

THE OBSERVER

OF THE TWIN CITY AMATEUR ASTRONOMERS



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INSIDE THIS ISSUE:

Editor's Choice: Image of the Month.....	1
A Note from President Weiland.....	2
Minutes of March 11 th Board Meeting.....	2
Calendar of Celestial Events – April 2014.....	4
New/Renewing Members/Dues Blue.....	4
TCAA 5-Year Plan Approved.....	5
Board Elec. Approves Two Motions.....	5
“Tax Day” Total Lunar Eclipse.....	6
Next Public Observing Session.....	7
AL Observing Program Standings.....	8
Astrobits.....	8
Astronomical Apps for iOS/Android.....	10
E/PO for March 2014.....	11
Image of the Month (continued).....	11
Ask the Editor.....	12
How Time Flies.....	12
Treasurer's Report – March 2014.....	13



The TCAA is an affiliate of the [Astronomical League](#). For more information about the TCAA, be certain to visit our [club website](#).



EDITOR'S CHOICE: IMAGE OF THE MONTH

This spectacular image by Tim Stone and Bob Finnigan is a two-panel mosaic of two galaxies (M81 – bottom and M82 – top) with almost 17 hours of imaging over 7 nights during the last three months. The [full resolution image](#) is 24 megapixels. Bob acquired the data for M82 with the 20", and Tim acquired the remainder of the image with the 17". [Supernova SN2014J](#) is visible in M82. Read more about this image on page 11.

The OBSERVER is the monthly *electronic* publication of the Twin City Amateur Astronomers, Inc., a registered 501(c)(3) not-for-profit educational organization of amateur astronomers interested in studying astronomy and sharing their hobby with the public.

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Submission deadline is the end of each month.

Membership Dues

Individual Adult/Family \$40
 Full-time Student/Senior \$25
 (senior status equals ages 60+)

To join, send your name, contact info and dues payment to Duane Yockey, TCAA Treasurer, 508 Normal Avenue, Normal, IL 61761

A NOTE FROM PRESIDENT WEILAND

As our 2014 Public Observation Sessions (POS) start again this year, I once again think of what might encourage people to attend the events at which we share our interest in astronomy and the sciences. Certainly spectacular events like comets, meteor showers, and eclipses can stimulate people's interest. Perhaps the rebirth of the Cosmos TV series might cause someone to seek us out. Reading the Pantagraph or checking the Sugar Grove Nature Center website might lead them to us as well. We get consistent coverage in the GO section of the newspaper prior to our Saturday POS and our events are also included in the Sugar Grove newsletter and website. On April 5th we'll have an opportunity to interact with hundreds of potential visitors as we participate in the 4th annual ISU Family Science Day. As a group we need to take advantage of these opportunities to build our membership by encouraging diverse and younger individual's participation.

Despite all of the avenues which might make people aware of our events there is another excellent method.....ask someone to come! Sharing our interest in the cosmos with family in the backyard is something we have all done, but inviting neighbors, friends, and acquaintances to a POS, although it may be a little out of our comfort zone, is a way I would certainly encourage. A direct invitation to a POS is a great way to get someone interested and involved, and the impact of viewing the skies through a scope at a dark location can be multiplied many times over as those guests later share their experience with others.

So if the opportunity presents itself to ask someone out to a POS.....do so! We'll gladly share our love of this "hobby" with others and maybe even gain a few new members. Our next POS is April 26. Hope to see you there! Clear Skies!!

MINUTES OF MARCH 11TH BOARD OF DIRECTORS MEETING

The meeting was called to order at 6:30pm in Bloomington at the office of Duane Yockey. In attendance were Tom Weiland, Carl Wenning, Duane Yockey, Lee Green, Tim Stone and Bob Finnigan. The Minutes of the previous meeting were approved.

Duane reported that the current Treasurer's report had been recently published and that the club's finances were sound. He noted that the bill for the Annual Meeting had not been received. Duane will be attending the NCRAL 2014 in Port Washington, WI, April 4-5.

Tim provided a detailed report about the property and facilities. He has observed water in and around the PSO due to snow and drainage (Tom reminded us that the Bird Room in the SGNC has similar problems due to the poor drainage), and muddy conditions around the building. He detailed improvements made to the facilities and equipment. During the winter, the equipment exhibited problems during sub-zero temperatures.

Tom thanked everyone for assisting in a successful Annual Meeting and provided a favorable report.

A document to clearly define the parameters for use of the observatory including written observational and training procedures came next on our agenda. Bob submitted a proposal (see proposal detail on page 3) for allowing Craig Prost to mount equipment in the PSO. Tim seconded the motion. The proposal would allow mounting of a refractor telescope and a camera, both provided by Craig, piggybacked on the north pier. Ownership of the equipment would be retained by Craig, but would be under the control of the Property Manager. We had discussions about the motivation of the proposal being intended to address the interests of active members, about the scheduling of time in the observatory, about how this proposal would augment the

policy document under discussion, and whether this proposal would be a permanently adopted. An objection about the providing preferential treatment was noted. A “gentlemen’s agreement” seemed to be sufficient for now to resolve scheduling conflicts and Tim would coordinate the scheduling. The proposal was adopted.

Discussions return to the policy document for the use of the observatories. The Board reviewed a draft of the policy dated February 10, 2014. Concerns were raised about dealing with conflicts and unforeseen problems. While the consensus of the Board was to adopt the policy for the next four months to see how well they governed the facilities, the approval of Bob’s proposal necessitated an amendment to the document. Carl will provide a new draft for later consideration.

