact information found on the Submission Form below.

Submission Format for the NCRAL Region Award

Candidate's name (as it will appear on plaque) _____

Shipping Address _____

City _____ State _____ Zip _____

Club Affiliation _____

Nominator's name _____ Club affiliation _____

Address_____ City _____ State _____Zip_____

Phone _____ E-mail _____

Submission Guidelines:

Prepare a statement of the nominee's accomplishments in one or more of the areas listed under criteria. This statement should not exceed 3 double-spaced pages (1,000 words). Length does not necessarily equal strength. The statement should include number of years in office or committee membership and dates of said membership. The statement should also include length of time participating in public education, number of presentations, etc.

Supporting data; please include any relevant newspaper clippings, photos, and other articles that support the nomination. For service to groups such as schools, scouts, etc., it would help the committee if you could obtain a brief statement from the teacher, leader, chair etc. on the usefulness of the presentation.

NOMINATIONS MUST BE RECEIVED by the date of the March equinox. Any nominations received after this date will be kept on file for 2020. All nominations must be sent via email to John Attewell, NCRAL Vice Chair, at john_attewell@hotmail.com. For additional information you may contact John at Mobile: (507) 398-4492 or Home: (507) 282-3120.

Lastly, let's not forget about the **NCRAL Newsletter Editor Award** which is new this year. It is expected that the inaugural award will be conferred at the NCRAL 2019 meeting. See the announcement for this award earlier in this issue of ***Northern Lights***.

ADD YOUR EMAIL ADDRESS TO THE NCRAL MEMBER DATABASE

Add your email address to the NCRAL member database so you can get direct mailings of ***Northern Lights*** and important and timely announcements about Regional conventions, star parties, and so forth. Your email address will never be shared with or sold to outside entities. Only blind addressing (Bcc:) will ever be used with this email list so that others will not see your email address.

No one will add your email address to this list for you, so you'll need to do it yourself. Sign-up takes only about a minute. You'll need to provide your name, email address, astronomy club affiliation (or indicate at-large membership) and let us know if you hold specific positions within your club. Go to the following case-sensitive URL to add your information to our database: https://goo.gl/gsS8SF

Following a start-of-September email "blast" as a reminder, our numbers recently have grown. Thus far about 350 members have signed up to receive direct communication – only 19% of the approximately 1,850 members in the Region – despite an early September email solicitation that went out to some 1,400 members for whom the Regional Chair has emails.

ALCon 2019 - Final Announcement!

ALCon 2019 will start at Kennedy Space Center (KSC) in Florida to commemorate the 50th anniversary of the Apollo 11 moon landing. If you plan to attend the July 25-29 event, get the dates into your schedule now. A leading reason why people don't attend such meetings is schedule conflicts. Don't let this happen to you.

Our time at KSC will be followed by a three-day cruise to the Bahamas during which the actual conference will be held! See the first official announcement shown to the right for details. The number of cruise cabins is limited, so make your reservations soon as this one is likely to fill up quickly.

Your ASTRONOMICAL LEAGUE

50th Anniversary APOLLO 11

Join the Astronomical League to commemorate the 50th anniversary of the first moon landing!

ALCon 2019

Kennedy Space Center and Southern Skies Cruise to the Bahamas

July 25 - 29, 2019

First, tour the **Kennedy Space Center**, the site of the Apollo 11 launch. Then, enjoy a **three-day cruise to the Bahamas** on a ship by Royal Caribbean and see the southern Milky Way of Sagittarius and Scorpius!

- Thursday July 25, after the KSC tour, stay on-shore at a hotel in Port Canaveral (to be arranged).
- You will need a passport valid through January 2020 or later. (Yes, at least six months after the cruise!)
- Royal Caribbean cruise ship leaves Port Canaveral Friday afternoon July 26 and returns Monday morning July 29.
- Cruise cabins are limited. Reservations are being accepted, with a $100 initial down payment. Pricing (based on double occupancy) for the whole weekend cruise including meals is set at $399 per person (PP) for inside cabins, $579 PP for outside cabins, and $589 PP for Balcony cabins. Singles, triples, and quad rates are available upon request with our agent.
- Members of the Astronomical League only: **To reserve your cabin with a $100 deposit, and for additonal cruise details, please contact Marsha at Lin-Mar Travel, 631-736-1049 or marsha@travelwithlin-mar.com.**

More details available shortly.

AL-Affiliated Clubs Can Now Directly Update Their Information on the AL Website!

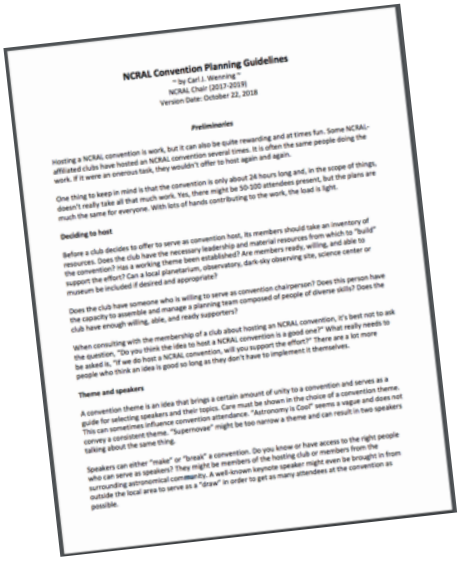
Did you know that the president, treasurer, or ALCor of your club may update information about your club yourself by requesting an account at URL https://members.astroleague.org/request_account and entering their email address and then pressing the "Request account information" button near the bottom of the page? An email with instructions and a link to create a new account will then be sent within a few minutes. Once logged in, there are instructions at https://members.astroleague.org/content/club-officer-tutorial on how to update your club's info.

FUTURE NCRAL REGIONAL CONVENTIONS

Each year at NCRAL's annual business meeting, the Region receives offers for hosting upcoming meetings. The following affiliates have agreed to hosting future conventions. We are still in need for additional hosts, but especially for 2022, 2024, and the years beyond. It's never too early to start planning to host.

- 2020 Port Washington, WI: Northern Cross Science Foundation (confirmed)
- 2021 Green Bay, WI: Neville Public Museum Astronomical Society (confirmed)
- 2022 OPEN
- 2023 Bloomington-Normal, IL: Twin City Amateur Astronomers (confirmed)
- 2024 OPEN

If your club has never hosted an NCRAL Regional convention, please consider doing so. While it is a considerable amount of work, it can be quite rewarding – even fun. It provides an opportunity to showcase your group's facilities and accomplishments, build club camaraderie, and to get to personally know interesting guest speakers. You can also use such an event to grow your club's membership.



NCRAL Convention Planning Guidelines

" by Carl J. Wenning "
NCRAL Chair (2017-2019)
Version Date: October 22, 2018

Preliminaries

Hosting a NCRAL convention is work, but it can also be quite rewarding and at times fun. Some NCRAL-affiliated clubs have hosted an NCRAL convention several times. It is often the same people doing the work. If it were an onerous task, they wouldn't offer to host again and again.

One thing to keep in mind is that the convention is only about 24 hours long and, in the scope of things, doesn't really take all that much work. Yes, there might be 50-100 attendees present, but the plans are much the same for everyone. With lots of hands contributing to the work, the load is light.

