

IN THIS ISSUE:

A NOTE FROM PRESIDENT TOM WEILAND	1
MINUTES FROM TCAA'S 53 RD ANNUAL MEETING	1
CLUB RECEIVES DO- NATION ON BEHALF OF GENERAL PUBLIC	2
CONSTELLATION OF THE MONTH—URSA MINOR—THE LESSER BEAR	3
PSO AND MEO UPDATES	4
FIRST 2013 POS MARCH 9 TH	4
COMET PANSTARRS	5
COMET ISON APPROACHING	5
ASTROBITS	6
PROMISED LINKS	6
TREASURER'S REPORT	7
HOW TIME FLIES	7

A NOTE FROM PRESIDENT TOM WEILAND

Every season brings new opportunities for viewing the night skies as well as new challenges. Not only do we have the opportunity to view different objects, but we also have different weather conditions to consider. As I write this article the 10 day forecast from the Weather Channel is for a high of 52 degrees and cloudy conditions during our first Public Observation Session (POS) on March 9. I share this not to deter you, but to remind you to come properly prepared for conditions out at Sugar Grove Nature Center. Conditions can change rapidly and I don't want you to get caught off guard as happened to one TCAA member recently (see accompanying photo). I hope to see many of you at all of our POS!

Finally, I would like to thank all those who attended our annual meeting on February 23rd. I hope you enjoyed our speaker David Leake, I know I did. I would also like to thank everyone who made the event successful, Webmaster Lee Green for providing registration via our TCAA website, VP Dave Osenga for coordinating the location and catering, Club Historian Carl Wenning for creating the printed program and arranging for door prizes, Astronomical league Coordinator (ALCOR) Duane Yockey for presenting AL awards, Night Sky Network (NSN) rep Lee Green for presenting the NSN awards, and Bob Finnigan for setting up a video display of club member's recent astrophotography work. As with every event it is a team effort that makes it a success and we have a great team! Clear skies!



MINUTES FROM TCAA'S 53RD ANNUAL MEETING

The TCAA held its 53rd Annual Meeting on February 23, 2013 at the Normal Township Hall. Members started gathering after 5:00pm and enjoyed the company of others while preparations were made. Dinner was provided by Redbird Catering and included fried chicken, baked potatoes, carrots, roll, coffee and tea, as well as a Moons and Stars cake.

Present at the meeting were Brian Barling, William Carney, Bob Finnigan, Lee Green, David and Rena Leake, Larry Leetzow, Dave Osenga, Paul Pouliot and 7 other family members, Michael Starasta, Tim Stone, Tom and Carolyn Weiland, John and Joyce Werner, Carl and Carolyn Wenning and their guest Arif Hidayat, and Duane Yockey.

After dinner, President Tom Weiland called the meeting to order. We all took a moment of silence to remember the passing of former members. Tom reported on the activities of the club in 2012 and noted the many improvements made throughout the year and recounted the highlights of our outreach efforts. He commended Dave Osenga for his assistance planning the dinner, Lee Green for providing web-based registration, and to Carl Wenning for arranging for a banquet speaker.

Treasurer and ALCOR Duane Yockey presented the current financial statements. He reported that over the last 5 years, the balance of operating funds has steadily declined, due in part to a smaller membership. He observed that action will need to be taken within a year to reverse the current trend. He announced that the 2013 meeting of the North-Central Region of the Astronomical League (NCRAL) would be held on April 12-13 in St Paul, MN. Because of our long, continuous representation at this meeting, Duane recommended that we send a representative. He noted that date conflicts with this year's ISU Family Science Day and indicated that he was considering attending the NCRAL event. Carl suggested that Sharon MacDonald might be interested in attending too.

Tom called for nominations for the next slate of candidates for the Board of Directors. He provided a list of members nominated by the current Board that included Tom Weiland, Dave Osenga, Paul Pouliot, Tony Cellini and Lee Green. With no other nominations coming from the floor, the process was closed. The membership then elected the slate of five candidates to fill the five-member Board.

Tom then raised a proposed amendment to the club's Bylaws concerning the duties of the Property Manager. Tom read the proposed changes. Carl moved, and Bob seconded that the proposed changes be adopted and the measure was passed unanimously.

