



THE OBSERVER

East Valley Astronomy Club



Mars is at opposition this month. Credit NASA

EVAC This Month by Claude Haynes

I have always been an early riser. It doesn't necessarily make me a "Morning person", but I do enjoy looking at the pre-dawn sky. High in the south is bright Antares. It is easy to compare against its antithesis Mars, which is making its biennial close approach. Between them Saturn is primed to delight visitors to the GRCO. Not yet directly overhead is the summer triangle of Altair, Deneb and Vega. I use my outstretched hand to shield against the street light to find M7 nestled neatly between Scopus and Sagittarius. Venus is slowly descending to greet the sun, and on this morning was paired with a beautiful late crescent moon. The air is crisp, clear and invigorating. I would

recommend getting up early some morning to get a taste of summer sights, especially since by the time these objects do roll into our evening view the monsoon clouds will roll in with them. Enjoy the sky whenever you can.

A midnight event is the Lunar Eclipse on April 14/15. Hopefully you will get to spot some summer friends as well.

Keep looking up

Claude

UPCOMING EVENTS:

- SAC Meeting at ASU - April 11*
- Public Star Party - April 11*
- Total Lunar Eclipse - April 14*
- Evac Monthly Meeting - April 18*
- Local Star Party - April 19*
- Deep Sky Star Party - April 26*
- Check out all of the upcoming club events in the Calendars on page 12*

INSIDE THIS ISSUE:

<i>Welcome to the New Year</i>	1
<i>If It's Clear...</i>	2
<i>Evac Meeting Minutes</i>	2
<i>ASU SAC Meeting</i>	3
<i>Building an Observatory</i>	3
<i>Classified Ads</i>	8
<i>Meeting Maps</i>	11
<i>Calendar</i>	12
<i>Membership Form</i>	13
<i>Deep Sky Object of the Month</i>	14

If It's Clear...

by *Fulton Wright, Jr.*

Prescott Astronomy Club

April 2014

If it's clear for April 2014

by *Fulton Wright, Jr.*

Prescott Astronomy Club

Celestial events (from *Sky & Telescope* magazine, *Astronomy* magazine, and anywhere else I can find information) customized for Prescott, Arizona. Remember, the Moon is 1/2 degree or 30 arc-minutes in diameter. All times are Mountain Standard Time.

Mars is moving toward its opposition in on April 8 and will be big enough to be worth a look through a telescope all month. It rises at 7:25 PM on the first of the month and 4:45 PM on the last day of the month.

On Friday, April 4, at 8:40 PM, the Moon occults a double star. The star (δ^3 Tauri) has components of magnitude 4.3 and 7.8, separated by 1.9 arc-seconds. Look for the Moon 30 degrees up in the west. If the dimmer component disappears first, you will never see the two steps. The star reappears at the bright limb of the Moon at 9:26 PM but is only 18 degrees above the horizon.

On Sunday, April 6, the Moon is at first quarter phase and sets at 1:29 AM (Monday). Also, you can see some events with Jupiter's moons. Here is the schedule:

07:51 PM Io moves in front of the planet.

09:07 PM Io's shadow falls on the planet.

10:00 PM Ganymede moves in front of the planet.

10:05 PM Io ends its transit.

11:22 PM Io's shadow leaves the planet.

01:10 AM (Monday) Ganymede ends its transit.

01:32 AM Jupiter sets.

On Wednesday, April 9, at 10:51 PM, the Moon occults a double star. This one should be more observable than the April 4 event. The star is ω Leonis (magnitudes 5.7 and 7.3, separation 0.6 arc-seconds). The star reappears at 11:47 PM.

On Monday, April 14, at 6:44 PM (16 minutes before Sunset), the full Moon rises, spoiling any chance of seeing faint fuzzies, except during the total Lunar eclipse which hap-

pens tonight. The Moon will be near Spica during all this.

Here is the eclipse schedule:

09:54 PM Moon enters penumbra (unobservable)

10:20 PM penumbra shadow first visible (approximate)

10:58 PM partial phase starts

12:07 AM (Tuesday) total phase starts

12:46 AM mid eclipse

01:25 AM total phase ends

02:33 AM partial phase ends

03:10 AM penumbra shadow disappears (approximate)

03:39 AM Moons leaves penumbra (unobservable)

On Tuesday, April 17, for a couple of hours after they rise (8:50 PM), the Moon and Saturn are near each other.

