Northern Lights

North Central Region of the Astronomical League

Spring 2018 - Series II , Volume 2, No. 4

dp as Door Peninsula Astronomical Society

NCRAL 2018

NORTH CENTRAL REGION OF THE ASTRONOMICAL LEAGUE ANNUAL CONVENTION

Hosted by Door Peninsula Astronomical Society

MAY 4-5, 2018 at The Lodge at Leathem-Smith

"Dark Skies for Bright Stars"

In this edition:

NCRAL Chair's Message

With this issue of ***Northern Lights***, we have completed eight quarters of publication. The purpose of this newsletter is to keep everyone informed about events within the NCRAL region. Thanks to all of you who have contributed to make this work possible.

As always, I'd like to thank our newsletter editor-in-chief Jim Gibbs for his work on putting together all the pieces that become the newsletter. I collect them, but Jim assembles them into a meaningful whole. If, by chance, you have any submissions for future editions, please send them my way.

This quarter we have a new columnist. Jeffrey L. Hunt from the Chicago area has already set us up with a number of excellent planetary observing articles. As you might know, 2018 features three planetary oppositions – Mars, Jupiter, and Saturn – within a span of only 79 days. This will make for some great public observing opportunities this year.

I'm looking ahead to NCRAL 2018 as I hope you are. Our hosts, the Door Peninsula Astronomical Society, have arranged a very interesting program, and have arranged our event in a very nice setting. If you haven't registered yet, please do now. There is a discount for registering by March 31st. See the article further on in this issue of the newsletter for details.

I'm already planning the agenda for our NCRAL 2018 business meetings. You might want to look back at previous issues of this publication to see what matters I've been thinking about. Back issues of this newsletter can be found on the NCRAL website set up and maintained by web master Jeff Setzer at https://ncral.wordpress.com/

I made a command decision on March 7th (following notification to our affiliate's presidents, ALCors, and newsletter editors) to select Popular Astronomy Club (PAC) to host NCRAL 2019 in the Rock Island-Moline area of Illinois. I had been working with PAC President Alan Sheidler for the past 6 months or so to host this event. While we normally approve future conferences at the Region's business meetings, there was a necessity to approve this event early. Contracts needed to be signed to hold the facility we will be using, and no other institution has put forth a proposal despite repeated requests for hosts. PAC has a great program arranged for us and the location is centrally situation within the Region. I've received lots of positive comments from the officers of our affiliates which is gratifying. I look forward to an exciting time at NCRAL 2019 thanks to PAC.

Looking further ahead, please note that we have hosts for NCRAL annual meetings now through 2021. We are looking for a host for 2022. My own club, the Twin City Amateur Astronomers, will be hosting our third NCRAL meeting in 2023 in preparation of the total solar eclipse visible from our region less than 12 months later. If you should need some advice or assistance with your conference planning, please let me know. I'll be happy to share my experiences and give advice.

January's online survey about possible future directions for NCRAL had 194 responses! There were many thoughtful comments and questions, and I have addressed these in another article that you'll find in this issue.

I encourage members of our many affiliated societies to review their contact information found on the NCRAL website. Our newsletter is send directly to club presidents, ALCors, and newsletter editors for dissemination among their memberships. The newsletter is disseminated on the equinoxes and solstices each year. If you are not receiving your copy of ***Northern Lights*** in a timely fashion, both check to make certain we have your club's correct contact information on our website and email me at carlwenning@gmail.com if it needs to be updated.

I'm looking forward to seeing everyone in NCRAL at our 2018 meeting held May 4-5 in Sturgeon Bay. I encourage everyone to make plans now to attend as it will be a meeting worth remembering. Please take note that Don Klemt has been secretary-treasurer of NCRAL for the past 12 years. He will be stepping down with the conclusion of the NCRAL 2018 meeting and so will need to be replaced. I am therefore calling for nominations. Please send your nomination to me via email. Nominations will be open until such time as they are formally closed at the business meeting at Sturgeon Bay, WI. If you know of someone who might be willing to serve in this capacity, please talk with them. With their approval, then forward name and contact information to me.

Carl J. Wenning
NCRAL Chair (2017-2019)
carlwenning@gmail.com

Future NCRAL Regional Meetings

Each year, at NCRAL's annual meeting, the Region receives offers for hosting upcoming meetings. The following affiliates have either agreed to or are considering hosting future meetings. We are still in need for hosts, but especially for 2022, 2024, and beyond. It's never too early to start planning to host. EDITOR'S NOTE: Information presented under this heading in the last issue of ***Northern Lights*** was incorrect. It has been corrected and the list below accurately reflects future meeting hosts. The Chair regrets the error.

2018 Door Peninsula Astronomical Society (confirmed, May 4-5)

2019 Rock Island, IL: Popular Astronomy Club (confirmed)

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 Region meeting, 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.

Resources are available to help plan and execute the meeting, not the least of which is the Astronomical League's Planning Guide that be used for general guidelines. https://www.astroleague.org/al/socaids/convplan/conplidx.html Experienced Region members also can provide lots of guidance and assistance.

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

ALCON 2018 Coming July 11-14

Gleaned from ***GEMINI***, a publication of the Minnesota Astronomical Society.

The Minnesota Astronomical Society (MAS) will be hosting the Astronomical League National Convention in this summer. The dates of ALCON 2018 are July 11-14. The convention will be held at the Hilton Minneapolis/St Paul Airport Mall of America near I-494 and 34th Avenue South. They will have field trips to Eagle Lake Observatory and other attractions in the Twin Cities, such as the Bell Museum, the Science Museum of Minnesota, and the Mall of America. They will host a "star-b-q" at Eagle Lake Observatory (ELO) in Baylor Regional Park.

The theme of the convention will be Outreach. This will be a wonderful opportunity to show the world how MAS does astronomy in the Upper Midwest. We will showcase our world-class facility at ELO. We might even have a couple of talks at the observatory during nightly observing. Several planets will be visible, including Jupiter and Saturn. Mars will be within a couple of weeks of its very favorable opposition.

A new video with co-chair Dave Falkner describes the excellent speakers and their topics, exciting field trips, nightly star parties at Eagle Lake Observatory, and events such as the popular Friday Star-B-Q and the Saturday evening Awards Banquet. To help you plan your visit, we've also included a wide variety of area activities your family will enjoy. Among other features, this new video announces that registration is now open and shows you options for convenient sign up.

You may view the video by going to the link below:

https://drive.google.com/open?id=1jbZiQ4oFDoP2hQwbonUc_ousPfRvpLmq

NCRAL 2018

Dark Skies for Bright Stars

Following this theme, speakers are scheduled, the venue set, and a very interesting NCRAL 2018 is expected. Registration will open January 1, 2018. Located in Door County Wisconsin, which offers dark sky and beautiful natural surroundings, Door Peninsula Astronomical Society (DPAS) will host the meeting at the Lodge at Leathem Smith in Sturgeon Bay, WI. We will be celebrating the recent designation of nearby Newport State Park as an International Dark Sky Site, the first in Wisconsin and only the 13th in the entire United States. Anyone wishing to visit the site can bring viewing equipment or visit this beautiful park the day before or after the meeting.

On Friday evening members of DPAS will open our observatory and Astronomy Center for viewing and tours of the facilities. During the day on Saturday we will be having an astronomy photo contest and astronomy related poetry contest. Bring any number of your own photos printed any size and original poems for voting by all participants.

The list of speakers follows and the subjects will prove to be on very timely topics.

A block of rooms with special rates has been set aside. Contact information is on the registration form. Payment for the meeting registration can be made by check to DPAS or through PayPal on our website, https://www.doorastronomy.org/ncral-2018 after the first of the year. Questions can be directed to

Treasurer@doorastronomy.org.

Members of DPAS cordially invite you and your guests to join us here in beautiful Door County, Wisconsin for an informative and relaxing weekend with fellow amateur astronomers.

NCRAL 2018 Speakers

Kevin Poe is the Green Energy Project Manager at the National Park Service at Bryce Canyon, Utah. He is a second-generation Park Ranger and owner of Dark Ranger Telescope Tours. Kevin calls himself the Dark Ranger to make environmental advocacy cool and heroic, and describes himself as a Planet Hugger. Teaching awareness of light pollution and understanding of the universe to people of all ages through lectures and stories is his goal.

Kate Meredith is the Education Director at the University of Chicago Yerkes Observatory in Williams Bay, WI. She is currently working on a program for students with low vision and blindness to develop image processing software. The three-year project, Innovators Developing Accessible Tools for Astronomy (IDATA) is funded by the National Science Foundation. She will explore what else we can do with invisible data that will allow everyone access to the same quality and quantity of information.

Audrey Fischer works through her organization, One Star at a Time, to create star parks in Chicago and around the world. Star parks are designated areas there the lights are off or directed downward. As a Chicago native, she knows that it isn't a perfect place for stargazing, but she is working to return stars back into all cities. Audrey stated during an interview for the Chicago Tribune "Starlight belongs to each and every person in the world. A starry night gives people a reason to look up and to realize that others from around the globe share the same sky. Starlight is the path to closer understanding of our universe, each other, and ourselves – and maybe it's even a path toward peace."