(Continued on page 2)

The *OBSERVER* is a monthly publication of the Twin City Amateur Astronomers, Inc., a registered 501 (c)(3) non-profit educational organization of amateur astronomers interested in studying astronomy and sharing their hobby with the public.

TCAA OFFICERS

President	Tom Weiland 309-830-0167 tomcea52@yahoo.com
Vice-President	Dave Osenga 309-287-0789 DaveOsenga@msn.com
Secretary	Lee Green 309-454-7349 lee@starlightsoftware.com
Treasurer/ ALCor/RA	Duane Yockey 309-452-3936 duane@lybinc.com
3rd Director	Paul Pouliot 815-844-7065 ppouliot2@mchsi.com
4th Director	Tony Cellini 309-829-9269 drksky1056@comcast.net
Historian	Carl Wenning 309-830-4085 carlwenning@gmail.com
Webmaster	Lee Green 309-454-7349 lee@starlightsoftware.com
Property Manager	Tim Stone

The Observer Editor

Erin Estabrook
314 Covey Court
Normal, IL 61761
309-454-6894
erin@lybinc.com

Submission deadline is the first of each month.

Membership Dues

Individual Adult/Family \$40
Full-time Student/Senior \$25
Electronic Newsletter \$25

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

MINUTES FROM TCAA'S 53RD ANNUAL MEETING (CONT.)

(Continued from page 1)

As required by our bylaws, our Registered Agent was announced to be Duane Yockey and our official club address is 508 Normal Avenue in Normal, IL.

Eve Pouliot was awarded special recognition of being the youngest presenter in the history of the club for her excellent talk about the Mythology of the Constellations at our September public session. In attendance to witness this honor were her sister Amber, her parents Dave and Cyndi Pouliot, her grandparents Paul and Sharon Pouliot, and her great-grandparents George and Betty Pouliot.

Astronomical League awards were presented to Dave Osenga for the Honorary Messier and Binocular Messier clubs, to William Carney for the Binocular Double Stars club (the 6th recipient), and to Lee Green for the Advanced Open Cluster, Deep Sky Binocular and Outreach clubs. This year's Night Sky Network Outreach Awards were presented to Amber, Eve and Paul Pouliot. They were present at all of our public events in 2012 and their efforts were greatly appreciated.

Following our award ceremony, a door prize drawing was conducted by Eve and Amber for several items that were donated to the club by Brian Barling, the Astronomical League, Tom Willmitch of the ISU Planetarium and Carl Wenning. Carl announced that Bob Hoy had donated to the club a Meade ETX-105EC astronomical telescope (105mm aperture, f/14, Maksutov-Cassegrain) with slow motion control, setting circles, tripod mount, front-end solar filter, and substantial eyepiece collection, and that the intention of the donation was to use the scope at public events and then to give the instrument to a deserving individual.

The business meeting adjourned at 7:50pm.

Our guest speaker was David Leake, the director of the Staerkel Planetarium at Parkland College in Champaign, IL. Mr. Leake has been active in sharing the sky with kids of all ages for over 23 years and is the current president of the Great Lakes Planetarium Association. He helped found the Champaign-Urbana Astronomical Society and is current secretary for the Friends of the University of Illinois Observatory. He spoke about the history of the observatory which was built in 1896 and houses a 12-inch Warner and Swasey refractor telescope. The observatory is suffering from years of "deferred maintenance" and he talked about current efforts to save this National Landmark.

Respectfully submitted,
Lee Green, Secretary



CLUB RECEIVES DONATION ON BEHALF OF GENERAL PUBLIC

On February 23rd, former club member Bob Hoy of Bloomington donated a Meade EXT-105 EC astro telescope to the TCAA with the intent that it be given away or used in some other way to benefit the club. Bob suggested that we might give away the telescope at the end of this year's scheduled public observing sessions at SGNC. He also noted that we might want to hold a raffle. This topic will be brought up for discussion at the March board meeting.

While not a "goto" telescope, this Maksutov-Cassegrain telescope has an equatorial mounting plate, finder scope, slow motion controls, motorized focus, a good pre-telescope solar filter, and a substantial collection of quality eyepieces. The telescope is in "like new" condition and will make an excellent door prize or raffle item.