On Monday, April 21, as darkness falls (about 7:30 PM), Europa's shadow is on Jupiter. Europa, Callisto, and Io are clustered on the celestial west of the planet. At 9:02 PM Io goes behind the planet. at 9:19 PM Europa's shadow leaves the planet. At 9:56 PM Callisto goes behind the planet.

On Tuesday, April 22, at 1:24 AM, the last quarter Moon rises.

On Monday, April 28, it is new Moon and you have all night to hunt for faint fuzzies.

EVAC Meeting Minutes

by *Marty Pieczonka*

Claude Haynes called the meeting to order at 07:30 PM on March 21. After visitor introductions, Dave Coshov gave a short report on the observatory and asked for volunteers to help out for the Feathered Friends event on April 5 from 09:00 AM to 01:00 PM. Tom Polakis announced that the Grand Canyon Star Party would be held from Jun 21 thru June 28. An Auction was held for the telescopes EVAC has been storing. Three of the four scopes (4.5" Short Tube reflector, 8" Meade Starfinder, and 8" Celestron Celestar) were sold. The 10" Meade was not sold.

Joe Goss was awarded the Binocular Messier Observing Award. Don Wrigely gave a presentation on the History of the Telescope.

EVAC Members Invited to Special April 2014 Saguaro Astronomy Club Meeting at ASU, Tempe by Tom Polakis

The Science in Amateur Astronomer Astro-images
April 11, 2014, 7:30, at Arizona State University, Tempe

The April SAC meeting will be held at the new Marston Exploration Theater in the Interdisciplinary Science and Technology BLDG. IV (ISTB4) ASU Tempe. Dr. Paul Scowen a renown astrophysicist and co-creator of the iconic "*Pillars of Creation*" photo from the HST, will analyze and explain the physics in images taken by our own local group of astroimagers. These images will be projected onto a 30' x 16' screen by real state of the art machines.

In addition to these 18 images, there will be a medley of the other 64 submitted images set to music, and Rik Alling, Theater Manager will demonstrate the capabilities of the theater. You will want to arrive at the magic hour of 7 o'clock which is the time after which you can park for free. This will give you a little time to check out the exhibits and the Meteorites before the meeting starts at 7:30. You can arrive earlier but free parking will get tricky.

Here is a link to the map: <http://www.asu.edu/map/interactiv e/?campus=tempe&building=ISTB4>

Here is a link to driving directions: <http://sese.asu.edu/sites/default/files/file/driving-directions.pdf>

We will meet in the ISTB4 Building which is actually on 781 E Terrace Road, Tempe, AZ 85287, however, you will want to park at the Rural Road parking structure and you will want to use the Rural Road Entrance after 7:00 p.m. One way to get there is to take Highway 60 to Rural Rd./ North on Rural for 2.5 miles, just north of Apache Blvd. is the Rural Road Parking garage, enter the garage from Rural Road. If you enter the garage from Terrace Rd., you will pay \$3 an hour to park. The ISTB4 building is next to the garage on the West side. There are plenty of seats (238) to accommodate everyone and this is a meeting you will not want to miss.

Dr. Paul Scowen's page is at ASU: <https://webapp4.asu.edu/directory/person/89857>. Good luck with your Messier Marathon. I prefer just 3 or 4 a night myself!

Building an Observatory by Wayne Thomas

I purchased a house with room for an observatory to get away from the Phoenix sky glow and to get out from under a mortgage. My goal was also to build an observatory so I would not have to set up each time I wanted to observe. My design objectives were:

1. Solid Pier
2. Near Horizon viewing
3. Stable enough for photography
4. Handicap accessible
5. Pier foundation Isolated from building
6. Roll-Off Roof design
7. Withstand high winds

Besides the normal requirements of a solid and stable mount, I also wanted my observatory to allow viewing as close to the horizon as possible. In addition I wanted the telescope accessible to the handicapped. I settled on a Roll-off roof design which can withstand fairly high winds and be reasonably tight when closed up.

My budget basically was whatever it takes. Since I am familiar with construction, I planned this to be my personal project including the design. I started the foundation for the pier in May of 2012, but put the project on hold while I sold my house in Phoenix. During this first phase I was able to build most of the foundation which is a subterranean pyramid constructed out of 8x8x16 cement block / cinder block.

My Available equipment was:

- 11" Celestron SCT on CGEM Mount
- Tractor Drive-shaft for pedestal
- Property in Florence, AZ

The sequence of events to build the observatory was:

- Dig the hole for the pier foundation
- Lay a subterranean foundation
- Put in a solid floor
- Put up stiff walls and beams
- Build a low profile roof.

