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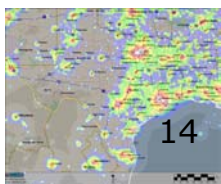
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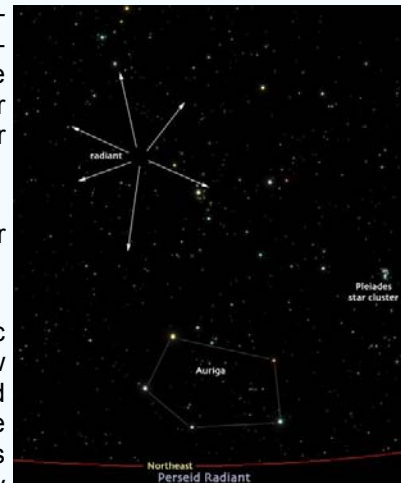
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Perseids - A Year for Surprises?

Perseids... the mention of this shower conjures up great memories, summer plans, and this year... maybe some unusual expectations. In fact, this year, the Perseid meteor shower may have something for everyone... activity for Europe and Asia, activity for North America... and observing opportunities for both the meteor neophyte and the hard core technical observer!

The International Meteor Organization (IMO), in their 2004 Meteor Shower Calendar, talks about the history of outbursts observed:

"The Perseids were one of the most exciting and dynamic meteor showers during the 1990s, with outbursts at a new primary maximum producing EZHRs of 400+ in 1991 and 1992. Rates from this peak decreased to 100-120 by the late 1990s, and since 2000, it has failed to appear. This was not unexpected, as the outbursts and the primary maximum (which was not noticed before 1988), were associated with particles accompanying the parent comet 109P/Swift-Tuttle passing perihelion in 1992. The comet's orbital period is about 130 years, so it is now receding back into the outer Solar System, and theory predicts that such outburst rates should dwindle as the comet to Earth distance increases."



Basically, when the comet is closer to the sun (and us), the earth encounters more material shed by the comet, and we see more meteors. However, this is a great oversimplification. Why? Because each time the comet passes around the sun in its orbit, it sheds debris - and each of these dust trails assumes its own orbit, slightly different from that of the comet. In time, we end up with a whole series of dust trails, each trail in a slightly different orbit. To an amateur meteor observer, this means that different years can produce quite different numbers of meteors seen. To a professional meteor researcher, it means a computational challenge!

So... what are the meteor researchers telling us about this year's Perseid prospects? We still have the regular annual Perseid activity...

In the IMO Calendar, the International Meteor Organization suggests that we could get "*a possible primary peak time around 11h UT on August 12... coinciding with the most probable maximum time of the traditional peak... Another feature, seen only in IMO data from 1997-1999, was a tertiary peak... the repeat time for which would be shortly before 21h UT on August 12.*" Note the times here. UT, Universal Time, is the time at Greenwich, England. In other words, North America isn't dark at those times - so Europe and Asia are favored.

The Perseids (PER) can be seen from about July 17th to August 24th. The radiant, the area in the sky where the meteors seem to come from, moves quite a bit over this period of time though, so it is best to check a map to see where the radiant is on a given night, before you go out observing. A map showing the radiant movement can be found on the IMO website at <http://www.imo.net/calendar/cal04.html#Perseids>. Many beginning observers think that the radiant is always just below the constellation Cassiopeia, near the double star cluster η & χ - but such is not the case!

These are fast meteors, with a velocity of about 59 km per second, and can be quite spectacular!

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Quoted ZHR rates for the Perseids are about 100 meteors per hour. ZHR refers to Zenithal Hourly Rate, and is the number of meteors, on the average, that an observer would expect to see if they were out under a dark country sky, and if the radiant of the shower is directly overhead.

How about the other meteor researchers? What do they say? What is this talk of a special outburst this year besides the regular 'annual' activity? What is all this news about the 'one revolution dust trail', the debris shed by Comet Swift-Tuttle in its pass by the inner solar system in 1862?

Researchers Esko Lyytinen and Tom Van Flandern discuss their predictions for this year's Perseids in the April 2004 issue of WGN, the Journal of the International Meteor Organization, in their paper 'Perseid One-Revolution Outburst in 2004'. Several selected excerpts are as follow:

"In 2004 August 11 at about 21h UT, the one-revolution dust trail of the Perseids' parent comet 109P/Swift-Tuttle is calculated to pass within 0.0013 AU of the Earth's orbit... a possible meteor outburst of mostly fainter-than-average meteors may be seen... with the optimum time occurring at 20h 50m UT... with a maximum ZHR of a few hundred. At best, activity might approach meteor storm levels (1000/hour) for a short time... we get the predicted half-maximum full-width... about 40 minutes..."

"The trail has been calculated using similar principles as in the Lyytinen-Van Flandern Leonids model... We have the ejection at perihelion and the ejection speed zero, as approximates the effect of solar tidal forces removing debris orbiting a comet nucleus. Radiation pressure is then applied to model particles, starting from zero for the largest particles and increasing in small steps for smaller particles. With this approach we can calculate where the center of the trail is situated..."

"We also discuss the possibility of enhanced annual rates because perturbations by Jupiter will now direct all incoming Perseid meteoroids about 0.01 AU closer to the Sun, which allows the possibility of the Earth passing through the densest core of the annual stream... If this enhancement happens, it does not mean increased rates for the whole four week time span when Perseids can be observed. Only the main maximum may be more prominent. The maximum may also be shifted in time from the annual peak or possibly appear as a peak distinct from the annual and the one revolution peak..."

"Another factor is that the situation can be different in different locations along the orbit. There may be a denser younger core (filament composed of several trails) that follows the parent comet for a number of years but then gets more weak and indistinguishable before the next return. This kind of encounter may be displaced from the annual maximum, more probably being earlier in time. This is also expected to be briefer than the traditional maximum but wider than possible encounters of single trails..."

Lyytinen comments, in his June 1st posting to the MeteorObs email list:

"The timing of the 1-rev. encounter is expected to be good within about 15 minutes or better. The prediction of strength is more uncertain than the timing..."

"... increased rates... during the annual peak... may be of more interest in parts of the USA. There may not be existing conclusive historic evidence on the existence of ...

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this phenomenon that should repeat every 12 years (and every 30 years because the effect of Saturn, next time in 2009)."

Lyytinen gives some very interesting ideas in his July 6th posting:

"If you do see visually quite a lot of dim meteors (during the outburst time), testing telescopic observations (near the radiant) might give something interesting... Because the one revolution trail will pass a little inside the Earth orbit, we can get a view tangentially to this trail. There may be some possibility to observe the one revolution trail in space... and this MAY be more dense than Leonids one revolution trail... the most dense core may appear only some arc-minutes wide (or possibly even smaller)... CCD-equipment would best suit for this, but other photography and visual sightings could be tried. Because of the relatively small apparent size of the densest part, no very wide field instrument is recommended. I expect equipment that are good for cometary observations to be good for this purpose."

