Volume 26 Issue 4

April 2012

The Observer

East Valley Astronomy Club

From the Desk of the President

by David Douglass

Greetings to all. Hopefully, you are enjoying some of this marvelous weather that Arizona has been experiencing. The evenings have been mostly clear, and definitely warmer than normal, making for some excellent viewing opportunities.

Unfortunately, with the good, comes some not so good. Clouds moved in once again, and put a cover above us for the All Arizona Messier Marathon. Reports from the field did tell of some very good viewing opportunities on the nights before the scheduled Saturday marathon.

Speaking of good viewing opportunities, hopefully everyone is following the Supernova story in Messier object M95. One of our members, Parijat Singh (parijat_singh@yahoo.com), happened to be imaging that object the night before the event appeared. He was not yet finished collecting his data, and continued imaging the following evening. When he heard about the event (Supernova), he checked his data, and there it was! So… he had before and after shots.

Now Parijat is not your normal casual astronomer. He is into the science, including photometry, and occultations. He became very excited with what he had, and began posting to various forums with his observations, and measurements. At last count, he has been picked up by two national publications, and that number will probably grow.

Congratulations to Parijat.

And continuing with that thought, Parijat has agreed to become the new leader for the Citizen Scientist program associated with the GRCO operation. Looks like we may have made a good

Continued on page 5

The Backyard Astronomer

April Brings Spring Goodies *by Bill Dellinges*

Let us gaze upon the April sky in search of deep sky wonders up so high. I just made that up.

As the month begins, we find three pairs of very bright "stars" spread across the sky. Low in the west, Venus (mag -4.4) and Jupiter (mag -2.1) catch our attention, the former skirting the Pleiades in Taurus. Approaching the meridian, the two bright "stars" 6 degrees apart are actually Mars (mag -0.7) and Regulus (mag 1.36). In the east the bright pair are Saturn (mag 0.3) rising about 8pm and 6 degrees to its west, Spica (mag 1.0).

Mars was closest to Earth March 5th at a distance of 63 million miles during its recent opposition and is now receding from us. On April 15th Mars halts its retrograde motion 5 degrees from Regulus and resumes direct (eastern) motion.

About every 15 years Mars rewards us with a favorable opposition bringing Mars to within 35 million miles of earth. The last one was in 2003 and the next will be in 2018. Start saving now for that 26" refractor.

Saturn reaches opposition April 18th at a distance of 811 million miles; the rings have opened to 14 degrees from being seen edgewise in 2009. The north side of the rings will be tilted open to the maximum 27 degrees in 2025.

With winter's

Continued on page 2

Upcoming Events:

Public Star Party - April 13

Local Star Party - April 14

General Meeting - April 20

Deep Sky Observing - April 21

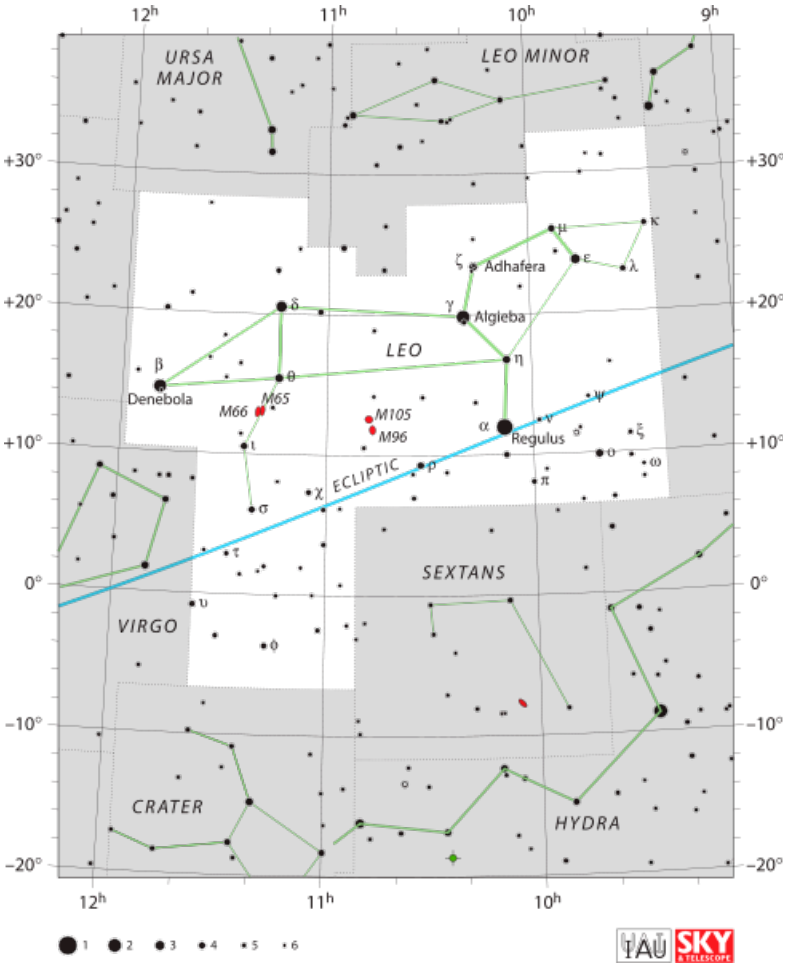
Check out all of the upcoming club events in the Calendars on page 8

Inside this Issue:

The Backyard Astronomer

Continued from page 1 bright constellations sinking in the west, the spring night sky is dominated by Leo the Lion, high in the sky as he crosses the meridian and Ursa Major north of the zenith. The dearth of bright stars in this area is due to its lying away from the band of the Milky Way (albeit its fainter winter version).