Building an Observatory

by Wayne Thomas

The labor pool to build the observatory consisted of myself with about 20 hours of help from friends. Together we pulled electrical wires from the house, erected the walls of the observatory, and secured the sheeting on the walls. I did everything else. The project started in the Summer of 2012 when I dug the pit for the telescope pier foundation. The project was put on hold during the Fall of 2012 while I sold my house in Phoenix. I restarted build the observatory in the Summer of 2013 and the observatory was operational in January of 2014. I still have painting, ramp railing, insulation, A/C, electrical to the pier, cabinetry and a table left to do.

“When I retire, I want to live in a ‘dark at night’ place and build an observatory.” So I now live in Florence, AZ and have built an observatory. This is the story of how my observatory came to be.

Once I found the right property SE of Florence (well away from the lights of Phoenix) I started digging the hole for the base of my telescope. I dug a 5 foot by 5 foot hole about 4 feet deep and constructed a pyramid of cement block in it. As the rows progressed, I filled in the center with a mixture of dirt and cement. I stopped when the top was above the level of the planned observatory floor. Before filling the cells of the block, I inserted rebar and anchor bolt (J-bolts) to secure the telescope pedestal.



Rather than pour a foundation, Frank Pino suggested I simply use foundation blocks which I did. I wanted the floor to be as rigid as possible so I used 2x6 floor joists on 12 inch centers with $\frac{3}{4}$ inch plywood over that for the floor.



You may notice from the picture above, that the Celestron CGEM mount is quite high above the floor. This is so I can see the horizon over the yet to be built walls. I wanted to have a clear view of the horizon to the E, S, and W; however, my house is to the S and so I'll have to be satisfied with 10 degrees above the horizon whenever viewing in that direction. Also, the roof will block the view due W, again up to about 10 degrees above the horizon. To the N, I don't care so much. Besides, the observatory wall will block my neighbor's street light which is quite bright. (See the above image for the street light at the top of the right most pole.)

Building an Observatory

by Wayne Thomas

Standard construction practices were used. I had a friend help me with the walls and the siding which is OSB chip board. Note the telescope in use prior to constructing the roll off roof.



The beams for the roll off roof were a bit of a challenge for me, however Yankee ingenuity prevailed.



The roof is supported by 4-inch rollers, 5 on each wall/rail. The 2x4 rafters are on 12-inch centers for rigidity. The roof is standard construction of chip board, felt and composition shingles. It is heavy, but still manageable



Building an Observatory

by Wayne Thomas



Two features which I believe are not common: 1) a fold down wall which interlocks with the roof rafters when the roof closes, and 2) a ramp to facilitate access by my Dobsonian on wheels as well as other wheeled machines.



The previous images show the hinged door from the outside and from the inside, respectively, in the closed and locked position. The following image shows the door in the observing position giving a clear view of the eastern horizon. It also shows the interior view of the ramp in the up position. The second image shows the ramp from the outside with the roof closed, locking it in the up position.



With the roof open, the ramp can be lowered (see below). As a final touch, I installed a Dutch door at the entrance. Unfortunately, the lower half is only useable by lepricons (see next page).

Building an Observatory

by Wayne Thomas



At this time, I still have remaining – painting, sealing against dust storms, electrical to the pier, and finishing the interior. I started the observatory back in June, 2012 and hope to be finished this year, 2014.

Wayne Thomas, Florence, AZ



The following is a view of my observatory with the roof open. It is missing my mount and telescope but is storing my Dobsonian.

NEW MOON ON MARCH 30 AT 12:45

FIRST QUARTER MOON ON APRIL 7 AT 04:31

***FULL MOON ON APRIL 15 AT 03:42**

LAST QUARTER MOON ON APRIL 22 AT 03:52

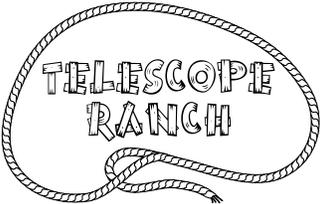
NEW MOON ON APRIL 29 AT 02:14

Looking for that perfect weekend activity?

Why not resolve to getting involved?