We returned to a discussion about the location of outstanding equipment. All questions about the location of club property were resolved. Tim detailed the condition several recent donations and noted that we still have unused equipment needing disposition.

Carl presented an update of the 5-year plan for the club. Several changes were reviewed and approved. Carl will publish the document in an upcoming newsletter.

Discussions returned to key holder policies. It was noted that keys should be provided to all Board members and officers of the club, and that keys should be available only to members who are trained and able to safely operate the equipment. It was decided that the locks should be changed and that the SGO and PSO should both be accessible with one key. It was agreed that no fee would be charged at this time for access to keys.

The topic of a club forum was next on the agenda. With so many listserv emails being related to astrophotography, the need a separate communication channel was raised. Lee reported that the new club forum had been placed in a public link for the web site to make it more accessible to members, and that it had quickly been filled with unsolicited commercial messages. It was agreed that the forum would be removed from the web site and to establish a separate listserv using Yahoo Groups as our hosting. Lee will establish the account and notify members.

The annual Family Science Day will be held at Redbird Arena on April 5 and the club will have a presence there. Tom will coordinate scheduling. Lee and Carl will coordinate the interactive displays. All members are encouraged to assist with the event.

Turning to new business, it was unanimously confirmed that members who wished to terminate their membership would not have their dues refunded.

We discussed the telescopes available for a new giveaway program for 2014. A Meade ETX-125 PE 5” Maksutov telescope donated by Jim and Nancy McCriskin was considered the best candidate, providing that a suitable power supply could be located. We adopted to follow the same procedures for the giveaway as was used last year and noted that entry forms would be needed.

We discussed the recipients that should be included in club emails. For consistency and discussion, Tom encouraged members to be cognizant of the intended audience for their email messages.

We considered the possibility of host a future NCRAL event. The motion to volunteer to host the regional meeting was approved. Duane will make the offer at the upcoming NCRAL meeting with the proviso that the meeting would have to be in 2016 or later for planning purposes.

We agreed to update the ‘About the TCAA’ and observatory description areas of our website. Carl offered to assist Lee with the content.

Carl moved that we purchase a vinyl banner for the club. Carl will provide a mock-up of the banner for the Board’s approval.

We discussed how we notify members when their dues are up for renewal. It was agreed that this would not be done publicly. Lee recommended that a dues notice be included individually in the email distribution of the newsletter, much the way our Dues Blues checkbox was used previously. Lee and Duane will coordinate to maintain the accuracy of the mailing list.

The next Board meeting will be held at Duane’s office on May 6. The meeting adjourned at 8:30pm.

Respectfully submitted,
Lee Green, Secretary

* *The Board subsequently approved the following concise statement for inclusion in the minutes.* Bob Finnigan proposed that: (1) the 20-inch pier and mount be used as a platform for Craig’s Pentax 105SDP refractor; (2) the Pentax scope be mounted on top of the 20 inch telescope; (3) a USB cable be run through the existing conduit already in the PSO to a computer (this computer would have Maxim 5 installed and the guiding would be done from the 8300 camera and the existing computer that now controls the NORTH pier); (4) Craig would install the Pentax and a QHY11 camera with the KAI-11002 chip and filter wheel that he would make available to all club members (this equipment would be computer controlled the same as all other equipment in PSO); and (5) Craig would stand in line under the same rules as are in place for the NORTH pier. The 20-inch telescope and 8300 camera would remain for all to use with or without Craig’s equipment. This set up would stay mounted on public nights but no use of the Pentax would be allowed at that time. The 8300 camera would be removed and a 2-inch eyepiece would be installed for public viewing.

CALENDAR OF CELESTIAL EVENTS – APRIL 2014

EVENING STARS (4/15): MARS & JUPITER

MORNING STARS (4/15): MERCURY, VENUS, SATURN, URANUS & NEPTUNE

Question: You have used “UTC” in the past and below. What is UTC? The answer can be found at the conclusion of this column.

08 Mars at Opposition. The red planet will be at its closest approach to Earth and its face will be fully illuminated by the Sun. It will be at its brightest, magnitude -1.5 . This is the best time to view and photograph Mars.

15 Total Lunar Eclipse. A total lunar eclipse occurs when the Moon passes completely through the Earth's dark shadow, or umbra. During this type of eclipse, the Moon will gradually get darker and then take on a rusty or blood red color. The eclipse will be visible throughout most of North America, South America, and Australia. (See the article on page 5 for details.)

17 Lunar Occultation. The Moon occults (or passed in front of) Saturn as seen from South America at ~07:19 UTC (1:19 a.m. CDT). Nonetheless, the pair will appear very close together in the sky for central Illinois observers and will make a pretty pair. To see closest approach, look for the pair 1/3 way up in the southeast before going to bed. The pair will be visible almost all night. Saturn rises at 9:24 p.m., transits at 2:34 a.m., and sets after sunrise.

22 Lyrid Meteor Shower. The Lyrid meteor show is an “average” shower, usually producing about 20 meteors per hour at its peak. It is produced by dust particles left behind by Comet Thatcher, which was discovered in 1861. The shower runs annually from April 16-25. It peaks this year on the evening of the 22nd and morning of the 23rd. These meteors can sometimes produce bright dust trails that last for several seconds. The third-quarter moon will be a slight problem this year, blocking the dimmer meteors from view. Best viewing will be from a dark location. Meteors will appear to radiate from the constellation Lyra, but can be seen anywhere in the sky.