Deciding to host

Before a club decides to offer to serve as convention host, its members should take an inventory of resources. Does the club have the necessary leadership and material resources from which to "build" the convention? Has a working theme been established? Are members ready, willing, and able to support the effort? Can a local planetarium, observatory, dark-sky observing site, science center or museum be included if desired and appropriate?

Does the club have someone who is willing to serve as convention chairperson? Does this person have the capacity to assemble and manage a planning team composed of people of diverse skills? Does the club have enough willing, able, and ready supporters?

When consulting with the membership of a club about hosting an NCRAL convention, it's best not to ask the question, "Do you think the idea to host a NCRAL convention will you support the effort?" What really needs to be asked is, "If we do host a NCRAL convention, will you support the effort?" There are a lot more people who think an idea is good so long as they don't have to implement it themselves.

Theme and speakers

A convention theme is an idea that brings a certain amount of unity to a convention and serves as a guide for selecting speakers and their topics. Care must be shown in the choice of a convention theme. This can sometimes influence convention attendance. "Astronomy is Cool" seems a vague and does not convey a consistent theme. "Supernovae" might be too narrow a theme and can result in two speakers talking about the same thing.

Speakers can either "make" or "break" a convention. Do you know or have access to the right people who can serve as speakers? They might be members of the hosting club or members from the surrounding astronomical community. A well-known keynote speaker might even be brought in from outside the local area to serve as a "draw" in order to get as many attendees at the convention as possible.

Remember, NCRAL now has its own convention planning guidelines. The guide was developed by experienced hosts of NCRAL conventions in conjunction with one future host who asked lots of excellent questions. Significant contributions were made by Alan Sheidler (Popular Astronomy Club) and John Beck (Door Peninsula Astronomical Society). NCRAL Chair Carl Wenning, served as contributor and lead author.

The ***NCRAL Convention Planning Guide*** has three sections. Section 1 deals with the "preliminaries" of what it takes to host a Regional convention. Section 2 deals with programming information. Section 3 deals with budgeting information.

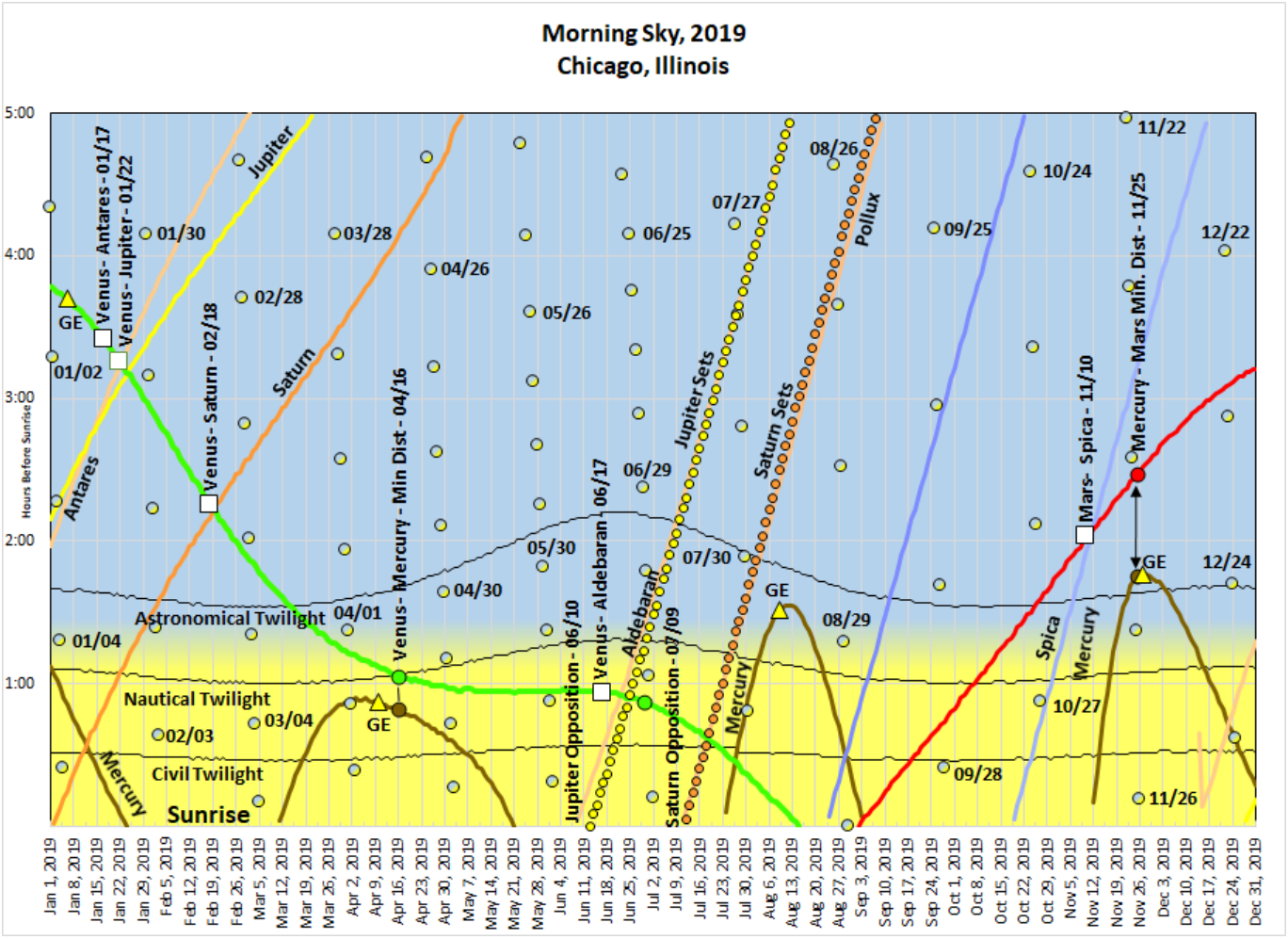
The guide is considered a "living document" that will be updated as new survey information becomes available. The recent NCRAL 2018 post-convention survey was included in the document. Results from the NCRAL Convention Preferences Survey are now included. The goal is to increase the benefits of convention attendance, thereby increasing attendance at our Region's conventions.

To download and review the planning guide, you may access it through the NCRAL website the following URL: https://ncral.wordpress.com/conventions/. Look for the link at the bottom of the page.

Please contact NCRAL Chair Carl Wenning at carlwenning@gmail.com should you have any questions or wish to toss your hat into the ring for hosting a future NCRAL convention.