Contact Dave Coshow to join the staff at GRCO

Email: grco@evaconline.org



**TELESCOPES
FOR SALE**

*Come To Our Amazing
Telescope Shop*

We buy, sell and trade binoculars and telescopes
Daily programs with our onsite planetarium
Weekly star-gazing events!
162 E. Wickenburg Way in historic downtown
Wickenburg's Mecca Plaza
Open 11a.m.-5p.m. (W, F, S, Su) & 5-9p.m. (Tu)
623-217-6635 ★ 928-684-8842



5757 N. Oracle Road Tucson, AZ 85704 520-292-5010
www.starizona.com

Webcam imaging made easy!

Time lapse

**Planetary
& lunar
imaging**



**Motion
detection**

Meteor capture

Free trial!

www.AZcendant.com

PHOTON

INSTRUMENT LTD.

SALES REPAIR SERVICE RESTORATION

ASTRONOMICAL TELESCOPES

WARREN & JUDY KUTOK

122 E. MAIN STREET MESA, AZ. 85201

480-835-1767 800-574-2589

Upcoming Meetings

April 18

May 16

June 20

July 18

August 15

September 19

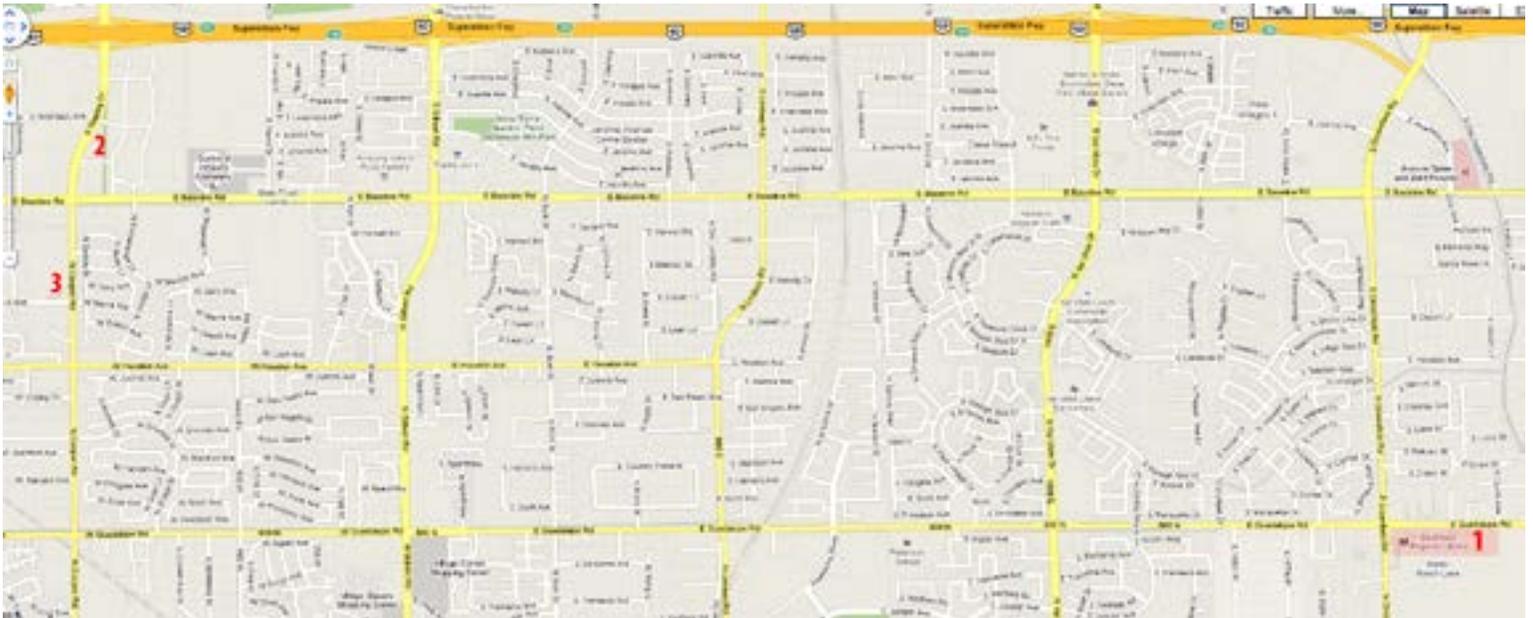
October 17

The monthly general meeting is your chance to find out what other club members are up to, learn about upcoming club events and listen to presentations by professional and well-known amateur astronomers.

Our meetings are held on the third Friday of each month at the Southeast Regional Library in Gilbert. The library is located at 775 N. Greenfield Road; on the southeast corner of Greenfield and Guadalupe Roads. Meetings begin at 7:30 pm.