IMAGES FROM TCAA'S 53RD ANNUAL MEETING



Lee Green—Advanced Open Cluster, Deep Sky Binocular, and Outreach



William Carney—Binocular Double Stars (6th recipient)



Dave Osenga—Honorary Messier and Binocular Messier



Amber, Eve & Paul Pouliot—Night Sky Network Outreach Award

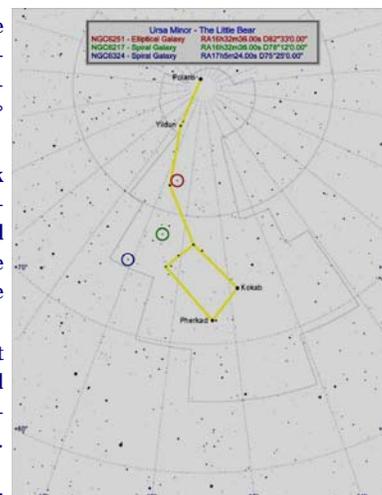
CONSTELLATION OF THE MONTH: URSA MINOR—THE LESSER BEAR

Ursa Minor is the northern-most constellation and contains North Celestial Pole. Ursa Minor, the Small Bear, is as anatomically incorrect as its large brother since bears do not have long tails. However, Ursa Minor resembles Ursa Major in the general form of its brightest stars and the “Little Dipper” is a common alias for Ursa Minor. Polaris, also called the North Star or the Pole Star, is about 1° away from the North Celestial Pole.

In Mythology, Ursa Minor is said to be Arcas, son of Callisto, a beautiful maiden that Jupiter took as a lover. Enraged, Juno turned Callisto into a bear. One day, the bear encountered a young herdsman that turned out to be her son, Arcas, who was about to kill the bear when Jupiter intervened placing both in the sky as the Great and Small Bears. Juno was incensed at her rival’s heavenly place and prevailed upon Oceania and Tethys, the ocean gods, to prevent the bears from ever entering the sea. Thus their place was set in the polar circle where they never set.

Ursa Minor is the 56th largest constellation covering 256 square degrees. It is the 38th brightest constellation. While it reaches opposition on May 9, Ursa Minor is a circumpolar constellation and can be viewed all year long. In addition to Polaris, two stars are named. Kochab and Pherkad correspond to the Big Dipper’s pointer stars and are often called the Dancers or the Guards of the Pole. Yildun is a name given to the star next to Polaris.

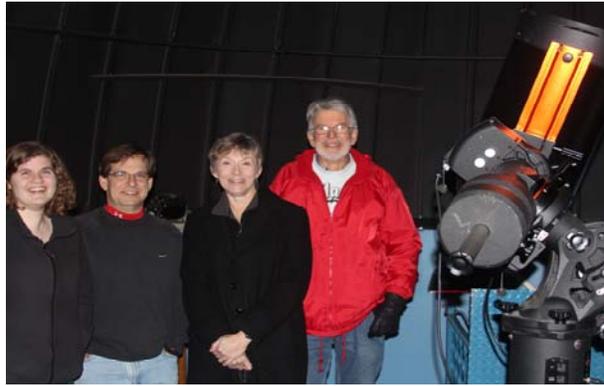
Being far from the Milky Way, the main deep space objects found in Ursa Minor are galaxies and most of these are rather dim. NGC6251 is an elliptical galaxy, NGC6217 and NGC6324 are spiral galaxies.



PSO AND MEO UPDATES

Tom Weiland heard back from FGCA's board president Linda Bristow on February 10th with proposed revisions to the RORO construction contract and the observatories lease agreement. A quick review of the changes in the paperwork suggested by FGCA raised some concerns by TCAAers. Dave Osenga, Robert Finnigan, and Carl Wenning met on Monday, February 18th, to talk about providing alternative language. They noted the need for three changes, two caused by the FGCA's proposed wording. Carl, Bob, Dave, Tom Weiland, Paul Pouliot, and Lee Green met for about 5 minutes after the Annual Meeting banquet on the 23rd to talk about alternative language. Carl will make the proposed changes and provide revised contracts to the board of directors at the March meeting.

