

STAR GAZER NEWS

NEWSLETTER OF THE DELMARVA STARGAZERS

March 2005

WWW.DelmarvaStarGazers.Org

Volume 11 Number 9

At the February Meeting.....

by Jerry Truitt

The February Delmarva Stargazers meeting was held on Tuesday 2/1/05. Don Surles is away so Jerry Truitt conducted the meeting.

We had three new members present so we took the time to introduce ourselves and talk about the number of telescopes we each own and which one we use the most. Introduced were:

Michael Enright, Bear, DE

Michael Lecuyer, Viola, DE

Rick Seibel, Milford, DE

We had a full schedule, as people who missed giving presentations at January's meeting were ready this month, combined with what was already scheduled.

After some e-mail discussion with James Morgan about the merits of greeting new members, Leonard White has offered to volunteer and start a program for Delmarva Stargazers to better infiltrate new members into the organization. I've offered to help Leonard in any capacity he requires for this worth while endeavor.

The Mirror Making Team gave an update of their progress. Glass is in and other supplies are being purchased. We still have room, so if you want to try your hand at grinding your own mirror for building your own telescope this is your chance. The event is March 4th to the 6th, see the web page for more information.

We're also gearing up for Stargaze XI on April 8, 9 and 10th. Joe Cain will be accepting registrations for this year's event. We'll be at the Equestrian Center again as we were for No Frills in the fall of last year. Check out the web site for information and registration.

Keith Lohmeyer started a discussing with the membership about the objects that are viewable this month, Orion and it's many features, Saturn and Titan and of course the comet Machholz. We all took turns commenting on our recent viewing experiences. Keith normally gives a presentation of "What's Up" for the month, this month we all contributed.

Greg Lee told us an interesting story (history

Monthly Meeting, Tuesday, March 1

How to Succeed in the Messier Marathon

7:00 p.m. First Presbyterian Church, Smyrna

lesson) of **Johannes Kepler** and his development of the *Rudolphine Tables*. Tycho Brahe, Kepler and Galileo all lived around the same time period. Tim Milligan gave us ways to be more comfortable at the eyepiece. Tim presented many ideas based on years of experience on equipment required, types of clothing, food and many other items for making viewing through the eye piece more of a pleasure.

I (Jerry Truitt) gave a presentation of Isaac Newton's first telescope. This little 2" metal mirror 6" long reflector is the scope that started the revolution in astronomical telescope design. Chances are if you have a large aperture scope, it's a newt.

I also presented the monthly NASA update, sharing images from the Cassini web site as well as a one-year celebration salute video from the Mars Rover Team. We examined images of Saturn's moon Iapetus, a real odd ball if there every was one. There were also some stunning images of the ring system and moons that interact with it.

Steve Long ended the night with a Pros and Cons of digital imaging. Steve shared his experiences, frustrations and rewards of doing digital photography through a telescope. We're looking for someone to cover telescope design for next month's meeting, any one interested in giving a presentation on this subject please let Don or me know.

Doug Norton will cover **History of Astronomy in Early USA - 7/76**, Doug also would like to share his experiences viewing double stars. Doug has some great pictures and weather permitting we're planning on having telescopes set up to actually view some double stars directly after the meeting. I will be doing Community Outreach. I'll start with

how to contact people and subjects you should cover when presenting the idea of doing a community type event to non-astronomical enlightened people. I'll cover ways to organize yourself to minimize the chaos of an event. I'll relate some questions you can expect to get and how to answer them.

We also would like an experienced observer give details on How to Succeed in the Messier Marathon. Anyone who has a subject they would like to cover please let Don or me know.
Clear Skies (Please)
Jerry Truitt

Additional Details from Presentations

Steve Long's Digital Astrophotography Benefits:

Instant Gratification
Relatively inexpensive at low end
No film reciprocity (although other things occur when pushing exposure)
No processing costs (Throw away mistakes)
Camera use not restricted solely to astronomy
Ability to apply your own creative vision.

Problems:

Best quality equipment can be expensive.
Digital imaging during long exposures, which can result in hot pixels producing bright spots and fake stars.
Digital Noise- graininess in flat toned areas at high ISO settings.
Good results can be labor intensive when manipulating images.

Recommended Camera Features:

Manual aperture and shutter controls
Exposure times of at least 30 seconds
ISO settings of 100, 200, 400
Optical zoom 3X to 10X
Threaded front lens for T adapter
Timer or remote control to prevent movement
Megapixels as high as you can afford
Noise reduction software (if you can't stack photos).