29 New Moon. The Moon will pass roughly between Earth and Sun and will not be visible in our sky. This phase occurs at precisely 06:14 UTC.

Answer: UTC is an abbreviation for “Coordinated Universal Time” stated in French. UTC is similar to but not quite the same as Greenwich Mean Time (GMT); the two have diverged by several minutes. For all intents and purposes of this column, Central Standard Time (CST) can be taken as UTC – 6 hours (or UTC – 5 hours during daylight saving time).

NEW AND RENEWING MEMBERS

The following individuals have paid dues for new or renewed memberships as of March 31, 2014. (Others who paid after that date will appear in the May 2014 issue of *The OBSERVER*.)

Roy & Diane Lawry
John Mori

Mike Starasta
Don Cooper

DUES BLUES

If you have received a “your dues are due” statement along with the email that brought you this issue of *The OBSERVER*, please remit your dues to Mr. Duane Yockey, TCAA Treasurer, 508 Normal Avenue, Normal, IL 61761. Current dues are \$25 for senior (60 years of age and over) and \$40 regular.

SUBSCRIBING TO THE TCAA’S E-MAIL LISTS

By subscribing to a group’s mailing list you will receive email messages from the group so you won’t have access to the group's web features (like photos, files, links, polls, calendar, etc.) unless members [activate it later](#). The club now has two email listservs. The main email listserv is known as the **TCAA** listserv. It will be used to share announcements and reminders about astronomical and club events. To join this main listserv you must do the following:

1. Subscribe: Send a blank email to TCAA-subscribe@yahoogroups.com Note: You'll be sent a confirmation email from the group. Reply to the confirmation email to activate your subscription.
2. Unsubscribe: tcaa-unsubscribe@yahoogroups.com
3. To post a message: tcaa@yahoogroups.com

A second listserv – **TCAA-imaging** – is for club astrophotographers as well as those who want to view their images and follow their discussions. It is an easy way to keep up with all the stuff we’re doing at the observatories.

1. Subscribe: tcaa-imaging-subscribe@yahoogroups.com
2. Unsubscribe: tcaa-imaging-unsubscribe@yahoogroups.com
3. To post a message: tcaa-imaging@yahoogroups.com

Once members join a Yahoo! group, they can [manage group and subscription settings](#) whenever it is desired to customize the group experience.

TCAA 5-Year Plan Approved

During an autumn 2013 meeting of the TCAA Board of Directors, a draft 5-year plan (2013-2018) for the TCAA was proposed and then modified. The updated plan was finally approved at the March 11th meeting and is given below.

Improve our professional capacity:

- Present a 10-session astronomy laboratory course with a focus on observational astronomy
- Begin serious observing programs (e.g., photometry, spectroscopy, search for supernovas and asteroids, color magnitude diagrams, etc.)

Change TCAA *image* from “amateur” to “professional”:

- Host higher profile events to which we invite high-caliber public speakers
- Offer several levels of photography courses to novice, advanced, and professional photographers
- Increase membership from among a wider variety of population types

Increase our visibility to the general public:

- Implement sidewalk amateur astronomy
- Offer additional adult education courses
- Include a variety of presentations, white papers, and other content on website
- Produce press releases for important astronomical events
- Assist with observations of major astronomical events
- Sponsor a group field trip to southern Illinois to observe the August 21, 2017 total solar eclipse

Increase our outreach to youth:

- Continue with our photographic program for youth during public observing sessions
- Continue participating in Family Science Day
- Increase our presentations to schools and social groups

Improve membership services with the goal of increasing membership and participation:

- Meet regularly at some location or over a meal to improve camaraderie
- Create a “guide” to amateur astronomy by revising and shortening observer’s packet

Interface with other astronomy-related organizations:

- Continue TCAA/CUAS/PAS joint observing sessions
- Host the North Central Region Astronomical Leagues (NCRAL) meeting once again
- Establish, confirm, or strengthen our relationships with Astronomical League, International Dark Sky Association, etc.

Sustain our observatories:

- Generate an annual income (perhaps through a two-tier key holder fee) to pay for the upkeep of club observatories including insurance coverage and a required annual contribution to the SGNC required by our lease agreement.
- Host “professional” social events (wine and hors d’oeuvres) as fund raisers
- Create a new set of key holder policies for key holders, including consideration for a two-tiered membership fee structure.
- Create a set of procedural guidelines and policies for operation of club observatories

BOARD ELECTRONICALLY APPROVES TWO FOLLOW-UP MOTIONS

Pursuant to a motion initiated at the March 11th Board meeting to produce a 32” x 72” color vinyl banner for the club, the Board has approved the following layout containing the club logo with name with web address. The banner will appear roughly as shown below, and should be available by mid April. Office Depot is producing the banner. Carl W. arranged for its production with the assistance of Dave O. who obtained the required high-definition image file from creator Emily Henard.



In other action, the Board electronically approved a proposal on March 30th to move ahead with the following proposal made by Tim Stone and seconded by Bob Finnigan: *I move [that] the Property Manager be authorized to implement a new roof latching system at Prairie Sky Observatory before April 30, 2014. The new system should secure the roof to the concrete floor and should be safely and conveniently engaged and disengaged while standing on the floor.* Following the second, there was an online discussion dealing with the importance of doing so in a timely fashion.