"I tried to derive the apparent location (of the tangential point of the trail center) from orbital elements of the trail particles around there and I got RA and dec (J 2000.0): 3h 39.0m, +84.86 deg. This is valid at the time of maximum of the outburst, that is expected to be the best time to get the trail visible. The movement is about half a degree in one hour. An hour before the maximum time, the location is 3h 36.2m 84.33 deg and an hour after the maximum it is 3h 42.5m 85.40 deg. I hope that I got this correctly... "

Jeremie Vaubaillon of France has done some simulations on the 2004 Perseid activity as well. His simulations can be found on the web at <http://www.imcce.fr/s2p/PER>. Vaubaillon comments:

"Our first results gave indeed an intersection with the Earth... but without that many particles. So we decided to include tinier meteoroids... We still do not find a "Perseid storm"... So maybe the 2004 Perseids [1862 trail] will be more detectable by radio devices (if their sensitivity is better than optical devices). The lack of model for the annual stream prevents us from giving a clear idea of the expected enhancement... However, we call for observers to be particularly vigilant between 11th and 12th August, and even before and after! "

Huan Meng of China has also given some predictions on the MeteorObs email list, on July 16th:

"I have just completed my computation, and would like to let you know my results. Only 1-rev. trail was considered in my work. Finally, I found the whole dust trail has not been too much perturbed by giant planets. In 2004, there will be only one cross section of the trail encountering the earth in August... the Perseid comet 109P is an order larger than the Leonid comet 55P (diameter 15.6 km vs. 1.8 km), so the cometary nucleus may eject dust grains farther... However, I still expected this Perseid outburst as a very faint one for visual observers. More powerful observers such as telescopic, video, radio and radar may better catch the outburst... And the maximum time will be 20h 57m UT, August 11... "

Several other researchers in the U.S. and around the globe have made some comments as well... but the above are the main sources of comment for this year's Perseids, and are the sources we are quoting. If you want to follow some of the discussions on the Perseids, and hear about the results

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around the globe, consider subscribing to the MeteorObs email list, administered by Lew Gramer, our Coordinator of Public Outreach. Check out the details for MeteorObs at <http://www.meteorobs.org>.

This is shaping up to be an interesting year for the Perseid meteor shower! Beginning observers can sit back and enjoy the best shower of the summer. Experienced visual observers have some interesting data to record. The technical gurus have some even more challenging results to capture by CCD, video and other means. It will be interesting to see what results are obtained - and great to further our knowledge of this shower!

As a reminder to visual observers, our NAMN Observing Guide provides information on what to record while observing. Check it out at <http://www.namnmeteors.org/guide.html>. The information to record includes such items as the time the meteor occurred, its magnitude (brightness), the shower it belongs to, its speed, and other comments such as train left behind, or color. General information to record includes such things as how dark your perceived sky is (limiting magnitude), and comments on weather and cloud cover.

Forms to record your observations can be found at http://www.namnmeteors.org/namn_form.html and <http://www.namnmeteors.org/appendixC.html>. Questions on what to record, or how, can be sent to our NAMN Coordinator at meteors@comcast.net.

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written by Cathy Hall & edited by Mark Davis

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JSCAS TOUR STATUS TO THE PANAMA SOLAR ECLIPSE

by Paul D. Maley

The April 6-10, 2005 tour to view the "nearly total" solar eclipse in Panama is now 80% sold out. This notice is to inform all JSCAS members who may be seriously considering going on the trip that they should make up their mind very soon. We would prefer to have mostly JSCAS or Houston folks on the tour and I will hold space if you contact me at 281.244.0208 or send an email to pdmaley@yahoo.com. The travel agency expects to sell out by September. To view details such as price and day by day itinerary as well as terms and conditions, see the RING OF FIRE EXPEDITIONS web page at <http://www.eclipsetours.com>.

Sky & Telescope Discount Subscriptions

Renewing your subscription to Sky & Telescope? Subscribing for the first time? Contact David Haviland, tccl@hal-pc.org, to take advantage of the JSCAS Club Discount before you subscribe!

Fort McKavett Columbia Memorial

Lisa Lester

The framed photo montage that NASA is providing for the Fort McKavett Columbia Memorial is complete and will be unveiled at the JSCAS August meeting. Many thanks to Kelley Knight for being instrumental in getting this project off the ground. Kelley knows fellow Austin club member Dr. Glenn Roark who just happens to be the doctor who delivered Dr. Jim Newman many years ago on an island that is now part of the Federated States of Micronesia (but that's another story). Dr. Jim Newman flew on several shuttle missions including the last service mission to the Hubble.



In December 2002, Dr. Jim Newman presented the Austin astronomy club with a framed montage for their efforts in outreach. This montage hangs in the Eagle Eye Observatory and contains a Texas flag that flew on STS 109. Right after his visit to Austin, Dr. Newman flew to Russia to become the Director of Human Space Flight Programs.

When JSCAS started talking about placing a Columbia Memorial at Fort McKavett and the need for pictures, patches, etc. Kelley talked to her friend, Dr. Glenn Roark, who contacted his good friend, Dr. Jim Newman. Dr. Newman approved the project and wrote the information on the plaque. Much of the rest of the work was done or supervised by Abby Cassell, Official Flight Kit Manager. Abby worked diligently and with great patience on this project. Abby kept Kelley and me posted on its progress and waited while I contacted Buddy and Gabe at the Fort for their final approval. The montage for the Columbia memorial features a photo of the crew, a lift off shot, the missing man formation and the crew patch. In the center is a Texas flag flown on STS 109 and a dedication plaque.

This beautiful montage is one component of the memorial. We still need pictures of Dave at Fort McKavett so please look through your old pictures (October 1999 is one time he was at the fort) and pass them on to Lisa Lester (281) 479-1102 or Karen Nickel (281) 770-1935 or bring the pictures to the August or September meetings! We will be sure to give all photographers credit for their work!

Eyepiece Donations Needed at The George

The George Observatory is in need of newer eyepieces to replace the older ones we have used for 15 years in the Dobsonians we use for public observing. Right now we have some that are in pretty rough shape, and a few that are newer, but not enough to give low, medium and high power to the three 8 inch Orion scopes, the 10 inch Orion (all f 5) and the older 17.5 and 13.1 Odysseys.

We could use 1 1/4" eyepieces from 32mm down to 6 mm.

If you have any you can part with, we will put them to good use.

My email is bwilson@hmns.org

Barbara Wilson
George Observatory
Houston Museum of Natural Science

Astronomy Day 2004 and the Fourth Annual Houston/Beaumont Regional Astronomy Meeting

Howdy!!

For those planning to help out at the 4th Annual Astronomy Day and "All Clubs Meeting" here are some of the preliminary plans. Last years event brought over 2,000 visitors to the park and this year will probably be even bigger! I'll be passing the hat at the next meeting for our share of the expenses, so come prepared! We've been asked to fork out \$100 for our club's part, not a big deal. I'll be going out a day early to help set up and will probably stay at the campground for the weekend. Randy has agreed to join me and lift all the really heavy stuff, anybody else up for a weekend of excitement?

Bob Taylor
President JSCAS

Regional Meeting / Astronomy Day: 2004 Organizational Meeting

Astronomy Day Committee 2004:

Bill Christian, ASSET
Peggy Halford, HMNS
David Haviland, JSCAS
Cynthia Gustava, FBAC
Hannah Lange, HAS
Bill Leach, HAS
Ed Malewitz, JSCAS
Eleta Malewitz, JSCAS
Howard Minor, ASSET
Chris Randall, JSCAS
Geraldina Reina, NHAC
Juan Carlos Reina, NHAC
Robert Taylor, JSCAS
Barbara Wilson, HMNS

Regional Meeting/ Astronomy Day 2004

Astronomy Day Date: Saturday, October 23
Astronomy Day Location: The George Observatory, Brazos Bend State Park
Regional Meeting Date: Friday, October 22
Regional Meeting Location: St. Thomas University
Meeting Host: Fort Bend Astronomy Club

Sponsors

Astronomical Society of South East Texas, ASSET, president - Bill Christian
Fort Bend Astronomy Club, FBAC, president - David Jenkins
Houston Astronomical Society, HAS, president - Steve Sartor
Houston Museum of Natural Science, HMNS - Betty Glass
Johnson Space Center Astronomical Society, JSCAS, president - Bob Taylor
Kingwood College, KWC, representative - Bill Leach