The western section of Leo represents the lion's heart (Regulus), chest, head and mane. The stars are shaped like and sometimes referred to as the "sickle" or "backwards question mark." About halfway up the sickle lies a wonderful double star, Algieba. An 8" telescope can easily split the pair at 100x. The magnitudes are 2.3 and 3.6. The yellow stars are separated by 4.4". The actual distance between them is 125 astronomical units with a period of 500 years. Moving eastward, three stars forming a triangle denote the lion's hind quarters. Leo contains many galaxies. The sickle's two top stars lead the way to NGC 2903, a 9th magnitude elongated galaxy.



Below the lion's belly south of 52 Leonis are M95, M96, and M105, magnitudes 9.7, 9.2, and 9.3 respectively. Perhaps the most interesting group of galaxies, the "Leo Trio", is M65, M66, and NGC 3628 (mag 9.3, 9, 9.5). They can be found 2.5 degrees southeast of Theta Leonis (Chertan), one of the three bright stars in the above mentioned hindquarters of the lion. You can also starhop to the group by hopping from Chertan south to 73 Leonis and east 1.5 degrees.

In less than perfectly dark skies one might note there are two large "empty" areas of sky west and east of Leo. They are not empty. Each has two lovely star clusters located in these voids. West of Leo is the faint constellation Cancer. Dead center in the crab is its claim to fame – M44, the Beehive Cluster. This star cluster is best viewed in binoculars due to its large size.

While in Cancer, try M67 in the southern part of the crab. This nice open cluster is often lost in the celebrity shadow of M44. East of Leo is the faint constellation Coma Berenices, Berenice's Hair. This constellation contains an even larger open star cluster than Cancer's M44. You will need a binocular with a real field of 8 degrees to encompass all of Mel 111's stars. Coma Berenices (Com) is composed of only three 4th magnitude stars in the shape of a right angle. Mel 111 can be found near its most western star, Gamma Com.

The fine edge-on galaxy NGC 4565 lies on the eastern edge of Mel 111. The Black Eye Galaxy, M64, and M53, a globular cluster, are worth a look near Alpha Com. A line from Gamma to Beta Com conveniently takes you east to M3 in Canes Venatici, the Hunting Dogs. M3 is considered one of the finest globulars in the northern sky.

Rising in the east is the sky's is the northern skies' second brightest star (if you exclude Alpha Centauri and Canopus). Arcturus, a magnitude -0.06 orange giant, anchors Bootes the Herdsman. While there are no deep sky objects in Bootes, it's a treasure chest of double stars. Try the always challenging Izar (Epsilon Bootis). You'll need good seeing to split this rascal's AB pair composed of mag 2.6 and 4.7 stars separated by 2.9". It took 165x in this writer's 5" refractor, to barely get separation in what F.G. Struve called Pulcherrima ("most beautiful"). It's assumed he meant when split!

Finally and briefly, we take a look north and south of Leo.

The Big Dipper, an asterism of Ursa Major, rides high in the north. There is no better time to observe the unusual looking galaxy, M82. Once called an exploding galaxy because of its distorted structure, its chaotic appearance is now attributed to a burst of star formation resulting from a recent close encounter with neighboring M81. Both galaxies can be seen in the same 1.5 degree low power field of a telescope. South of Leo there appears to be another large void due to the faintness of Hydra, the Water Snake. It's challenging to trace out this long constellation whose somewhat conspicuous trapezoid head below Cancer winds southeast in a zigzag fashion before plunging below the horizon under Virgo.

There is an interesting planetary nebula two degrees south of Mu Hydrae. NGC 3242 is called the Ghost of Jupiter due to its likeness to that planet – a bit of a stretch as it's both dimmer and smaller than Jupiter in the telescope, but it's still one of the more impressive planetaries out there.

Enjoy spring observing and take advantage of the fact that most likely, you'll not have to worry about April showers

The field of view in this image includes three magnificent galaxies, NGC3628 (left), M65 (top right), and M66 (bottom right). These galaxies are all spirals, but look different from each other because their disks are tilted at different angles to our position. They are located in the constellation Leo, and are roughly 30 million light years away from earth.