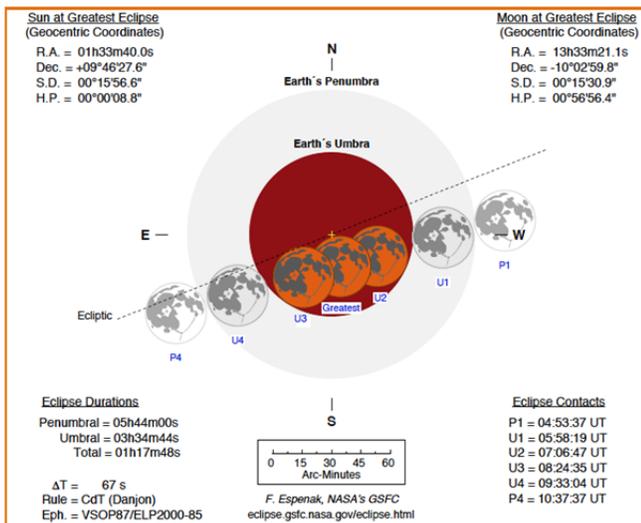
“TAX DAY” TOTAL LUNAR ECLIPSE

Shortly after the start of Tax Day, Tuesday, April 15th, taxpayers will receive an early “return” – a total lunar eclipse. Central Illinois observers have been waiting for more than three years for such an event. The last total lunar eclipse visible from Illinois occurred on December 21, 2010. According to Fred Espenak, from NASA’s Goddard’s Space Flight Center, the

April 15th eclipse times are as follows: U1 (start of umbral phase): 12:58 a.m.; U2 (beginning of totality): 2:07 a.m.; U3 (end of totality): 3:25 a.m., and U4 (end of umbral phase): 4:33 a.m. Greatest eclipse will occur at 2:46 a.m.

Unfortunately, because this is a post midnight event, most people will miss it – including amateur astronomers – unless they make the effort to do so. Acute observers might actually note the beginning of the penumbral phase at 11:54 p.m. on the 14th, but the dimming of the moon will almost be imperceptible at that time.

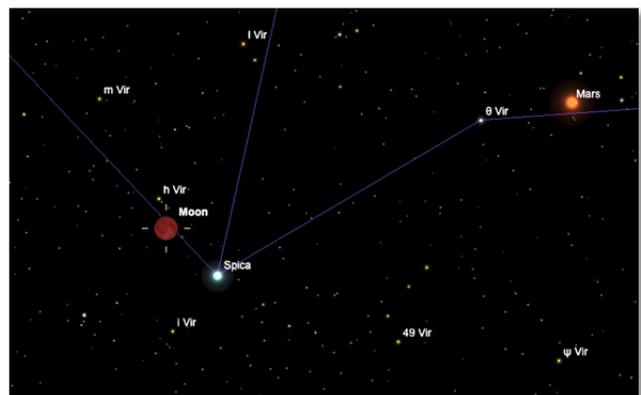
During the eclipse, the moon will be located roughly in the south among the stars of Virgo, and the blue-white star Spica will appear nearby as a sparkling gem against the dark velvet background of the night sky. Ruddy Mars will be located several degrees to the west of the moon and Spica



during eclipse and will complement the red hue that the moon will take on during this event. The trio should make for a colorful event.

Because this is not a “central” total lunar eclipse (that is, the moon does not pass directly through the center of Earth’s umbral shadow) the moon’s coloration will be uneven. The uppermost sections of the moon will take on the greatest amount of red coloration whereas the southern portions of the moon much less so. The moon’s reddish coloration stems from the fact that light that reaches the moon during total eclipse has been filter through and refracted by Earth’s atmosphere.

Just as it does with the setting sun, the atmosphere filters out the blue rays of the sun allowing mostly the red rays to pass through. It is this red light that is refracted by the atmosphere into the Earth’s umbral shadow giving the moon a dull red



coloration during eclipses.

It is unfortunately that this is such an early morning event because most of the general public undoubtedly will miss this Tuesday morning phenomenon. So, sky watchers, be certain to set your alarm. Alternatively, consider hosting an all night eclipse party!

NEXT PUBLIC OBSERVING SESSION APRIL 26TH

The 2014 public observing sessions have begun. Recall that these events will be held cloudy or clear. Only in the case of active rain will the events be cancelled. The TCAA's brochure with additional information can be found on the [TCAA public events webpage](#). The dates (all Saturdays), topics, and speakers are as follows:

Date	Topic	Coordinator
April 26	<i>Mars in All its Glory</i>	John Mori
May 31	<i>Star Birth and Open Clusters</i>	Craig Prost
June 21	<i>Ringed Worlds of the Solar System</i>	Dave Osenga
July 26	<i>Star Death</i>	Tim Stone
August 30	<i>From Earth to the Edge of the Universe</i>	John Mori
September 27	<i>Globular Clusters</i>	Tom Weiland
October 25	<i>The Andromeda Galaxy</i>	Kevin Brown



A typical POS consist of the following: a **lecture** about the featured object or topic. This 20-30 minute presentation, held in the SGNC picnic shelter, includes images of and details about the featured sky object or topic as well as information about other interesting objects that might be viewed that evening; a **sky tour** where step out under the stars and use a laser to point out the major constellations and planets, and to designate the location of the featured celestial object for the evening if appropriate; and an **observing session** where we use a wide variety of telescopes at ground level to observe the wonders of the heavens. The Sugar Grove and Prairie Sky Observatories have an "open house".