Additional Details from Greg's Kepler program

Die hard fans of ancient mathematics will be interested in the section of Greg Lee's Kepler presentation which dealt with Kepler's *Mysterium Cosmographicum*. This was where Kepler fitted the 5 planets' orbits into 5 different polyhedra. The 5 polyhedra were the Cube, Tetrahedron,

Dodecahedron, Icosahedron, and Octahedron. Kepler's *Cosmic Secret* begins with a cube inscribed into a sphere inside the Saturn orbit. This cube snugly holds the Jupiter orbit. A tetrahedron is then inscribed inside the Jupiter orbit into which Mars orbit fits nicely. Next, a dodecahedron is inscribed inside the Mars orbit, and thus provides a home for an earth orbit. An icosahedron is inscribed in the earth orbit and makes space for the Venus orbit. Finally an octahedron inscribed in the Venus orbit provides a home for Mercury's orbit. This "magic" arrangement is related to material found in *Euclid's Elements* and is amazingly accurate, varying less than 10% from later calculations by Copernicus.

From the President's Desk...

February 12, 2005

My, how time flies! The Winter of 2005 is fast approaching it's more flamboyant sibling, Spring. Our snow covered flower beds will soon burst with daffodils, crocus (crocuses or croci?), and tulips. Robins have already arrived in Delaware. When we observe during the new moon of March we will hear the spring peepers singing in the swamps. I like Spring because it is a time of renewal and promises of new growth. We are all the product of Ol Sol's billions of years of wonderful white light radiation and all life on Earth responds to Spring's increases of it. Bring on Spring!

Last night I experienced one of the better moments of amateur astronomy. An exchange student from

ALSO IN THIS ISSUE

Kent's Deep Sky Challenges.....	Page 5
Skymap for March.....	Page 6
Stargaze XI Registration.....	Page 7
Moondark for March.....	Page 8

Peru and a ten year old Dover boy came to my house to "see some telescopes and look at some objects". Doug Norton also stopped by and we set up a 10" dob on the driveway. Orion and Saturn were the night's best choices and WOWED the kids. We also showed them the Pleides, Comet Macholz, and Gamma Andromeda. And the 10-year old counted the bright stars in the Pleides

from my light-polluted backyard – we should all have eyes like that.

Over the years I guess the most rewarding aspect of astronomy has been related to making the universe available to other people. The Halloween scopes for Trick or Treaters, setting up scopes for Girl & Boy Scouts, scopes for viewing Mars during the 2002 apparition...these were all very rewarding experiences. During the 2002 Mars apparition Doug Norton and I set up scopes for public viewing at Smyrna Elementary School. Hundreds of people came to see but there was one person Doug and I will remember forever. He was a quadriplegic in a motorized wheelchair. With some effort he and Doug maneuvered the chair up to the eyepiece and this young man actually got a live view of the crescent moon and then Mars thru Doug's scope. This young man was lying on his back with the eyepiece turned down so he could look up into it because he could not raise his head. I remember his "Wow" and noted that this young man had experienced something a hospital does not provide – excitement and joy! Yes, I do believe the best part of amateur astronomy is showing the universe to others.

Update on Star Gazer Dave Wells: Dave has been experiencing difficulties related to his heart and is scheduled for open heart surgery March 1 at University of PA hospital. Let's all wish Dave a speedy and complete recovery. Dave, get well soon, and we will share a single malt scotch and a fine cigar while we wait for the optics to cool.

Our Mirror Making weekend is shaping up very well. Thanks to all who are working to put this together. Please stop by and see for yourself how fine telescope mirrors are made – the old fashion way. You will definitely learn about glass pushing and you may even catch the GP bug. It will be held at the St Jones Reserve (just off Rt 9 below the Dover Airbase) from March 4 thru the 6th.

Now is the time for members who want to become more active in Delmarva Star Gazers future direction to let your fellow Gazers know about your desires. We have just the March and April meetings before nominations for 2005-2006 leaders are taken in May. This organization is successful because of your efforts, cooperation, vision, and all-round hard work to create and complete projects. Thanks to you we have a fine organization that is healthy and very friendly. Let's continue the tradition.

Our next meeting will be March 1st. Topics covered will be telescope designs, community outreach, the history of astronomy in early USA, how to succeed in the Messier Marathon, and the "what's up" monthly sky chart. In addition, there will be an update on the Mirror Making Weekend, our spring Delmarva Star Gaze #11 scheduled for April 8-10, current events, Cassini, etc. I am sure you will find something interesting – please plan to attend. We meet at First Presbyterian Church at 7:00 PM and the "gates open at 6:30 pm". See you there!