Imaged from Nocturne Observatory
Scope: Astro-Physics Starfire AP130 EDF F/6
Mount: Losmandy G-11
Camera: Starlight Xpress SXVF-H16 with Optec Filters
L:R:G:B image - 160:60:60:60 minutes - 10 minute subs

NASA Announces Student Winners in Space Game Design Challenge

Three school student teams in the fifth through eighth grades have been selected as the winners of NASA's second annual Spaced Out Sports challenge. The students designed science-based games that will be played by astronauts aboard the International Space Station (ISS).

The games illustrate and apply Newton's laws of motion by showing the differences between Earth's gravity and the microgravity environment of the space station. The challenge is part of a broader agency education effort to engage students in science, technology, engineering and mathematics (STEM) activities.

To design their game, students use up to five items from a two-page list of objects aboard the ISS. The list includes such items as socks, exercise putty, bungees, cotton swabs, tape, rubber bands, zipper-top bags, chocolate-covered candies and drink bags.

Students at Pierremont Elementary MOSAICS Academy in Manchester, Mo., earned the top prize with their game "Starfield." In this activity, astronauts will travel through a course to gather "power stars" and throw them through a "black hole target."

Second-place honors went to students at East Brook Middle School in Paramus, N.J., for their "Outstanding Obstacles" game. It calls on astronauts to race through obstacles including "hair band shooting" and "ring toss."

The third-place winners are students at Tyngsborough Middle School in Tyngsborough, Mass., for their "Learning Takes You Around the World" game, in which astronauts will propel through rings, collecting slips of paper.

"Congratulations to the 2012 Spaced Out Sports winners," said Leland Melvin, associate administrator for education at NASA Headquarters in Washington and two-time shuttle astronaut. "By combining solid STEM skills with imagination and teamwork, these students have demonstrated that they have what it takes to be our next generation of engineers and designers."

The Spaced Out Sports challenge is a NASA Teaching from Space activity and was first offered in 2010. Using an accompanying curriculum, teachers lead students through a study of Newton's laws, highlighted by hands-on activities and video podcasts featuring NASA scientists and engineers explaining how the laws are used in the space program.

"The three top games were selected but everyone really is a winner in this challenge," said Katie Wallace, director of NASA's Stennis Space Center Office of Education near Bay St. Louis, Miss., where the challenge and accompanying curriculum were developed. "Every student involved wins by learning more about science and establishing an educational foundation that will serve them well throughout their careers and life."

Space Shuttle Discovery to Fly Over Washington Metro Area April 17

NASA's 747 Shuttle Carrier Aircraft (SCA) with space shuttle Discovery mounted atop will fly approximately 1,500 feet above various parts of the Washington, D.C. metropolitan area on Tuesday, April 17.

The flight, in cooperation with the Federal Aviation Administration, is scheduled to occur between 10 and 11 a.m. EDT. NASA Television and the agency's web site will provide live coverage.

The exact route and timing of the flight depend on weather and operational constraints. However, the aircraft is expected to fly near a variety of landmarks in the metropolitan area, including the National Mall, Reagan National Airport, National Harbor and the Smithsonian's Udvar-Hazy Center. When the flyover is complete, the SCA will land at Dulles International Airport.

Discovery completed 39 missions, spent 365 days in space, orbited the Earth 5,830 times, and traveled 148,221,675 miles. NASA will transfer Discovery to the National Air and Space Museum to begin its new mission to commemorate past achievements in space and to educate and inspire future generations of explorers

April Guest Speaker: Rik Hill

This month's guest speaker will be Rik Hill, from the Lunar and Planetary Lab at the University of Arizona. Rik's presentation will be about NEOs and his work with the Catalina Sky Survey

From the Desk of the President

Continued from page 1 choice.

EVAC member Dave Coshow has been named the new GRCO Observatory Manager. Assisting him in the managerial duties will be Claude Haynes, Ron Risko, and myself. The GRCO operators group was down to about 8-10 operators, but with recent recruiting, several of the former operators have rejoined the group, and several more EVAC members have volunteered to receive training and join as well. The staff for GRCO now numbers 31. We could still use a few more, so if interested, please contact Dave Coshow or any of the GRCO management team, and request training. It is definitely a fun adventure.

A final plea for annual dues payments for 2012. We do this every year, and I promise, this will be the last general announcement for 2012. We still have many members who have not renewed. You can visit with the Treasurer before the General Membership meeting, or during the break. You can even pay on-line using Pay-Pal, by visiting the http://evaconline.org website, and use the "Join Us" tab in the left column. If you have already paid your dues, well then, we offer our "Thanks".

The weather for April is looking good. Let's all get out there, and "Keep Lookin Up"!