All are welcome to attend the pre-meeting dinner at 5:30 pm. We meet at Old Country Buffet, located at 1855 S. Stapley Drive in Mesa. The restaurant is in the plaza on the northeast corner of Stapley and Baseline Roads, just south of US60.

Visitors are always welcome!



2

Old Country Buffet
1855 S. Stapley Drive
Mesa, Az. 85204

1

Southeast Regional Library
775 N. Greenfield Road
Gilbert, Az. 85234



APRIL 2014

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30			

April 11 - Riparian Public Star Party

April 15 - Total Lunar Eclipse

April 18 - General Meeting at SE Library

April 19 - Local Star Party

April 22 - Taylor Junior High

April 23 - Queen Creek High School

April 26 - City Of Chandler

April 26 - Deep Sky Star Party

MAY 2014

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

May 9 - Riparian Public Star Party/Skywatch

May 16 - General Meeting at SE Library

May 24 - Local Star Party

May 31 - Deep Sky Star Party

East Valley Astronomy Club -- 2013 Membership Form

Please complete this form and return it to the club Treasurer at the next meeting or mail it to EVAC, PO Box 2202, Mesa, Az, 85214-2202. Please include a check or money order made payable to EVAC for the appropriate amount.

IMPORTANT: All memberships expire on December 31 of each year.

Select one of the following:

- New Member
 Renewal
 Change of Address

New Member Dues (dues are prorated, select according to the month you are joining the club):

- | | |
|---|---|
| <input type="checkbox"/> \$30.00 Individual January through March | <input type="checkbox"/> \$22.50 Individual April through June |
| <input type="checkbox"/> \$35.00 Family January through March | <input type="checkbox"/> \$26.25 Family April through June |
| <input type="checkbox"/> \$15.00 Individual July through September | <input type="checkbox"/> \$37.50 Individual October through December |
| <input type="checkbox"/> \$17.50 Family July through September | <input type="checkbox"/> \$43.75 Family October through December |
- Includes dues for the following year*

Renewal (current members only):

- \$30.00 Individual**
 \$35.00 Family

Name Badges:

- \$10.00** Each (including postage) Quantity: _____

Name to imprint: _____

Total amount enclosed:

Please make check or money order payable to EVAC

- Payment was remitted separately using PayPal
 Payment was remitted separately using my financial institution's online bill payment feature

Name:

Phone:

Address:

Email:

City, State, Zip:

- Publish email address on website

URL:

How would you like to receive your monthly newsletter? (choose one option):

- Electronic delivery (PDF) *Included with membership*
 US Mail **Please add \$10 to the total payment**

Areas of Interest (check all that apply):

- | | |
|--|---|
| <input type="checkbox"/> General Observing | <input type="checkbox"/> Cosmology |
| <input type="checkbox"/> Lunar Observing | <input type="checkbox"/> Telescope Making |
| <input type="checkbox"/> Planetary Observing | <input type="checkbox"/> Astrophotography |
| <input type="checkbox"/> Deep Sky Observing | <input type="checkbox"/> Other |

Please describe your astronomy equipment:

Would you be interested in attending a beginner's workshop? Yes No

How did you discover East Valley Astronomy Club?

PO Box 2202
Mesa, AZ 85214-2202
www.evaconline.org

All members are required to have a liability release form (waiver) on file. Please complete one and forward to the Treasurer with your membership application or renewal.