Once again in 2014, the club will be collecting email addresses in exchange for a chance to win a basic telescope during an October POS free drawing. This year the telescope will be a Meade ETX-125AT (f/15) Maksutov-Cassegrain telescope recently donated to the club. Tim S. has check it out, and "it produced a nice image of the moon, focus worked, and all the alt/az motor directions worked just fine. I had to use a Celestron brick I had in the PSO cabinet. Other than that, the instrument checks out fine."

AL OBSERVING PROGRAM STANDINGS – QUARTERLY REPORT

Below is a listing of the status of active TCAA observers pursuing Astronomical League (AL) observing programs reported as of March 31st. Kevin Brown has begun working on observing clubs recently. But first, here is a summary of some of some recent observing successes that have occurred since the last report in January:

- ★ Brian Barling has completed his Herschel 400 observing club.
- ★ Brian B. has now reached 48 double stars.
- ★ Carl Wenning has completed the Planetary Nebula Advanced and Carbon Star observing clubs.
- ★ Dave Osenga is making progress on the Analemma observing project and hopes to finish soon.
- ★ Kevin Brown has recently begun the Lunar Club observing program and hopes to have some totals to report soon.

If you would like to have your information included in next July's listing, be certain to forward your observing totals to Carl by the end of June. Be certain to get your completed observing records to our ALCor, Duane Yockey, as soon as an observing program is complete so that you might be appropriately recognized on a timely basis. The next opportunity for AL observing award presentations will be at the club's summer picnic.

Astronomical League Observing Club	Brian Barling	Kevin Brown	William Carney	Lee Green	Dave Osenga	Carl Wenning	Duane Yockey
Analemma Club							
Asteroid Club 25/100			(65)*				
Binocular Double Star 120			(120)				
Binocular Messier 50			(100)	(72)	(59)	(78)	54*
Caldwell 70/109						34	
Carbon Star 100						(100)	
Comet 12/30			(31)			4	
Dark Nebula Imaging 70				63			
Deep Sky Binocular 60			(60)	(60)		(60)	
Double Star 100	48		(100)	(100)		(100)	
Galileo 13			2				
Globular Cluster 50				(55)		(65)	
Herschel 400	(400)		(400)	(400)		(400)	
Herschel II 400			17			(400)	
Lunar Club 100	(100)		(100)	(100)	(100)	(100)	
Lunar II 100			85				
Open Cluster 100/25//125/50				(125)		2	
Planetary Nebula 60/110			1			(110)	
Stellar Evolution 100						70	
S. Skies Binocular 50			9		25	(50)	(50)
S. Sky Telescope 50						(52)	(50)
Telescope Messier 70/110	(110)		(110)	(110)	(110)	(110)	71*
Urban Club 100			(100)	(100)		(100)	
Observing Clubs: Master 10	3		10*	10*	4	(13)	3
Outreach Award 10/60/160				(***)		(***)	

* Program or first award level now complete. ** Second award level now complete. *** Third award level now complete. AL recognition (certificate and/or pin) will be given at the next general membership meeting if available. Numbers in parentheses (#) indicate that the associated pin and/or certificate has been conferred on the recipient. Awards usually are conferred during the February Annual Meeting but can be presented at the club's summer picnic.

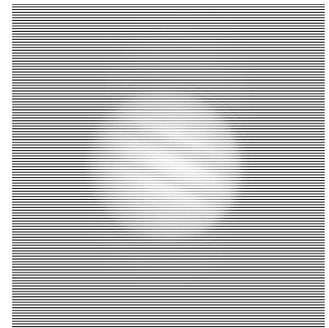
ASTROBITS

★ The hoped for mini course in photometric studies of asteroids with Dr. Linda French at IWU has been postponed until after the end of the school year. Her spring break schedule has been disrupted ruining tentative plans. The PC program we intend to use with this work, [MPO Canopus](#), is available online for \$65.



★ On March 5th Bob F. reported that both the EAST and WEST piers were set up within Prairie Sky Observatory, and that the wiring to the viewing room has been installed for the WEST pier. Also installed was a small shelf for holding the emergency power supply for the roll-off-roof motor. He noted that the hurricane tie-down straps have been installed between the rafters and the joists (using screws, not nails) in an ongoing effort to improve the capacity of the roll-off-roof to resist destruction by high winds that are all too common here. He concluded by noting that additional screws were put into the exterior walls' rough-hewn panels where they were not provided at the time the siding was installed. The wiring to the viewing room from the WEST pier was completed shortly thereafter.