● Full Moon on April 6 at 12:20

◑ Last Quarter Moon on April 13 at 03:50

○ New Moon on April 21 at 00:19

◐ First Quarter Moon on April 29 at 02:57

Upcoming Meetings

April 20
May 18
June 15
July 20
August 17
September 20

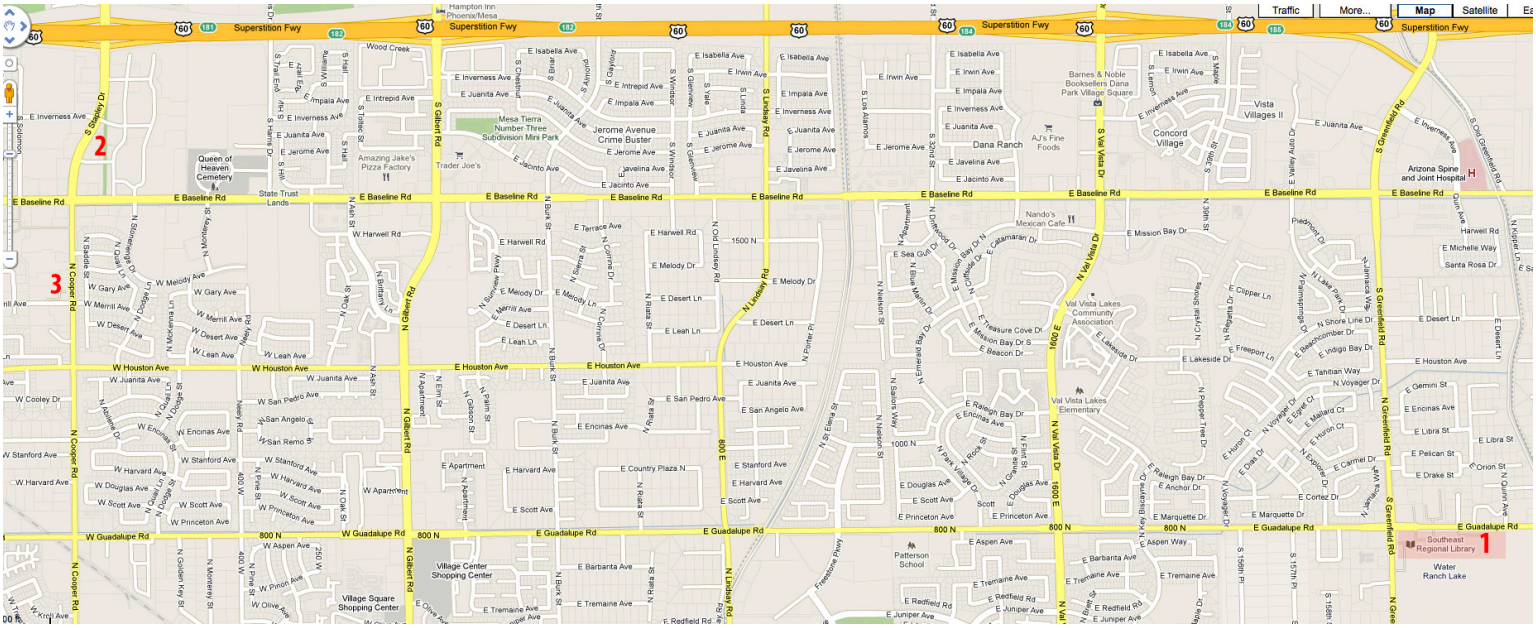
The monthly general meeting is your chance to find out what other club members are up to, learn about upcoming club events and listen to presentations by professional and well-known amateur astronomers.

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.

Likewise, all are invited to meet for coffee and more astro talk after the meeting at Denny's on Cooper (Stapley), between Baseline and Guadalupe Roads.

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

3 Denny's
1368 N. Cooper
Gilbert, Az. 85233

April 2012

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 13 - Public Star Party & SkyWatch

April 14 - Local Star Party at Boyce Thompson

April 20 - Life Foursquare Church Star Party

April 20 - General Meeting at SE Library

April 21 - Deep Sky Observing Night

April 24 - East Valley Academy Star Party

April 26 - Roosevelt Elementary School Star Party

May 2012

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			

May 10 - Prescott Pines Science Camp Star Party

May 11 - Public Star Party & SkyWatch at Riparian Preserve

May 12 - Local Star Party at Boyce Thompson

May 17 - Charlotte Patterson Elementary School Star Party

May 18 - General Meeting at SE Library

May 19 - Chandler Centennial Star Party

May 19 - Deep Sky Observing Night

May 20 - Annular Solar Eclipse

East Valley Astronomy Club -- 2012 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):

☐ **$30.00 Individual** January through March

☐ **$35.00 Family** January through March

☐ **$15.00 Individual** July through September

☐ **$17.50 Family** July through September

☐ **$22.50 Individual** April through June

☐ **$26.25 Family** April through June

☐ **$37.50 Individual** October through December

☐ **$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

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Name: ☐ Phone: ☐

Address: ☐ Email: ☐

☐ Publish email address on website

City, State, Zip: ☐ 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):

☐ General Observing ☐ Cosmology

☐ Lunar Observing ☐ Telescope Making

☐ Planetary Observing ☐ Astrophotography

☐ Deep Sky Observing ☐ 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.