IMPORTANT REMINDERS

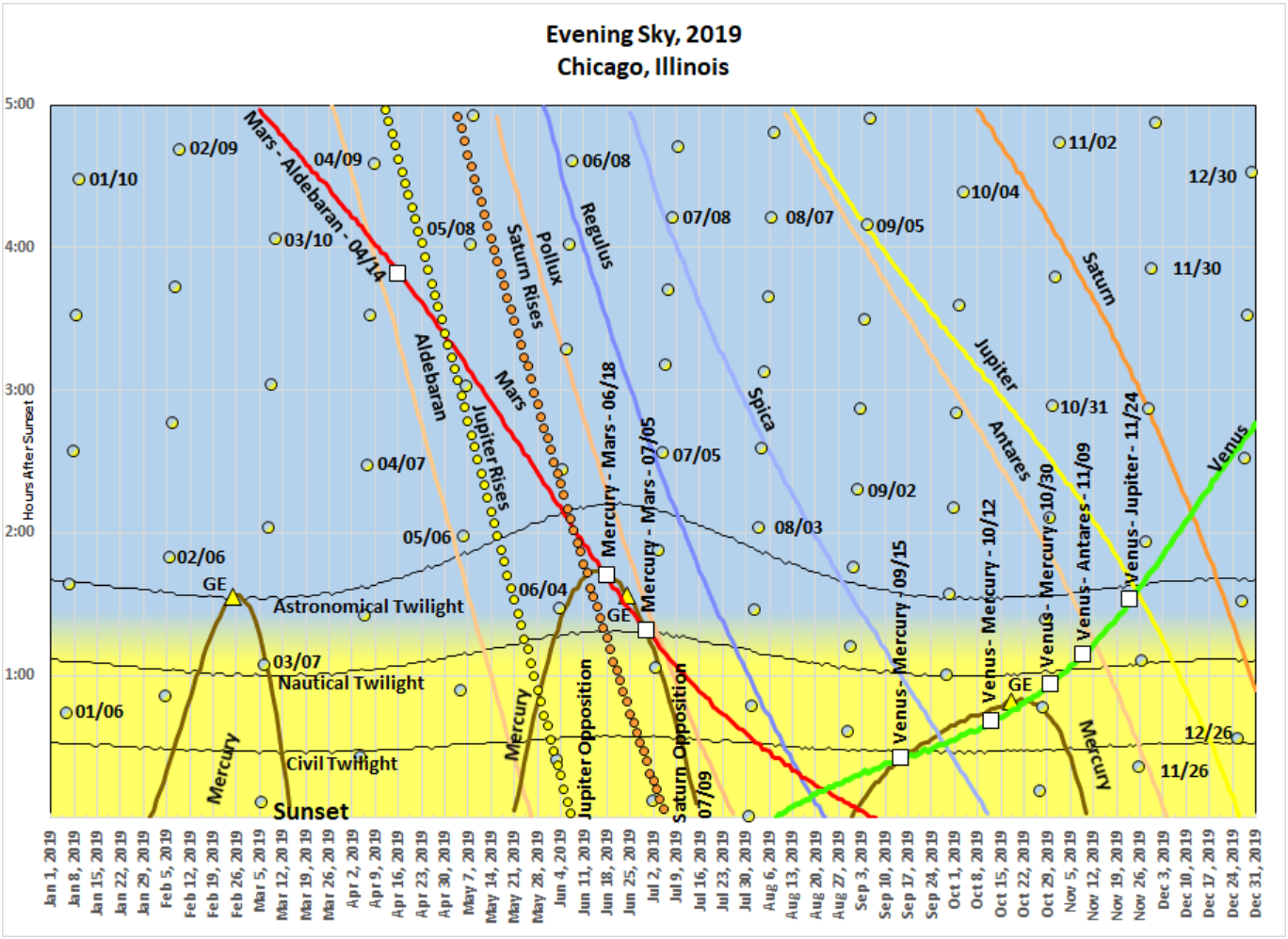
- Don't forget to register for NCRAL 2019; there is an early bird registration deadline coming up soon. Register now and save. See page 3 of this issue for details.
- Don't forget to vote for your favorite NCRAL draft logos. See page 6 of this issue for details.
- Deadlines for nominations for various Regional officer positions and NCRAL awards are coming due. Please give some thought to these. See page 10 for details.
- Don't forget to register of ALCon 2019. See page 12 for details.
- Don't forget about NCRAL mini grants. There are two such grants with a March 31st deadline. See page 14 of the Autumn 2018 issue of ***Northern Lights*** for details.
- Visit the NCRAL website to see back issues of this newsletter and other important information. http://ncral.wordpress.com



The 2019 Morning Sky *is highlighted by conjunctions of Venus with Jupiter and Saturn, and its disappearance into bright twilight. This is followed by the reappearance of Mars and the year's best morning appearance of Mercury. This chart shows the planets, moon (circles), and the first magnitude stars rising time intervals compared to sunrise in the eastern sky before sunrise. The three phases of twilight are displayed. White boxes indicate conjunctions; and yellow triangles are greatest elongations. Jupiter sets and Saturn sets occur in the western sky. When either planet sets at sunrise, that planet is at opposition. When a planet rising line crosses another object's rising line, conjunctions occur on that date or within a few days of the crossing. A moon circle near a rising line indicates that the moon appears near that object.*