- ★ The repaired Paramount ME mount that had previously been returned to Software Bisque for warranty service was returned on March 11th. The repair and return was completed in not much more time that was required for the unit to make it out to Colorado and to be shipped back. It will now be mounted on the EAST pier readying it for use. It is the pier red mount shown in the image to the right. The WEST pier shown here will receive the 11" telescope when its Astro Physics 1100 mount arrives in late April or early May. The WEST mount will be dedicated primarily to visual observing. The EAST mount will be mixed use.
- ★ The TCAA's observatories at SGNC were rekeyed on March 21st in accord with the wishes of the Board of Directors. Both PSO and SGO now operate with a single key. Property manager Tim Stone will see to the distribution of new keys in accordance with Board policy.
- ★ Carl W. has noted that he has an unused iPad that he will be leaving in PSO for future use with the new Astro Physics mount – for those who want to use it. It is part of wireless system that can be used to operate the WEST mounted visual telescope which at this time will be a Celestron 11" HD. The iPad runs a very powerful observing program called *SkySafari Pro* that Carl has been using for years to complete many of his Astronomical League observing club programs.
- ★ Want to name a crater on Mars? It's possible to do so for as little as \$5. Check it out at <http://www.uwingu.com>.
- ★ The Illinois Dark Skies Star Party has been set for September 25-28. Check out the details at <http://www.sas-sky.org>.
- ★ Carl and Carolyn Wenning are very proud to announce that their daughter and former TCAA member, Rebecca Vieyra, was named an **Albert Einstein Fellow** on March 6th. She has been awarded a 2014-2015 Albert Einstein Distinguished Educator Fellowship, and has been hired by the NASA Aeronautical Research Mission Directorate in Washington, DC, starting September 1st. While Carl and Carolyn are disappointed to see Rebecca, her husband Chrystian, and their 3-year-old daughter Thérèse move to Washington, this career move will put them all in situations where they can benefit in ways unimaginable in comparison to living here in Illinois. It should also be noted that Rebecca is one of three state finalists for the 2014 **Presidential Award for Excellence in Math and Science Teaching**. This is the highest teaching award conferred in the USA and it too carries very significant benefits. Rebecca you might recall earned her provisional Messier Certificate when she was only 11 years of age, and is among the very youngest ever to have done so according to Barry Beaman, former Astronomical League president.
- ★ The March 2014 issue of **Reflector**, the official publication of the Astronomical League, carried a letter to the editor by TCAA member William Carney (page 6), notification of Carl Wenning completing the Advanced Planetary Nebula program (page 20), and an article of high interest to club members (page 16) written by an acquaintance of Carl, Fred Pilcher. Fred, formerly a faculty member of the Physics Department at Illinois College (Jacksonville), wrote an article titled *Amateur-Professional Research Collaboration: Asteroid CCD Photometry and Light Curve Analysis*. This is something that club members have been considering, and now "the die has been cast" and others are beating us to the task. Fred and his colleagues have been using *MPO Canopus* software.
- ★ According to cheapmagazinesite.com, **Astronomy** and **Sky & Telescope** magazines are both available at deeply discounted prices. Their rates appear to be considerably less than those rates available to clubs through regular club discounts available through these magazines' publishers.
- ★ The TCAA's leadership has been working through Chicago Astronomical Society's Audrey Fischer and the Illinois Department of Natural Resources, to identify state and private parks that amateur astronomers feel need to be protected from light pollution encroachment, including Sugar Grove Nature Center. The IDNR wants to create a list of prime observing sites in the state, and they might include stargazing in an upcoming video. The goal is to have starlight declared a "natural resource" allowing it to be protected.
- ★ Governor Quinn will host *Conservation Congress 2014: Charting a Course to Protect and Preserve Our Natural Resources* April 11th and 12th. Carl W. (and possible Bob F.) will be attending this free meeting in Springfield on behalf of amateur astronomers across the state. Reservation deadline was March 31st.
- ★ On Wednesday, March 12th, Tim S. and Bob F. installed the recently repaired Paramount ME mount on the EAST pier. The club's Celestron 11" HD telescope was temporarily positioned on the mount.
- ★ On March 14th, Tim took a series of 735 images of Jupiter using a B&W Image Source webcam (acquired earlier for solar use) and a laptop computer with no view screen. Despite this limitation, they were able to acquire the "first light" composite image (consisting of 201 of the best of the 735 frames stacked with Registax 6) of Jupiter shown here.



- ★ TCAA members receive the Astronomical League's publication **REFLECTOR** in March, June, September, and December. Have you been receiving your copy? If not, contact club [ALCor Duane Yockey](#).
- ★ On March 18th Bob F. reported, "Brad and I went out to PSO and wired the network for the EAST pier. With Brads help, the five computers all talk and we now can store data from the four piers in the console unit in the viewing room."
- ★ Andrew Fraknoi at Foothills College in California has assembled a great website of information of interest to those who teach astronomy. Check out the [website](#) or contact Fraknoi at foothillastroprof@gmail.com to receive his free periodic newsletter. The recent newsletter contained articles that have the following titles: Drake Interview, Science Fiction with Good Science, Outreach Web Guide, and Russian Meteor Lecture.
- ★ Tim Stone reports having received issue 145 of *Digital Photographer* recently. He reports that it has a comprehensive article on astrophotography that includes three of his images. The publication reaches over 408,000 subscribers. Congratulations Tim!



- ★ As was mentioned in last month's issue of this newsletter, Dr. Patrick McGuire visited the observatories of the TCAA at SGNC on Monday, March 24th. Carl W. and Bob F. give Dr. McGuire an extensive tour of the facilities. Dr. McGuire is a physicist working at the Free University of Berlin. He currently is in charge of the European Space Agency's global imaging program using the Mars Express orbiter. According to Dr. McGuire, Carl, while serving as planetarium director at ISU, inspired him to select a career in space physics. After graduating from University High School, he went on to the University of Chicago and then Arizona State University where he earned his Masters and Ph.D. degrees in physics. Following the tour of our facilities, Patrick spent an hour in the nature center showing Bob and Carl the results of his latest work dealing with the mapping of Mars.
- ★ Carl W. has been in contact with CUAS President Dave Leake about future joint events and field trips. Plans are now being developed for a TCAA field trip to Champaign/Urbana to visit the Staerkel Planetarium, one and possibly two observatories (including a visit to see the recently refurbished 12-inch U of I refractor), and a gathering over a meal. This duo is also looking at a possible mini conference hosted by the TCAA on August 23rd that will start at 1 p.m. with a series of contributed talks, include an evening "Star-B-Q", and conclude with an observing session – all at SGNC. The trip to see Bob Holmes' observatory in eastern Illinois has been put on hold.
- ★ Did you know that our TCAA Yahoo! listserv group was started on May 6, 2000, and currently has 122 subscribers?
- ★ Did you know that the blue, underscored words in this document are active hyperlinks? Click and see what happens.
- ★ Carl W. worked with Mark Heiniger on Sunday, March 30th to get Bryce's telescope optically aligned. Bryce is pleased!
- ★ The March issue of ***What's Up With the Astronomical League*** (the ALCor newsletter) is now available for [download](#). Items of particular interest are "General information, including registration information for ALCon 2014, scheduled for San Antonio, July 10-12" and "Special Android application now available from the NASA Space Place Program".

