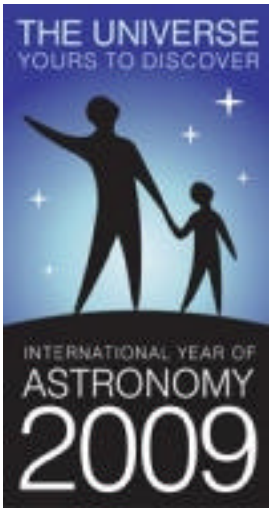
Starscan

Johnson Space Center Astronomical Society

Volume 25, Number 4 April 2009

FORTY YEARS AND COUNTING!



Glenn Schaeffer's spectacular shot of M51 taken at Fort McKavett. For photographic details, see: http://www.cosmicimpressions.com/m51.html

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Un mensaje del Presidente
(A message from the President)

I am ecstatic that the trip to the For was the raging success it was. I'm sorry I missed it as I'm sure others are as well. This month's speaker will be Paul Maley telling us of his recent occultation/eclipse events that he has studied.

A number of things have been on my mind concerning this club and given the influx of new people through the door, they too have been a consideration. Specifically, one thing that has been on my mind is our good friend and member Triple Nickel and his never ending drive to emphasize the "basics" of astronomy. To this end, I feel it would be prudent for us to consider adding a *short* (and I mean short) novice talk right after the break—no more than 10-15 minutes. As experienced as many of us are, we can not forget that at one time we too were novices and didn't have a clue where to start. It took a star party and bunch of meetings before I started to figure it out. For our new members, I'd like to "fast-track" the educational curve. We have had some great talks at our meetings but I'd lay bets our new members would appreciate hearing more about the basics. I plan to work a quick presentation up based on an ADAY talk that I've given entitled "Factors to consider when buying a telescope". My idea is that these should be short talks, even if repetitious for the established "core", but that is why I emphasize the necessity of their being short. I invite anyone to participate in this endeavor — I figure if any of us can come up with advice to a new member, a quick little talk can be derived from that advice! (I have more on my mind, but I'm out of space!)

Clear skies!
David Haviland

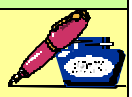
LETTER FROM THE EDITOR
By Connie Haviland

Hi Everyone!!

One more month I am handing the reins to Dave to do the Starscan for April. I will admit that I have worked on the kids' section because I have it set up to create. Otherwise, I have left it to Dave to create and put together. See ya next month!!!

Enjoy…..Connie

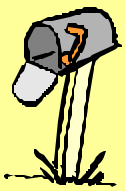
LETTER TO THE EDITOR



Attention all TSP Attendees…

Do you have a fun project you are working on? Want to share your methods in CCD imaging? What do you do at public star parties? Have you built a unique piece of equipment? How do you plan your observing sessions? What's your favorite suite of software or maps?

Do you want to share that knowledge with other amateurs at TSP? The daytime lectures are the place to do it. If you are interested in giving a talk, send an email to Warren Wundt at wwundt@satx.rr.com and give him the title and a 1 sentence summary. We still have openings for the daytime lectures.



Regards,

Steve Goldberg

Star Parties for 2009

Bob Taylor

APRIL 18	MOODY GARDENS
APRIL 19-26	TEXAS STAR PARTY
MAY 22	HAAK WINERY
JUNE—AUGUST	OPEN
SEPTEMBER 12	MOODY GARDENS
OCTOBER 15-18	FORT McKAVETT
NOVEMBER 6	HAAK WINERY
DECEMBER	OPEN

(I searched high and low for other club's calendars and other than ours and that for FBAC and the George all I could find is up to date is here and on page 15. - DLH)

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A Note from Ken Lester to JSCAS:

Weather predictions are just that… predictions. Earlier in the month we were faced with predictions of rain and clouds for the 3 days of the star party. Earlier this week, there was a promise of clearing on Thursday but overcast Friday and Saturday. Well, there were some clouds all 3 nights, but as each night progressed the clouds went away. Tonight was supposed to be the worst night of all weather-wise. It started off with quite a bit of clouds and some pretty heavy winds. Well the winds died down and the clouds went away pretty quickly and it was a beautiful night, at least up to the time we left the field a few minutes ago (11:25) … and hopefully the rest of the night too.

We had a very large crowd for the public star party. Maybe 100 visitors? My sincerest thanks go out to all those who shared their scopes tonight. Your support of the fort is really appreciated. Lisa and I met many more of our neighbors from surrounding communities and they all were very appreciative of our efforts. I really think this may have been one of our best public star parties at the fort ever. Becky's San Antonio newspaper column brought out many visitors from the San Antonio area.

Some folks from Sonora were asking if we might consider coming back to do a presentation at their elementary school next October. Being so far away from Houston, Lisa and I cannot coordinate this but would certainly help out giving presentations or in contacting the school. We just couldn't organize the speakers.

I'll have to do some thinking about traffic control as some of our guests actually tried to park on the observing field (a first). Lots more drivers were parking behind the barracks than ever before. I'll work with Buddy on that.

Again my thanks. I really enjoyed seeing all of our friends and hope you all can come out in October, meanwhile maybe I'll see ya at TSP!

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Follow-up:

I have been the recipient to some behind the scenes communication secondary to the club's visit to the Fort visit. I'm happy to say that there were no major issues but there was one matter that needs to be discussed. Dogs, those lovable 4-legged, loyal beasts, are welcome at the fort but know that leashes are required as well as the appropriate clean up when pooch has to do its business. However, after dark, when we are observing—there can be no dogs on the observing field at any time for any reason. I don't know about you but I have a hard enough time in keeping from tripping over my scope's legs, and associated wires, let alone worrying about something that moves independently in the dark without so much as a red LED collar. That said, I don't think anyone wants a furry friend to hoist a hind leg on a telescope leg, storage box or chair. Also, deer droppings at the fort don't show up under red lights so we can't have additional fresh doggie "deposits" being set about in the dark either. Fear not, in this club we don't name names and we hope that by mentioning the incident that corrective measures will be taken in the future. Just know that the JSCAS rule is "No dogs or other animals (other than human) can be on the observing field after dark!".

Many thanks,

David

A "West of the Fort" Star Party

(by Randy & Dolly Brewer at http://www.randybrewer.net)

While many of our friends made their bi-annual trek to the Fort this spring, Dolly & I are a little to far West to make the trip this time. We will miss the typical 4 days of work that we do on our property near Hunt prior to hooking up to the 5th wheel and making the 90 mile trip to the Fort on Thursday. We will miss the meals with our friends on Thursday evening around the fire pit, the Friday dinner at Susan's ranch, and the Saturday BBQ. We do eat well there don't we???

I was glad to hear that the weather predictions didn't keep too many from going since I understand that it wasn't that bad. I agree with the earlier emails about going anyway just for the 'party' portion of the Star Party…

I missed a star party here last night (Saturday night) since we had company over for the evening. I was anxious to see where this star party was and how bad the skies were since it is a challenge to find a decent observing spot here with the sky glow from Los Angeles. However 3 weeks ago, I did go to another star party in Palos Verdes, David Haviland's old stomping grounds. It was on the other side of a large hill or baby mountain (matter of perspective) which did a reasonable job of blocking the lights from LA. To my surprise, the skies were even better than those from my house in Baytown where I sat between numerous power plants, refineries, and city lights.

That star party let me know that I can still be a contributing member of our hobby. The kids had great questions, the parents were very appreciative of us coming out for them, and I got to look through telescopes again!