Beth Bartoli is the Naturalist at Newport State Park in Door County, our recently designated Dark Sky Site. The designation was awarded after years of work by her, the staff of the park and our Door Peninsula Astronomical Society. She helps conduct astronomy programs at the park and states "We never tire of seeing that 'aha' moment on the upturned faces of our visitors as they gaze toward the heavens". The Wisconsin Department of Natural Resources and Newport State Park are committed to protect our dark sky through lighting projects, community education and outreach.

Tyler Linder is a professional astronomer supported by NASA's Near Earth Object Observations (NEOO) research grants to track and study the Near-Earth Asteroid (NEA) population. His presentation will focus on the information that can be obtained by asteroid characterization, both through light curve analysis as well as visible and near-infrared spectroscopy. The collaboration between amateur and professional astronomers uses middle and high school students as well as undergraduate students.

NORTH CENTRAL REGION OF THE ASTRONOMICAL LEAGUE
ANNUAL CONVENTION
Hosted by Door Peninsula Astronomical Society
MAY 4-5, 2018 at The Lodge at Leathem-Smith
REGISTRATION FORM
https://www.doorastronomy.org/

Please complete and return the following form for each convention attendee

Last Name _____ First _____

Club/Society Affiliation _____

Street Address _____

City _____ State _____ Zip _____

Phone _____ E-Mail _____

Included in Registration:
Admittance to all talks and activities
Friday evening heavy Hors d'Oeuvres
Saturday lunch and banquet dinner

Registered by March 31, 2018 ..... $165
Registered after March 31, 2018 ..... $185 $_____

Friday night Heavy Hors d'Oeuvres, Saturday Lunch and the Banquet included for attendees. Additional meals for non-attendees:

	Quantity	
Friday night Heavy Hors d'Oeuvres	_____ @ $20	$_____
Saturday Lunch	_____ @ $20	$_____
Saturday Night Banquet	_____ @ $30	$_____

Note: There is a complimentary breakfast for those staying at The Lodge at Leathem-Smith. For others the cost of breakfast is $10 plus tax and gratuity payable to The Lodge at Leathem-Smith.

Event shirt -- (short sleeve, long sleeve) (S, M, L, XL, XXL) Circle choices	_____ @ $20	$_____
Event photo – cost includes shipping	_____ @ $20	$_____
	Total Due	**$_____**

Payment can be check payable to:
Door Peninsula Astronomical Society
ATTN: NCRAL Convention Registration
PO Box 331
Sturgeon Bay, WI 54235

or pay by PayPal at
https://www.doorastronomy.org/ncral-2018

A block of 30 rooms at special rates will be held until March 15, 2018 at the Lodge at Leathem-Smith. After that date rates will revert to the standard seasonal rates. You **MUST** make your reservations by phone and mention NCRAL to get the special rate.
(920)743-5555

Standard Rooms (1 King/2 Queens) - $89/night + tax
Captain Suites (1 Queen & sofa sleeper) - $129/night + tax
Complimentary breakfast is included.

Directions to The Lodge at Leathem-Smith, 1640 Memorial Drive, Sturgeon Bay, WI, Phone: (920)743-5555
From Highway 42/57: North bound – Left on Utah St (First exit after the bridge) then left on S 18th Ave.
South bound – Right on Utah St (First turn after the Michigan St. Round-About), then left on S 18th Ave.
Destination will be on the right.

Cancellations/Refund
Requests for cancellations must be received in writing or by email (Treasurer@doorastronomy.org) by April 15, 2018, for a full refund less a $10.00 processing charge. Persons who do not appear at the event cancel by default and are not eligible for any refunds. Refunds will take approximately two to three weeks.

Regional Officer & Leader Contact Information

NCRAL Chair: Carl Wenning (2-year term expires spring 2019)

Bio: Carl has been an amateur astronomer since being introduced to the sky by his grandfather during July 1957. Today he is a 38-year member of the Twin City Astronomers of Bloomington-Normal, IL. He is an AL Master observer who makes frequent use of his CPC 11" telescope. He is a former planetarium director and physics teacher educator who remains actively involved in astronomy education and public outreach events.

Contact: carlwenning@gmail.com

Vice Chair: John Attewell (2-year term expires spring 2019)

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, not New York) and was the planning chairman for the 2017 NCRAL conference held at the Eagle Bluff campus near Lanesboro, MN.

Contact: john_attewell@hotmail.com

Secretary-Treasurer: Donald Klemt (2-year term expires spring 2018)

Bio: Don has been in the Racine Astronomical Society for the past 30 years. His interest in astronomy started when his dad took him to Dearborn Observatory (Northwestern University) when he was about 10. He has been active in public outreach for all 30 years in the RAS. His scopes include a 20", 11", 10", and a 90mm solar scope. He has served as Secretary-Treasurer of the NCRAL for the past 11 years. Don is retired from the Chicago Board of Trade where he was a member for almost 40 years.

Contact: donklemt@ameritech.net

Representative: Bill Davidson (completing vacant 3-year term that expires spring 2019)

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 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 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.

Contact: astrosetz@hotmail.com

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

Bio: Jim has been observing the starry skies since he was 10 years old. His primary affiliation is with the Twin City Amateur Astronomers where he has been a member for 4 years. 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

NCRAL Membership Survey Results

by Carl Wenning, NCRAL Chair

A total of 194 responses were received following the release of the Winter 2018 issue of ***Northern Lights*** and January 31st. Some 49% of all responses come from Illinois, 21% from Iowa, 12% from Minnesota, 16% from Wisconsin, and the remainder from the Upper Peninsula of Michigan. There were no responses from North and South Dakota. Demographics in relation to participation can be found following this article.

Let's get to the heart of the matter by reviewing the questions and the responses. I'll provide a small amount of commentary following each set of responses by way of interpretation. Responses are indicated by raw numbers (followed by percentage of all respondents who answered this question). Some responses have been rank-ordered from highest to lowest.

QUESTION: Please check what you feel is the most important reason for your PRIMARY CLUB to be affiliated with the AL." The responses were as follows:

To obtain the League's newsletter – ***Reflector***: 85 (43.6%)
To take advantage of the League's observing award programs: 73 (37.4%)
To financially support the efforts of the League: 52 (26.7%)
To attend Regional meetings – NCRAL 32: (16.4%)
To attend League conferences – ALCon: 29 (14.9%)
To get reduced rates for astronomy-related publications: 22 (11.3%)

COMMENTARY: This is important information if ever we expected to grow the number of the Region's groups that affiliate with the Astronomical League. I suspect that more clubs would affiliate with AL if members knew of these benefits. One thing that surprises me though is that the AL posts its copies of ***Reflector*** online for free download at about the same time that they are printed. This seems to negate the main reason for a club to affiliate with the AL and, by extension, NCRAL.

QUESTION: What benefits do you most appreciate as a member of the Astronomical League?

Reflector newsletter: 142 (73.2%)
Observing programs: 116 (59.8%)
Nation (ALCon) meetings: 28 (14.4%)
National awards (Peltier, Mabel Sterns, Young Astronomer, etc.): 24 (12.4%)
Facebook & other social networking: 17 (8.8%)

COMMENTARY: The responses to this question mirror the responses from the prior question. The big three things in favor of AL membership are its newsletter, observing programs, and national meetings.

QUESTION: What do you PERSONALLY consider the greatest benefit of this membership in the Astronomical League?

The most common responses were the following: observing programs, networking with others and sharing of ideas, newsletters, contact with nearby clubs, learning about astronomy, credibility, lending support, sense of community, increased knowledge, and observing skills, yet a considerable number indicated in one form or another, "I see no benefit at all."

COMMENTARY: Personal reasons for belonging to AL are pretty much the same as the reasons for a club to belong to AL. This is as it would be expected because memberships that vote to join the AL typically do so for individualized reasons, not the good of the group generally speaking. It's unfortunate that not a small number of people voiced "I see no benefit at all." This is part stems from the fact that many who responded to the survey indicated that they are relative newbies as far as astronomy goes. This suggests that we should make our memberships aware of the benefits of belonging to AL and NCRAL by default.

QUESTION: NCRAL has a considerable amount of funds in its treasury. How would you like to see at least some of this money spent?

Provide resources for increasing and maintaining memberships: 90 (47.6%)
Reduce registration costs of NCRAL meetings: 37 (19.6%)
Small grants for state-level meetings: 36 (19%)
NCRAL website (bylaws, affiliates, awards, etc.): 27 (14.3%)
Create and support additional Region awards: 16 (8.5%)

COMMENTARY: We have all heard too many times that the hobby of amateur astronomy is graying. Also, we know that many are those who join a club and then never show up for events. (We need to realize that some just want to support us in our efforts of promoting astronomy to the general public.) This suggests that we should provide a rationale for joining in amateur astronomy and provide guidance as to what it means to have a hobby. Efforts have been made in this area already; check out the TCAA Guides that can well be modified for NCRAL as a benefit of membership. You can review all seven guides at the following URL: http://tcaa.us/TCAAGuides.aspx

QUESTION: How might NCRAL benefits be improved for club and individual membership?