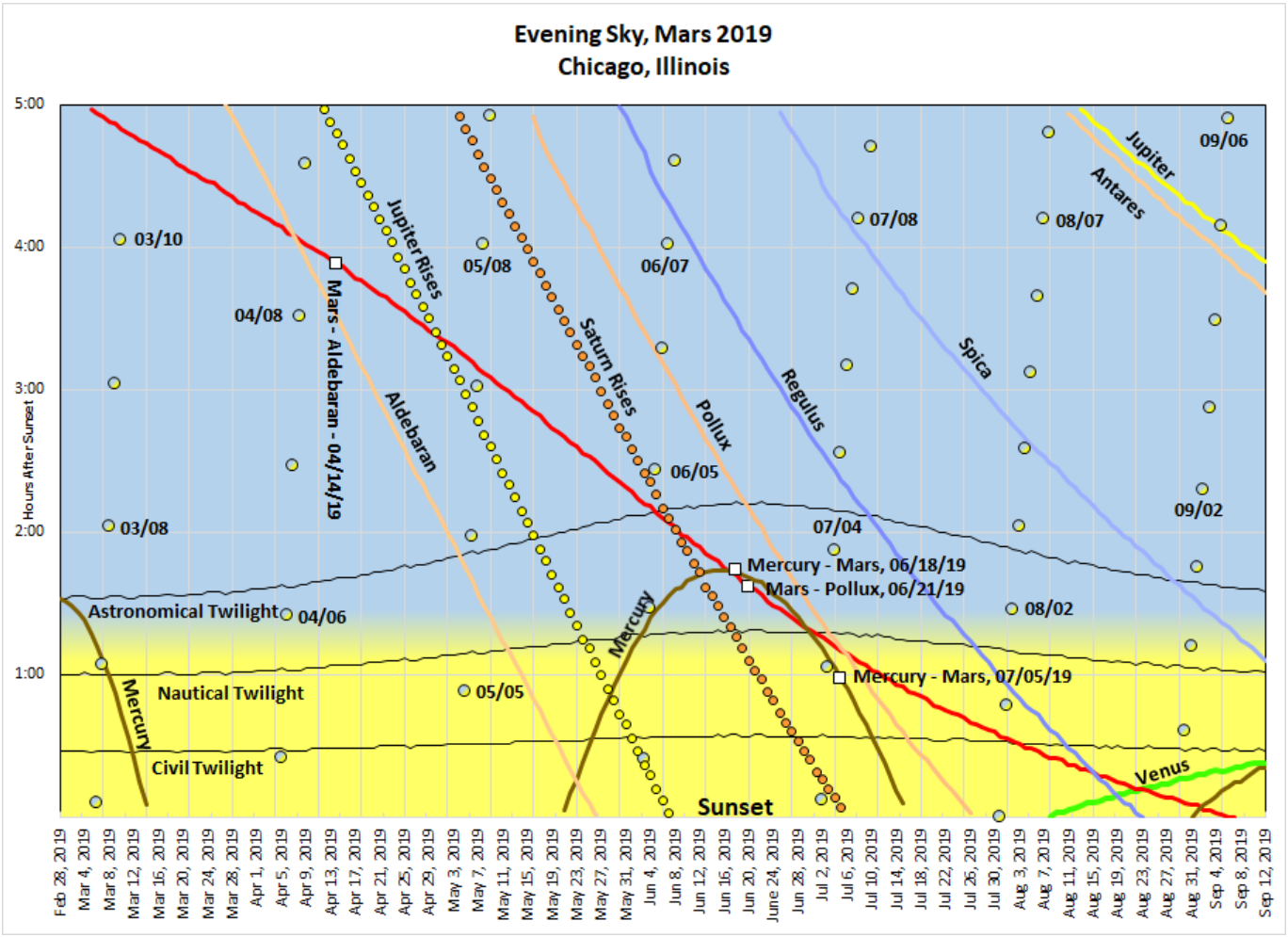
Dr. Jeffrey L. Hunt

About the Author: Jeffrey Hunt has had a life-long interest in astronomy and astronomy education. He has taught astronomy at all levels from preschool students to university courses. Jeff is a former director of the Waubonsie Valley High School Planetarium in Aurora, Illinois. Dr. Hunt holds several degrees including a master's degree in planetarium education from Michigan State University. He writes an astronomy blog (jeffreylhunt.wordpress.com) showing easily-seen sky events. Currently he is retired with his wife and cat in Northern Illinois.



*The **2019 Evening Sky** is highlighted by the disappearance of Mars. Mercury has its best evening show in February. Venus emerges from the sun's glare and passes Mercury, Jupiter, and Saturn later in the year. This chart shows the planets, moon (circles), and the first magnitude stars setting time intervals compared to sunset in the western sky after sunset. The three phases of twilight are displayed. White boxes indicate conjunctions; and yellow triangles are greatest elongations. Jupiter rises and Saturn rises occur in the eastern sky. When either planet rises at sunset, that planet is at opposition. When a planet setting line crosses another object's setting line, conjunctions occur on that date or within a few days of the crossing. A moon circle*

near a setting line indicates that the moon appears near that object. (Chart data from the U.S. Naval Observatory, Diagrams by Jeffrey L. Hunt)



This chart displays Mars' setting interval after sunset from early March 2019 until its solar conjunction. Mars passes Aldebaran; has a pair of conjunctions with Mercury; and a conjunction with Pollux as it moves toward the sun. Moonset is displayed with circles and the three phases of twilight are shown. (Calculated with data from the U.S. Naval Observatory.)

MARS 2019

~ by Jeffrey L. Hunt ~

After its spectacular perihelic opposition, Mars begins the year 2019 as an Evening Star about halfway up in the south-southwest at the end of evening twilight. From the beginning of the year through May 17, Mars gains nearly 25° in declination. It sets farther north each night, during this period. On January 1, it sets at azimuth 271°, reaching 305° in mid-May. Here is a summary its apparition in 2019 until its solar conjunction.

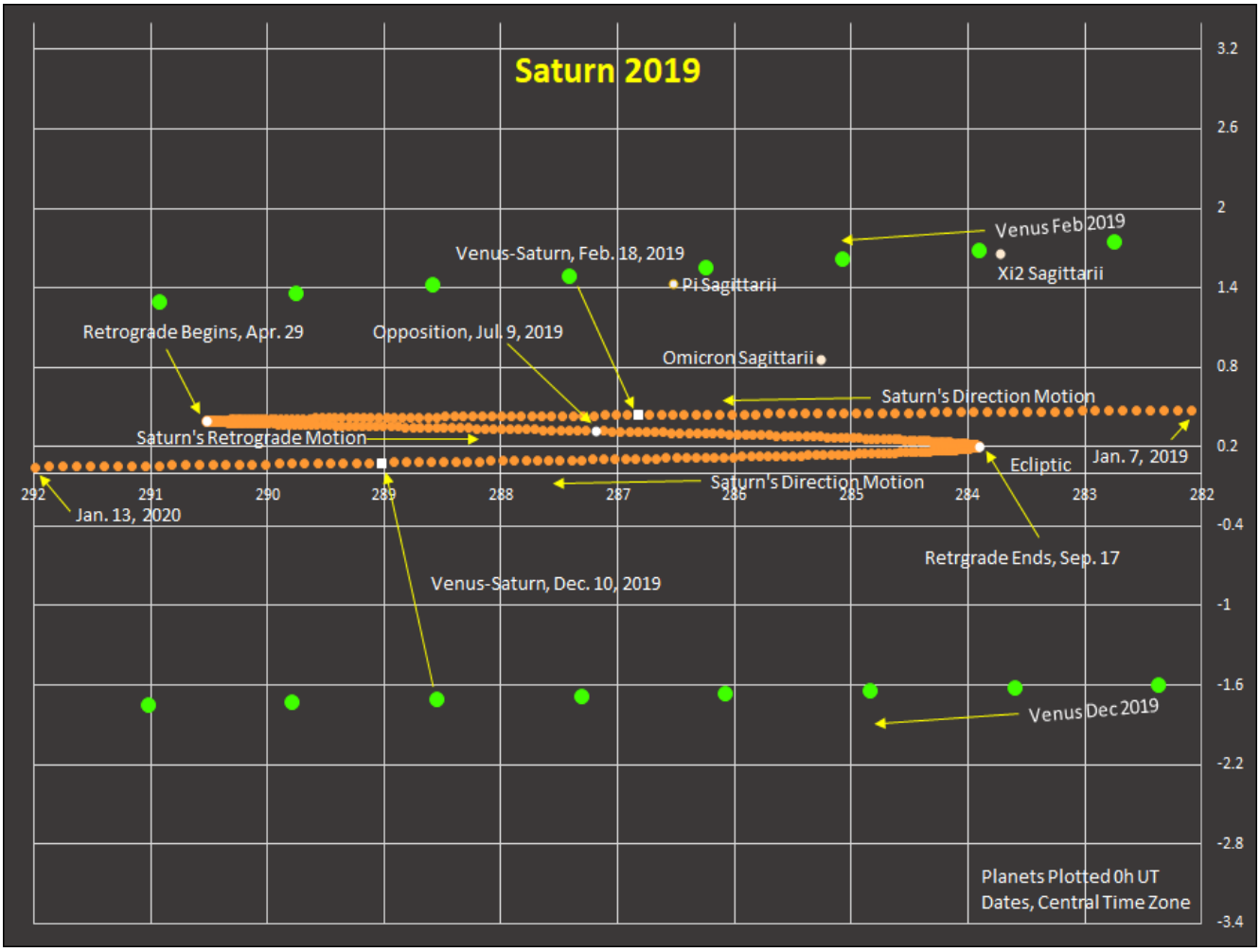
- **January 2019**: (m = 0.5; apparent size, 7.4"; distance, 1.27 A.U.; setting after sunset, 401 minutes). Mars, 47° up in the south-southwest at the end of twilight, is to the lower left of six, 4th magnitude stars that outline the western fish in Pisces. Use a binocular to track the planet against the starry background. **Jan. 12**, the moon (6.9 days old, 37%) passes 5.5° below Mars. **Jan. 15**, Mars moves north of the ecliptic.