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Land, Sea & Sky, representative - Eric Rothgeb
Lunar and Planetary Institute, LPI
NASA, Public Relation Office
North Houston Astronomy Club, NHAC - Juan Carlos & Geraldina Reina
St. Thomas University, Lawrence Armendarez

Budget:

Expected Expenditures:

Astronomy Day		Regional Meeting	
Volunteer food	\$600	Refreshments	\$300
Name tags	\$25	Programs	\$15
Face Paint	\$20	Meeting Room	\$150
Highway sign	\$100	Speaker	\$300
Website	\$0		
Total	\$745	Total	\$765

Total Expenditures: \$1510

Expected Income:

ASSET - \$50
FBAC - \$100
HAS - \$200
HMNS/GO - \$200
JSCAS - \$100
KWC - \$200
NHAC - \$200
T-Shirts* - \$390

Total Income: \$1440

*at \$20 ea. the expected profit would be ~\$6/shirt

72 shirts x \$6 = \$432 - \$40 (free shirts**) = \$392

** Speaker and Clyde Peterson

Astronomy Day

1. **Major Presentations:** 4, 5, 6, 7, 8, 9 PM - maximum 40 minutes

NHAC

Acquire and schedule speakers (info due by Sept 1)

Set-up/take-down room, inquire about and provide needed A/V equipment

Obtain biographical information, introduce speakers

Provide driving/parking/walking directions to speakers

Speaker nametags, food, crowd control

Announce presentations on The George PA system inside/outside

PA system for speakers - Bob Taylor, JSCAS

2. **Signs & Flyers:**

KWC

Astronomy Day signs to George 2 months early, ticket sales time

Speaker schedules on windows & easels

Highway sign, "speaker schedules" flyers (handed out at club tables)

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Flyer to hand out at meetings & LSS
Astronomy Day signs for entrance road
"Quiet Sign"

3. Promotion:

KWC

Postcards to school districts, letters to TV stations, Chronicle, museum bulletin
Survey

4. Website:

Ken Lester (JSCAS) > Bob Rogers (HAS)

Access via astronomyday.com, running list of each sponsor's volunteers
Schedule of outdoor/indoor speakers, public information page
Astronomy Day images, information page on regional meeting
Running list of volunteer scopes/dome operators
Hit counter
BBSP and links to other club websites

5. Outdoor Presentations: 3:30, 4:00, 4:30, 5:00, 5:30, 6:00, 6:30 PM

JSCAS

Maximum 20 minutes
Set-up/take down chairs, maximize shade
Acquire and schedule speakers from all clubs, maximum 20 minutes
Obtain biographical information and introduce speakers
Provide driving, parking & walking directions to speakers
Provide for any support materials
Nametags, food, crowd control
Announce presentations on The George PA system - indoor/outdoor
Bob Taylor of JSCAS will supply a tent.

6. Indoor Activities, Displays and Club Tables (5):

JSCAS

There are many displays already at the George
Set-up/take-down tables & chairs
Provide electricity & extension cords (duct tape) where needed
Face painting, button making, magazine donations
Young person's activities - LPI
Recruit and locate displays, distribute handouts to tables
Volunteer nametags are to be picked up at their club table
Clubs provide pamphlets and interactive activities at their tables
Volunteers need to sign-in on the computer

7. Treasurer:

NHAC

Collect donations from sponsors, provide an end of event balance sheet
Write checks and collect receipts for expenditures
Finance and collect money for Astronomy Day T-shirts
Establish budget for events
Collect volunteer ideas for improvement and submit a final event report

8. Public Refreshments:

HMNS/GO

Sodas & chips
Trash receptacles

9. Volunteer food/drinks:

HAS

sandwiches, chips & sodas, separate condiments (& dispensing)
utensils, napkins

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(Continued from page 10)

ice chests/ice

monitor usage????

Leave food for late volunteers

Trash receptacles

Cookies - Ask for volunteers?

10. Security:

FBAC

Parking lot, parking signs

Loading & unloading telescopes

Front gate security after 10 PM

Mosquito protection???? Maybe we could have a DET station

11. Deck Activities:

FBAC

recruit volunteer scopes and locate on deck

deck telescope demos

green laser tours of the sky

recruit daytime telescopes

recruit dome operators

outdoor announcements

crowd control

reduce ticket sales chaos

12. Volunteer Nametags:

HAS

obtain image, create, print, assemble and distribute

13. Challenger Center:

HMNS/GO

computer simulations

14. Volunteer Door Prizes: - cancelled

15. Handouts:

Cynthia, Eleta, Bill (Cassini)

Sky & Telescope, Astronomy, Orion, Meade

McDonald Observatory, NASA, LPI

16. Sunday Clean-Up:

All Clubs

Please consider volunteering

4th Annual Houston/Beaumont Regional Astronomy Meeting

(Host: NHAC)

Place: St. Thomas University ~ \$150

17. Main Speaker

HAS

inquire about A/V support & biographical information

time limit, directions, gift, nametag, dress code

arrange for compensation, housing, transportation

18. A/V Set-Up:

NHAC

PA system, laptop & projector, VCR/speakers/amp

screens, laser pointer, house lights dimming

19. Room Set-Up

All Clubs

reserve meeting room - done

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chairs set-up/take-down, trash receptacles - St. Thomas
Refreshment/coffee/door prize/registration tables set-up/take down
carts for transport in and out of meeting hall
early access to meeting hall
Each club needs to bring their logo

20: Registration, Agenda & Programs:

NHAC

organize an all-clubs agenda/program
create, print and distribute programs
set-up door prizes (supplied by all clubs), tickets and meeting registration
Name Tags

21. Refreshments

NHAC/HAS

coffee & condiments, power source, extension cords
beverage, cups, Igloos
cake, plates, utensils, napkins, table cloths

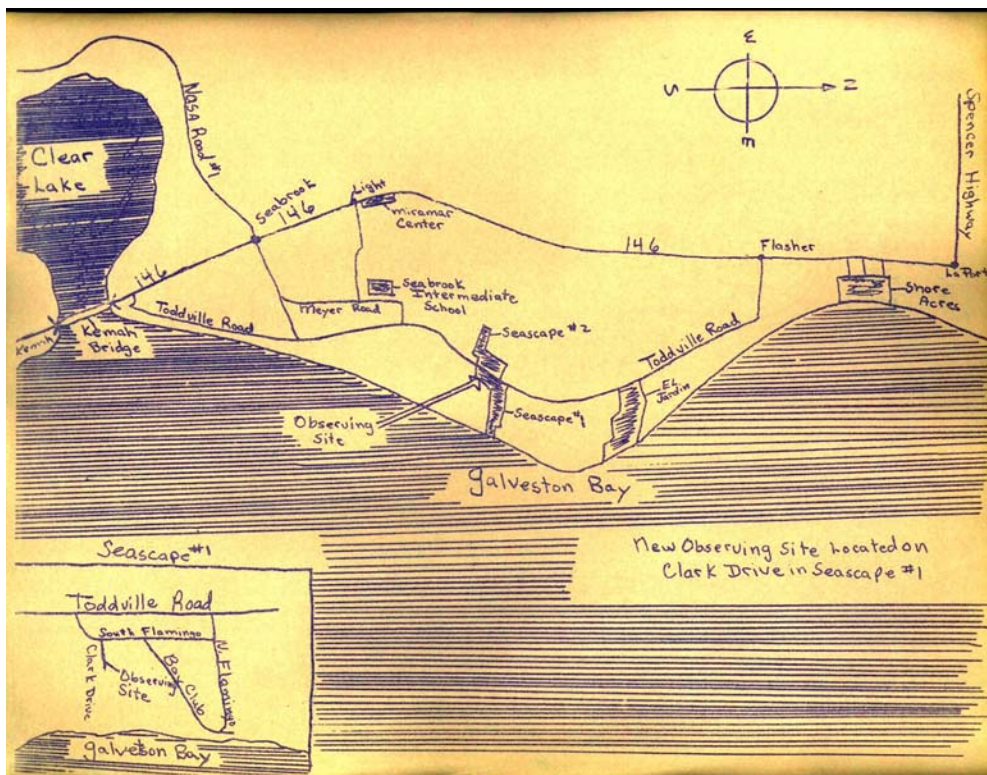
22. T-shirt Sales:

NHAC

Obtain Clyde Peterson cartoon, astronomyday.com on T-shirt
arrange for production/art work, pick-up shirts
XXL - 8, XL - 36, L - 12, M - 8, S - 8: 72 shirts

A Bit of JSCAS History

The map below is to a "new observing site" off Toddville Road that was used by JSCAS members long, long ago. John Erickson and Chris Randall have begun researching our club history.



Charlie's Challenge

Charles Hudson

THIS MONTH'S CHALLENGE

My slide projector contains, near the high-intensity incandescent bulb, a system of lenses to direct the light to the slide. One of the elements of this system is a bluish colored circular slab of glass with parallel sides.

Science Stumper #66: What is the function of this bluish element?

Answer will be published in the September issue...

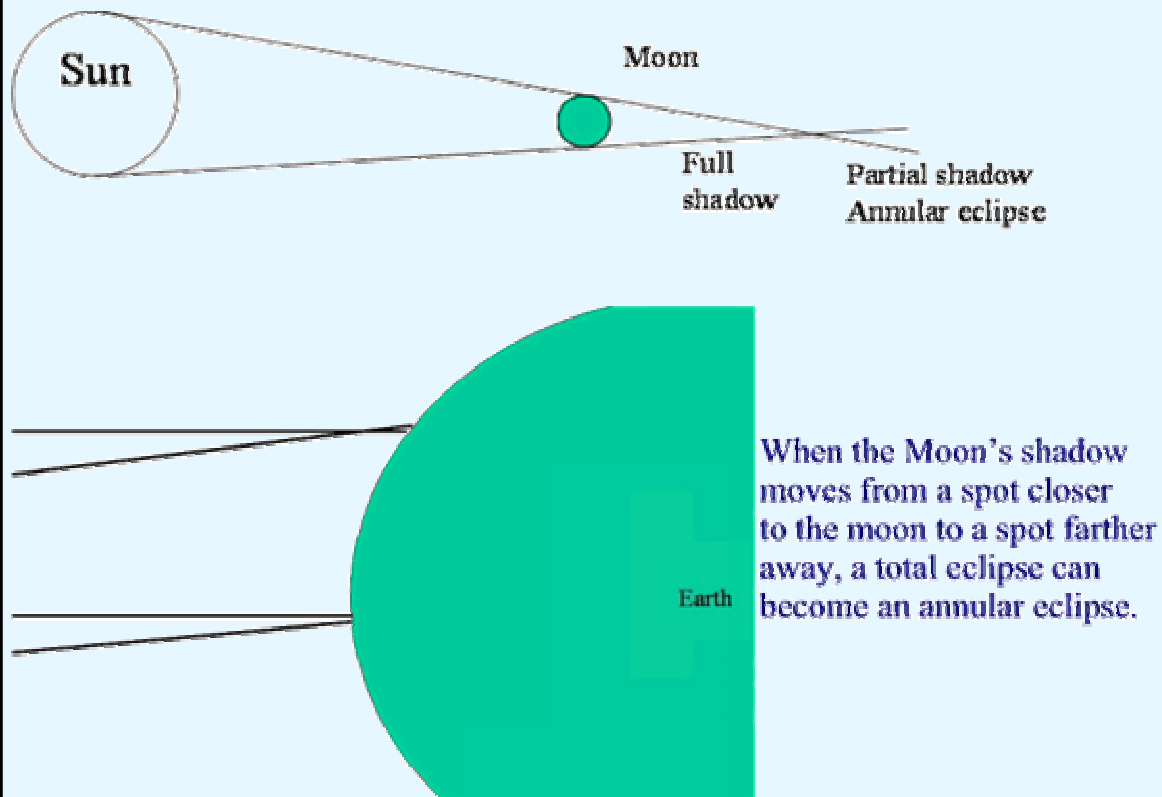
LAST MONTH'S CHALLENGE

In a recent address to the Society, Paul Maley described an upcoming solar eclipse as both total and annular.

Science Stumper #65: How is this possible?

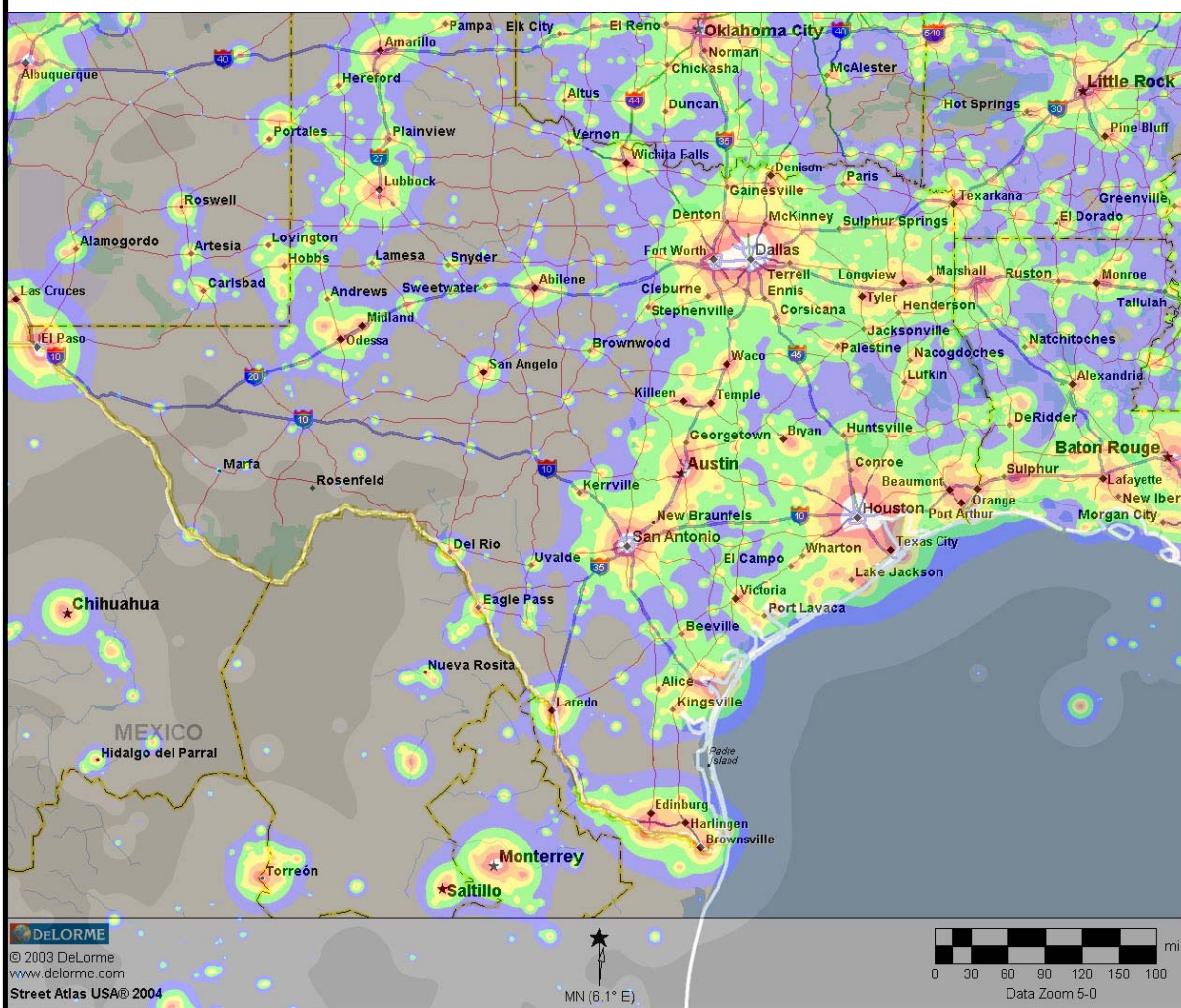
Answer to Science Stumper #65:

The length of the Moon's shadow is about equal to the average Earth-Moon distance. However, the Moon's orbit is elliptical, and if the Earth-Moon distance is a little longer than the Moon's shadow at the time of the eclipse, then the eclipse will be annular. If the length of the shadow is exactly equal to the distance of the Moon from the nearest surface of the Earth, then the eclipse can be both total and annular.



Light Pollution Map of Texas

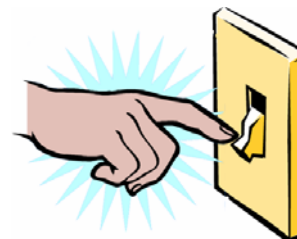
Kevin Laughbaum has created some very valuable light pollution maps of Texas. The maps were created to find dark skies which will be used to calibrate a light pollution meter that his son Phillip is developing for next year's science fair. The map below is a general overview of light pollution in Texas. Separate maps of various regions of Texas are available at his web site: <http://personalpages.utsi.com/~kgll/>. The maps were created by combining maps from the software package DeLorme StreetAtlas 2004 and the light pollution maps from the Light Pollution Science and Technology Institute in Italy (<http://www.inquinamentoluminoso.it/worldatlas/pages/>).



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."



Astronomy 101

Using Filters

Ken Lester

The vast majority of new amateur astronomers start out in the hobby as visual observers. Using telescopes, binoculars, and even the unaided eye, they begin their exploration of the heavens. For those who have begun their trek across the heavens using a telescope, there is a class of telescope accessory available which may enhance the visual experience.



Photographers have known for years that using special filters in the optical path will increase contrast and bring out subtle details in their images. Filters are pieces of glass or other transparent medium which have a thin coating. The function of the coating is to allow specific wavelengths of light to pass through while blocking other wavelengths.

Without a filter, some astronomical objects often blend into the background, becoming difficult if not impossible to see. When the proper filter is inserted into the light path, the photons from the target object are passed through to the eyepiece while much of the background glow is blocked, increasing contrast and resulting in a better view of the object.

There is a downside to using filters. Most filters screw onto the end of your eyepieces, which means that the eyepiece must be removed to attach/detach the filters. Since there are two more air/glass boundaries that the light must pass through, the telescope must be refocused after attaching or removing filters. Finally, filters reduce the intensity of light that is passed through, making the overall image darker. However, the increase in contrast will usually make up for this light loss.

There are a lot of different filters used in visual astronomy. Here is a partial list to get you started:

Visual Light Solar Filter: These filters, made of glass or Mylar, block out dangerous levels of ultraviolet light and dim the intensity of the Sun by 99.999%, allowing sunspots to be observed. Solar filters should always be used to cover the objective of the telescope. Do not use solar filters designed to go on the eyepiece. The Sun's energy that is focused by the objective can shatter the eyepiece type of filter, exposing the eye to blinding light.

Hydrogen Alpha: Used to observe prominences and other features of the Sun. The filtering system consists of two parts. The first, which covers the primary objective, permits a safe level of light to enter the telescope. The second, on the eyepiece, is a narrow bandpass filter around 1.5 Angstroms. Hydrogen Alpha filters are very expensive.

Hydrogen Beta: The H-Beta filter isolates the Hydrogen-beta line of the spectrum (486.5nm) while blocking the rest of the light spectrum. The result is extreme contrast between the black background of space and the delicately attenuated H-beta light needed to view a few select, extremely faint objects such as the Horsehead, Cocoon and California Nebulae.

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Ultra High Contrast: The Ultra-High-Contrast narrow bandpass filter (24nm) isolates just the two doubly-ionized oxygen lines (496 and 501nm lines) and H-beta line (486nm) emitted by planetary and most emission nebulae, while blocking the rest of the overall spectrum of light.

Broad Band/Light Pollution Filters: A broadband filter which efficiently blocks mercury-vapor and high & low pressure sodium-vapor lamp light, neon lights and airglow, while allowing the rest of the visible spectrum through. The superior contrast gain between the object you're viewing and the black background of space allows you to view galaxies, nebula, star clusters, comets, etc.

Oxygen III Filter: A narrow bandpass filter (11nm) that isolates the two doubly-ionized oxygen lines (496 and 501nm lines) emitted by planetary and emission nebulae, while blocking the rest of the overall spectrum of light. The result is extreme contrast between the black background of space and the delicate photons of OIII light needed for views of the Veil, Ring, Dumbbell and Orion nebulae, among other objects.

Lumicon Comet Band Filter: The Lumicon narrow visible bandpass filter for comets (25nm) isolates just the 501nm OIII and the 514nm Cyanogen lines. The high-contrast gain of the filter reveals the delicate ionized tail of gaseous comets, allowing you to see their full extent. The Comet Band Filter also helps you to better distinguish gaseous comets, which the filter greatly helps, from dusty comets which show little contrast gain.

#80A Medium Blue Planetary Filter: Enhances details in Jupiter's belts and Red Spot, high clouds and polar caps on Mars, lunar surface details, Venus cloud features.

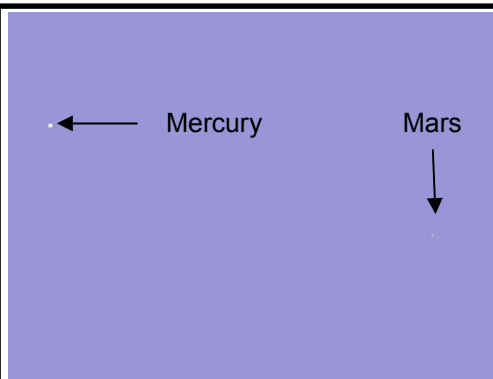
#25 Red Planetary Filter: Enhances Martian surface details in large scopes, reveals cloud definition on Venus, accentuates bluish cloud regions on Jupiter and Saturn.

#58 Green Planetary Filter: Enhances contrast of blue and red structures on Jupiter (including Red Spot), melt lines around Martian polar ice caps, accentuates Saturn's cloud belts.

#15 Deep Yellow Planetary Filter: Boosts contrast of lunar features, accentuates red and orange features on Saturn, Jupiter, and Mars, reveals low-contrast cloud detail on Venus.

Moon Glare-Reduction Filter: Neutral density filter reduces intense brightness of lunar disk to reveal more surface details and reduce eye strain.

Filters can greatly increase your viewing satisfaction. However, filters reduce the intensity of the light coming through your telescope. For this reason, small telescopes often do not benefit from the use of filters. Use color filters on scopes 4.5" and larger. Use OIII, Hydrogen Beta, UHC, and Broad Band filters on scopes 6" and larger.