Speakers' bureau: 99 (53.2%)
Guides for recruiting members: 81 (43.5%)
Web page development and maintenance resources: 80 (43%)
Officer guides to operating clubs: 59 (31.7%)

COMMENTARY: The idea of a speakers' bureau of sorts was broached in an earlier issue of ***Northern Lights***. It has been suggested that the Region's officers be provided with a limited and clearly defined level of support from our treasury should they wish to participate in this type of activity. This idea appears to have been met with a certain degree of interest by club officers who I have contacted. This topic will be included in the agenda of the upcoming business meetings at NCRAL 2018.

QUESTION: How important do you feel it is for the NCRAL leadership to develop and make use of an unofficial advisory group employing electronic means (of communication)?

Very important: 30 (15.5%)

Somewhat important: 52 (26.8%)
Neutral: 82 (42.3%)
Somewhat unimportant: 16 (8.2%)
Not important: 14 (7.2%)

COMMENTARY: There is no clear trend in this area. The weighted mean is 2.65 (where 2 means somewhat important and 3 neutral. By in large, those surveyed aren't particularly interested in seeing the development of an unofficial advisory group. This idea will therefore no longer be pursued. Nonetheless, affiliate presidents, ALCors, and newsletter editors will be kept in the loop with regard to important questions and developments within the Region.

QUESTION: How important do you feel it is for the NCRAL leadership to increase the use of social media to reduce the "isolation" that members-at-large and even some clubs and club members certainly must feel?

Very important: 49 (25.3%)
Somewhat important: 70 (36.1%)
Neutral: 39 (20.1%)
Somewhat unimportant: 28 (14.4%)
Not important: 8 (4.1%)

COMMENTARY: It has been pointed out by at least one responded that this is a biased question due to the phrase "club members certainly must feel." Be that as it may, we can probably still learn something from the question – at least in general. The weighted mean of this response is 2.36 where 2.00 means somewhat important and 3.00 means neutral. Perhaps this number wasn't terribly high as some were already familiar with Facebook. There was at least one request to develop a Twitter account. Still, over 50% believe that this is somewhat to very important. Increasing awareness about and activity level of our Facebook page might be the first step.

QUESTION: How important do you feel it is for the NCRAL leadership to increase the content of the NCRAL website?

Very important: 40 (20.6%)
Somewhat important: 65 (33.5%)
Neutral: 65 (33.5%)
Somewhat unimportant: 17 (8.8%)
Not important: 7 (3.6%)

COMMENTARY: There is again some convergence in the question. The weighted mean is 2.41 with more than 50% of respondents feeling that improvement of the content of the NCRAL website is somewhat to very important. It seems clear given some of the other responses in this survey, that we certainly should improve the offerings of NCRAL by increasing the amount of desired content. The real problem is getting members to contribute. Please be aware that the NCRAL leadership will gladly entertain requests for and offerings of content for the NCRAL website.

QUESTION: How important do you feel it is for the NCRAL leadership to promote attendance at our annual spring Region meeting?

Very important 42: (21.6%)
Somewhat important: 74 (38.1%)
Neutral: 59 (30.4%)
Somewhat unimportant 11: (5.7%)
Not important: 8 (4.1%)

COMMENTARY: Again, not a strong convergence on this question with a weighted mean 2.32. Nonetheless, nearly 60% feel that promoting attendance should be one of the duties of the leadership. Promoting Regional meetings is being done primarily with the use of the ***Northern Lights*** newsletter. NCRAL meetings in 2017 and 2018 were regularly promoted via Facebook and the newsletter. This will continue unabated so long as conference hosts are willing to forward information to the newsletter editor.

QUESTION: How important do you feel it is for the NCRAL editors to strengthen the scope and increase the length of the ***Northern Lights*** newsletter?

Very important: 24 (12.4%)
Somewhat important: 77 (39.7%)
Neutral: 65 (33.5%)
Somewhat unimportant: 15 (7.7%)
Not important:13 (6.7%)

COMMENTARY: The weighted mean of this question is 2.57. This suggests that the membership is fairly happy with the scope and length of the ***Northern Lights*** newsletter. It probably still could benefit from a greater number and variety of articles which the editors and several authors have tried to provide. We will continue with the newsletter as usual, reiterating now and then that we need members to contribute if they want to see the newsletter improve.

QUESTION: How important do you feel it is for the NCRAL leadership to promote observing using the Astronomical League observing programs as a corridor?

Very important: 70 (36.1%)
Somewhat important: 61 (31.4%)
Neutral: 41 (21.1%)
Somewhat unimportant: 20 (10.3%)
Not important: 2 (1%)

COMMENTARY: Of all the survey's questions, this is one of a few that seemed to generate the greatest sense of importance. It had a weighted mean 2.09 which means, by in large, a full 2/3 of those surveyed considered it to be at least somewhat important that the leadership promote observing. An informal "hands up" survey at NCRAL 2017 showed that a surprisingly large percentage of those in attendance had never completed an AL observing program. Perhaps this is a call to all those master observers out there (there were 8 in attendance at NCRAL 2017 if my memory serves me correctly) to spend some time writing about their observing pursuits – the whys, hows, whens, and so forth.

QUESTION: How important do you feel it is for the NCRAL leadership to encourage participation at state-level star parties?

Very important: 57 (29.4%)
Somewhat important: 66 (34%)
Neutral: 52 (26.8%)
Somewhat unimportant: 11 (5.7%)
Not important: 8 (4.1%)

COMMENTARY: This question has a weighted mean 2.21, with over 2/3 of those surveyed believe that this is a reasonable expectation of the NCRAL leadership. Promotions will appear if and only if the NCRAL leadership is made aware of these events, and suitable information is provided. Any information sent to the NCRAL chair has been posted in the ***Northern Lights*** newsletter, on the Facebook

page, and on the NCRAL website. (We have a page dedicated to just this topic; see the following: https://ncral.wordpress.com/events/) By special request, the chair also will send this information to presidents, ALCors, and newsletter editors. Getting the word out about statewide star parties starts with the hosts.

QUESTION: How important do you feel it is for the NCRAL leadership to conduct surveys to get a sense of what Region members like, want, and will agree to?

Very important 58 (29.9%)
Somewhat important 69 (35.6%)
Neutral 46 (23.7%)
Somewhat unimportant 12 (6.2%)
Not important 9 (4.6%)

COMMENTARY: With a weighted mean of 2.20, nearly 2/3 of those surveyed believe that conducting surveys to get a sense of membership desires is a good idea. It was the sense of the Regional Chair that this would be a good idea. This is reflected in the fact that 194 completed our survey and see this as a meaningful way to gather information about wants and needs. This survey has done specifically what the membership desires.

QUESTION: How regularly are you receiving NCRAL's quarterly newsletter – ***Northern Lights*** – through your club's president, ALCor, or newsletter editor?

Very regularly: 92 (47.7%)
Somewhat regularly: 30 (15.5%)
Sometimes: 19 (9.8%)
Rarely: 18 (9.3%)
Never: 34 (17.6%)

COMMENTARY: We've made a good start with getting the ***Northern Lights*** newsletter up and running, and it has been going for near two years now. We have produced 8 quarterly issues since Summer 2016. Co-editor Jim Gibbs and I have done our best to send out quality issues to club presidents, ALCors, and newsletter editors. Unfortunately, sometimes the newsletter doesn't get beyond these points of contact. How else can we explain the fact that less than half of our membership gets the newsletter very regularly? NCRAL members should be aware that the newsletter is released with the start of each season. Back issue can be found on the NCRAL website.

QUESTION: How aware are you that NCRAL has a website at the follow URL: https://ncral.wordpress.com/

Very aware 23 (11.8%)
Somewhat aware: 22 (11.3%)
Slightly aware: 32 (16.4%)
Vaguely aware: 33 (16.9%)
Not aware at all: 85 (43.1%)

COMMENTARY: More than half of those responding (60%) were vaguely or completely unaware that NCRAL has a website. This is surprising due to the fact that each issue of ***Northern Lights*** for the past two years has had a piece dealing with the NCRAL website. I can only hope that, as a result of this survey, members are now more aware of the fact that we do have a website and have visited it at least once. I commend webmaster Jeff Setzer for his willingness to update the website according to my wishes as Regional Chair.