Jan. 21, Mars passes 2° to the lower left of Delta Piscium (δ Psc, m=4.4). **Jan. 26**, Mars passes 0.9° to the lower left of Epsilon Piscium (ε Psc, m =4.2).

- **February**: (1.0, 5.8", 1.61 A.U., 336m). Mars, 41° up in the west-southwest at the end of twilight, continues to march eastward among the stars of Pisces. **Feb. 10**, Mars passes 2.1° to the upper right of Omicron Piscium (o Psc, m = 4.2). The waxing crescent moon (6.2d, 31%) passes 6.2° to the lower left of the planet. **Feb. 12**, Mars passes 1.1° north of **Uranus** (m = 5.8). **Feb. 13**, Mars enters Aries and approaches the constellation's brightest stars. **Feb. 19**, Mars passes 6.6° from Gamma Arietis (γ Ari, m = 3.9). **Feb. 20**, Mars passes nearly 8° from Beta Arietis (β Ari, m = 2.6). **Feb. 25**, Mars passes over 9° from Hamal (α Ari, m= 2.0).
- **March**: (1.2, 5.3", 1.78 A.U., 305m). Mars, 35° up in the west at Astronomical Twilight, is about midway across Aries. Continue to track Mars with a binocular against the dimmer stars along the planet's path. **Mar. 10**, Mars is 4.6° below Delta Arietis (δ Ari, m = 4.4). **Mar. 11**, the waxing crescent moon (5.0d, 26%) is 7.1° to the left of Mars. **Mar. 18**, Mars passes 2.1° to the left of Delta Arietis and 2.1° to the lower left of Zeta Arietis (ζ Ari, m = 4.8). **Mar. 23**, Mars moves into Taurus. It is 6.1° below Alcyone (η Tau, m = 2.8), the brightest star in the Pleiades (M 45). Watch Mars close in and pass the star cluster during the next week. **Mar. 30**, Mars passes 3.1° to the lower left of Alcyone and the Pleiades, a beautiful view through a binocular.
- **April**: (1.4, 4.6", 2.03 A.U., 255m). Mars, about 28° up in the west, is to the left of the Pleiades in Taurus. Follow the planet through a binocular as it passes between the Pleaides star cluster and the Hyades star cluster. We'll note a few of the stars it passes here. **Apr. 1**, Mars is 2.6° below 37 Tauri (37 Tau, m = 4.4). **Apr 4**, The planet is 0.5° below 37 Tauri and 3.0° below Omega Tauri (ω Tau, m =4.9). **Apr 7**, Mars passes 2.1° to the right of Omega Tauri. **Apr 8**, The moon (3.5d, 14%) is 6.6° to the lower left of Mars. **Apr. 9**, Mars is 1.7° to the upper right of Omega Tauri. Interestingly, the moon (4.5d, 22%) is 5.3° above Aldebaran. **Apr. 12**, Mars is 0.3° to the upper right of Kappa1 Tauri (κ1 Tau, m=4.2) and 0.3° below Upsilon Tauri (υ Tauri, m = 4.2). It also passes 3.5° to the upper right of Epsilon Tauri (ε Tau, m =3.5), the star at the top of the "V" of Taurus, across from Aldebaran. **Apr. 14**, Mars passes 6.5° to the upper right of Aldebaran. **Apr. 18**, Mars passes 0.3° to the upper right of Tau Tauri (τ Tau, m = 4.3). **Apr. 23**, Mars is nearly 10° from Zeta Tauri (ζ Tau, m = 3.0), the southern horn of Taurus.
- **May**: (1.6, 4.2", 2.25 A.U., 201m). Mars, about 15° up in the west at the end of evening twilight, is near the horns of Taurus. As the month proceeds, the planet appears lower in the sky at the same time each night. Look earlier in the evening through a binocular to see the conjunctions with stars at the end of the month. **May 2**, Mars is 4.9° to the lower left of Zeta Tauri. **May 6**, Mars passes between the horns of Taurus, Elnath (β Tau, m = 1.6) and Zeta Tauri. The planet is 3.4° to the upper right of the southern horn and 2.3° to the upper right of the Crab Nebula (M1, NGC 1952). While not well placed for viewing, Mars passes this historical supernova remnant this evening. **May 7**, the waxing crescent moon (3.1d, 11%) is 3.6° to Mars' lower left. **May 16**, Mars crosses into Gemini, 3.5° to the lower right of Eta Geminorum (η Gem, m = 3.3) at the feet of the Twins. **May 17**, Mars reaches its maximum northerly declination for this apparition. Mars-Eta Geminorum gap is 2°. The planet is to the upper right of the star. At the same time, the planet is 2.6° to the right of Mu Geminorum (μ Gem, m = 2.8). **May 21**, Mars nearly makes an equilateral triangle with Eta Geminorum and Mu Geminorum with sides that are nearly 2° long. **May 24**, Mars passes 2° to the upper right of Mu Geminorum. On the same evening, Mars is 4.5° to the lower right of Epsilon Geminorum (ε Gem, m = 3.0). **May 31**, Mars passes 0.9° to the lower left of Epsilon Geminorum.
- **June**: (1.8, 3.8", 2.43 A.U., 137m). Mars, about 8° up in the west-northwest at Nautical Twilight, is in the feet of Gemini. Watch Mercury appear to rise from the western horizon and pass Mars during the month. The speedy planet dims over a magnitude as it approaches Mars. Mercury has two conjunctions with Mars during Mercury's evening apparition. **Jun. 1**, Mars is 1.1° to the left of Epsilon Geminorum. **Jun. 5**, The waxing crescent moon (2.8d, 9%) is 6.3° to the upper left of Mars. **Jun. 8**, At mid-twilight, 65 minutes after sunset. Mercury (m = −0.5), 4.5° up in the west-northwest, is 7.7° to the lower right of Mars. The gap between the planetary pair until conjunction, along with Mercury's magnitude: **Jun. 9**, 6.7°, −0.4; **Jun. 10**, 5.9°, −0.4; **Jun. 11**, 4.9°, −0.3; **Jun. 12**, 4.0°, −0.2; **Jun. 13**, 3.2°, −0.2; **Jun. 14**, 2.5°, −0.1; **Jun. 15**, 1.6, −0.1; **Jun. 16**, 1.0°, 0.0; **Jun. 17**, 0.6°, 0.1, Mercury to the right of Mars. **Jun. 18**, Mercury appears 0.3° to the upper left of Mars. This is the first conjunction of Mercury's apparition. The pair is nearly 7

degrees up in the west-northwest. **Jun. 12**, Mars appears 7.6° below Pollux (β Gem, m =1.2). **Jun. 21**, Mars passes 5.5° to the lower left of Pollux and 1.8° to the lower left of Kappa Geminorum (κ Gem, m = 3.6). **Jun. 23**, The Mercury-Mars gap is 2.5°, just after Mercury reaches its evening greatest elongation (25.2°) at 6:16 p.m. CDT. This is a very favorable elongation of Mercury, but twilight lingers in June. The pair sets nearly 40 minutes before the end of twilight. During the next week, Mars and Mercury separate about 0.2° each evening. Mercury's brightness fades about 0.2 magnitudes each evening until it reaches 1.0 at month's end. **Jun. 27**, Mars moves into Cancer. **Jun. 28-30**, Mars (m=1.0) appears about 4° to the right of Mercury on these evenings.