After two false starts due to unforeseen cloudy skies, Tony Cellini and Bob Finnigan were able to hold their first training session at IWU's Mark Evan Observatory on February 13th. In attendance were Dr. Linda French, Lew Detweiler, three IWU teaching assistants, and Carl Wenning. Everyone was trained first on the use of the CGE Pro mount. Tony started by showing how to do a four-star alignment of the mount. After the orientation, the educational process was stopped dead in its tracks due to a missing camera-to-telescope adapter.



This image shows Chelsea Davitt, Tony, Linda, and Lew beside the newly installed 11-inch telescope. Photo by Bob Finnigan

The crew recovered as best as they could from this snafu, and turned the telescope to viewing the heavens. In reporting later, Bob mentioned "After Tony did a 4-star alignment, the telescope was off by 11 arc minutes so we did a second polar alignment and another 4-star alignment. After that alignment, the polar axis was only 3 arc minutes off. [After discovering the missing camera adapter], the group visually observed the moon, M42, M82, M1 and the double cluster in Perseus, and finally Jupiter." Bob reported later that Dr. French did not remember ever seeing M42 so well with the 16-inch telescope formerly housed under the MEO dome – and that with a waxing crescent moon in the sky. Bob subsequently ordered and received a replacement camera adapter in anticipation of the next training session. (Does anyone know the whereabouts of the missing adapter?)

Dave Osenga, Bob Finnigan, and Carl Wenning got together on February 18th to review the building contract and lease agreement for the TCAA's current and proposed observatories. The trio found most of the recommended changes acceptable (mostly grammatical changes and clarification of who is responsible for what), but two of the proposals made by the FGCA raised some concern. In the construction agreement there is a question about the advisability of using hardwood siding on the RORO; in the lease agreement there is a question about conditions for renewal. A phone conversation between Carl and Angela Funk resolved one of the problems. Following a "go ahead" given by a brief post-annual-meeting discussion, alternative language will be proposed to the TCAA Board for their consideration at the next board meeting.

FIRST 2013 POS MARCH 9TH

The following is a list of public observing programs for this year. The next event is on Saturday evening, March 9th. The event will be held cloudy or clear, and will be cancelled only in the event of active rain. For detailed information about these family friendly sky viewing session, download the program brochure at http://www.tcaa.us/Download/POS_2013.pdf

Date	Time	Topic	Coordinator
Mar 9	7:00 pm – 9:00 pm	<i>Jupiter and the Galilean Moon</i>	Dave Osenga
Apr 20	8:00 pm – 10:00 pm	<i>Our Marvelous Moon</i>	Carl Wenning
May 11	8:30 pm – 10:30 pm	<i>The Expanding Universe</i>	John Werner
June 8	9:00 pm – 11:00 pm	<i>Astronomical Curiosities of Saturn</i>	Tom Weiland
July 6	9:00 pm – 11:00 pm	<i>The World's Great Telescopes</i>	Tom Weiland
Aug 10	8:30 pm – 10:30 pm	<i>Meteors, Space Rocks, and Comets</i>	Carl Wenning
Sep 7	8:00 pm – 10:00 pm	<i>Births and Deaths of Stars</i>	Lee Green
Oct 5	7:00 pm – 9:00 pm	<i>Our Galaxy, the Milky Way</i>	Lee Green

COMET PANSTARRS

Comet C/2011 L4 (PANSTARRS) is a non-periodic comet discovered in June 2011 using the Pan-STARRS telescope located near the summit of Haleakala, on the island of Maui in Hawaii. This comet will first be visible low in the west-northwestern sky to the unaided eye for a short time after it passes closest to the sun in March 2013. Throughout most of its apparition, however, it will be best observed with a telescope or binoculars.

Comet C/2011 L4 had an apparent magnitude of 19 when it was discovered in June 2011. By early May 2012, the comet had brightened to magnitude 13.5, and could be seen visually when using a large amateur telescope from a dark site. As of October 2012, the coma (expanding tenuous dust atmosphere) was estimated to be about 120,000 km in diameter. An estimate from October 2012 predicts the comet may brighten to apparent magnitude -4 (roughly equivalent to Venus near its brightest) but this will be when the Comet is too close to the sun to be readily viewed by earthbound observers.