Liability Release Form

In consideration of attending any publicized Star Party hosted by the East Valley Astronomy Club (hereinafter referred to as "EVAC") I hereby affirm that I and my family agree to hold EVAC harmless from any claims, liabilities, losses, demands, causes of action, suits and expenses (including attorney fees), which may directly or indirectly be connected to EVAC and/or my presence on the premises of any EVAC Star Party and related areas.

I further agree to indemnify any party indicated above should such party suffer any claims, liabilities, losses, demands, causes of action, suits and expenses (including attorney fees), caused directly or indirectly by my negligent or intentional acts, or failure to act, or if such acts or failures to act are directly or indirectly caused by any person in my family or associates while participating in an EVAC Star Party.

My signature upon this form also indicates agreement and acceptance on behalf of all minor children (under 18 years of age) under my care in attendance.

EVAC only recognizes those who are members or invitees and who also have a signed Liability Release Form on file as participants at an EVAC Star Party.

Please print name here ***Date***

Please sign name here

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

The Planet in the Machine

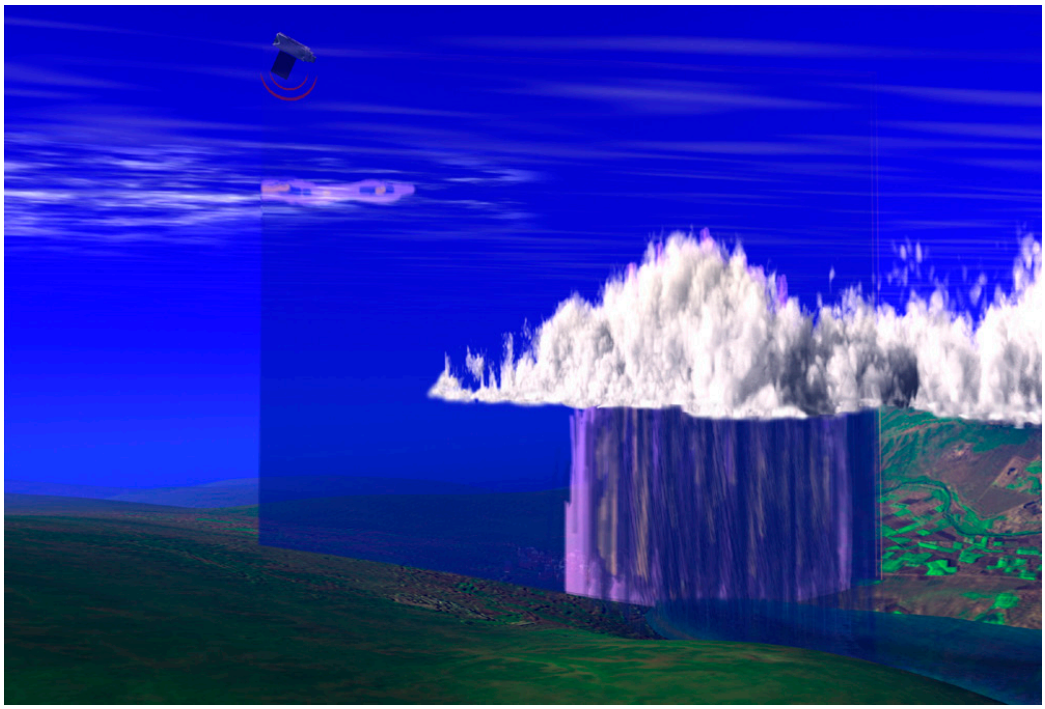
by Diane K. Fisher & Tony Phillips

The story goes that a butterfly flapping its wings in Brazil can, over time, cause a tornado in Kansas. The "butterfly effect" is a common term to evoke the complexity of interdependent variables affecting weather around the globe. It alludes to the notion that small changes in initial conditions can cause wildly varying outcomes.

Now imagine millions of butterflies flapping their wings. And flies and crickets and birds. Now you understand why weather is so complex.

All kidding aside, insects are not in control. The real "butterfly effect" is driven by, for example, global winds and ocean currents, polar ice (melting and freezing), clouds and rain, and blowing desert dust. All these things interact with one another in bewilderingly complicated ways.

And then there's the human race. If a butterfly can cause a tornado, what can humans cause with their boundlessly reckless disturbances of initial conditions?



CloudSat is one of the Earth-observing satellites collecting data that will help develop and refine atmospheric circulation models and other types of weather and climate models. CloudSat's unique radar system reads the vertical structure of clouds, including liquid water and ice content, and how clouds affect the distribution of the Sun's energy in the atmosphere. See animation of this data simulation at www.nasa.gov/mission_pages/calipso/multimedia/cloud_calip_mm.html.

Understanding how it all fits together is a relatively new field called Earth system science. Earth system scientists work on building and fine-tuning mathematical models (computer programs) that describe the complex inter-relationships of Earth's carbon, water, energy, and trace gases as they are exchanged between the terrestrial biosphere and the atmosphere. Ultimately, they hope to understand Earth as an integrated system, and model changes in climate over the next 50-100 years. The better the models, the more accurate and detailed will be the image in the crystal ball.