I have found a local astronomy club that I will join while I'm here. It is the same one that Ed Malewitz belongs to. Don't "Transfer my Membership" from JSCAS ! ! ! Remember, this is just a short term gig and I'll always be a JSCAS'er at heart.

I bought an 8" Celestron SCT with Fastar on a GEM for use here on my balcony since I have a very nice view to the West over the ocean and LA is behind me. It will be perfect for star parties too since it fits nicely in the Beamers trunk. Here is a picture of my little setup.

I brought all of my eyepieces, bino viewer, lasers, etc. that will work fine with this scope. Living here with the view that we have REQUIRED me to buy a camera lens (telescope) that I have wanted for quite some time but couldn't justify before. I plan to use it for astro photography as well as its normal day time and evening duties. Here is that setup:

Cool huh? You can go to my Redondo page on my website under the "Photo Album" button to see some of the shots that I have taken with it so far.

I still don't think that I will be able to make TSP this year due to constraints with my new job here (which I really like). But, Dolly and I WILL be at the Fall Fort excursion so I hope all of you will try to make that one. In closing, if you want a cheap long weekend vacation, give us a call here. We have a spare bedroom with a killer view, 4 bikes, 2 surfboards, and more to do locally than you could fit in for a month…

PICS FROM OUR MARCH FORT MAC STARPARTY

The collective as photographed by Becky Ramatowski!

Long-lost meteorite comes home to Ariz.

67 comments by John Faherty - Mar. 24, 2009 12:00 AM
The Arizona Republic

It was never just any meteorite. Unlike most, this one had a name. The "Basket" meteorite, which screamed to Earth 50,000 years ago, is shaped a bit like a basket with a handle. It was stolen from Meteor Crater east of Flagstaff back in August 1968. The headline in The Arizona Republic said, "Nationwide police bulletin issued on stolen meteorite." Tom Lynch did not know any of this three years ago when he stopped at a garage sale near his home in Wisconsin and spotted an odd hunk of metal. For sale. $10. The retired GM worker liked the way the thing looked. It was bronze, he thought, or maybe copper. "I figured, for $10, it was worth at least that in scrap," he said. But Lynch never scrapped it. Instead, he used it to hold down his young grandson's plastic basketball stand. It weighed 49 pounds. "It worked just perfect." But then, he was watching the Travel Channel one day and he learned a little bit about meteorites. Then, he learned a lot more. Ultimately, he learned that this was no hunk of scrap metal. It was, in fact, quite famous in an obscure kind of way. On Monday, 40 years after it was stolen, Lynch brought the Basket meteorite home. The Basket meteorite began as part of the Canyon Diablo Meteor, which flew roughly 40,000 mph. That's 11 miles per second, or 50 times the speed of sound.

Lynch calls himself a rummage-aholic. That means he goes to a lot of garage sales. He says he has no way of knowing exactly where he bought this thing three years ago. "Sometimes, I try to go back to a rummage sale on the same day I saw something, and I can't find it," Lynch said. "So, I have no idea." He also says that when he bought it, of course, he thought it was a piece of scrap metal. But he did begin to wonder about why it never rusted despite sitting outside for three Wisconsin winters. Then, Lynch saw a show about a woman who searched for meteorites. He learned that one test for a meteorite is to see if a magnet sticks to it. So, he got out a magnet. "Like, bam," Lynch said. "Right to it." He took the hunk to a museum in Milwaukee. Staff there sent him to the Field Museum in Chicago. Lynch said scientists there sawed off a small piece, tested it and figured it was about 4.6 billion years old. Eventually, the Field Museum and an amateur geoscientist Lynch had befriended realized this uniquely shaped meteorite may have been the one missing from Arizona.

The first substantial proof was a postcard, found on eBay, of the long-lost meteorite. "Basket meteor," the label on the postcard read. The picture was a match. "I bought the meteorite for $10, and the postcard cost $15," Lynch said.
Meteor Crater is three-fourths of 1 mile across and nearly 700 feet deep. The Basket meteorite was stolen on a busy Monday in summer. It's possible somebody just picked it up and walked out. "It had a handle, and back then they didn't worry about people stealing stuff like we do now," said Brad Andes, president of Meteor Crater Enterprises.
What happened next remains a mystery. Why steal it? Who did it? Where was it? But the meteor never appeared on the market. And there is a market. The objects can cost hundreds or thousands or more. When Lynch first learned he had a genuine meteorite, he became excited about the idea of selling his $10 find for some serious money. But when he knew it had been stolen, he had no second thoughts. "Call them people and tell them we got it and we'll give it back," Lynch told the amateur geoscientists who had taken an interest in the meteorite. "It was the right thing to do." Lynch later learned that Meteor Crater Enterprises would pay him $1,000 for knowing the right thing to do. But it may have cost them a little more than that. It was $1,000 plus two rooms at the hotel," Lynch said. "Plus, I told them I was going to turn my granddaughter loose in the gift shop."

After the meteor crashed into the Earth, small fragments were scattered 7 miles in each direction. So, Lynch loaded up his meteorite and drove it across the country. On a cool and crisp Monday morning, he opened the door of his van at the Meteor Crater Interactive Learning Center. The meteorite was sitting on the floor right behind the passenger seat, below his granddaughter's feet. Andes placed it on the parking lot and pulled out a picture of the real Basket meteorite. There was no doubt that this was the one. From the shape to the colors to the protrusions and small holes, it was a perfect match. Andes picked it up in both arms like a baby and carried it inside. He walked past European tourists and Americans on spring break. Lynch, 62, helped his son and daughter load his granddaughter into a stroller. He was actually glad to be rid of the Basket meteorite. "I tell you, it got a little nerve-racking," Lynch said. "I basically slept with it last night. But this has been wonderful."

For more details please see: http://www.azcentral.com/news/articles/2009/03/24/20090324meteorfound0324.html

ANNOUNCING THE 2009 GOLDEN STATE STAR PARTY
Information was provided to our club by Amelia & Steve Goldberg

We are pleased to announce that the Golden State Star Party in 2009 will again be held under the very dark, clear, and hospitable skies of Frosty Acres Ranch near Adin, California. GSSP 2009 will happen a little earlier this year, starting on Saturday, June 20, and ending Wednesday, June 24.

The Early Registration Period begins on January 2, 2009 and ends March 30, 2009. The adult registration fee for all four days is $50. The fee will increase to $60 on April 1, 2009, and to $75 after June 12, 2009. As in previous years, children under 18 years of age will be free.

Sponsored by The Astronomy Connection (TAC), this event has established itself over the years as the premier star party in California. GSSP will continue to feature the darkest skies available to large groups in California and a huge observing field ideal for camping and equipment set-up. In addition to observing activities, attendees can also enjoy nearby wildlife refuges, geothermal sites, Burney Falls, state parks, swimming in nearby Bieber, and other activities. We also plan to have an encore of last year's popular Ranch Day event hosted by the Albaugh's and other local families.

For registration and more information, visit our official GSSP Website at http://www.goldenstatestarparty.org. Register early and take advantage of the lower registration fee. We hope to see all of you at the Golden State Star Party in June!

Bill Porte
GSSP Organizing Committee

For those who know little or nothing about this event, I have pulled some information off of the internet for you.

Location: Frosty Acres Ranch near Adin in northeast California at an elevation of 4400 feet, with a stunning view of Mount Shasta 66 miles to the west. Enjoy the amenities of nearby towns and distance from city lights. Entrance gate coordi-

RVs are welcome, but there are no hookups. There is plenty of room, good highway all the way there, and easy drive-in access. Off-site accommodations are available in the nearby towns.