QUESTION: How aware are you that NCRAL has a Facebook page at https://www.facebook.com/northcentralregionastronomicalleague/

Very aware 9 (4.6%)
Somewhat aware: 9 (4.6%)
Slightly aware: 32 (16.4%)
Vaguely aware: 31 (15.9%)
Not aware at all 114 (58.5%)

COMMENTARY: Over 90% of those surveyed were slightly aware or less that NCRAL maintains a Facebook page. This can be due to a number of reasons, not the least of which is that not everyone participates in Facebook. Still, each issue of ***Northern Lights*** for the past two years has had a piece dealing with the fact that we have a Facebook page. I can only hope that, as a result of this survey, members are now cognizant of the fact and would consider "liking" us so they can follow our feed. Perhaps we read the newsletter on the run but should come back for a second look when we have more time to reflect upon what it says.

QUESTION: What activities do you wish NCRAL would offer that it currently does not offer?

Rotating NCRAL star parties
Use something like twitter to alert of astronomical events
A program like *StarGazer* to get people looking up
Webinar type of outreach/speakers on the go
Promote networking
An NCRAL brochure explaining what we are all about

COMMENTARY: Many thoughtful comments were provided, but the above six were the most feasible in my estimation. It would be interesting to see a "rotating" NCRAL star party, but unless each was a major event, they would not likely have a long-distance appeal. I, for instance, probably would not drive to a distant location to observe pretty much the same sky I could see from home unless there were some compelling reason for me to attend. Also, many states already have star parties. A visit to the NCRAL website will show the regional parties this past year. States without such star parties might want to host one. We already have Facebook and "a program like StarGazer" might be feasible. The only problem with these is that it takes dedicated individuals who are willing to spend the time writing and/or producing regular offerings. If you are willing to do so, please contact me.

Most other comments were very club specific – things offered on the local level that NCRAL would not likely participate in as an organization. I indicated earlier in the ***Northern Lights***, we should consider making it possible for our officers (as an option, not a mandate) to present to individual clubs. This might best be done using electronic means rather than actually travel to distant locations which would occur with considerable cost of time and effort. Networking will only increase if people make an effort to do so. In the Twin City Amateur Astronomers, we've been hosting a "mini conference" for our nearby clubs over the past few years, and only last week a joint meeting with the Sangamon Astronomical Society (Springfield, IL). I encourage other groups to consider doing the same or similar things. The idea of an NCRAL brochure is a good one. It would help us focus on the benefits of membership in the AL as well as NCRAL. To the best of my knowledge even the AL itself does not have such a club-level/member-at-large brochure.

A few of the other suggestions really require some sort of detailed response, because it's clear that hearts and minds were doing some serious work here. As a result, I've chosen a limited selection of these and provide a brief response for each as follows:

- *introduction to radio astronomy course* – Offering a course for members spanning several states certainly would be a challenge. One of the ways this might be done would be through live broadcasting or YouTube. The topic, obviously, would have to be addressed by someone who is reasonably expert in this area. I am not familiar with any such persons. Keep in mind that the AL now has radio observing program. I refer our readers to the AL webpage for all observing programs: https://www.astroleague.org/observing.html
- *help with lighting ordinances* – No one does a better job with this than the International Dark-Sky Association (IDA). No need to even try to duplicate outstanding efforts and accomplishments in my opinion. Check out IDA at http://www.darksky.org/
- *beginner programs* – Several recent issues of ***Northern Lights*** have highlighted offerings for recruitment and retention, including a booklet providing a detailed course for beginners. If you have overlooked these free booklets, then visit http://tcaa.us/TCAAGuides.aspx
- *lower cost for NCRAL* – I'm not quite sure how to interpret this comment. There is no charge for membership in NCRAL. AL membership confers free membership in the North Central Region. The Region receives no money whatsoever from the national office. All NCRAL income derives from Regional meetings. All officers and appointed persons are entirely volunteer and receive no stipend. Now, if the reference is in relation to NCRAL regional meetings, then this is something to consider. Data from this survey indicated, however, that only 19.6% of those survey indicated that reduce registration costs of NCRAL meetings was of importance.
- *paper copies of newsletter* – While this appears on the face of it to be a good idea, we must consider the implications. ***Northern Lights*** is currently available as a high-resolution color PDF. Going to a printed copy would require black and white prints of considerably lower quality due to cost. Printing costs would be very substantial and would require payments from each club. Right now, the publication is free and has no size limit. Dissemination over email is also fast and free. The cost of postage, the cost of time and effort for the editors, the headaches associated with trying to maintain a database of everyone who is to receive the printed publication, and such just aren't worth it when a PDF version is available either from your club's president, ALCor, newsletter editor, the NCRAL Facebook page, or NCRAL website.
- *interfacing with universities, planetariums, observatories* – Many clubs already operate in conjunction with these facilities. It is incumbent upon each organization to develop and cultivate their own local relationships. This is not something that can be done on a regional level.

In summary – First and foremost, I wish to express my thanks to all of those who took the time out to complete this survey. I also thank presidents, ALCors, and newsletter editors for getting the word out to their memberships about this survey. Second, the results of this survey bode well for the Region. We now have some good ideas with which to work as we chart the future of the Region.

So, where do we go from here? Starting with the next issue of ***Northern Lights***, I'm going to make an effort to provide resources and draw attention to those that already exist; I encourage others to join me in doing so. The concerns of the Region have been the concerns of my club also. We have worked diligently over the past two years to increase resources for our members and what we have produced can be found online. Look for basic information about these resources in articles later in this issue, and in future issues.

Lastly, I remind the membership that it is nice to talk about such things, but that we all must pitch in to help if we expect anything significant to happen. I often refer to this bit of advice, "Many hands make for a lighter load."

Survey Participant Demographics

Illinois had the most diverse representation among the clubs of its state. 26% (22) of the Illinois responses came from the Northwest Suburban Astronomers; 17% (15) came from the Champaign-Urbana Astronomical Society, 13% (11) came from the Twin City Amateur Astronomers; 12% (10) came from the Rockford Amateur Astronomers, 9% (8) came from the Skokie Valley Amateur Astronomers, and 9% (8) came from Popular Astronomy Club. Four other clubs contributed in smaller percentages: Peoria Astronomical Society, Sangamon Astronomical Society, Naperville Astronomical Association, and Chicago Astronomical Society. There were also two members-at-large who contributed to the survey.

Iowa had five clubs participate in the survey. 57% (20) of the Iowa responses were from the Cedar Amateur Astronomers, 26% (9) were from the Des Moines Astronomical Society, and 9% (3) were from the Ames Area Amateur Astronomers. Also contributing were members from the Black Hawk Astronomy Club, and one club not affiliated with the AL/NCRAL.

100% of the Michigan responses (2) came from the Marquette Astronomical Society.

96% of the Minnesota responses (21) came from the Minnesota Astronomical Society and one other club.

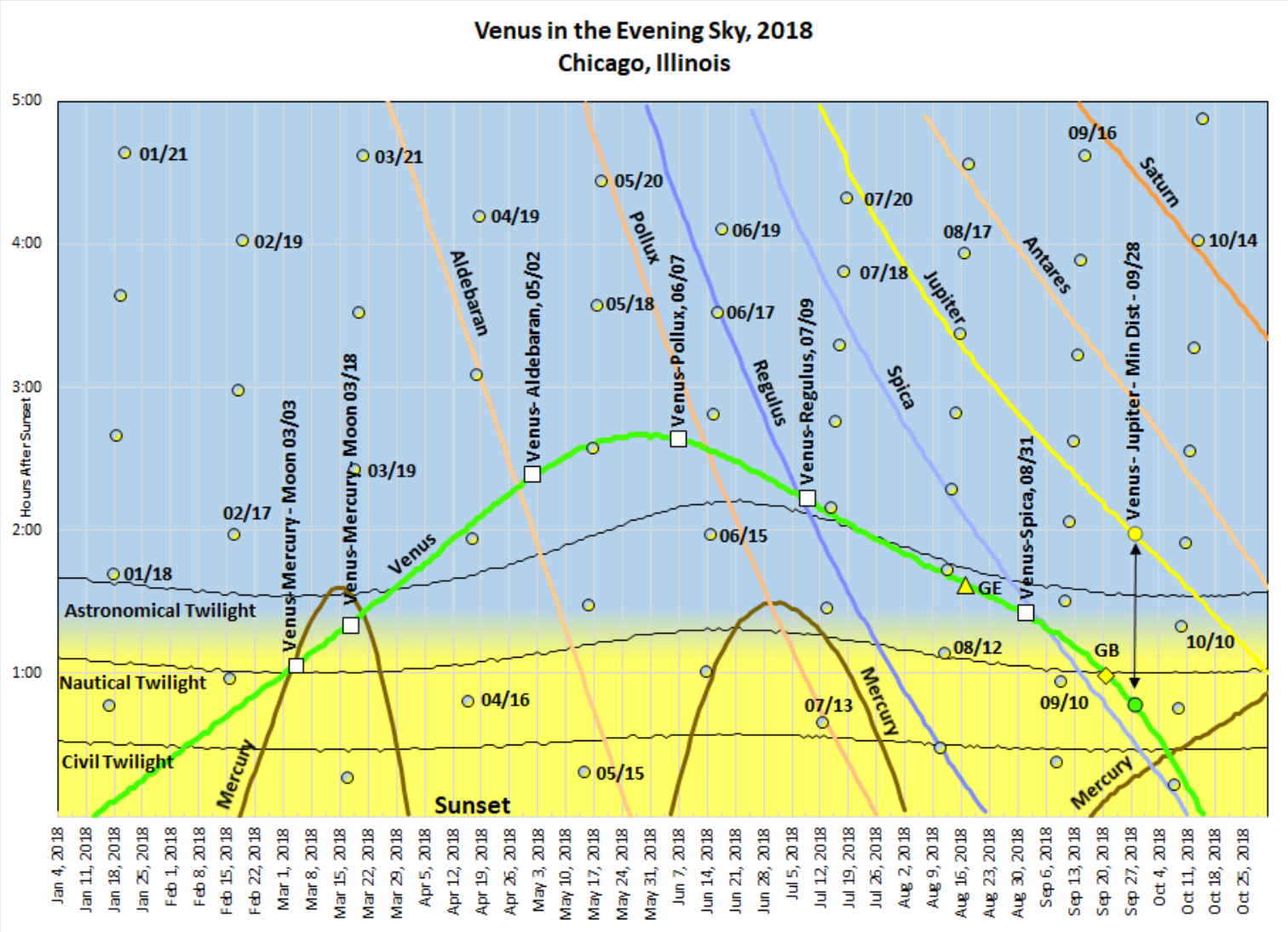
There were no respondents from either North Dakota or South Dakota.