- **July**: (1.8, 3.6", 2.57 A.U, 77m). **Jul. 1,** Resetting the observing time to 45 minutes after sunset, Mars is 5° up in the west-northwest, with Mercury fading in brightness, 3.7° to Mars' left. View through a binocular in brighter twilight. The planetary pair is nearly in a line with Pollux, 8.6° to the upper right of Mars. Mars is setting before Nautical Twilight. **Jul. 3**, Thirty minutes after sunset a very thin waxing crescent moon (1.4d, 2%), 5° up in the west-northwest, is 3.3° to the lower right of Mars. Use a binocular. **Jul. 4**, The waxing crescent moon (2.5d, 7%) is 11.5° to the upper left of Mars. Mercury-Mars, 3.7°. **Jul. 5**, The Mercury (m = 1.6)-Mars separation is 3.7°; this is the second conjunction during Mercury's evening apparition. Mercury is Mars' to lower left. **Jul 30**, Mars moves into Leo.
- **August**: (1.8, 3.5", 2.65 A.U., 33m). **Aug**. 1**,** Mars sets before end of Civil Twilight. The following conjunctions are largely invisible because of the proximity of the sun and its intense brilliance. **Aug. 12**, Mars, only 5° east of the sun, passes 0.7° above Regulus. **Aug. 23**, Venus, 3° east of the sun, passes 0.5° to the right of Mars.
- **September**: **Sep. 2**, Mars reaches its solar conjunction at 5:42 a.m. CDT, ending its 2017-2019 apparition.



This chart shows the apparent motion of Saturn along the ecliptic during its 2019 apparition. It appears among the stars of eastern Sagittarius. The planet is at opposition on July 9, 2019. The chart shows the apparent motion of Venus when it is in the same field.

SATURN 2019

~ by Jeffrey L. Hunt ~

During 2019, Saturn appears among the stars of eastern Sagittarius, to the upper left of the Teapot asterism. Unlike Mercury, Venus, and Mars that show a relative rapid movement through the stars, Saturn only moves 11.5° eastward along the ecliptic during this apparition. The length of the retrograde track is only 6.4°. Saturn starts its apparition about 4° to the upper left of Nunki (σ Sag, m = 2.0). During the apparition, the Ringed Wonder moves beneath three other stars in the constellation: Pi Sagittarii (π Sag, m = 2.9), Omicron Sagittarii (o Sag, m = 3.8), and Xi2 Sagittarii (ξ2 Sag, m = 3.5). Because of the scale on the accompanying chart only these brighter stars in the constellation are displayed.

Through a telescope, Saturn is tilted about 25°, displaying the northern hemisphere. The Saturnian satellites are an added attraction to a public viewing session. Saturn and our moon are memorable telescopic views for your public observing sessions. Here are some dates to consider for public observing sessions centered on Saturn and its moons (all are Saturdays):

- **July 20**, Shortly after opposition, Saturn is 16° up in the southeast one hour after sunset. Titan is 2' east (along the ecliptic). Rhea is nearly in between, 1' from the planet.
- **July 27**, Saturn is 20° up in the southeast one hour after sunset. Titan is 3' west of the planet. Rhea is 1' west of the planet and north of a virtual line between Saturn and Titan.
- **August 3**, Saturn is 22° up in the south-southeast one hour after sunset. Titan is 3' to the east.
- **September 14**, Saturn is 26° up in the south one hour after sunset. Titan is 2' northwest of Saturn.

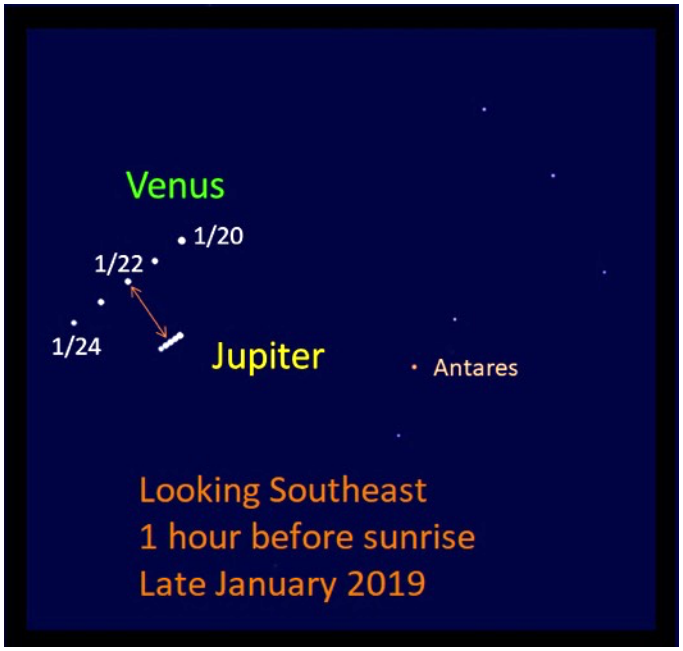
Here is a brief summary of the observation events for the apparition:

- **January 1, 2019**, ***Saturn*** is a its solar conjunction, 11:50 p.m. CST.
- **January 11**, ***Saturn*** rises at Civil Twilight, when the sun is 6° below the horizon.
- **January 20**, ***Saturn*** passes 1.5 below Xi2 Sagittarii. Use a binocular to see the pair during twilight.
- **January 22**, The planet rises in the southeast at Nautical Twilight, when the sun is 12° below the horizon.
- **February 3**, ***Saturn*** rises at Astronomical Twilight, when the sun is 18° below the horizon. The planet appears 0.6° below Omicron Sagittarii.
- **February 15**, ***Saturn*** passes 1° below Pi Sagittarii.
- **February 18**, Venus passes 1.1° to the upper left of ***Saturn***. See the accompanying article about the conjunction.
- **April 9**, ***Saturn*** is 90° west of the sun. The Planet rises at about 2:30 a.m. CDT. It is about 26° up in the south as sunrise approaches
- **April 29**, ***Saturn*** ends its apparent eastward motion and begins to retrograde.
- **May 17, *Saturn*** rises before midnight CDT.
- **July 9**, ***Saturn*** is at opposition, 1.2° to the lower left of Pi Sagittarii. It is in the sky about 9 hours, 12 minutes.
- **July 18**, ***Saturn*** is 1.7° below Pi Sagittarii.
- **August 5**, ***Saturn*** is 0.6° below Omicron Sagittarii.
- **September 17**, Retrograde ends and the planet resumes its direct motion against the starry background.
- **October 7**, ***Saturn*** is 90° east of the sun.
- **October 28**, ***Saturn*** is 0.7° below Omicron Sagittarii.
- **December 10**, Venus passes 1.8° to the lower left of ***Saturn***.
- **November 14**, ***Saturn*** is 1.3° below Pi Sagittarii
- **December 19**, ***Saturn*** sets at Astronomical Twilight.
- **December 28**, ***Saturn*** sets at Nautical Twilight.
- **January 5, 2020**, ***Saturn*** sets at Civil Twilight
- **January 13, 2020**, ***Saturn*** is at its solar conjunction, 9:17 a.m. CST.