If you are camping, read the section on Campsite Preparation. (http://goldenstatestarparty.blogspot.com/2007/12/gssp-2008-campsite-preparation.html)

Groundcover recommendations

The observing field and camping area consists of hard clay ground covered with dry rooted cut grass. Although the type of grass in the field is not the type that sticks to clothing and works its way into your socks, there is, nonetheless, a tendency for the cut pieces to blow around and get into your belongings.

We recommend bringing three tarps, or two tarps plus a sizable piece of astro-turf. Use the tarps under your tent and as a "front porch" and the astro-turf as groundcover for your equipment. You'll find that this arrangement is comfortable and will keep the grass out of your stuff.

Wind and Stakes

In the afternoon, particularly on hot days, the northern Nevada desert cools off, and causes a westerly wind to pass over the cascades and down through Big Valley and Adin. When this happens, the wind picks up at about 3:00 pm and dies down at around 6:00 pm. By sunset, the air is still.

During the windy periods, tents, tarps and easy-ups can easily turn into kites. For this reason we will require that all of the above be secured with 1/4 inch diameter, or better, "nail-stakes". Standard tent stakes (the flimsy kind that probably came with your tent) will not suffice. We also recommend that you open a top corner of your easy-ups in the afternoon to prevent them from becoming airborne. At past star parties, we've have some incidents involving flying easy-ups; and we'd like to avoid any recurrence.

We also strongly suggest that you plan for securing your equipment. If you have a big dob, a piece of rope staked to the ground can be used to tie down the cage, pointing downwind. Dob's make great weather vanes; so protect your investment with a piece of rope and a nail stake.

Would more recommendations help?

We've been making trips like this, camping together at star parties for a long time. If you need any help, suggestions, pointers, etc., please write GSSP or ask questions in the GSSP Blog section of our web-site.

You will need to keep the sun off your tent in order to be comfortable. Make sure to read our page on Shading Tents.

For more information, go to http://goldenstatestarparty.blogspot.com/ But don't forget to check out the rules and guidelines site.

2009 Mulberry Mountain Star Party

The Arkansas/Oklahoma Astronomy Society is proud to announce their second annual 2009 Mulberry Mountain Star Party, to be held on June 19th & 20th, 2009.

Once again, this year's event will take place at Mulberry Mountain Lodging & Events, which is a 650-acre facility located 16 miles north of Interstate 40, on Arkansas Hwy 23, near the city of Ozark, Arkansas. Highway 23 is otherwise known as the Pig Trail Scenic Byway. The facility boasts some of "The Darkest Skies in Arkansas," at GPS coordinates N 35° 42' 36": W 93° 47' 44"

Mulberry Mountain offers cabins, pull-through RV sites and improved tent campsites with water, electricity & showers. Virtually unlimited primitive campsites are also available. Contact Mulberry Mountain Lodging & Events by phone at (866) 667-1919 or by e-mail at mulberrymoutain@aol.com for lodging information and reservations, AOAS plans to set up a Public Observation Area on the south side of the resort on Friday and Saturday evenings. Several of our members' telescopes will be available. Non-members may set up their equipment in the Public Observation Area if they wish. All scopes are welcome. Amateurs who do not wish to participate in public viewing or who require a "lights-free" area will be located away from established light sources.

NOTE: It is our sincere hope that this event eventually grows to the point that we will someday require enforceable lighting regulations.

Vendors are being invited, and a "Swap Meet" will take place Saturday afternoon in the Main Lodge Meeting Room, where anyone will be able to buy, sell, or trade any astronomical items.

The newly formed Arkansas Section of the International Dark Sky Association will also conduct their 2009 Annual Meeting in the main Lodge meeting Room during the weekend.

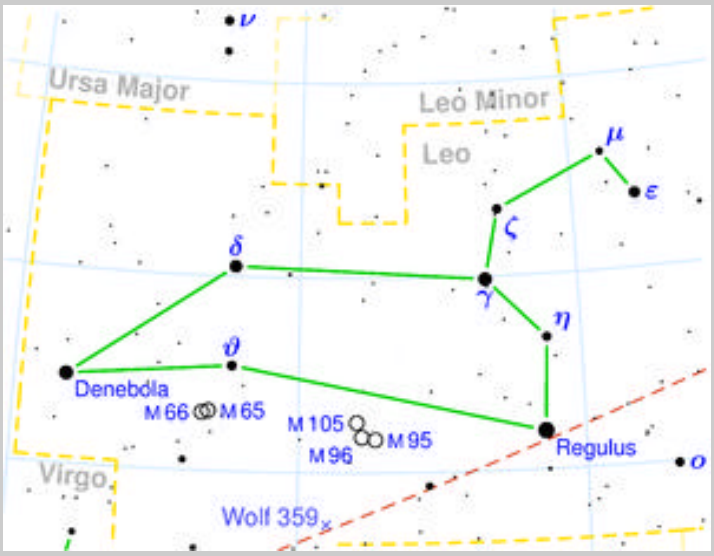
For more information, contact Leonard Lynch, AOAS Mulberry Mountain Star Party Coordinator:
Phone: 479-782-1131, E-Mail: nspace01@swbell.net.

APRIL OBSERVING - The April Sky
Hernán Contreras

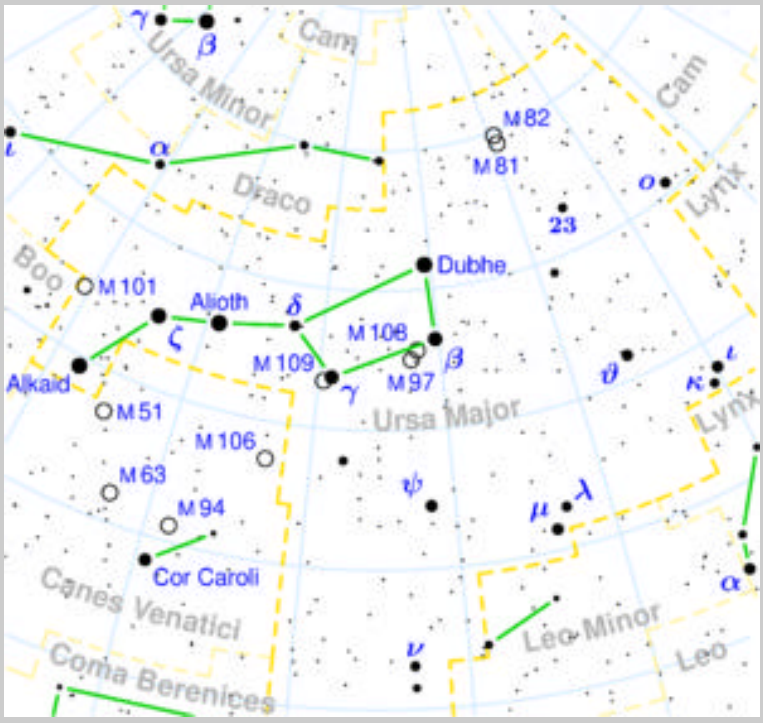
Ursa Major, the Great Bear, lies high in the northern sky. This constellation contains the well-known asterism, the Big Dipper. The two stars that make the side of the cup are called "pointer stars" because the point to Polaris, the north star, which is the end star of the handle of the Little Dipper. In the east is Leo, the lion ready to spring into spring. The large star, Regulus is the heart of the lion. The star Denebola is the tail of the lion. Leo has several galaxies in his belly. M65, M66 and NGC 3628 make up the "Leo Triplet" easily seen with a telescope. Nearby are M95 an M96, large spiral galaxies.