Wisconsin, like Illinois, had a widely diverse number of clubs participating in the survey. 32% (9) of the Wisconsin responses came from the Neville Public Museum Astronomical Society; 21% (6) came from the Sheboygan Astronomical Society; 14% (4) came from the Door Peninsula Astronomical Society, 11% (3) came from the LaCrosse Area Astronomical Society, 11% (3) came from the Milwaukee Astronomical Society. Three other clubs had members who also participated: Wehr Astronomical Society, Racine Astronomical Society, and Iowa County Astronomers.

2018: Venus in the Evening Sky

by Jeffrey L. Hunt *

Venus shines brightly in the evening sky for most of 2018. At publication time, the planet shines brilliantly from the western sky, setting about 85 minutes after sunset. During its evening apparition, the bright outer planets dance through their retrograde loops.



This chart shows the setting time of Venus compared to sunset, along with the setting time differences of other bright planets, stars and the moon (circles). The three phases of twilight are graphed: Civil Twilight (sun's altitude is -6°), Nautical twilight (-12°), and Astronomical Twilight (-18°). The boxes indicate conjunctions with other stars and planets. Because Venus is the focus of this article, conjunctions are shown on the Venus setting line. The yellow triangle with the letters "GE" indicates Venus' greatest elongation. The greatest brightness is marked with the yellow diamond and the letters "GB." The chart is graphed from data from the U.S. Naval Observatory for Chicago, Illinois.)

The apparition began at Venus' superior conjunction on January 9 (1:02 a.m. CST). It continues to slowly climb into the western sky, setting about a minute later each day. During the evening display, Venus passes several bright "stars" and star clusters in the western sky. It makes some pretty groupings with the moon. Here are the highlights of its apparition:

- For early readers of this article, **March 3** (apparent magnitude, -3.9; apparent size, 10", illumination, 98%; sets after sunset, 63 minutes), As Mercury (m=-1.2) heads toward its first and best evening elongation of 2018, this speedy planet passes 1° to the right of Venus. Even though the pair is only about 5° above the horizon, 30 minutes after sunset, both are bright enough to be seen without optical aid.
- **March 18** (-3.9, 10.3", 96%, 81m), Mercury (m=0.4) passes 4° to the upper right of Venus with the crescent moon (1.5 days old) 4° to the left of Venus. The trio nearly fits into the field of low-power binoculars.
- **March 28** (-3.9, 10.5", 95%, 95m), Venus sets at the end of evening twilight and sets in a dark sky until late July.
- **April 24** (-3.9, 11.2", 90%, 133m), Venus passes 3.5° from the Pleiades (Alcyone). Watch the planet move between the bright star clusters of Taurus for the next week.
- **April 29** (-3.9, 11.4", 89%, 139m), Venus and Sirius set at the same time. Although they are 53° apart in the sky, compare their respective brightness before they set. Venus is nearly 10 times brighter than Sirius. (The typical practice is

to compare the brightness of celestial objects when they are close together. For this purpose, glance back and forth between the two and you'll notice a distinct difference in brightness. This is for fun, not photometry.)

- **May 2** (-3.9, 11.6", 88%, 143m), Venus passes 6.5° from Aldebaran.
- **May 8** (-3.9, 11.8", 87%, 149m), Venus shines brilliantly in the western sky as Jupiter reaches opposition.
- **May 13** (-3.9, 12.0", 86%, 154m), Venus passes between the "Horns of Taurus," Zeta Tauri and Elnath.
- **May 17** (-3.9, 12.2", 85%, 156m), The moon (2.5 days) and Venus are 6.2° apart. Take in the entire region of the sky with the bright stars of winter now appearing low in the western sky during the early evening.
- **June 1** (-3.9, 13.1", 80%, 160m), Venus sets at its maximum interval after sunset.
- **June 7** (-4.0, 13.6", 78%, 153m), Venus passes 4.75° from Pollux.
- **June 19** (-4.0, 14.5", 74%, 150m), Venus passes less than 1° from the Beehive Cluster (M44, NGC 2632). Look with binoculars.
- **June 26** (-4.0, 15.2", 72%, 145m), Venus and Jupiter dominate the sky as Saturn reaches opposition.
- **July 9** (-4.1, 16.7",67%, 133m), Venus appears less than 1° from Regulus.
- **July 15** (-4.2, 17.5", 65%, 127m), The three-day-old moon is less than 2° from Venus with Regulus 6.75 ° to the lower right of the planet.
- **Late July**, look for five planets in the early evening sky. At the mid-northern latitudes Mercury sets seven minutes before Mars rises. While not a simultaneous appearance, five planets can be observed in the sky during the early evening. If you're traveling toward more southerly latitudes during this time, there's a better opportunity to see them in the sky together. Optical assistance is likely needed to initially see Mercury (m=0.9) as it sets just after Nautical Twilight (sun's altitude is -12°).
- **July 27** (-4.3, 19.4", 59%, 115m), Venus, Jupiter, and Saturn shine in the evening sky as Mars reaches opposition. Venus sets at the end of twilight; for the remainder of its apparition, it sets during evening twilight.
- **August 17** (-4.5, 24.2", 49%, 97m), Venus reaches its greatest eastern elongation (45.9°). Notice that its angular size is nearly the same as Mars when it appeared at its closest approach to Earth on July 31. On the setting chart above, this is indicated by the yellow triangle and designation "GE."
- **August 31** (-4.6, 28.8", 41%, 85m), Venus appears 1.25° below Spica. After this conjunction, Venus sets much earlier each evening, nearly mirroring the setting time of Spica. They disappear into bright twilight together, not setting more than about 15 minutes apart as they head toward their respective solar conjunctions.
- **September 21** (-4.8, 39.3", 26%, 59m), Venus reaches its greatest brilliancy. While no longer named this formally (now named greatest illuminated extent) and determined by the elongation from the sun. This date is the middle of two-week period when the planet appears brightest in the sky. It is important to note that Venus' greatest brilliancy in our sky is not a singular event visually, but the intensity occurs across several evenings.) On this date, Venus sets near the time of Nautical Twilight. On the setting chart above, this is indicated by the yellow diamond and the designation "GB."
- **September 28** (-4.8, 44", 20%, 47m), This marks the closest approach of Venus and Jupiter (14°) during the evening apparition of Venus.
- **October 26**, Venus reaches inferior conjunction, then rapidly moves into the morning sky. By the end of November 2018, it rises nearly 3.5 hours before sunrise. That apparition features a close passing of Venus and Spica, but no conjunction – a quasi-conjunction. During the encounter, Venus and Spica do not share the same coordinates in either coordinate system. In early January 2019 Venus has a widely spaced conjunction with Jupiter.

Notes about the setting time intervals on the chart:

1. During the months around the summer solstice, setting intervals do not have moonset on consecutive nights because of later sunsets and Daylight Saving Time. For example, on May 18, the moon sets at 11:41 p.m. CDT, 214 minutes after sunset. The next setting moon is May 20 at 12:34 a.m. CDT, 266 minutes after sunset.
2. The chart shows setting time intervals after sunset. When two setting lines cross, this indicates that the objects set at the same time. A conjunction occurs near them time of that intersection. On some dates the moonset time intervals are nearly the same as a star or planet. Again, the moon and the other object set at the same time and they can be very close or several degrees apart. Recall, that in the summary above Venus and Sirius set at about the same time on April 29, but they are far apart. The stars on the chart have been selected because they are signposts along the ecliptic.