ASTRONOMICAL APPLICATIONS FOR IOS AND ANDROID

The following listing was gleaned from a February talk by CUAS member Dave Thompson. It is reprinted here from the CUAS newsletter with permission of the author. Most of the following applications are available for both iOS and Android platforms. Free "lite" versions are commonly available. (*Editor's note:* I have many of these applications on my iPad, iPod, and/or iPhone, and most are quite amazing.)

- *Sky Safari 4* - popular sky map tool targeted for amateur astronomers. There are several versions at various prices (\$3, \$15, \$40). The main difference is size of object database, and GOTO telescope controls.
- *Moon Phase +* - a Moon phase and position by date app.
- *Moon Globe HD* - Moon crater map. There is free version called "Moon Globe", which also takes up much less space on your device.
- *Astro Planner* - object elevation sorter by time, and observation plan maker.
- *GoSatWatch* - handy for identifying when a satellite will fly over. Can set alarms too.
- *Satellite Safari* - handy for identifying which satellite is flying over now or very soon. Has information on each satellite.
- *Solar Walk* - very nice orrery. Great for flying around solar system. Time adjustable.
- *StarMap HD* - multi purpose app, though personally preferred for flying from beyond solar system to super clusters.

- *Mars Globe* - view terrain labels, and space craft locations.
- *Jupiter Atlas* - allows user to spin through multiple Jupiter moons
- *Saturn Atlas* - allows user to spin through multiple Saturn moons.
- *Dark Sky* - dark sky map of USA.
- *Exoplanet* - Current database of found exoplanets with 3D-spacial display of relative locations.
- *3D Sun* - 3D current solar view at various frequencies.
- *Solar Monitor* - Current solar view at various frequencies
- *SoHO viewer* - current solar view at various frequencies
- *ClearDarkSky* – get astronomically-oriented hourly weather forecasts specific to your location.

E/PO FOR MARCH 2014

Now that it's a bit warmer our educational and public outreach (E/PO) will start once again in earnest. Already the club is scheduled to present a series of eight public observing sessions, assist at ISU's [Family Science Day](#) (*this year's event will be held on SATURDAY, April 5th from 11 a.m. - 4 p.m. at ISU's Redbird Arena*), and possibly conduct presentations at SGNC for the Olympia School District on May 9th and 15th. There is much more to follow. Each year our club provides E/PO services to slightly more than 2000 individuals. Here is a rundown on E/PO events that took place in March.

- ★ Carl W. presented a talk at the Challenger Learning Center on Saturday, March 8th, to seven Cub Scouts working on their astronomy "loop". Carl gave a brief talk about how a telescope works, and allow the scouts to assemble and use telescopes using E/PO materials from the TCAA's storage locker.
- ★ After a day of clouds, the sky rapidly cleared on Saturday, March 29th for the first POS of 2014. John Mori presented a very-well-received talk titled *A Trip to the Sun* starting at 7:15 p.m. Some 35 individuals were present that evening all tolled. Events included enrollment in our telescope give away program, John's talk, a tour of the observatories, and views through a wide variety of member telescopes. TCAAer in attendance were Tom and Carolyn W.; Tim S.; Bob F.; Carl W.; Lee G.; Duane Y.; Brian B; Paul, Amber, and Eve P.; Tony C.; John and Joycelyn (pronounced Joyce-Lynn) Mori, Mark and Nataya Boulware; Mark and Bryce Heiniger; Bob Hoy; Jessica Kalkwarf and Alex Slusser. Also making a cameo appearance was former club member Rebecca Wenning Vieyra along with her husband Chrystian and daughter Thérèse.

If you conduct an E/PO event on behalf of the club, be certain to let this newsletter's editor know so that we can document our service to schools, social groups, and the general public.

IMAGE OF THE MONTH: M81 AND M82 WITH SN2014J

Commentary by Tim Stone – One of the most spectacular galaxy pairs in our sky, M81 and M82 are an interacting pair a mere eleven million light years from us. M81 is a placid spiral punctuated with numerous HII regions, while M82 seems to be literally exploding. Doubtless M82, with its much lower mass, took the brunt of the punishment for venturing too close to M81. Frequent supernovae drive a [200-kilometer-per-second super wind](#) outward from the nucleus. This wind is composed of extremely hot hydrogen, which is both glowing brightly at red H α wavelengths and in the x-ray spectrum, as well as many heavy elements. Supernova SN2014J is visible as the bright spot just to the right of the center of M82.

These two galaxies are the largest in a small cluster called "[The M81 Group](#)." This cluster of some thirty galaxies is so close to us that it extends across a [very large expanse of our sky](#), from 7 to 13 hours of right ascension and 63 to 71 degrees of north declination.