In the Big Dipper, the second star from the end of the handle is actually two, Mizor and Alcor. In ancient times, when the two stars were closer to each other, the stars were used as a test for keen eyesight. M81 and M82 are galaxies in Ursa Major. M82 has an irregular shape, bestowed by a collision with its larger neighbor, M81.

The Leo Myth



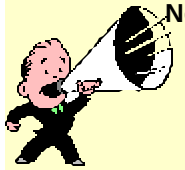
Hercules first task was to rid the Nemean plain of the wild, enormous and extremely ferocious beast known as the Nemean Lion. Leo had intersting genetics, being the son of Typhon, a monster with 100 heads (hard to face) and Echidna who was half maiden and half serpent. Hunting through the Nemean forest trying to find the lions lair, Hercules hears a fearsome roar and finds the huge lion rushing toward him. The arrows simply bounce off the animal without harming or even delaying him in his rush. The skin of Leo was so tough, the sharpest point could not penetrate it. The lion pounced, but Heracles smashed his heavy club into the on coming monster, stunning it. Realizing no weapon could kill this monster he rid himself of them, and fought the monster with his bare hands, with incredible strength, Heracles wrapped his great arms around the lions neck and strangled it to death. Hercules had to use the enormous claw of Leo to skin the monster because no mortal knife could cut the hide. Realizing the how impenetrable it was he threw it over himself as a cloak, and pulling the head over his own as a helmet making the pelt into armor which would make him even more powerful for his remaining tasks.



Deep Sky—Leo Triplet
M65, M66 and NGC 3629, a beautiful group of galies that can be seen easily in a telescope. These galaxies are now considered part of the M95, M96 group. Messier 107 Globular cluster found by Pierre Mechain in 1782, but probably a Messier object. Added to Messier Catalog in 1947.

Planets -Saturn is still high in the night sky. Jupiter returns to the eastern horizon.

April Showers -The oldest known meteor shower, the Lyrids, peaks in the morning of April 22nd just four days after the full moon. Expect 12 to 18 fast, bright meteors per hour.



What's Happening at the George!!!

Cynthia Gustava

George Observatory April 2009 Events

Friday Night Groups (all times are 19:30 to 22:30)…Volunteers for domes and deck scopes are needed. Bring those laser pointers and instruct the visitors on the constellations and bright objects! Contact Cynthia Gustava at cynm31@att.net to volunteer.

Apr 03 – Sky Search Overnight (Full)

Apr 17 – Sky Search Overnight (Full)

Apr 24 – Cub Scouts Pack 442 (30) and Lauritsen Cub Scouts and Families (60) – Building Managers: Carl Sexton and Cynthia Gustava

Saturday Night Public Viewing (dusk to 23:00)…Volunteers for domes and deck scopes are needed. Contact the building manager teams below.

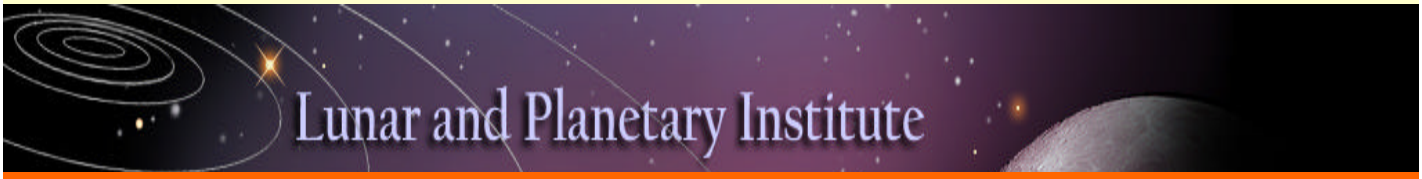
Apr 04 – Cynthia Gustava and Mary Lockwood cynm31@att.net or mplockwood@att.net

Apr 11 – Cynthia Gustava and Jessica Kingsley cynm31@att.net or gnkingsley@att.net

Apr 18 – Cynthia Gustava and Jessica Kingsley cynm31@att.net or gnjkingsley@att.net

Apr 25 – Joe Mills and Justin McCollum k5jmm@yahoo.com or justinmccollum@hotmail.com

Thanks!
Cynthia Gustava



Earth day at the LPI—How does the Earth work? Celebrate Earth Day at Family Space Day at the Lunar Planetary Institute.

FREE EVENT!!! All children 5-8 years of age are welcome and must be accompanyied by a parent on Saturday April 18th, from 10 am to 1 pm.

For information, please see http://www.lpi.usra.edu/education or call Katy at 281-486-2106

Folks:

In times past, people that have wanted to take advantage of the club discount have had to write their check, put it in with the renewal slip, and then either mail it to me at my home or chase me down at a meeting. In most cases, within a week, I have sent out the renewal. Sometimes, and I don't really mind, the renewals have gone out at my expense for the postage. Without hesitation, question, or fail, it is not the most efficient means to maintain club subscriptions. So as secretary, I'd like to try something new...

You get all your stuff ready for the subscription, whether it be Astronomy or Sky & Telescope, you keep it - you hang on to it. Email (most reliable) or tell me when you see me that you want to take advantage of the club discount for either or both of these publications and that you need a supporting letter. What I'll do is get the letter together and email the "letter from the treasurer/secretary" back to you as a PDF. You print it off, and enclose it with your renewal. For this to work your computer must have Adobe Reader (which is free) and a means to print it. I would like this procedure to become the "Standard Operating Procedure" for Astronomy/S&T discounts through JSCAS. For those still not in the computer age, we can process things as we have in the past.

Clear skies,
David Haviland

ETX-125 For Sale:

All the telescopes I have put up for sale here sold quickly. Here's one more: A 2006 Meade ETX-125 (5" SCT) with Autostar computer control, 8x25 right angle finder, plus additional red dot finder. Has latitude adjustable tripod, bag, Mede custom hard carry case, 2 Televue eyepieces (17mm and 13mm), camera adapter with Nikon T-ring, dew shield, car adapter, A/C adapter, red/white flashlight plus the scope also runs on 8 "AA" batteries. $650. If interested, contact me OFFLINE at RNugent@wt.net or at 832-755-4447. Richard says this scope is in mint condition!! If you think you want it, talk to him quickly as he plans to try and sell it at TSP.

Photos are here: http://houston.craigslist.org/pho/1048275691.html

Members' Gallery—April 2009
By

Glenn Schaeffer's Spiral Galaxy NGC 3628 is located 35 million light years away from us in the constellation Leo. This edge-on galaxy is part of the Leo Trio together with M65 & M66. Because of the gravitaional "tug" from the other galaxies around it, the disk of this galaxy appears to be warped. There is also an extremely faint tail of material to the left rim of the galaxy that appears to be orphan stars thrown off into space by a gravitational encounter. Photographic details at:http://

www.cosmicimpressions.com/ngc3628.html

From Becky Ramotowski, here is another long exposure from her trip to Fort McKavett. From her website: "This shot is from the second pinhole camera I had staked to the ground near the flagpole. (Scroll down about four postings earlier to see the other one.) Same exposure length as before, about 2.5 days. Sorry about the infrequency of posting lately, but I'm accumulating time on some really cool telescopes and hope to have something to show for it later this week."