* 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 hold 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 2018 Perihelic Opposition of Mars

by Jeffrey L. Hunt

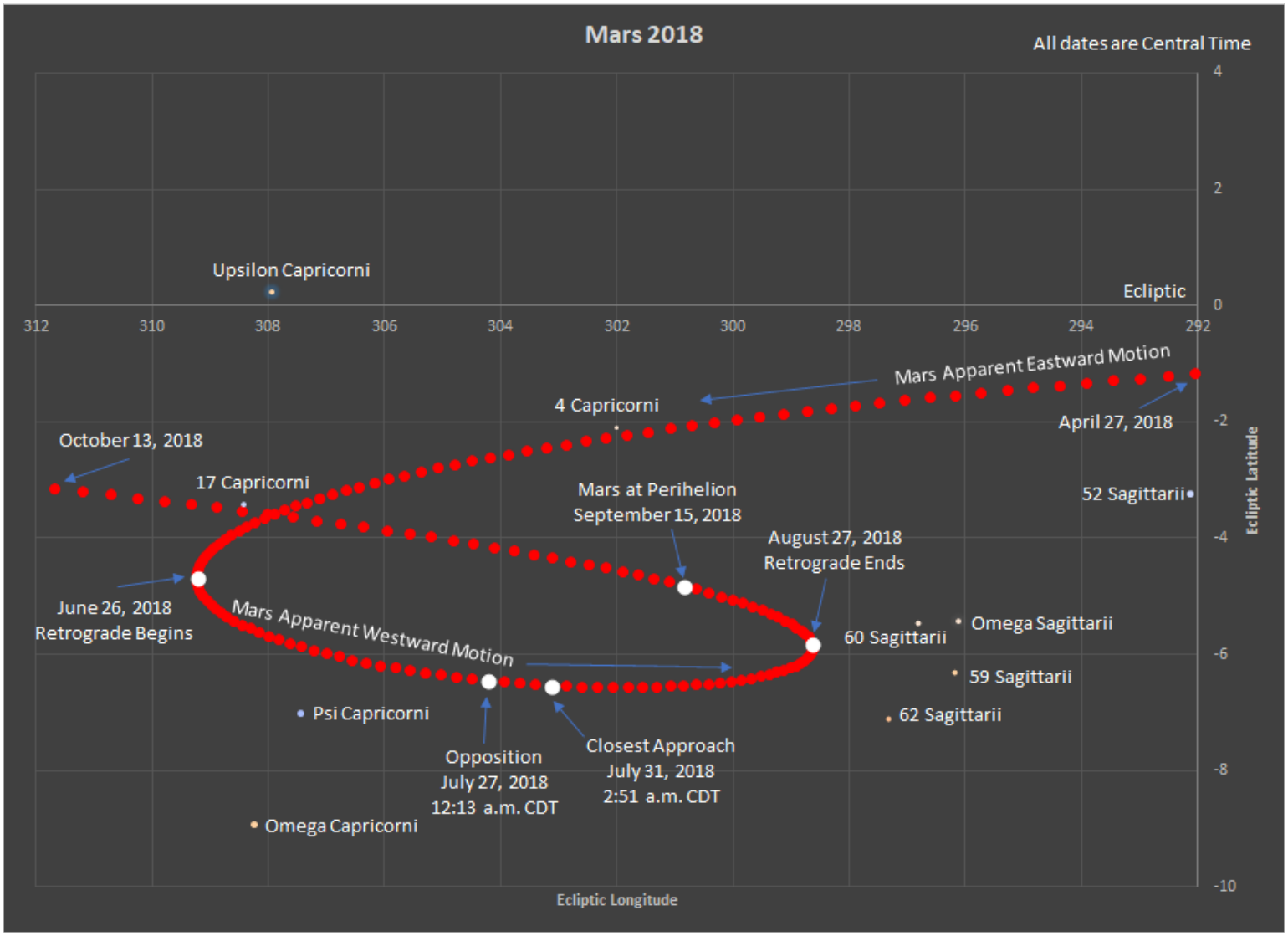


Figure 1. Mars retrogrades among the stars of Capriconus at its perihelic opposition on July 27, 2018. It begins retrograding on June 26 and ends its westward motion on August 27, 2018. The closest approach occurs on July 31.

About every 25 months our planet Earth passes its nearest outer planet neighbor. At these oppositions, Mars rises in the eastern sky at sunset, moves across the southern skies at midnight, and sets in the west near sunrise. In the early 17th century, Johannes Kepler first recognized that Mars orbit was elliptical. In this trajectory, Mars is sometimes closer to the sun than at the opposite arc of its orbital pathway. The point on the orbit when Mars (and other planets, including Earth) is closest to the sun is known as perihelion. If Earth passes Mars when it is near this point, this event is known as a perihelic opposition of Mars.

Such oppositions occur about every 15 years, sometimes 17 years. The most recent close opposition occurred in 2003; the opposition was the closest to Earth after the invention of the telescope. Oppositions of Mars occur in set patterns: Three or four occur near when Mars is farthest from the sun (aphelic oppositions), followed by three near perihelion. It is important to note that oppositions near when Mars is at aphelion occur during Earth's northern hemisphere's winter, when the planet is high in the sky at opposition. Oppositions near perihelion occur during the northern hemisphere's summer and early autumn, but Mars is low when it crosses the meridian; this can limit sharp viewing.

Before the invention of robot spacecraft that captured close-up photos of the Red Planet, perihelic oppositions were of special attention at the telescope eyepiece, because of the planet's closeness to Earth.

In 1877, Asaph Hall first observed the tiny Martian moons through the U.S. Naval Observatory's 26-inch telescope. At the same perihelic opposition, Giovanni Schiaparelli noted long linear markings on the planet's surface, that he called "canali," through an 8-inch telescope at the Milan Observatory. By the next perihelic opposition in 1892, other observers' observations led them to question the reported markings. At the next opposition, two years later, in 1894, Percival Lowell was deep in his observations to "prove" that Schiaparelli's canali were evidence of some extraterrestrial intelligence on Mars. And the explosive interest in life on Mars grew from telescopic observations at or near perihelion. Such fascination continued in books and movies. Even with robots roving on the Martian surface and mapping the surface from above, the search for life on Mars continues, albeit at the miniature level.

This year, Mars reaches its perihelic opposition on July 27 and the closest approach just four evenings later. The planet appears 24.3 arc seconds in diameter as it retrogrades among the dimmer stars of Capricornus.

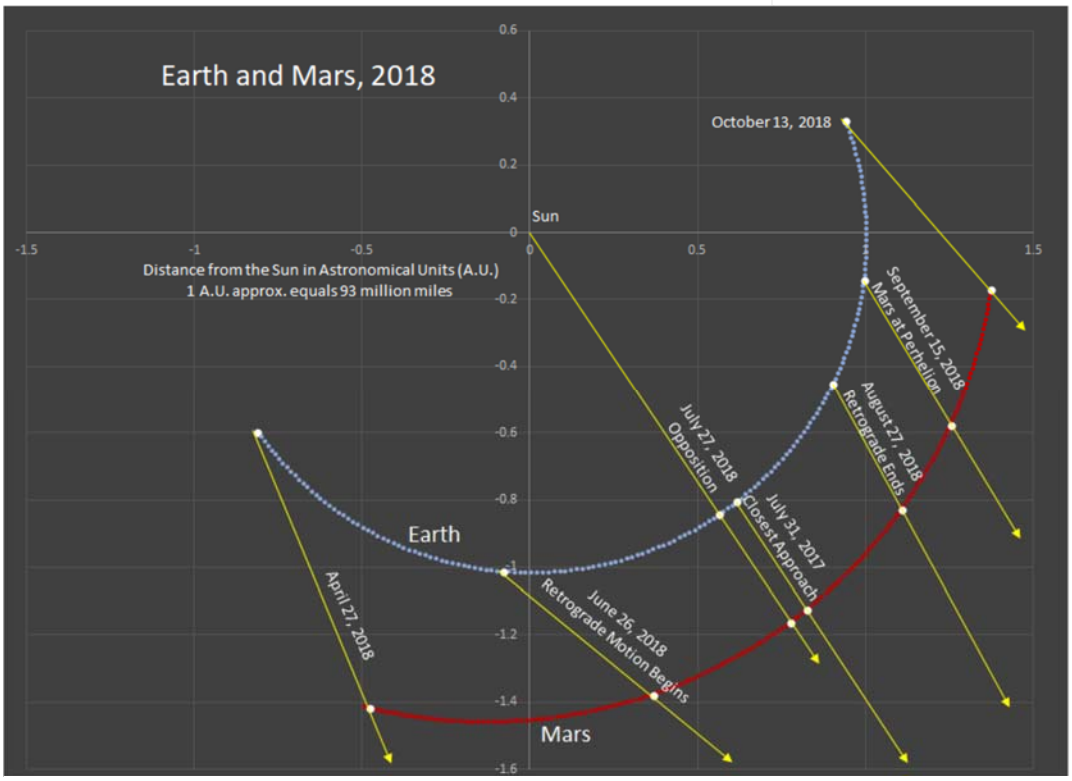


Figure 2: This chart shows the partial orbits of Earth and Mars from April 27 through October 13, 2017. It shows the overhead positions of the two planets resulting in the retrograde pattern in the previous chart. (Charts made with data from the U.S. Naval Observatory.)