The moon appears near Saturn several times during the apparition. If you observe Saturn just once a month when the moon is nearby, you'll see a complete cycle of moon phases.

Before Opposition	Separation	After Opposition	Separation
February 2	3.1°	July 15	1.8°
March 1	3.2°	August 11	3.3°
March 29	3.0°	September 7	5.5°
April 25	2.7°	October 5	2.9°
May 23	5.7°	November 1	3.7°
June 18	1.3°	November 29	1.9°
		December 27	5.6°

During the next apparition, Jupiter overtakes and passes 0.1° to the lower left of Saturn 0.1°!



This diagram shows the eastward motion of Venus and Jupiter compared to the starry background from January 20 through January 24. Venus passes closest to Jupiter on January 22, in a widely-spaced conjunction where the planets are 2.4° apart.

VENUS-JUPITER CONJUNCTION, JANUARY 2019

~ by Jeffrey L. Hunt ~

The brilliant Morning Star Venus passes bright Jupiter on January 22, in the first of two conjunctions during 2019. Venus passed its inferior conjunction in late October, followed by Jupiter's solar conjunction in late November 2018. During December, Jupiter had a conjunction with Mercury, during the speedy planet's very favorable apparition.

This Venus-Jupiter conjunction (2.4°) is not a close (epoch) conjunction as those in recent years. A second conjunction (1.5°) follows later in the year as Jupiter heads towards its solar conjunction and Venus returns to the western sky as an Evening Star. The second conjunction is visible low in the southwest during evening twilight, with the pair setting about 90 minutes after sunset.

At the January conjunction, the planets are found in the southeastern sky during early morning twilight. On January 15, Venus (m = −4.5) rises nearly 3.5 hours before the sun followed by Jupiter (m = −1.8) nearly 30 minutes later. The gap between the planets is 6.8°. The gap closes each morning as Venus overtakes Jupiter: Jan. 16, 5.9°; Jan. 17, 5.3° (Venus-Antares conjunction, 7.8°); Jan. 18, 4.4°; Jan. 19, 3.8°.

The chart above shows a time lapse view of Venus as it approaches and moves past Jupiter, with Antares in the star field. The separations shown on the chart: Jan. 20, 3°; Jan. 21, 2.6°; Jan. 22, 2.4°; Jan. 23, 2.5°; Jan 24, 2.9°.

After the conjunction, Venus continues its eastward gallop among the stars toward Saturn (m = 0.5) for a close conjunction on February 18. On January 24, the end of this described sequence, Venus is nearly 25° to the upper right of Saturn, just 2° up in the southeast. (See the companion article for more about this conjunction.)

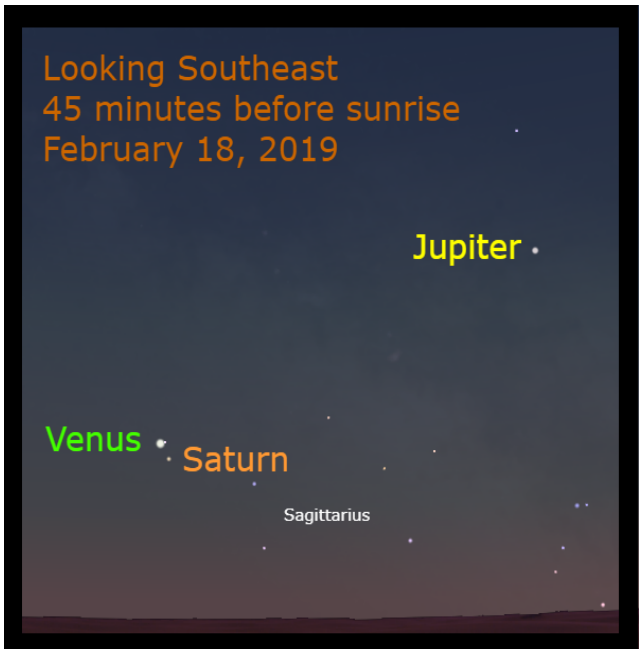
Date	Separation	When	Description
February 11, 2021	26'	Morning	This pairing is very difficult to see in the eastern sky as the planets rise in bright twilight just 25 minutes before sunrise.
April 30, 2022	29'	Morning	The planets rise in the eastern sky about 90 minutes before sunrise. In separation, this rivals the gap of the June 2015 conjunction, although it is lower in the sky.
March 1, 2023	32'	Evening	This conjunction rivals the June 2015 pairing, with the planets high in the west after sunset, setting 2 hours, 30 minutes after the sun.
May 23, 2024	15'	Morning	This pairing is impossible for casual observers to see as it occurs when the planets are nearly behind the sun hidden in the solar glare.

VENUS-SATURN CONJUNCTION, FEBRUARY 2019

~ by Jeffrey L. Hunt ~

In early February 2019, Venus continues to dominate the pre-sunrise sky. Saturn emerges from its solar conjunction in January. Venus passes 1.1° to the upper left of Saturn on the morning of February 18, less than 4 weeks after its Jupiter conjunction. Here are the events leading up to the Saturn conjunction:

- **February 1**: Saturn (m = 0.6) rises just before the beginning of twilight. At 45 minutes before sunrise, Venus (m = −4.3), 18° up in the southeast, is 18° to the upper right of Saturn, 7° up in the southeast. Jupiter (m = −1.9) is nearly 10° to the upper right of Venus. The waning crescent moon (26.5 days old, 10% illuminated) is midway between Venus and Saturn.
- **February 2**: The waning crescent moon (27.5d, 5%) is 3.1° to the lower left of Saturn. The Venus-Saturn gap is 16.7°.
- The gap continues to close: **Feb. 9**, 9.3°; **Feb. 10**, 8.6°; **Feb. 11**, 7.3°; **Feb. 12**, 6.1°; **Feb. 13**, 5.1°; **Feb. 14**, 4°; **Feb. 15**, 3.3°; **Feb. 16**; 2.2°; **Feb. 17**, 1.5°; **Feb. 18**, 1.1°, conjunction morning. Venus is to the upper left of Saturn
- After the conjunction the gap widens: **Feb. 19**, 1.4°; **Feb. 20**, 2.4°; Venus is to the left of Saturn.