Light pollution:
Any adverse effect of artificial light including sky glow, glare, light trespass, light clutter, decreased visibility at night, and energy waste.

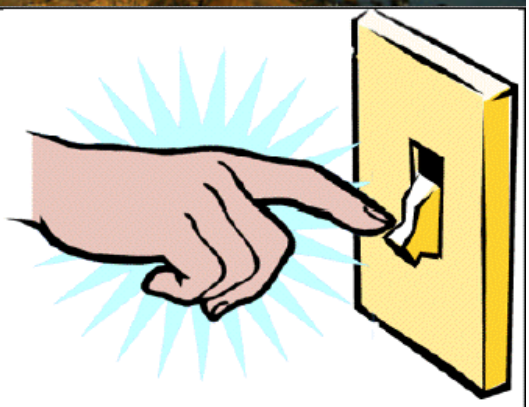
.Do you have a question about light pollution, protecting the night sky, or IDA's resources? **Get Help from IDA** http://www.darksky.org/mc/page.do?sitePageId=56399

Photograph © Phil Hart

IDA
THE LIGHT POLLUTION AUTHORITY

Help turn off the lights...

Join the
International Dark-Sky Association (IDA)
http://www.darksky.org
"To preserve and protect the nighttime environment and our heritage of dark skies through quality outdoor lighting."



Houston Area Astronomy Clubs

Brazosport Astronomy Club
Meets the Third Tuesday of the month, 7:45p.m.
At the Planetarium
400 College Drive
Clute, Texas (For more information, contact Judi James at the Planetarium 979-265-3376)

Fort Bend Astronomy Club http://www.fbac.org
Meets the third Friday of the month, 7:00 p.m.
First Colony Conference Center
3232 Austin Pkwy
Sugarland, Texas

Houston Astronomical Society http://spacibm.rice/edu/~has
Meets the first Friday of the month, 8:00 p.m.
University of Houston, University Park
Science and Research Building, Room 117

North Houston Astronomy Club http://www.astronomyclub.org
Meets the fourth Friday of the month, 7:30 p.m.
In the Teaching Theatre at Kingwood College
20000 Kingwood Drive
Kingwood, Texas

Galveston Stargazers
Meets the first Wednesday of the month At Home Cut Donuts, 6807 Stewart Rd, Galveston, TX From 7PM to 9PM.
Contact: Jim Gilliam at Jim.Gilliam@dars.state.tx.us or At (409)795-3620, M - F, 8AM to 5PM

Starscan Submission Procedures

Original articles of some relation to astronomy will be accepted up to 6 p. m. (18:00 hrs) on the 25th of each month. THE most convenient way to submit articles or a Calendar of Events is by email and is preferred, but hard copies (CD, disk) are also accepted. All articles must include author's name and phone number. Also include any picture credits. Word, WordPerfect, and text files will be accepted. I have set up a special email account so that I can keep all of the Starscan articles, pictures, information, etc, separate from all of the other email I get. This makes is much easier to edit and set up the Starscan

Please send all submissions to:
conniesstarscanaccount@gmail.com

The author of individual articles bears all responsibility for publishing any e-mail addresses in the article on the World Wide Web

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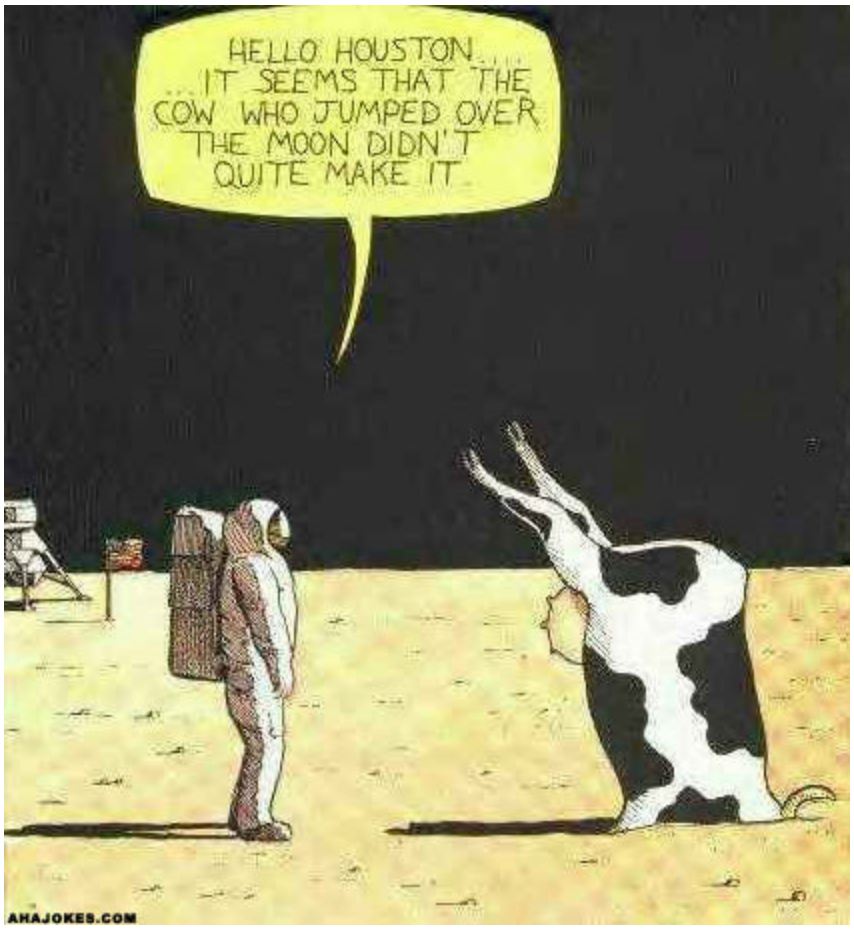
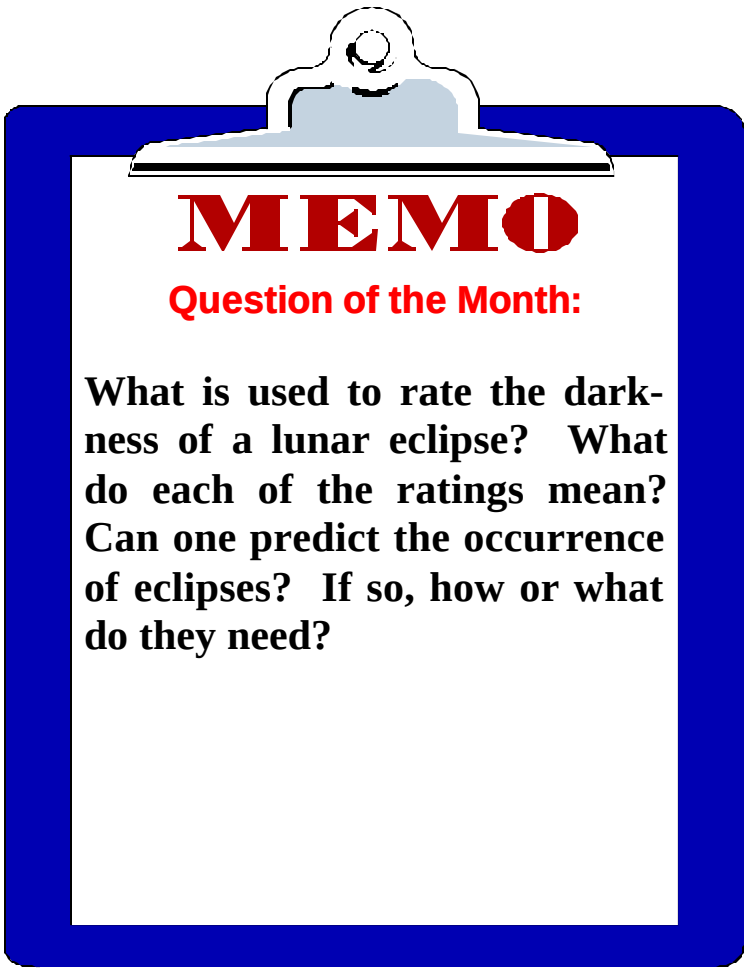
Binocular Observing – "OPEN"
Telescope Making – Bob Taylor
Deep Sky Observing – Hernan Contreras