Close Encounter

Randy Brewer

This shot of Mercury (left) and Mars (right) was taken at 7:30 PM on 7/10/2004. There was only 0.2 degrees of separation between them. Mercury is at about 70% phase at -0.21 magnitude. Mars is magnitude 1.84. They were about 15 degrees above the sun so I had to shoot them in the evening before they went down behind the trees. Taken with a Phillips TouCam and Takahashi FCT-150 at F/7.

Unclaimed JSCAS Shirts

By Eleta Malewitz

We still have some unclaimed JSCAS shirts from earlier orders. If you ordered one and have not picked it up yet, please get in touch with Ed or me to make arrangements to get your shirts. If you no longer want it, or if we don't hear back from you, we will put these up for sale to whoever wants them. (None of these are paid for.) These have the old logo (no star) and are printed rather than embroidered, with a small logo on the front and a large logo on the back. They are top-quality shirts and are for sale at our cost. We would like to get the last of these to the people who ordered them, as we have quite a bit of money tied up in them. This may very well be our last order of printed shirts, so long as we are able to get the embroidered ones at such a good price, and so long as Triple is willing to fly out to pick them up! It takes so long to get enough orders together to make the minimum (12 of each style) for the printed shirts that many people are not willing to wait the year or more between the time they place the order and the time we get it. So these may become collectibles! (Soon to be seen on an episode of Antiques Road Show.) Those of you who ordered sweatshirts, be sure to get yours before Ft. McKavett -- you'll need them!

To claim a shirt, or to tell us you don't want yours so we can put it up for sale, call 281-488-1959 or e-mail us at emalewitz@sprynet.com We also have some extras. I'll give first crack at those to the folks who are on the list for the next order, since we probably won't get enough to place that order.

We will start bringing the shirts to meetings and selling them, starting with oldest orders first. Some of the folks on this list do still come to the meetings or are otherwise active, on the e-mail list or at star parties, so you've either forgotten about your order or no longer want it. A couple of people have indicated in the past that they wanted the shirts they ordered, but then haven't showed up to pick them up or given us any mailing address to send to. So please, if you do still want your shirt(s), let's work out a way to get them to you!

NAME	QTY	SLEEVES	STYLE	SIZE
Carillo, Laurie	1	Short	T-Shirt	S
Casella, Randal	1	Short	T-Shirt	XXL
Cate, Jim	1	Short	Polo	XL
Williamson, J.B.	1	Short	Polo	L
Miller, Dick	1	Short	T-Shirt	L
Miller, Dick	1	Long	Sweatshirt	L
Matassa, Mike	2	Short	T-Shirt	L
Matassa, Mike	2	Long	Sweatshirt	L
Wille, Peggy	1	Short	T-Shirt	M
Moore, Wally	1	Short	T-Shirt	L
Graham, Susan	1	Short	T-Shirt	XL
Graham, Susan	1	Short	Polo	L
Graham, Susan	1	Short	Polo	XL
Pfeiffer, John	1	Short	T-Shirt	XL
Pfeiffer, John	1	Long	Sweatshirt	XL
Bishop, Brian & Cathy	1	Short	T-Shirt	M
Bishop, Brian & Cathy	1	Short	T-Shirt	XXL
Doucet, West	1	Short	T-Shirt	XL
Drake, Kenneth	1	Short	Polo	XL
Urdiales, John	1	Short	Polo	M
Urdiales, John	2	Short	Polo	L
Extras	1	Short	Polo	M
Extras	2	Short	T-Shirt	L
Extras	2	Short	T-Shirt	XL

MEMBER'S GALLERY



M 108
Al Kelly

L/RGB color composite of galaxy M108. Made by Al Kelly from images digitized from red, blue, and green-sensitive photographic plates provided to the public by the Palomar Observatory Sky Survey (POSS). Processed in AIP4WIN and Photoshop.

Al Kelly, JSCAS CCD SIG chairperson, has been using the Palomar Observatory Sky Survey as an image source for creating images. Using AIP4WIN and Photoshop, Al shows us that you don't have to have CCD equipment to make some really fantastic images.

M 90
Al Kelly

L/RGB color composite of galaxy M90. Made by Al Kelly from images digitized from red, blue, and green-sensitive photographic plates provided to the public by the Palomar Observatory Sky Survey (POSS). Processed in AIP4WIN and Photoshop



**NGC 5577, NGC 5576,
and NGC 5574**
Al Kelly

L/RGB color composite of galaxies NGC 5577, 5576, and 5574 in Virgo. Made by Al Kelly from images digitized from red, blue, and green-sensitive photographic plates provided to the public by the Palomar Observatory Sky Survey (POSS). Processed in AIP4WIN and Photoshop.



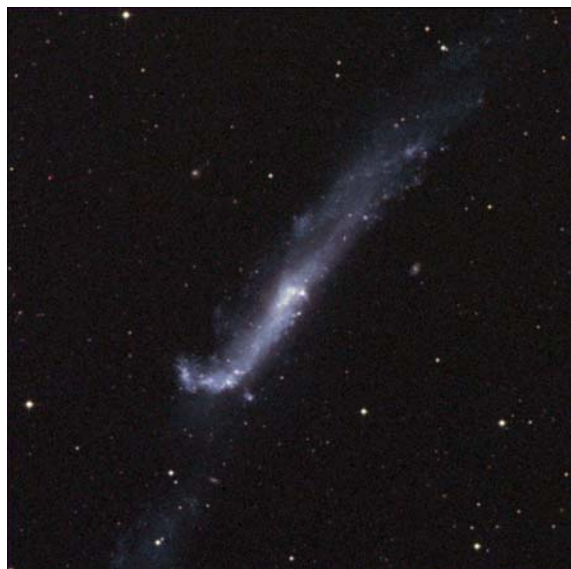
NGC 5033
Al Kelly

L/RGB color composite of galaxy NGC 5033 in Canes Venatici. Made by Al Kelly from images digitized from red, blue, and green-sensitive photographic plates provided to the public by the Palomar Observatory Sky Survey (POSS). Processed in AIP4WIN and Photoshop.



NGC 4656
Al Kelly

L/RGB color composite of galaxy NGC 4656 in Canes Venatici. Made by Al Kelly from images digitized from red, blue, and green-sensitive photographic plates provided to the public by the Palomar Observatory Sky Survey (POSS). Processed in AIP4WIN and Photoshop.



Hubble Studies Generations Of Star Formation In Neighboring Galaxy

NASA's Hubble Space Telescope captures the iridescent tapestry of star birth in a neighboring galaxy in this panoramic view of glowing gas, dark dust clouds, and young, hot stars. The star-forming region, catalogued as N11B, lies in the Large Magellanic Cloud (LMC), located only 160,000 light-years from Earth. With its high resolution, the Hubble Space Telescope is able to view details of star formation in the LMC as easily as ground-based telescopes are able to observe stellar formation within our own Milky Way galaxy.

This image was taken with Hubble's Wide Field Planetary Camera 2 using filters that isolate light emitted by hydrogen and oxygen gas. The science team, led by astronomers You-Hua Chu (University of Illinois) and Yäel Nazé (Universite de Liège, Belgium) are comparing these images of N11B, taken in 1999, with similar regions elsewhere in the LMC. This color composite image was



co-produced and is being co-released by the Hubble Heritage Team (STScI) and the Hubble European Space Agency Information Center (HEIC).