March 5, 2013. Comet PANSTARRS passes closest to Earth at distance of only 163 million kilometers. (The average earth-sun distance is about 150 million kilometers.) At this time the comet appears to the left of the sun and it sets at about the same time as the sun.

March 10, 2013. The comet passes closest to the sun at 45 million kilometers – as close as the planet Mercury is to the sun. Comets are typically brightest and most active around the time and shortly after they are closest to the sun. The comet is located to the upper left of the sun at sunset and is probably still too close to the sun to be observed during early twilight.

Mornings, late March 2013. The comet should be visible in low in our *eastern morning sky* starting around March 24. It will get higher with each passing morning, moving through the constellations of Andromeda and Cassiopeia. Its tail will point away from the Sun. As the comet pulls away from the Sun its nucleus and tail rapidly dim. The comet, because it approaches the Sun from the south and moves rapidly northward becomes visible in both the morning and evening skies almost at the same time.

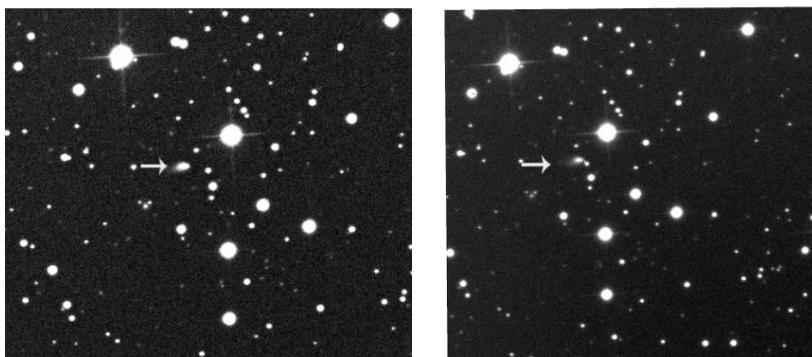
Evenings, late March 2013. The comet should be visible in the *western evening sky* shortly after sunset starting around March 24. It will get higher and dimmer each evening during March 2013 as it moves away from the Sun, most of its motion will carry it to the right above the horizon line (northward). During this time it will move through the constellation of Pisces and into the constellation of Andromeda. At this time, the comet might have a gas and possibly a dust tail, hopefully both tails will be visible to the unaided eye. Best views of this comet probably will be had in the morning, so don't miss those opportunities.

April 12, 2013. The comet is now far enough north in the sky to become circumpolar for central Illinois observers. As a result, the comet should be visible somewhere in the north throughout the night even though it will be rather faint at this time.

Throughout April 2013. The comet will fade as it moves farther from the sun and back out into the depths of space. Comet C/2011 L4 probably took millions of years to come from the Oort cloud. After leaving the planetary region of the solar system, the post-perihelion orbital period is estimated to be about 110,000 years.

COMET ISON APPROACHING

As mentioned in last month's issue of *The OBSERVER*, Comet ISON (C/2012 S1) is traveling toward its rendezvous with the sun on Thanksgiving Day. Bob Finnigan took two successive 15-minute pictures of the comet on February 16th centered around 8:30 p.m. The pictures below show the comet moving from left to right, and even demonstrating a tail. This is almost unheard of at the point in its orbit where it was then located – approximately the same distance from the sun as Jupiter. Bob took these pictures with the 17-inch PlaneWave using a MOAG and SBIG guider at SGO. The photographs were taken using the Apogee 16MC camera.

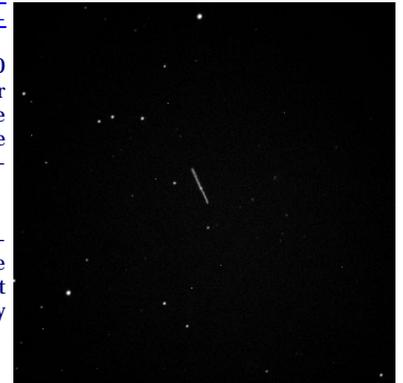
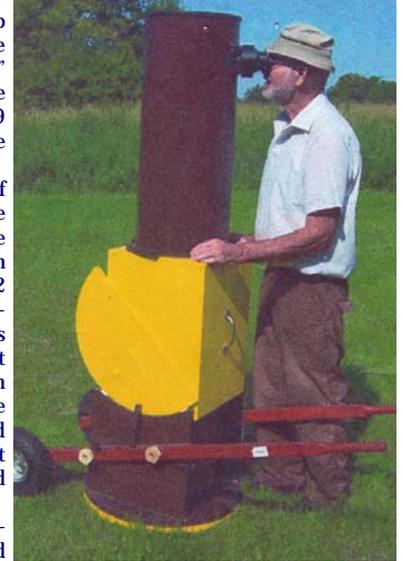