Astronomy and Kids

This is the section strictly for kids (or kids at heart). We will be including information, stories, ideas, puzzles or anything that has to do with astronomy. The only difference here is, it will be directed for children. We don't discourage parents or any other adult to get involved. In fact, we encourage it strongly. So we hope you enjoy this section and if it touches a child's interest in astronomy, our



Last month, we had a plan on how to make a mobile of the planets. This month we are going to talk about the moon and lunar eclipses. Do you know the types of lunar eclipses?

Types of lunar eclipses

The shadow of the Earth can be divided into two distinctive parts: ***the umbra and penumbra***. Within the ***umbra***, there is no direct solar radiation. However, as a result of the Sun's large angular size, solar illumination is only partially blocked in the outer portion of the Earth's shadow, which is given the name penumbra.

A ***penumbral eclipse*** occurs when the Moon passes through the Earth's penumbra. The penumbra does not cause any noticeable darkening of the Moon's surface, though some may argue it turns a little yellow. A special type of penumbral eclipse is a total penumbral eclipse, during which the Moon lies exclusively within the Earth's penumbra. Total penumbral eclipses are rare, and when these occur, that portion of the Moon which is closest to the umbra can appear somewhat darker than the rest of the Moon.

A partial lunar eclipse occurs when only a portion of the Moon enters the umbra. When the Moon travels completely into the Earth's umbra, one observes a total lunar eclipse. The Moon's speed through the shadow is about one kilometer per second (2,300 mph), and totality may last up to nearly 107 minutes. Nevertheless, the total time between the Moon's first and last contact with the shadow is much longer, and could last up to 3.8 hours. The relative distance of the Moon from the Earth at the time of an eclipse can affect the eclipse's duration. In particular, when the Moon is near its apogee, the farthest point from the Earth in its orbit, its orbital speed is the slowest. The diameter of the umbra does not decrease much with distance. Thus, a totally-eclipsed Moon occurring near apogee will lengthen the duration of totality.

A selenelion or selenehelion occurs when both the Sun and the eclipsed Moon can be observed at the same time. This can only happen just before sunset or just after sunrise, and both bodies will appear just above the horizon at nearly opposite points in the sky. This arrangement has led to the phenomenon being referred to as a horizontal eclipse. It happens during every lunar eclipse at all those places on the Earth where it is sunrise or sunset at the time. Indeed, the reddened light that reaches the Moon comes from all the simultaneous sunrises and sunsets on the Earth. Although the Moon is in the Earth's geometrical shadow, the Sun and the eclipsed Moon can appear in the sky at the same time because the refraction of light through the Earth's atmosphere causes objects near the horizon to appear higher in the sky than their true geometric position.

The Moon does not completely disappear as it passes through the umbra because of the refraction of sunlight by the Earth's atmosphere into the shadow cone; if the Earth had no atmosphere, the Moon would be completely dark during an eclipse. The red coloring arises because sunlight reaching the Moon must pass through a long and dense layer of the Earth's atmosphere, where it is scattered. Shorter wavelengths are more likely to be scattered by the small particles, and so by the time the light has passed through the atmosphere, the longer wavelengths dominate. This resulting light we perceive as red. This is the same effect that causes sunsets and sunrises to turn the sky a reddish color; an alternative way of considering the problem is to realize that, as viewed from the Moon, the Sun would appear to be setting (or rising) behind the Earth.

The amount of refracted light depends on the amount of dust or clouds in the atmosphere; this also controls how much light is scattered. In general, the dustier the atmosphere, the more that other wavelengths of light will be removed (compared to red light), leaving the resulting light a deeper red color. This causes the resulting coppery-red hue of the Moon to vary from one eclipse to the next. Volcanoes are notable for expelling large quantities of dust into the atmosphere, and a large eruption shortly before an eclipse can have a large effect on the resulting color.

Danjon scale

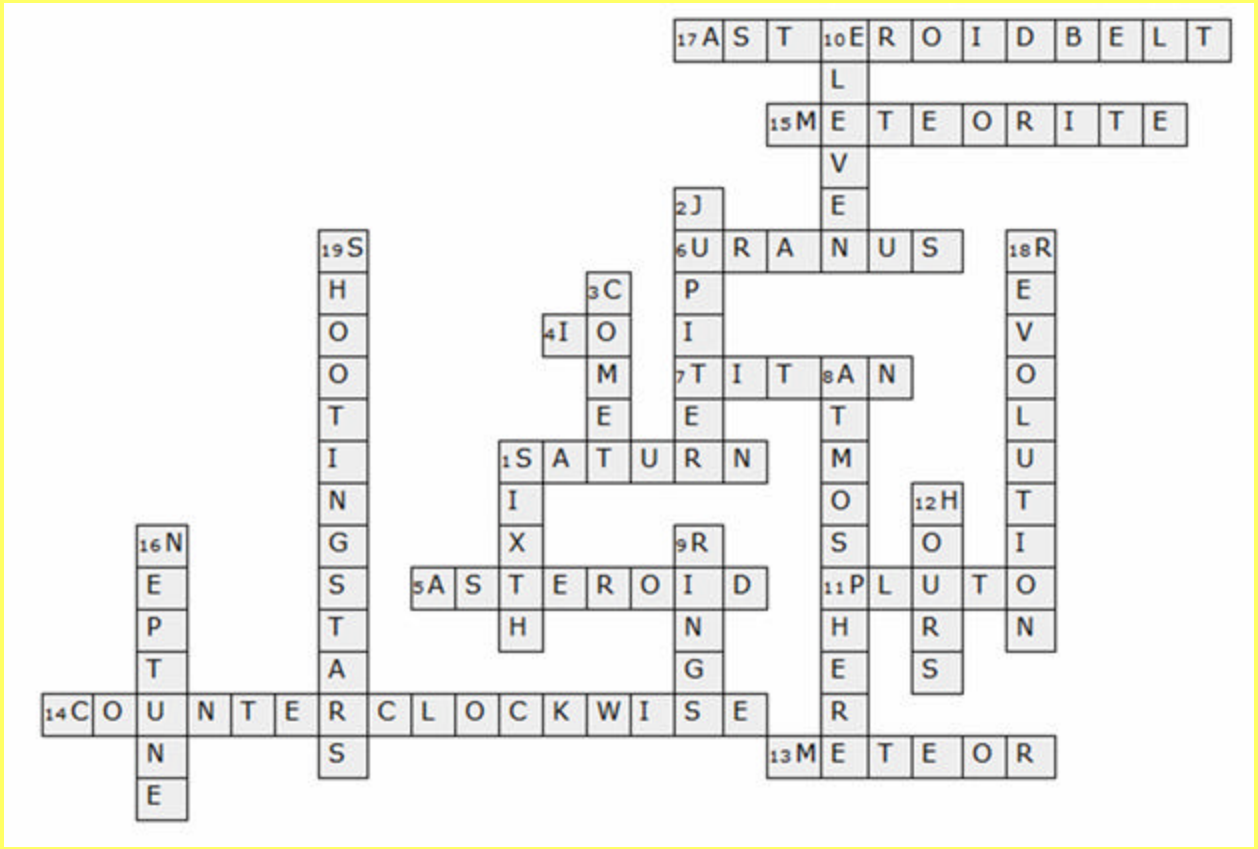
The following scale (the Danjon scale) was devised by André Danjon for rating the overall darkness of lunar eclipses:

L=0: Very dark eclipse. Moon almost invisible, especially at mid-totality.
L=1: Dark Eclipse, gray or brownish in coloration. Details distinguishable only with difficulty.
L=2: Deep red or rust-colored eclipse. Very dark central shadow, while outer edge of umbra is relatively bright.
L=3: Brick-red eclipse. Umbral shadow usually has a bright or yellow rim.
L=4: Very bright copper-red or orange eclipse. Umbral shadow is bluish and has a very bright rim.