The two charts in this article show two different views of the same events. Figure 1 shows the view of what we see from our viewpoint on Earth – the retrograde pattern of Mars. Figure 2 shows the orbital paths of the two planets as if they could be viewed from above the solar system.

Here are the events as noted on the charts:

- **April 27, 2018**: Mars is over 81 million miles from Earth. It is brighter than any other "star" in the region, except for Jupiter which is 60 degrees to the west of Mars. Through a telescope, Mars is 10.7” in size. It rises in the southeast at about 1:30 a.m. CDT.

- As the nights progress, Mars appears to move eastward compared to the starry background. In June, Mars appears to slow its eastward march compared to background.

- **June 26, 2018**: Mars stops moving eastward and begins to slowly move westward compared to the starry background. It is 44 million miles away and five times brighter than it was in April. It is now 19.9” across. The planet rises at about 11 p.m. CDT.

- **July 27, 2018**: Mars is at opposition. The full moon is about 7 degrees to the upper left of Mars. In one month, Mars nearly doubles in brightness and is 24.2” in size, a nearly 25% change in angular diameter in a month. Mars is nearly as bright as Jupiter yet appears star like without a telescope. It is 35.8 million miles away.

- **July 31, 2018**: Mars is closest to Earth (closest approach). It is 35.7 million miles away and 24.3” across. Mars is not necessarily closest at opposition because of its elliptical orbit. Mars is still moving toward perihelion gradually getting closer to the sun each day.

- **August 27, 2018**: Mars stops retrograding. It is 41 million miles away. It is still bright, but its intensity is noticeably diminished, and its diameter has shrunk 10%. Earth is now pulling away from Mars. Mars begins moving eastward again compared to the starry background

- **September 15, 2018**: Mars is at its solar perihelion, 47 million miles away from Earth. It is nearly 2.5 times dimmer than when it was at its closest approach to Earth and nearly 25% smaller than when it was closest less than 2 months ago.

- **October 13, 2018**: (The last date charted.) Mars is 62 million miles away from Earth and distinctly dimmer (over three times dimmer) than it was at opposition. It is now 14.1” across, only 42% of its apparent size at opposition. As Earth moves away from Mars, the Red Planet appears to pick up speed as it moves eastward. Mars is in the south at sunset. Saturn is 38 degrees to the lower right of Mars. Jupiter is another 38 degrees to the right of Saturn, near the west-southwest horizon. The crescent moon is between Saturn and Jupiter.

The table below summarizes the preceding text.

Date	Distance (Million Miles, rounded)	Magnitude Brightness (m)	Brightness Change (From Previous Date)	Apparent size (Arc Seconds)
April 27, 2018	81	-0.3	--	10.7
June 26, 2018	44	-2.08	5.2 x brighter	19.9
July 27, 2018	35.8	-2.78	1.9 x brighter	24.2
July 31, 2018	35.7	-2.78	No Change	24.3
August 27, 2018	41	-2.2	1.6x dimmer	21.9
September 15, 2018	47	-1.7	1.6 x dimmer	18.4
October 13, 2018	62	-1.0	1.3 x dimmer	14.1

Table 1: Some properties of Mars, 2018

An exciting viewing opportunity occurs during the next year. With this opposition occurring in July 2018, it is easily observed. The next Martian opposition is October 13, 2020, among the faint stars of Pisces. The next perihelic opposition September 15, 2035, at a distance of 35.4 million miles from us. Happy observing!

Eastern Iowa Star Party set for September 7- 9

News release from the Quad Cities Astronomical Society

The Quad Cities Astronomical Society will host the Eastern Iowa Star Party on the weekend of September 7th - 9th 2018. All amateur and professional astronomers are invited to attend this annual event.

The Eastern Iowa Star Party will take place at St. Ambrose University's Menke Observatory, at the Wapsi River Environmental Education Center in Dixon, Iowa. The center is located north of Interstate 80 about 30 minutes from Davenport, Iowa, and the two-states Quad Cities area.

The star party will feature opportunities for telescope observing and imaging, as well the option to hear presentations by three prominent guest lecturers:

- **David H. Levy** is an amateur astronomer best known for discovering the Shoemaker-Levy comet that collided with Jupiter in 1995. Shoemaker-Levy is just one of the 23 comets which Mr. Levy is credited with discovering; he's also participated in discovering more than 200 asteroids. Mr. Levy has written over three dozen books, is a frequent contributor to astronomy magazines, edits his own online Web publication – Sky's Up! – has appeared on numerous television and radio programs, and earned an Emmy award in 1998 for the TV documentary "Three Minutes to Impact."
- **Dr. Jennifer Anderson** is an associate professor in the Department of Geoscience at Winona State University in Winona, Minnesota. A Wisconsin native whose interest in astronomy dates back to childhood, Dr. Anderson is director of the observatory at Winona State and teaches classes in astronomy, planetary geology, geophysics and earth science. She is a leading expert on the subject of impact crates and collaborates with colleagues on this subject at the Environmental Impact Library at NASA's Johnson Space Center in Houston.
- **Dr. Paul Sipiera** is president and CEO of the Planetary Studies Foundation in Galena, Illinois, professor emeritus of geology and astronomy at William Rainey Harper College in Palatine, Illinois, and director of the foundation's Earth and Space Science Museum in Elizabeth, Illinois. Dr. Sipiera has led three expeditions to Antarctica in search of meteorites and three total solar eclipse observing tours to Mexico, Aruba and Turkey, and has also studied ancient volcanic activity in New Zealand. He's won numerous awards and has an asteroid – 31931 Sipiera – named for him. Dr. Sipiera, who has authored nearly 200 articles for professional journals, is continuing his research into stone meteorites and the role they play in planetary formation.

The cost to attend the Eastern Iowa Star Party is $25, for the star party alone; $35, for the lectures alone; and $50 for both the star party and lectures. Those who pay the $50 entry fee will also be provided a raffle ticket for door prizes, which will include an Explore Scientific 102mm carbon fiber air-spaced triplet refractor. Raffle tickets for all registrants will be available at $10 each.

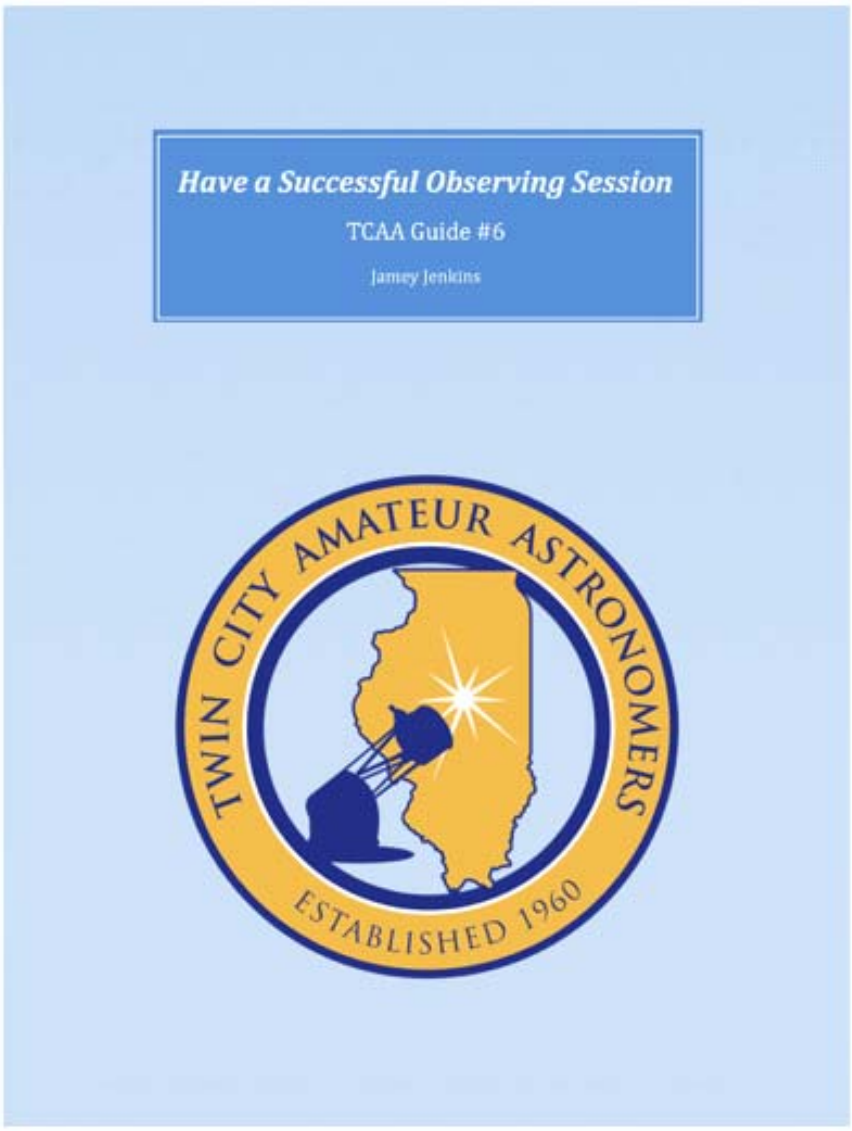
Registration and raffle proceeds will defray the costs of this event. Additional donations are welcomed and will benefit outreach activities of the Quad Cities Astronomical Society and its ongoing project to improve and relocate its main observatory, currently located at nearby Sherman Park in Calamus, Iowa.