The Comet at the time the photographs were taken was among the stars of Gemini the Twins, and about 4AU from Earth. It was then shining at a magnitude of +15.4. The brightest star in the image is GSC 02438-0073 with visual magnitude 11.1.

C/2012 S1 (ISON) is a sungrazing comet discovered on 21 September 2012 by Vitali Nevski (Vitebsk, Belarus) and Artyom Novichonok (Russia). The discovery was made using the 0.4-meter (16-inch) reflector of the International Scientific Optical Network near Kislovodsk, Russia.

ASTROBITS

- ★ Several TCAAers met recently with a reporter from *The Pantagraph* to talk about astronomical imaging. A group interview was held on the evening of February 7th that was attended by Tom Weiland, Tim Stone, Robert Finnigan, Lee Green, and Tony Cellini. A detailed interview was conducted by feature writer Paul Swiech accompanied by photographer Carlos Miranda.
- ★ Carl W. had breakfast with former member Bob Ryburn on February 8th. While Bob doesn't get out to observe much any more, he continues to build telescopes. He currently has several telescopes for sale, and one is of particular note. Bob has a 10" f/6 telescope with a "pampered mirror". If you would like to know more about the telescope shown in the image to the right, contact Bob directly at (309) 724-8089 or email him at bobmar@mtco.com. Bob lives just south of Moraine View State Park at LeRoy.
- ★ On the evening of February 15th, Tim Stone, Bob Finnigan, Carl Wenning, and Arif Hidayat were at SGO and photographed asteroid 2012 DA 14 that passed some 27,000 miles from Earth hours before. The asteroid was found using a precise ephemeris provided by Carl. Here is the caption of the accompanying photograph produced by Tim: "This is a 30 second exposure of the Near Earth Object 2012 DA14 taken at 7:11 PM February 15, 2013 by astronomers at the Sugar Grove Observatory. Though it was after closest approach, it was still moving quite rapidly across the sky in the constellation Ursa Minor (The Little Dipper). In this thirty seconds it moved approximately 1/60th of a degree." *The Pantagraph* carried the photograph the next morning. Carl, along with William Carney and Arif, tried to observe the asteroid with his CPC1100 telescope, but the object could not be found despite good coordinates and accurate pointing. It was assumed (either rightly or wrongly) that the tiny asteroid had dropped below the visual limit of the telescope that is around magnitude 12 in its then configuration.
- ★ One might wonder if astronomers have failed to notice an "asteroid shower" recently. Well, not really. Nonetheless, February was a great month for asteroid-sized bodies colliding with Earth. On February 15th a huge asteroid exploded in an air burst over the southern Ural Mountains in the Chelyabinsk region of Russia. Resulting were millions of dollars of property damage and more than 1,000 hurt (mostly by flying glass). An youtube video showing the associated meteor and blast (including a momentary fake impact sequence) can be found at <http://www.guardian.co.uk/world/video/2013/feb/15/meteor-shards-russia-explosion-video> Within a few days smaller fireballs were observed over two US locations.
- ★ On February 26th, Carl Wenning delivered his talk *2013: Year of the Comets* to 10 members of the newly-formed ISU Astronomy Club including their faculty advisor Dr. Jay Ansher. They were an enthusiastic audience, and hope to meet up with the TCAA membership in the not too distant future. The founder and president of the club, Ms. Misa Fioretta, informed the group about our March public observing session.
- ★ As many of you already know, Carl writes some 80% to 90% of *The OBSERVER*'s content. He will, however, be unable to do so for the July issue due to international travel lasting more some five weeks. He will be in Indonesia from early June through mid July. If you are willing to write much of the July issue, please contact Carl at carlwenning@gmail.com. Otherwise, the newsletter for July will be very thin indeed.