Venus passes 1.1° to the upper left of Saturn on the morning of February 18. The chart shows the conjunction 45 minutes before sunrise.

A second Venus-Saturn conjunction occurs on December 10, 2019, the second of this Saturn apparition.
Here is a summary of the next six Venus-Saturn conjunctions:

Venus-Saturn Conjunctions, 2019-2025

Date	Location	Separation	Description
December 10, 2019	Southwest after sunset.	1.8°	Look for the pair in the southwest after sunset. Venus is to the lower left of Saturn.
February 6, 2021	Southeast before sunrise.	0.5°	This is a very difficult conjunction to see. Venus is only 2° up 10 minutes before sunrise.
March 29, 2022	East-southeast before sunrise.	2.1°	About an hour before sunrise, the pair is easy to see. Venus is to the upper left of Saturn. Mars is nearby, 4.4° to the upper right of Saturn. On the morning before the conjunction, the waning crescent moon joins the scene.
January 22, 2023	West-southwest after sunset.	0.3°	The pair is 8° up one hour after sunset. Venus is left of Saturn. The waxing crescent moon is about 8° to the upper left of Venus on the evening before the conjunction

March 21, 2024	East before sunrise.	0.6°	This is another difficult conjunction to view. The pair is less than 5° up 10 minutes before sunrise. Venus is to the upper right of Saturn.
January 20, 2025	Southwest after sunset.	2.2°	This is an easily viewed conjunction. Venus is to the upper left of Saturn. The pair is over 20° up in the southwest 2 hours after sunset.

NCRAL & AL ON FACEBOOK

Did you know that NCRAL now has a Facebook page for sharing information about your Region's AL-affiliated clubs? This is also a great way share observations, notes, images, and any other things you think the NCRAL membership or AL members-at-large living in our region would enjoy. Check us out at: https://www.facebook.com/northcentralregionastronomicalleague/ Here is just one of many graphics that have appeared on NCRAL Facebook recently.

Also, did you also know that the Astronomical League is on Facebook? It's an active site with lots of good information. Check it out at: https://www.facebook.com/search/top/?q=astronomical%20league

NCRAL WEBSITE

~ by Jeff Setzer ~

Did you know that NCRAL has its own website? It's true! Point your browser to ncral.wordpress.com and you'll see a central repository for information about our Region and constituent clubs, as well as back issues of ***Northern Lights***.

As Webmaster, I maintain the information on the website, but the original idea was — and still is — to publish contributions from members. As part of that mission, we will be hosting the emailed newsletters at the website, so people can easily access back issues.

Will the website progress from an occasionally used reference to something more? That's entirely up to you, dear reader. If you have ideas or submissions, contact me at astrosetz@hotmail.com

NCRAL BYLAWS AVAILABLE ONLINE

Did you know that NCRAL has a set of Bylaws? The Region's Bylaws explain who we are, what we are about, and even include a bit of history. For instance, did you know that NCRAL was established on August 30, 1947? Did you know that NCRAL is to be governed by an Executive Council consisting of the Region's three elected officials (Chair, Vice Chair, Secretary-Treasurer) in concert with the Representative to the AL Council? Did you know that there is an NCRAL Council that guides the Region in concert with the presidents and one representative of all the AL-affiliated astronomy clubs in a six-state region? If you'd like to know more about how NCRAL operates, be sure to check out the Bylaws at https://ncral.wordpress.com/bylaws/

REGIONAL OFFICER & LEADER CONTACT INFORMATION

Chair: Carl Wenning (2-year term expires Spring 2019, in first term)

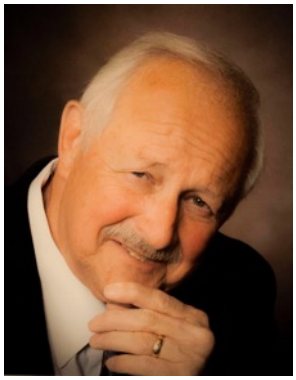
Bio: Carl has been an amateur astronomer since being introduced to the sky by his grandfather during July 1957. Today he is an AL Master observer. He has been a member of the Twin City Astronomers of Bloomington-Normal (Illinois) since 1979. He serves as the club's secretary, historian, and editor of the club's newsletter ***The OBSERVER*** for which he received the AL's 2017 Mabel Sterns Newsletter Editor Award. Carl is a former planetarium director and physics teacher educator who remains actively involved in education and public outreach events.

Contact: carlwenning@gmail.com

Vice Chair: John Attewell (2-year term expires Spring 2019, in first term)

Bio: John is a statistical analyst by day and amateur astronomer by night. He is particularly interested in the history of astronomy, especially how early astronomers used mathematics to explain their observations. John is a member of the Rochester Astronomy Club (Minnesota) and was the planning chairman for the 2017 NCRAL convention held at the Eagle Bluff campus near Lanesboro, MN.

Contact: john_attewell@hotmail.com



Secretary-Treasurer: Roy Gustafson (2-year term expires Spring 2020, in first term)

Bio: Roy got interested in astronomy when visiting the Adler Planetarium in Chicago when he was in 2nd Grade. The stars projected by the Zeiss Projector hooked him and started him on the path of astronomy. He has been active in outreach and has presented astronomy programs to over 20,000 people. He was awarded the Master Outreach award from the Astronomical League. Roy travels with his telescopes and has observed both Transits of Venus and last year the Total Solar Eclipse. Roy also taught astronomy at Black Hawk Junior College in Moline, IL. Roy retired from John Deere & Company after 32 years of service.

Contact: astroroy46@gmail.com

Representative: Bill Davidson (3-year term expires Spring 2019, completing unfinished term)

Bio: In the days of the Apollo missions, Bill first observed the moon (and sunspots!) with a 50x, 60mm JC Penny's refractor telescope. Not discouraged, 40 years later, he built and observes with a 6.25-inch achromatic doublet objective, f/10, 1600 mm focal length refracting telescope. He recently retired as a college mathematics instructor, has been a member of the Rochester Astronomy Club (Minnesota) for 20 years, and serves as editor of the club's newsletter *RochesterSkies.*

Contact: rochesterskies@outlook.com

NCRAL Webmaster: Jeff Setzer (appointed)

Bio: Jeff has been an amateur astronomer since 1984 and has been part of the Northern Cross Science Foundation (Wisconsin) since that time. He is a longtime member of their Board of Directors, has held several office positions, and is currently their President. He has completed several Astronomical League observing programs, made his own telescopes and optics, and is a self-described telescope nut. You will often find him at star parties with his 22" Starmaster and TeleVue 85 telescopes.

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***Northern Lights* Editor-in-Chief:** Jim Gibbs (appointed)

Bio: Jim has been observing the starry skies since he was 10 years old and on and off ever since. His primary affiliation is with the Twin City Amateur Astronomers (Illinois) where he has been a member for 5 years. He is also a member of the Fox Valley Astronomical Society where he has held several leadership positions. He is an avid amateur astronomer who enjoys observing and especially imaging around the TCAA dark sites and travelling around finding other dark sites. He is a software engineer and currently is concentrating in growing his small consulting business.

Contact: jrgibbs@msn.com