This image combines data from both the 17" and 20" PlaneWave instruments. Bob Finnigan used the 20" to acquire the excellent data for the



image of M82, and I used the 17" for the remainder of the image. 103 sub-frames were acquired over seven nights between January and March 2014. The total exposure is nearly 17 hours. *Image acquired at Sugar Grove Observatory and Prairie Sky Observatory, facilities of Twin City Amateur Astronomers (tcaa.us).*

ASK THE EDITOR

This newsletter's editor is now answering questions posed by club members. If you have a question about something of interest to you – either about the present day TCAA or its past – please send your question to Carl at carlwenning@gmail.com

Question: Why is it that there appears to be so few women among the ranks of *active* amateur astronomers both nationally and locally? Is this perception real or imaginary?

Answer: It is true that on both national and regional levels active male amateur astronomers predominate (see the image below showing those in attendance in the NCRAL 2010 conference that we hosted – most definitely male dominated). Having attended several national, regional, and local conferences for amateur astronomers, I have found that women who do attend tend to come as a couple. This is not to imply that the ladies are merely present because of the presence of significant others. There truly are women who are interested in amateur astronomy in their own right. Of national prominence, consider Carol Beaman (in the burgundy-colored shirt just left of center in the second row). I'm a Facebook friend of Carol and she regularly posts solar and other images that she obtains working with her telescope. Carol has been involved with the Astronomical League for many years. Her husband is Barry Beaman, former TCAA member, who is a former Astronomical League president.



While the TCAA currently has few active female observers, this has not always been the case. From the earliest days of the club Bertha Kieviet (co-founder along with her husband John) and Miriam Johnson (spouse of Aubrey, the club's only "Comet Halley Two Timer") were regularly and actively involved in all sorts of club functions.

From the 1980s to the 2000s the club had several other very active female amateur astronomers. Sandra McNamara, Sharon

MacDonald, Jean Memken, Ayne Vandenbrook, and Rebecca Wenning all come to mind. Sandy is among the most accomplished amateur astronomers ever having completed the Herschel 400 without assistive devices. Sharon MacDonald was a regular eclipse chaser and the club's first female president (1984). Jean Memken, along with her husband Michael, co-edited this newsletter and the Astronomical League recognized the excellence of their work by conferring upon them the inaugural Mabel Sterns Award. Ayne Vandenbrook, who was legally blind, worked in the ISU Planetarium for four years while an undergraduate student and earned her Honorary Messier Certificate despite her disability. Rebecca Wenning was perhaps the youngest amateur astronomer ever to earn the provisional Messier Certificate (certainly the youngest female) having done so while she was 11 years of age according to the AL President Barry Beaman.

Unfortunately, none of this information addresses the fundamental question of why there are so few female amateur astronomers. Whatever the reason, the same reasoning will likely explain why there are so few female astronomers, chemists, geologists, physicists, and engineers. It's not that women don't like science; females dominate various fields within biological sciences. Still, the phenomenon of few female amateur astronomers remains an enigma to me and to every else that I have asked.

HOW TIME FLIES

TCAA Historian Carl Wenning provides monthly updates about the history of the club going back to intervals of 50, 25, and 10 years. Details about all mentioned events will be found in either the [Twin City Amateur Astronomers: 1960-2010](#) or in [The OBSERVER archive](#) found on the [TCAA website](#).

50 Years Ago: April 1964 – Twelve members of the TCAA visited Peoria’s the recently opened planetarium at Lakeview Museum. The club’s membership has reached 50 for the first time ever.

25 Years Ago: April 1989 – The club has begun a series of Mini Messier Marathons, one for each season. The club’s March meeting was held at the ISU Planetarium and the topic was “Peering into Deep Space.”

10 Years Ago: April 2004 – The club viewed the ISU Planetarium’s latest offering, *Follow the Drinking Gourd*. Tom Willmitch presented the program. The club held its first public observing session of the season on March 27th.

TCAA TREASURER’S REPORT – MARCH 2014

OPERATING FUND BALANCE – February 28, 2014 - \$ 2,941.94

Income

Michael Starasta (Dues) -	\$	41.00
Roy Lawry (Sen. Dues) -	\$	26.00
John Mori (Sen. Dues) -	\$	25.00
Don Cooper (Sen. Dues) -	\$	26.00

Expenses

PayPal (Michael Starasta)	\$	1.20
PayPal (Roy Lawry)	\$	0.83
PayPal (Don Cooper)	\$	0.83
Secretary of State (Ann. Report Fee)	\$	10.00
Redbird Catering (Annual Meeting banquet)	\$	484.55
David Osenga (hall rental for Annual Meeting)	\$	35.00
Lewis, Yockey & Brown, Inc.	\$	7.20
(ALCor & Treas. Postage & Copies)		

OPERATING FUND BALANCE – March 31, 2014 - \$ 2,520.33

OBSERVATORY FUND BALANCE – February 28, 2014 - \$ 4,280.41

Income

None -	\$	0.00
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Expenses

None -	\$	0.00
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OBSERVATORY FUND BALANCE – March 31, 2014 - \$ 4,280.41

INSURANCE ESCROW BALANCE – January 31, 2014 - \$ 5,274.00

Income

None	-	\$	0.00
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Expenses

None	-	\$	0.00
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INSURANCE ESCROW BALANCE – March 31, 2014 - \$ 5,274.00

TOTAL TCAA FUNDS – March 31, 2014 - \$ 12,074.74

Respectfully submitted,
L. Duane Yockey, Treasurer