Eclipse cycles

Every year there are usually at least two partial lunar eclipses, although total eclipses are significantly less common. If one knows the date and time of an eclipse, it is possible to predict the occurrence of other eclipses using an eclipse cycle like the Saros cycle. Unlike a solar eclipse, which can only be viewed from a certain relatively small area of the world, a lunar eclipse may be viewed from anywhere on the night side of the Earth.

SOLUTIONS TO MARCH'S PUZZLES



SOLUTIONS cont'd

Question of the Month:

Have you ever seen the "green flash" at Sunset and do you know what causes it?

ANSWER: Green flashes are real (not illusory) phenomena seen at sunrise and sunset, when some part of the Sun suddenly changes color (at sunset, from red or orange to green or blue). The word "flash" refers to the sudden appearance and brief duration of this green color, which usually lasts only a second or two at moderate latitudes.

To understand what causes green flashes, you have to understand two properties of light, called refraction and dispersion. Don't give up here, because these things aren't really that difficult. Let's start with refraction. We all know that light travels in straight lines. This is true in empty space, but not completely true when light interacts with matter. Just stick a pencil in a glass of water at an angle, and you'll see for yourself that the pencil appears to be bent at the surface of the water. This is because the light traveling through the water goes slower than the light traveling through the air. Let's not get into the details of why this happens, but remember this important fact about refraction: When light travels through matter it bends towards the denser material.

Okay, now lets take a look at dispersion. The light we get from the sun, which we perceive as white, is really a combination of all the colors of the rainbow. You can confirm this by taking a very close look at your color television set, and noticing that it really consist of a bunch of tiny sets of red, green, and blue dots. Areas on your TV set that appear white have all three dots equally illuminated. Dispersion is the phenomenon that as white light passes through matter, the different colors that make up white light go through the matter at slightly different speeds, and thus separate. This is what a prism does, and also the raindrops that cause a rainbow. The amount of dispersion also depends on the density of the material, and since water is much denser than air, we see rainbows only when it rains. Even ordinary air causes dispersion, but about one thousand times less than water, which is why our eyes don't generally perceive it.

Now the standard explanation of the green flash at sunset is this: As the sun sets, the dispersion in the atmosphere causes the white light from the sun to separate into its constituent colors. Since the sun is very low in the sky, the shorter wavelengths of light (the green and blue) are scattered away. Thus the setting sun is perceived as red. However, in the instant just as the sun sets on the horizon, the red portion of these dispersed colors sets first, and the blue is scattered more strongly than the green, so just for an instant, the green is visible by itself, hence the green flash phenomenon.

In order for us to see the green flash it has to be magnified. Now there is an easy way of magnifying the sunset, just get out a pair of binoculars or a camera with a zoom lens and watch it though that. Probably better to use a camera, so you can capture the flash as you see it. When you do, and you develop the film, nine times out of ten you will see a nice yellow flash on the film, not green, even though you could swear that you saw a green flash while you were watching. Why? Well, the sun is a very bright object, and looking at it directly tends to bleach out the cones in your retina, especially the ones sensitive to longer wavelengths, such as red. Remember Roy G. Biv? Those are the colors of the rainbow: red, orange, yellow, green, blue, indigo, and violet. As you watch the sun set, the red and orange colors set first, and in the process bleach out the cones in your retina sensitive to these longer wavelengths. Thus as the yellow sets, the eye perceives it as emerald green. You click the shutter and get a great shot of the yellow flash, swearing it was green.

Did you remember our main fact about refraction? When light travels through matter it bends towards the denser material. Now let's apply this to our atmosphere. In general, the atmosphere gets denser the closer you are to the surface of the earth. Why? Because the weight of the air on top compresses the air on the bottom. This means that light traveling through the atmosphere is continuously bent downward, in other words it curves down towards the earth. Thus the light we see at the horizon is actually coming from a place slightly below the horizon, because of this downward curvature. Suppose now that the air near the surface of the earth is warmer than the air above. Warmer air is less dense than cooler air, as any hot air balloonist will tell you. Thus light traveling through this warmer air will curve upwards, towards the denser cooler air above it. This is what causes a kind of mirage known as the inferior mirage, so called because the inverted mirage image appears below the erect image. You have seen this a thousand times, when you were driving on a hot day and the air temperature near the pavement was higher than the air above it. Even though refraction is responsible for this, as you were driving it seemed as though a mirror had been placed on the road, and you were seeing a reflection of the sky. The shimmering came about because of fluctuations in the temperature and hence density of the air just above the road surface. If you've ever seen a person walking into this mirage area, you would have also found that at some point he appeared to be stretched in the vertical direction.

Okay, what have we learned in the previous paragraph? Under certain conditions, namely when the air temperature near the surface of the earth is higher than the air above it, the layer of hot air acts like a mirror that stretches images in the vertical direction. (It also compresses them in the horizontal direction, but I haven't explained why, and we'll ignore that.) As the sun nears the horizon, we will see the bottom of the sun be reflected and soon join the top of the sun, making a shape like the Greek letter omega. This is your cue that you will really witness a green flash. Just before the top of the sun dips below the horizon, there will come a few seconds of time when the image of the tip of the sun and its reflection is greatly stretched in the vertical direction. At this point, the different colors caused by dispersion are greatly magnified, and easily visible to the naked eye. Look for the omega, and warn your friends that a green flash is about to take place. There are other mechanisms that can cause a visible green flash, but they are much less common than the inferior mirage.

http://hea-www.harvard.edu/hrc.ARCHIVE/2006/2006031.000000-2006031.240000/SpaceWeather/index.html