Camping is available onsite at the Wapsi River Environmental Education Center; further information can be found on the application form.

To register for the Eastern Iowa Star Party, and for more information, contact Jeff Struve, President, Quad Cities Astronomical Society, at PwrHsePro@aol.com.

TCAA Guides to Amateur Astronomy Grows in Number

The number of TCAA Guides to amateur astronomy has just increased yet again from six to seven. TCAA member Carl Wenning recently contributed Guide #7 – BUYING BINOCULARS & TELESCOPES. This guide provides the basic information required to make informed decisions about buying quality binoculars and telescopes. This publication, suitable for the public, can help avoid the disappointment that comes with purchasing the wrong set of binoculars or an inferior quality toy telescope. Clubs might want to promote the use of this publication for those who ask for assistance in purchasing binoculars and telescopes.



This guide joins six others that are geared to improve the experience of new amateur astronomers. To read all TCAA Guides, you may retrieve them from the TCAA website at http://tcaa.us/TCAAGuides.aspx. The six prior TCAA Guides to Amateur Astronomy are as follows:

Guide #1 – INTRODUCTION TO AMATEUR ASTRONOMY

This guide addresses the basics that everyone needs to know in order to become an amateur astronomer. It deals with the use of eyes, binoculars, and telescopes to view the night sky. It should not be mistaken for a textbook in astronomy.

Guide #2 – MEMBERSHIP AND BENEFITS

Even long-time members do not know everything they need to know about membership in this club. Many benefits are overlooked and this publication does what it can to clearly illustrate the benefits of membership.

Guide #3 – ASTRONOMY AS A HOBBY

Why is it that we don't attract as many amateur astronomers as we would like? Our club has lots of great benefits, and it's more the just lack of knowledge of benefits. Part of the problem today stems from the fact that many people don't understand the meaning of a hobby and the benefits derived from it.

Guide #4 – THE ART OF SKY INTERPRETATION

Interpreting the sky requires more than just standing in front of a group of people and talking. If it were that easy, there would be many more speakers in our club! There is an art of sky interpretation, and this guide describes it. Even if one doesn't intend to give public talks, this guide provides a wealth of information about what can be seen in the sky with the unaided eye.

Guide #5 – COORDINATING OBSERVING SESSIONS

While coordinating observing sessions might appear to be an easy task to those who attend them, there is considerable background work associated with both public and members-only sessions. Consider hosting an observing session and use this guide to assist.

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.

NCRAL on Facebook

Did you know that NCRAL now has a Facebook page for sharing information about your Region's AL-affiliated clubs? This is 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/

Lastly, would you like to see your images on the NCRAL Facebook page banner? If so, send your image and a 2-3 sentence caption to the ***Northern Lights*** newsletter assistant editor at carlwenning@gmail.com.

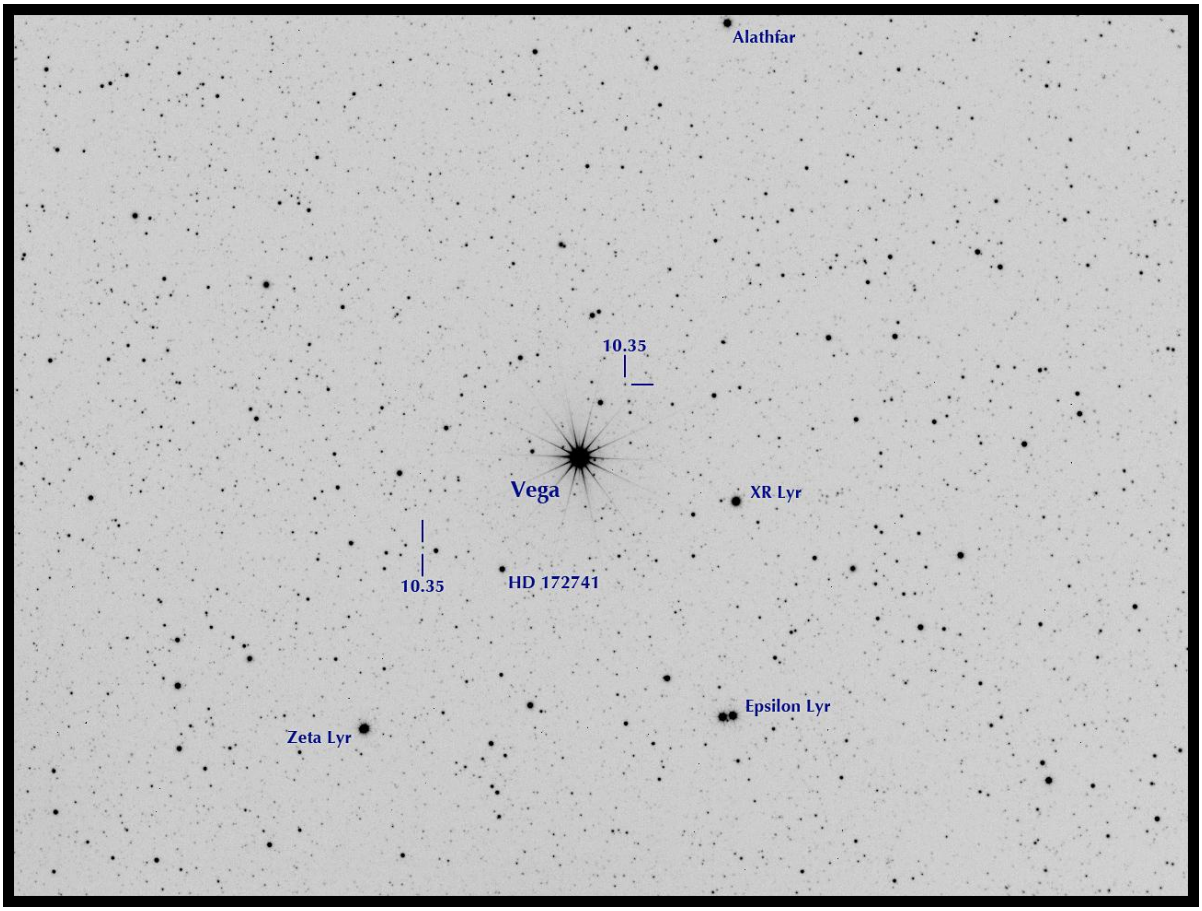
NCRAL BYLAWS AVAILABLE ONLINE

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/

NCRAL Photo Gallery

Just an experiment with the DMK41 solar system camera last fall before the weather bottomed out where I live. Attached a 50mm f1.4 Nikkor, stopped to f4. This is the result of a 30sec x10 frame avi movie, gamma 100, gain 560, stacked in AviStack2, captured with Firecapture. Limiting magnitude is around 10.5 from my estimate. Orientation not corrected. Interesting…

By Jamey Jenkins, TCAA
Homer, IL
February 2018



Sharpless 101 (Sh2-101) is a H II region emission nebula located in the constellation Cygnus. It is sometimes also called the Tulip Nebula because it appears to resemble the outline of a tulip when imaged photographically. It was catalogued by astronomer Stewart Sharpless in his 1959 catalog of nebulae. It lies at a distance of about 6,000 light-years (5.7×10^16 km; 3.5×10^16 mi) from Earth.

Sh2-101, at least in the field seen from earth, is in close proximity to microquasar Cygnus X-1, site of one of the first suspected black holes. Cygnus X-1 is the brighter of the two stars (lower star) in close vertical proximity just to the left of Sh2-101 in the image presented here.

Image type: Narrowband HA-SII-OIII (RGB) 8x300ea.

Hardware: AT8RC, QHY9

Software: Nebulosity, CCDStack, Photoshop CS6, Images Plus

By Jim Gibbs, TCAA
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Sep 9, 2017

Editors Note: If you have astroimages or Star Party related pictures you would like to see publish in this section email them to jrgibbs@msn.com by June 10th. Please include a brief description, your club affiliation and dates taken.