NASA's Earth System Science program provides real-world data for these models via a swarm of Earth-observing satellites. The satellites, which go by names like Terra and Aqua, keep an eye on Earth's land, biosphere, atmosphere, clouds, ice, and oceans. The data they collect are crucial to the modeling efforts.

Some models aim to predict short-term effects—in other words, weather. They may become part of severe weather warning systems and actually save lives. Other models aim to predict long-term effects—or climate. But, long-term predictions are much more difficult and much less likely to be believed by the general population, since only time can actually prove or disprove their validity. After all, small errors become large errors as the model is left to run into the future. However, as the models are further validated with near- and longer-term data, and as different models converge on a common scenario, they become more and more trustworthy to show us the future while we can still do something about it—we hope.

For a listing and more information on each of NASA's (and their partners') Earth data-gathering missions, visit http://science.nasa.gov/earth-science/missions/. Kids can get an easy introduction to Earth system science and play Earthy word games at http://spaceplace.nasa.gov/ecosphere .

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

If It's Clear...

by Fulton Wright, Jr.
Prescott Astronomy Club

April 2012

Celestial events (from Sky & Telescope magazine, Astronomy magazine, and anywhere else I can find information) customized for Prescott, Arizona. Remember, the Moon is ½ degree or 30 arcminutes in diameter. All times are Mountain Standard Time.

If you haven't had enough of comet C2009 P1 (Gerradd), it is still visible. See Astronomy Magazine, April 2012, p.42 for more information.

Mars is moving away but is still worth a look with a telescope if the seeing is good.

On the nights of April 10, 17, 18, and 26, you can find Saturn's bright moons clustered around the planet.

On Monday, April 2, in the early evening, in the west, Venus will be passing close to the Pleiades star cluster. Use binoculars or a small (3 inch) telescope to view the event. Also, in the southeast, the Moon, Regulus, and Mars will form an interesting pattern. The whole show will repeat the next night but with different patterns.

On Friday, April 6, at 7:16 PM (21 minutes after sunset) the full Moon rises, spoiling any chance of seeing faint fuzzies for the whole night. Notice that as it rises, it forms a straight line with Spica and Saturn nearby.

On Saturday, April 7, after about 9:30 PM, you can see the Moon's crater, Petavius, well. It is located near the terminator at the Moon's planetary southeast edge, and the lighting should be good for observing the crater's complex floor.

On the night of Thursday, April 12, at 1:29 AM (the 13th), the last quarter Moon rises.

On Sunday, April 15, Saturn is at opposition and is visible all night.

On Tuesday, April 17, as darkness falls (nautical twilight is at 8:01 PM), Algol is at minimum brightness (magnitude 3.4). As the evening progresses, it will rise to maximum brightness (magnitude 2.1). This is the last chance to catch a minimum of Algol in the early evening till August.

On Friday, April 20, it is new Moon, and you have all night to hunt for faint fuzzies.

On Sunday, April 22, at dusk (civil twilight is at 7:35 PM), see if you can catch Jupiter, with the very thin crescent Moon just above it, low in the west.

On the night of Saturday, April 28, at 1:16 AM (the 29th), the last quarter Moon sets.

On Monday, April 30, in the early evening, Venus is at greatest brilliance, magnitude -4.7. (You won't notice much difference in brightness this month or next.)

Heads up for May 20 Annular Solar Eclipse: The centerline of the path of annularity passes through Page, Arizona. If you go, you will not be the only person there. The partial phase starts at 5:24 PM. The annular phase starts at 6:32 PM and lasts for 4.5 minutes. The Sun (and Moon, of course) will be about 10 degrees above the west horizon. The Sun sets before the exiting partial phase is over. Flagstaff is just south of the annular path. Prescott is a little further south but will also see a deep partial eclipse. Even though the sun is very low, it is not safe to view directly any phase of this eclipse without a real solar filter. My favorite is a #14 welders plate.

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

Annular Solar Eclipse of 2012 May 20

Geocentric Conjunction = 23:59:09.1 UT J.D. = 2456068.499411
Greatest Eclipse = 23:52:46.6 UT J.D. = 2456068.494984