THE DEEP SKY OBJECT OF THE MONTH

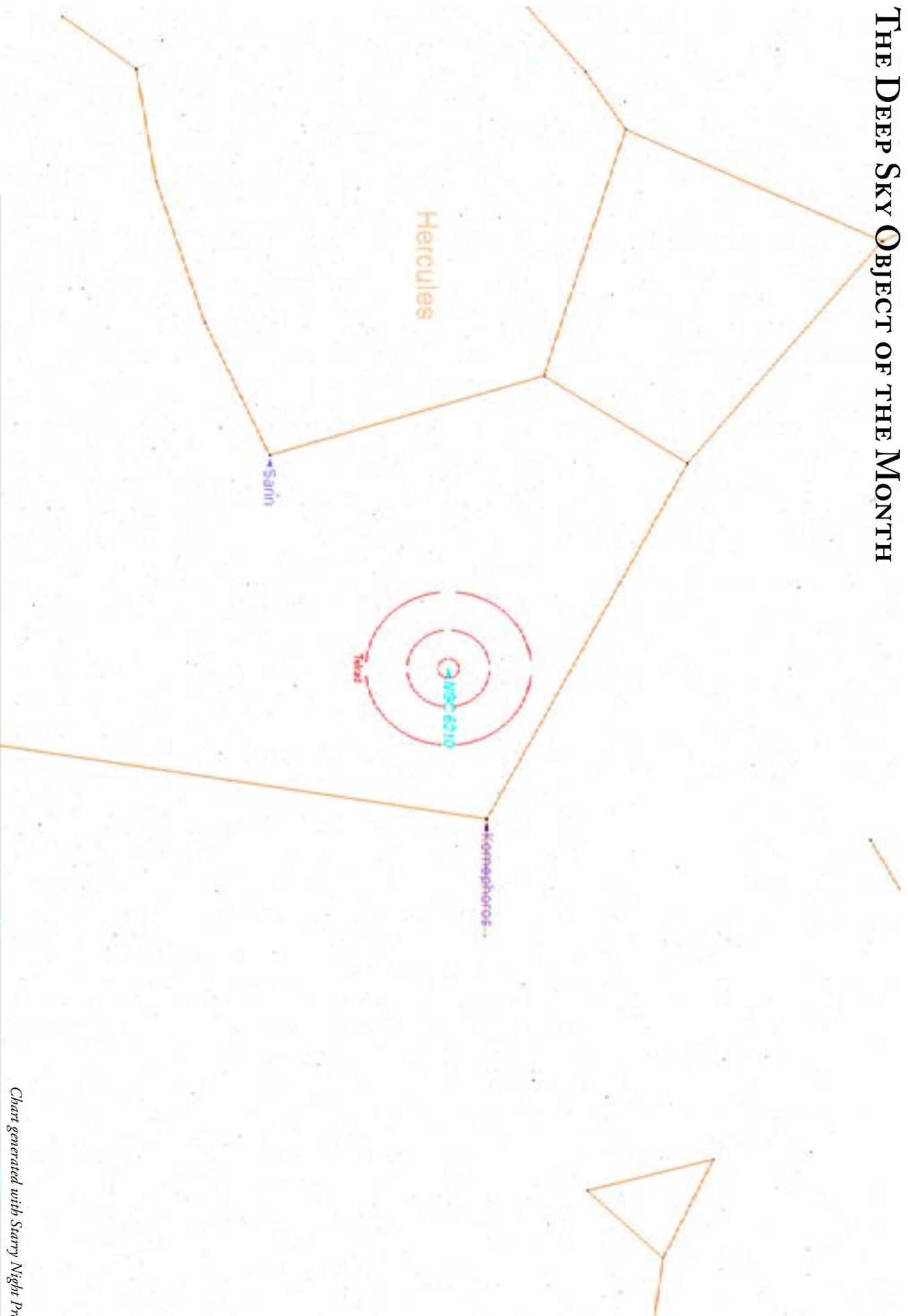


Chart generated with Starry Night Pro

NGC 6210 (Turtle Nebula) Planetary Nebula in Hercules

RA 16h 44m 29.5s DEC +23° 47' 59" Magnitude: 9.3 Apparent Size: 16"

The Observer is the official publication of the East Valley Astronomy Club. It is published monthly and made available electronically as an Adobe PDF document the first week of the month. Printed copies are available at the monthly meeting. Mailed copies are available to members for a slight surcharge to offset printing and mailing expenses.

Please send your contributions, tips, suggestions and comments to the Editor at: news@evaonline.org Contributions may be edited. The views and opinions expressed in this newsletter do not necessarily represent those of the East Valley Astronomy Club, the publisher or editor.

Material in this publication may not be reproduced in any manner without written permission from the editor. ©2005-2013

The East Valley Astronomy Club is a 501(c)(3) nonprofit charitable organization.

www.evaonline.org

East Valley Astronomy Club
PO Box 2202
Mesa, Az. 85214-2202

President: Claude Haynes

Vice President: Lesley Watkins

Secretary: Marty Pieczonka

Treasurer: David Shiel

Board of Directors: Ron Barstad, Gordon Rosner, Brook Scofield, Ken Sumiec & John Goerger

Events Coordinator: Lynn Young

Property Director: David Hatch

Refreshments: Jan Barstad

Observing Program Coordinator: Marty Pieczonka

AL Representative: TBD

Membership: Les Wagner

Newsletter Editor: Marty Pieczonka

Webmaster: Marty Pieczonka

SkyWatch Coordinator: Claude Haynes

Observatory Manager: Dave Coshow