Image Credit: NASA, ESA, and The Hubble Heritage Team (AURA/STScI) Acknowledgment: Y.-H. Chu (U. Illinois, Urbana-Champaign) and Y. Nazé (U. Liège, Belgium)

HOUSTON AREA ASTRONOMY CLUBS

Brazosport Astronomy Club
Meets the Third Tuesday of the month, 7:45PM
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
Sugar Land, Texas

Houston Astronomical Society <http://spacsun.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 Theater at Kingwood College
20000 Kingwood Drive
Kingwood, Texas

Visual Observing

Chris Randall

August 2004

★ SSO: (Solar System Objects)

Summary for the 15 July 04

Object	Const	Mag	% Ill	Rise Time	Transient	Set Time
Sun	Leo	-26.7	100	06:49	13:24	19:59
Moon	Leo	--	0	06:15	13:17	20:12
Mercury	Sex	2.6	9	07:58	14:10	20:26
Venus	Gem	-4.3	49	03:27	10:16	17:05
Mars	Leo	1.8	100	07:38	14:06	20:37
Jupiter	Leo	-1.7	100	09:01	15:13	21:28
Saturn	Gem	0.9	100	04:23	11:16	18:10
Uranus	Aqr	5.7	100	20:36	02:14	07:52
Neptune	Cap	7.8	100	19:27	00:49	06:12
Pluto	Ser	13.9	99	15:30	21:02	02:31
2001 Q4 Neat	Uma	7.7	94	----	15:33	----
2003 K4 Linear	Com	6.2	90	10:29	17:10	23:54
2004H6 Swan	Aql	9.8	98	17:58	23:56	05:49

Highlighted times denote daylight events.

★ BSO: (Bright Sky Objects)

CR 399 (Coat hanger) – Open Cluster in Vulpecula, Magnitude 3.6, Size 60', 40 Stars.

Stock 1 – Open Cluster in Vulpecula, Magnitude 5.3, Size 80'.

NGC 6705 (M-11 CR 391) – Open Cluster in Scutum, Magnitude 5.8, Size 13', 682 stars.

NGC 6656 (M-22) – Globular Cluster in Sagittarius. Magnitude 5.2, Size 32'.

★ DSO: (Dark Sky Objects)

NGC 6826 (C 15) – Planetary Nebula in Cygnus, Magnitude 9.8, Size 38".

NGC 6822 (C 57, IC 4895) – Galaxy in Sagittarius, Magnitude 9.3, Size 15'x13'.

NGC 6818 – Planetary Nebula in Sagittarius, Magnitude 10, Size 48".

B 86 – Dark Nebula in Sagittarius, Magnitude dark, Size 5'.

★ CDMP: (Chris' Don't Miss Pick)

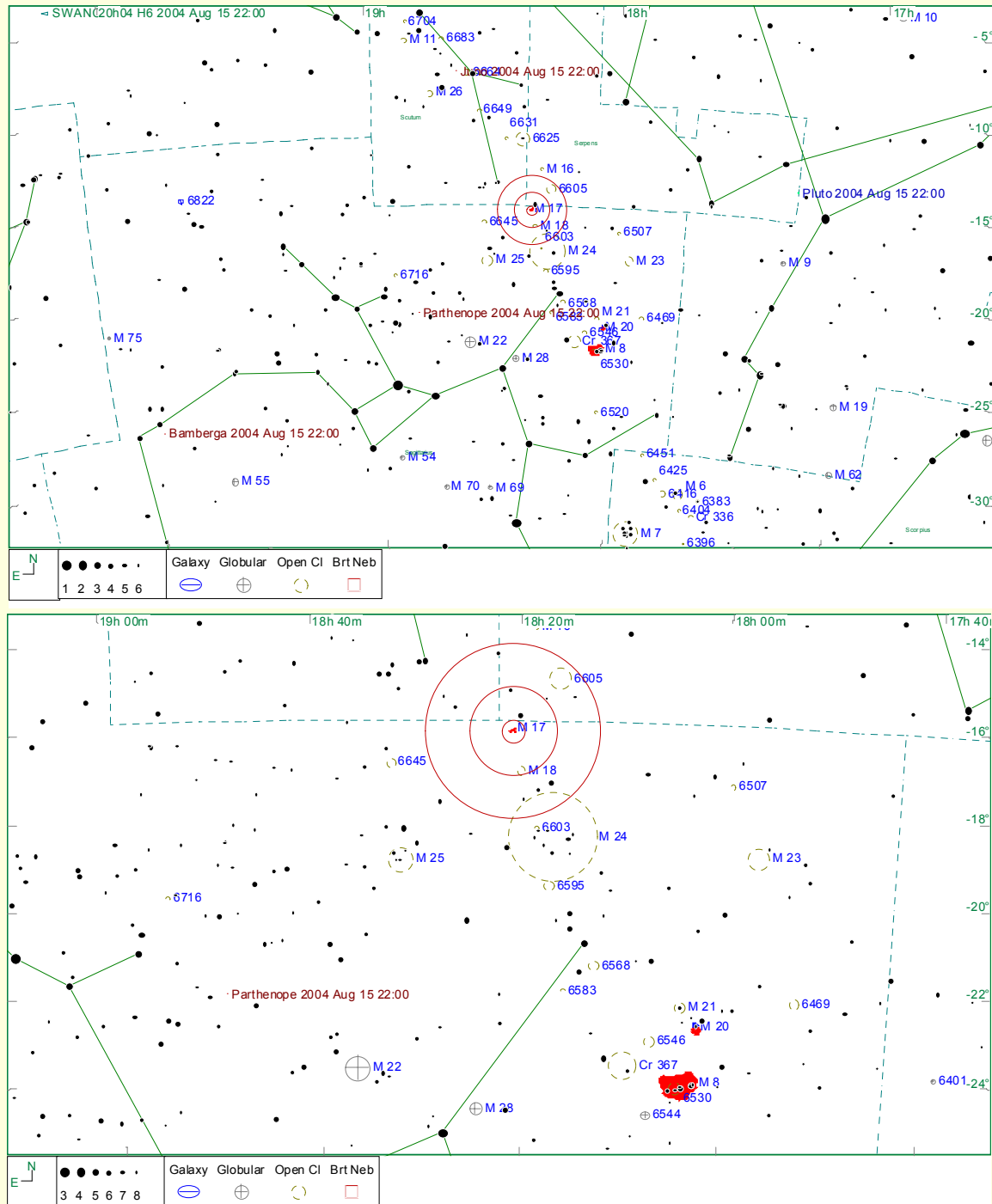
NGC 6618 (M-17) – Swan Nebula/Omega Nebula in Sagittarius, Magnitude 7, Size 11'x6'.

The Swan Nebula, also known as the Horseshoe Nebula, or the Lobster Nebula, was discovered by De Chéseaux but wasn't widely known. Charles Messier independently rediscovered it and cataloged it on June 3, 1764. It is a region of star formation and shines by excited emission, caused by the higher energy radiation of young stars. A small cluster of about 35 bright but obscured stars seems to be embedded in the nebulosity.

(Continued on page 22)

(Continued from page 21)

While the bright nebula seems to be roughly 15 light years in extension, the total gaseous cloud, including low-luminosity material, seems to extend to at least 40 light years. Distance estimates are spread over a wide range, but modern values are between 5,000 and 6,000 light years. The color of the Omega Nebula is reddish, with some graduation to pink. This color comes from the hot hydrogen gas, which is excited to shine by the hottest stars, which have just formed within the nebula.