Eclipse Magnitude = 0.9439 Gamma = 0.4827

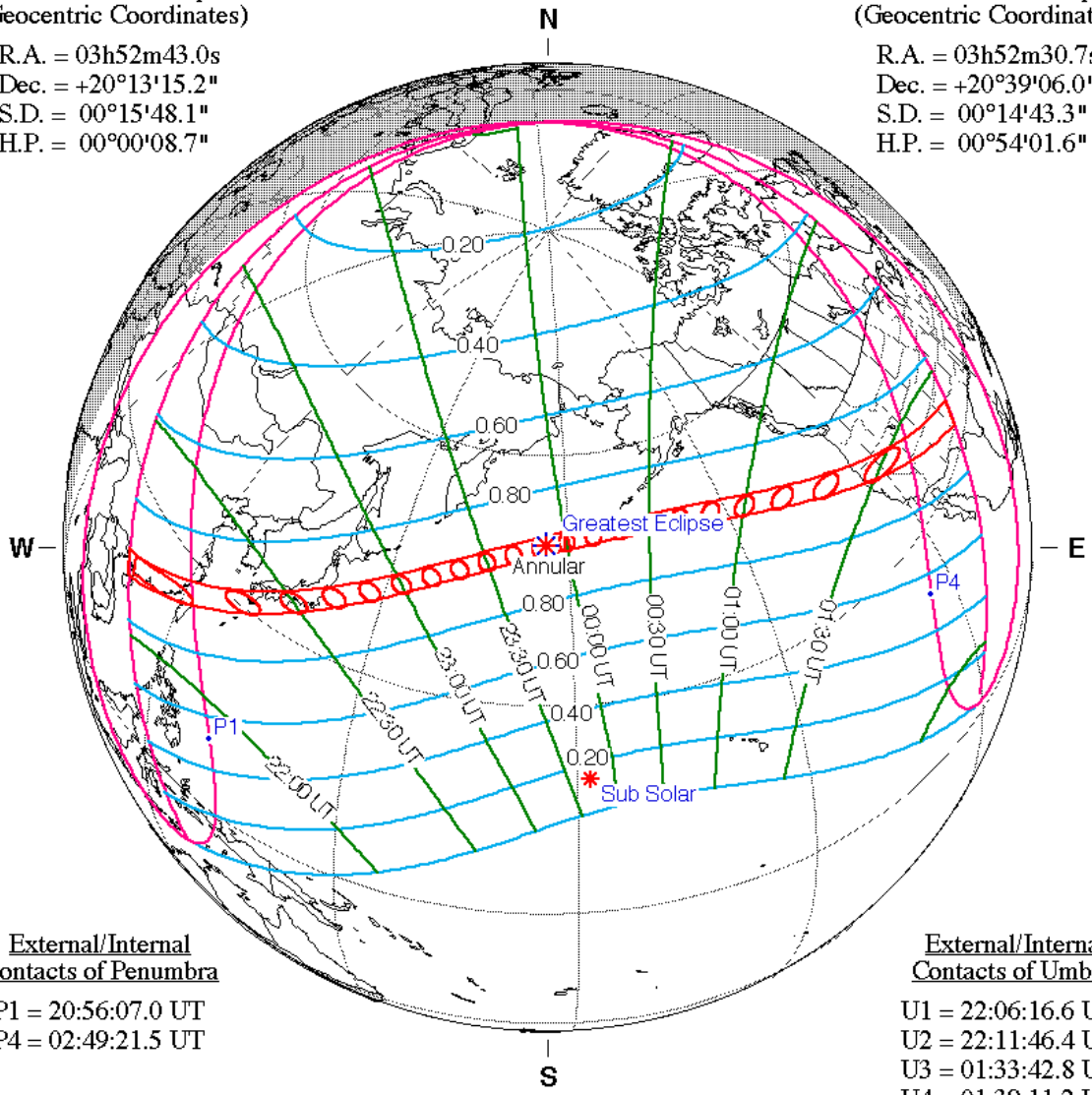
Saros Series = 128 Member = 58 of 73

Sun at Greatest Eclipse
(Geocentric Coordinates)

R.A. = 03h52m43.0s
Dec. = +20°13'15.2"
S.D. = 00°15'48.1"
H.P. = 00°00'08.7"

Moon at Greatest Eclipse
(Geocentric Coordinates)

R.A. = 03h52m30.7s
Dec. = +20°39'06.0"
S.D. = 00°14'43.3"
H.P. = 00°54'01.6"



External/Internal Contacts of Penumbra

P1 = 20:56:07.0 UT
P4 = 02:49:21.5 UT

External/Internal Contacts of Umbra

U1 = 22:06:16.6 UT
U2 = 22:11:46.4 UT
U3 = 01:33:42.8 UT
U4 = 01:39:11.2 UT

Local Circumstances at Greatest Eclipse

Lat. = 49°05.3'N Sun Alt. = 60.9°
Long. = 176°16.8'E Sun Azm. = 171.0°
Path Width = 236.9 km Duration = 05m46.4s

Ephemeris & Constants

Eph. = Newcomb/ILE
ΔT = 69.0 s
k1 = 0.2724880
k2 = 0.2722810
Δb = 0.0" Δl = 0.0"