NAME _____

DATE _____

WORD SEARCH

LUNAR ECLIPSES

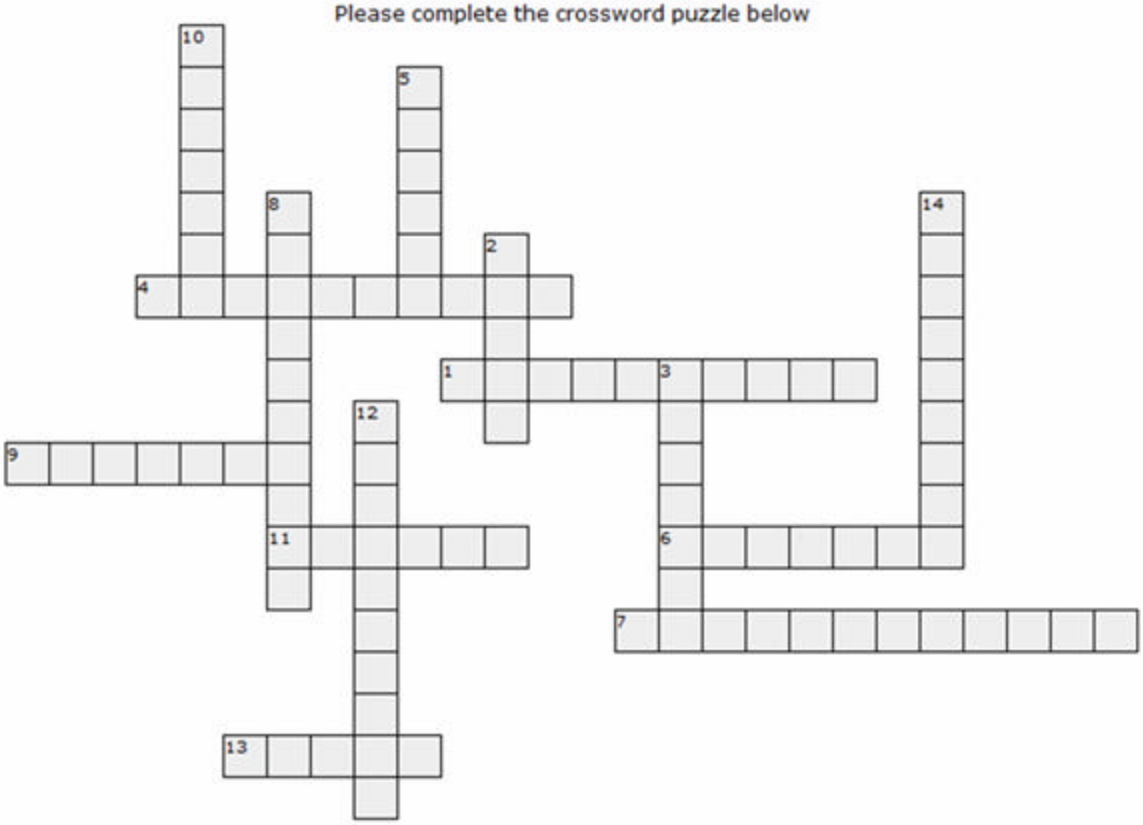
Lunar	Totality	Sunset
Eclipse	Selenelion	Moonrise
Umbra	Selenehelion	Moonset
Penumbra	Horizontal eclipse	Atmosphere
Illumination	Geometrical shadow	Wavelengths
Radiation	Sunrise	horizon

NAME _____

DATE _____

LUNAR ECLIPSE

Please complete the crossword puzzle below



Across:

1. The distance (measured in the direction of propagation) between two points in the same phase in consecutive cycles of a wave.
4. The change in direction of a propagating wave (light or sound) when passing from one medium to another, being zero at the zenith and a maximum at the horizon.
6. A type of eclipse occurs when only a portion of the Moon enters the umbra.
7. It occurs when both the Sun and the eclipsed Moon can be observed at the same time.
9. The line or circle that forms the apparent boundary between earth and sky.
11. The farthest point from the Earth in its orbit.
13. The shadow of the Earth can be divided into two distinctive parts, the penumbral and the

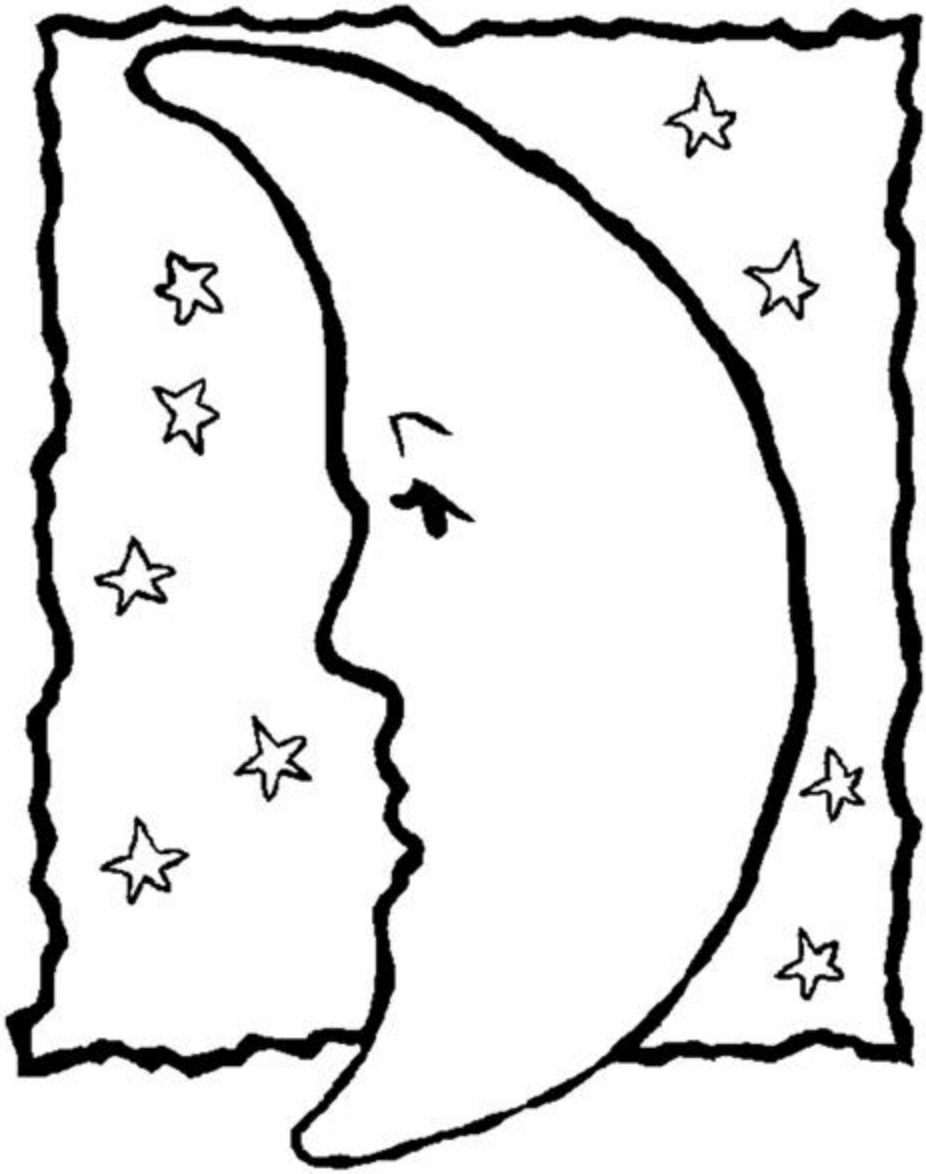
Down:

2. A type of eclipse during which the Moon lies exclusively within the Earth's penumbra.
3. One celestial body obscures another.
5. Atmospheric phenomena accompanying the daily disappearance of the sun.
8. A type of eclipse that can only happen just before sunset or just after sunrise, and both bodies will appear at nearly opposite points in the sky.
10. The first light of day.
12. The envelope of gases surrounding any celestial body.
14. A type of eclipse that occurs when the Moon passes through the outer portion of Earth's shadow

NAME_____

COLOR ME

I See the Moon



I see the moon,
And the moon sees me;
God bless the moon,
And God bless me!

Snoopy says, never stop looking up..reach for the stars and may you always have clear skies!!!!