PROMISED LINKS

Following the TCAA's annual meeting banquet, Dave Leake sent us the promised hyperlinks included in his PowerPoint presentation. They are as follows:

Dave's email address: dleake@parkland.edu
 FUIO facebook: <https://www.facebook.com/U.of.Illinois.Observatory>
 FUIO web: <http://observatory.astro.illinois.edu>
 FUIO email: Observatory-friends@illinois.edu
 Observatory collection: <http://uiobservatory.omeka.net>
 UI Department of Astronomy: <http://www.astro.illinois.edu>

Please do consider supporting the effort to restore and protect the UIUC Observatory; it is part of central Illinois astronomical legacy. Information about donating to this effort can be found among the above links. At least one of our members has made a significant contribution to this effort recently, and it would be great to see other TCAA members do the same – especially those who graduated from UIUC.

TCAA Treasurer's Report – February 2013

OPERATING FUND BALANCE – January 31, 2013 - \$ 1,321.39

Income

Michael Starasta (Dues) - \$ 41.00

William Carney (Dues) - \$ 41.00

Dave Osenga (Dues) - \$ 45.00

Larry Leetzow (Dues) - \$ 40.00

Paul Pouliot (Dues) - \$ 40.00

Lee Green (Dues) - \$ 40.00

Brian Barling (Dues) - \$ 40.00

Annual Meeting (dinner receipts) - \$ 460.00

Expenses

LYB Inc. (Observer copies & postage) - \$ 32.48

PayPal (Michael Starasta) - \$ 1.20

OPERATING FUND BALANCE – February 28, 2013 - \$ 2,034.71

OBSERVATORY FUND BALANCE – January 31, 2013 - \$ 3,614.37

Income

None - \$ 0.00

Expenses

None - \$ 0.00

OBSERVATORY FUND BALANCE – February 28, 2013 - \$ 3,614.37

TOTAL TCAA FUNDS – February 28, 2013 - \$ 5,649.08

Respectfully submitted,

L. Duane Yockey, Treasurer

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 club history (<http://www.tcaa.us/History.aspx>) or in **The OBSERVER** archive found on the club's web site (<http://www.tcaa.us/Observer.aspx>).

50 Years Ago

March 1963 – Members continue to observe Comet Ikeya 1963a and Nova Herculis. The club “hastily prepared a display” for the local home shown on March 1-3. The “main feature” of the display was founder John Kieviet’s 6” reflecting telescope.

25 Years Ago

March 1988 – The club has seen rapid growth recently according to a report by President Don Johnson. A total of 32 members and guests showed up for the March 19th meeting. Planning is now underway for the 1988 Astronomy Rendezvous and Conference. The club’s plan to build an observatory at Comlara park has “hit a snag” because the county board will not allow 24-hour access to the observatory should we build it.

10 Years Ago

March 2003 – **The OBSERVER** is devoid of historical content this month, so there is little to report. The newsletter has become dominated with NASA articles. The only real exception is an article about Galileo written by Jim Swindler.

MISSING OUT ON TCAA ACTIVITIES & EVENTS?

If you are missing out on club activities or celestial events, be certain to join the TCAA listserv. Many activities are planned at the last minute, and announced only hours in advance through the club's listserv. Reminders about celestial events are also broadcast to the membership through the club's listserv. To join this free service by Yahoo, send a blank email to TCAA-subscribe@yahoogroups.com. Unsubscribing is just as easy. To unsubscribe, just send a blank email to TCAA-unsubscribe@yahoogroups.com.

To keep up to date on celestial events not described in *The OBSERVER* or addressed in the listserv, visit Carl Wenning's observing page at www.phy.ilstu.edu/~wenning/observing_page.htm. It has been recently updated to include an extended sky calendar of events as well as additional space weather and satellite viewing links.

The OBSERVER

Newsletter of the TCAA, Inc.

Erin Estabrook, Editor
314 Covey Court
Normal, IL 61761

Are your dues due?



The Dues Blues?

If you see a check in the box above, it means your dues are due. To retain membership, please send your dues renewal to our esteemed Treasurer:

**Duane Yockey
508 Normal Avenue
Normal, IL 61761**