Geocentric Libration
(Optical + Physical)

l = -1.29°
b = -0.58°
c = -13.67°

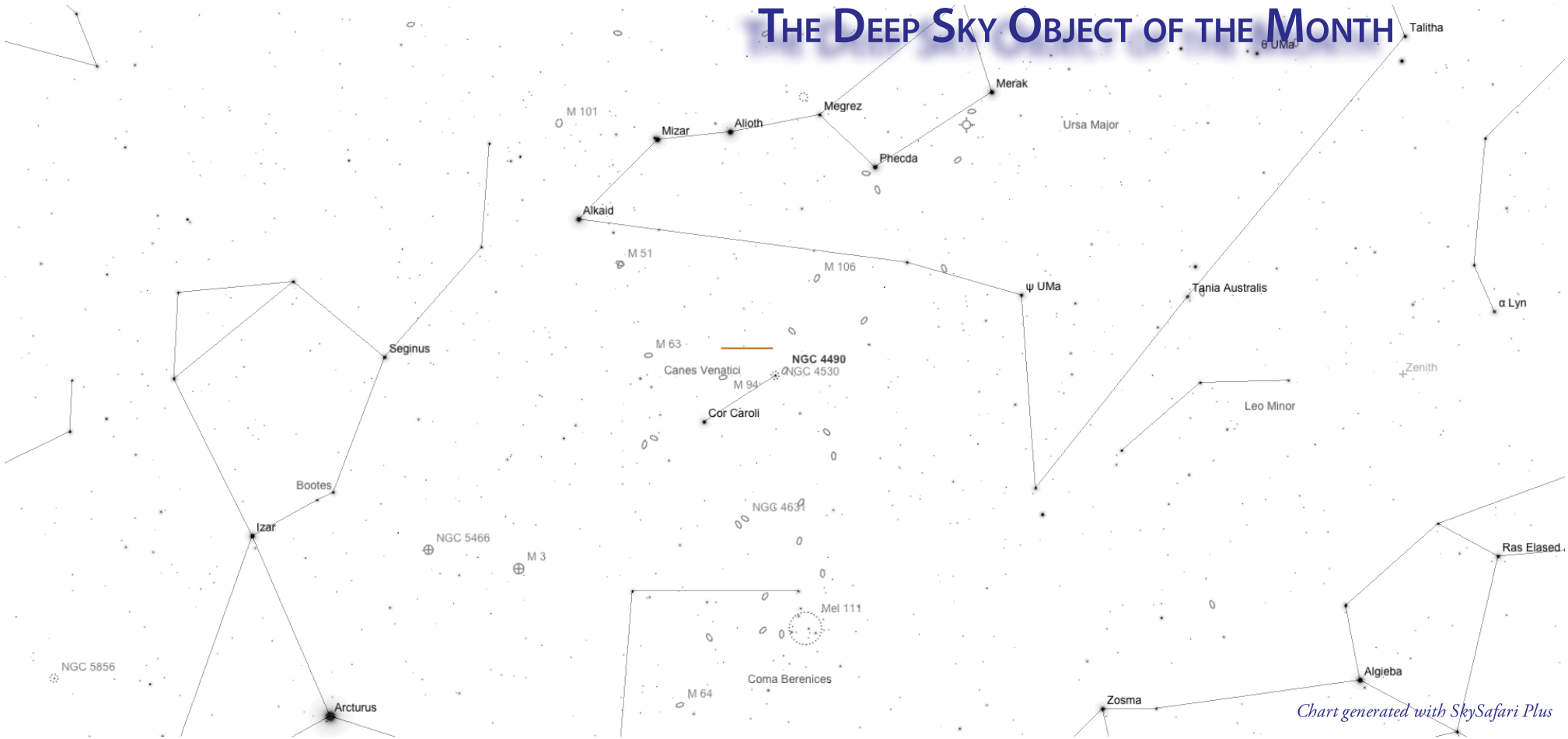
Brown Lun. No. = 1106

0 1000 2000 3000 4000 5000
Kilometers

F. Espenak, NASA's GSFC - Fri, Jul 2,

sunearth.gsfc.nasa.gov/eclipse/eclipse.html

The Deep Sky Object of the Month



NGC 4490 is a late-type SB(s)d in Canes Venatici. It has an apparent magnitude of 9.8 and an apparent diameter of 5.9 arc minutes. Along with NGC 4485, it makes a pair of galaxies often known by the nickname of the "Cocoon Galaxies".

Each "cocoon" is actually a spiral galaxy that has been distorted by the other. Hints of spiral structure are still evident in the smaller galaxy. These galaxies have already passed their closest approach (perigalacticon) and are now speeding away from each other. A tail of stars stretches between the galaxies, which are separated by at least 24,000 light years. An incredible number of star-forming regions have developed along the facing sides of each galaxy.

Both galaxies are 40 to 50 million light years away. Supernova 2008ax took place in NGC 4490 in 2008.

NGC 4490 (Cocoon Galaxy) Spiral Galaxy in Canes Venatici

RA: 12h 31m 12.78s Dec: +41° 34′ 28.5″ Size: 6.8′ x 1.7′ Magnitude: 9.32

As one of the many benefits to becoming an East Valley Astronomy Club member, we have the following telescopes available for monthly check-out to current EVAC members:

8 inch Orion manual Dobsonian
8 inch Orion Intelliscope Dobsonian
60mm Tasco Alt-Azimuth Refractor

For more information, or to check out one of these scopes, please talk to:

David Hatch
EVAC Properties Director
480.433.4217

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Please send your contributions, tips, suggestions and comments to the Editor at: news@evaconline.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.

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www.evaconline.org

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