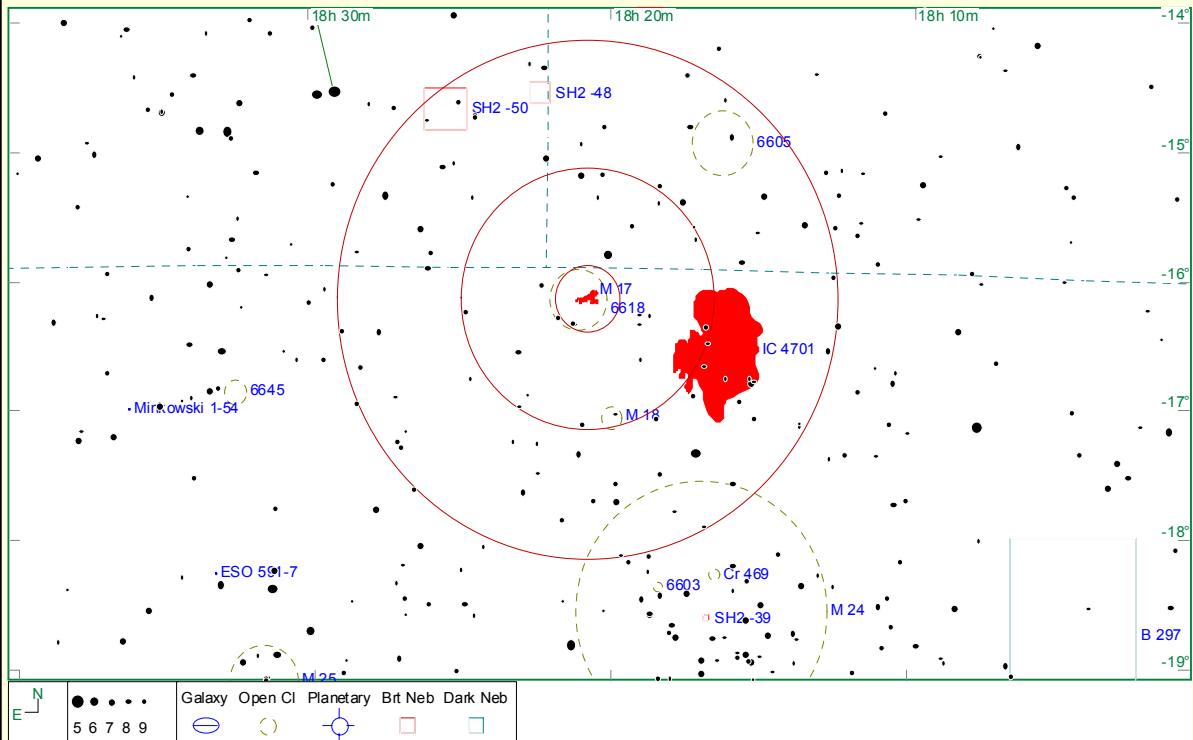


(Continued on page 23)

(Continued from page 22)

However, the brightest region is actually of white color, not overexposed as one might think. This phenomenon is apparently a result of a mixture of emission light from the hottest gas, together with reflections of the bright starlight from the dust in this region. The nebula contains a large amount of dark obscuring material, which is obvious in its remarkable features. This matter has been heated by the hidden young stars, and shines brightly in infrared light.

Under very favorable conditions, M17 is just visible to the naked eye at its apparent visual brightness of 6.0 magnitudes. For more information go to: <http://www.seds.org/messier/m/m017.html>.



Upcoming Events

CENTRAL TEXAS STAR PARTY: August 13th and 14th. A free star party for amateur astronomers held at the Eagle Eye Observatory, Canyon of the Eagles Lodge and Nature Park, Lake Buchanan, Texas. Hosted by the Austin Astronomical Society. The event features a talk by Russell Croman, astrophotographer. Other activities include observing challenges, door prizes, and skies filled with the Summer Milky Way. For more information visit the Austin Astronomical Society web site at <http://austinastro.org/ctsp.html>.

OKIE-TEX STAR PARTY: The 21st annual Okie-Tex Star Party will be held October 9-17 at Camp Billy Joe, Kenton, Oklahoma. Sponsored by the Oklahoma City Astronomy Club, activities include speakers Brian Lula and Dick Parker, vendors, door prizes and dark sky observing. For more information contact Larry Beatty, ldbeatty@aol.com or to register, go to <http://www.okie-tex.com>.

ELDORADO STAR PARTY: The second Eldorado Star Party (ESP), to be held October 13-16, is now taking pre-registrations. For more information, visit <http://www.eldoradostarparty.org>.

Family Space Day at LPI



July's Family Space Day was held on Saturday, July 17, and the theme was *Rockets*. Those who attended learned about the history of rockets and what makes them go. The children were also able to make their own rockets and have rocket races. JSCAS members, Lisa and Matt Hommel and their girls, attended this fun event.

August 21st will be the next Family Space Day. The theme will be *Comets*. Space Day takes place the 3rd Saturday of each month at LPI on Bay Area Boulevard at Middlebrook. Visit their website for additional information: http://www.lpi.usra.edu/education/other_programs/space_days.shtml.



Pictures by Matt Hommel

Star Party News

Lisa Lester

The Lift Off 2004 Star Party was a great success! There was a huge turn out of JSCAS members and their telescopes, providing a better than 3:1 teacher to telescope ratio. Thank you all very much!!!! Margaret Baguio was very appreciative and is sending the club a thank you letter. In her email to me she stated: "The teachers really enjoyed the Star Party and the tools and information gained will assist them in teaching students and other teachers."



Lift Off 2004 images on left by Matt Hommel and on right by Ken Lester

We do not have any star parties in August due to the lengthy daily visit of the Sun! Please make sure that you have the Challenger 7 Star Party on Saturday, September 18th on your calendar! Also, be sure to change your calendars. Astronomy Day has moved from Saturday, October 16th, to the next Saturday, October 23rd. This means that the Regional Astronomy Club meeting will be Friday, October 22, at the University of Saint Thomas. There will be no JSCAS meeting in October.

Johnson Space Center Astronomical Society

An association of amateur astronomers dedicated to the study and enjoyment of astronomy. Membership is open to anyone wishing to learn about astronomy.

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SIGS

Observing Awards
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Al Kelly
Binocular Observing
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Telescope Making
Bob Taylor
Deep Sky Observing
Chris Randall

August Meeting Agenda

August 13th. Center for Advanced Space Studies/Lunar Planetary Institute, 3600 Bay Area Blvd. (at Middlebrook Drive).

7:30 Meeting start and welcome
7:40 Presentation — Triple Nickel
8:30 Break
8:45 Calendar review, presentations, and awards
8:50 Star Party Announcements, Lisa Lester
9:10 Deep Sky Observing, Chris Randall
9:30 Astronomical Oddities, Hernan Contreras
9:40 Charlie's Challenge, Charles Hudson
9:50 Door Prizes

Starscan Submission Procedures

Original articles of astronomical interest will be accepted up to **6 P.M. August 25th**.

The most convenient way to submit articles or a Calendar of Events is by electronic mail, however computer diskettes or CDs will also be accepted. All articles should include author's name and phone number. Also include any picture credits. The recommended format is Microsoft Word. Text files will also be accepted.

Submitter bears all responsibility for the publishing of any e-mail addresses in the article on the World Wide Web.

Editor's electronic address is: lesteke@swbell.net. Be sure to include the word Starscan in the subject line for proper routing of your message.

Starscan Staff

Editor	Assistant Editors
Ken Lester	Sheila Steele
	Ken Steele

Cover Image

**M 101
Al Kelly**

L/RGB color composite of galaxy M101. Made by Al Kelly from images digitized from red, blue, and green-sensitive photographic plates provided to the public by the Palomar Observatory Sky Survey (POSS). Processed in AIP4WIN and Photoshop.