Here is an invitation for all members to contribute to our newsletter and also to our Yahoogroups chatter. If you have a topic you would like to share with us please jot down a few comments and send them to Frank Sheldon or Paul Riley for inclusion in the newsletter or post them to www.delmarvastargazers@yahoo.com

Member Magazine Subscriptions

Just a reminder -- As an added bonus to your **PAID** membership in the Delmarva Stargazers, you can get the club discount on your favorite astronomy magazines, **Sky and Telescope** -or- **Astronomy**. You can save \$10 -or- more! For more info on a subscription (or renewal) please contact PJ Riley at pjr127@Yahoo.com

How to Join the Delmarva Stargazers: Anyone with an interest in any aspect of astronomy is welcome

NAME _____

ADDRESS _____

CITY, STATE & ZIP _____

E-MAIL ADDRESS (If any) _____

Please attach a check for \$15 made payable to Delmarva Stargazers and mail to Kathy Sheldon, 20985 Fleatown Rd, Lincoln, DE 19960. Call club President Don Surles at 302-653-9445 for more information

Remember this is a sharing organization and when you learn something related to astronomy please share it with others so that they may learn also, ie, the "learn-teach-learn" cycle.

I have a learning to share with you. Many years ago I purchased a Swift Optical 20X80 binocular. It has been a wonderful instrument for all these years. But on Christmas Eve I placed it in a precarious position and the bino fell four feet to my garage floor. Although it was in its case and box, the focusing mechanism was broken! So, I Googled for the Swift Repair Shop and sent the bino in for repair. The contact there was pleasant and INTERESTED in me as a customer. They returned it Friday, February 11, in like new condition. The focuser was replaced, they re-cemented the prisms, cleaned, lubed and collimated the instrument. Bottom line, this is the type of service we need and I am pleased to recommend Swift Optical to my fellow Star Gazers. Enuf for now – don't drop your bino. Will see you at the meeting.
Don...

The Sky in March

The night sky in March is dominated by the planets **Jupiter** in Virgo and **Saturn** in Gemini.

Mercury appears as a magnitude (-1.4) evening star at the beginning of the month, fading to - magnitude 0.4 by the middle of the month.. **Venus** is too close to the rising Sun to be visible in March, and by the end of the month will go into superior conjunction with the sun. **Mars** rises shortly after 4.a.m. and remains low in the southeast at magnitude +0.9. **Uranus** and **Neptune** are too close to the sun for decent viewing in March. **Pluto** will rise after midnight but will not be high enough for the best viewing.

Another event in March will be the occultation of the moon by the red giant star **Antares**. This will occur on March 5th. For us on the east coast, the reappearance will occur after sunrise at 12:30 UT. That is 7:00a.m. Eastern Standard Time.

Club Activities

Club Meetings-

We meet in the First Presbyterian Church in Smyrna, DE (653-8000) on the first Tuesday of each month from 7-9 PM. From US 13, turn west at Wendy's and go one stoplight on Commerce Street; the church is on the right directly across from the Fire Hall.

Future Meetings..

The annual meeting dates for 2005 are: January 4, February 1, March 1, April 5, May 3, June 7, July 2 Picnic, August 2 No inside meeting;event to be scheduled, September 6, October 4, November 1 and December 6 The regular meeting format includes discussion of club activities, observing highlights and an advertised presentation. We solicit suggestions for topics and presenters.

Club Observing...

Observing is (usually) scheduled for the Friday nearest the New Moon to maximize the hours of deepnight without the moon in the sky. Unless otherwise stated, the monthly observing site will be at the baseball field in the camping area at Tuckahoe State Park

The observing days for 2005 are:

January 7-8, February 11-12, March 11-12 **April 8-10 (Stargaze XI)**, May 6-7, June 3-4, July 8-9 August 5-6, September 2-3, **September 28-October 2 (No Frills X)**, October 28-29, November 4-5 and December 2-3.

The cloud or rain date for the monthly Friday observing will be the following Saturday, but don't trust the weather man! Go outside and look for yourself or check the CNN weather link on our web page. If you still can't decide, call Don Surles (302) 653-9445 or Lyle Jones (302) 736-9842.

Other Events for 2005

March 4-6 Mid-Atlantic Mirror Making #5

July 2 July 4 th picnic

December 10 Christmas Party

Delmarva Star Gazer Officers 2004-2005

President.....Don Surles 302 653 9445

Vice President.....Jerry Truitt 410 885-3327

Secretary.....Paul Riley 302 738-5366

Treasurer.....Kathy Sheldon 302 422 4695

Challenging Deep Sky Objects By Kent Blackwell

As my previous deep sky articles have been geared towards objects visible in small telescopes I thought it might be interesting to write an article for those club members in possession of large telescopes, or perhaps for those who like to image obscure objects using small-to-moderate instruments. Actually, some of the objects described here can be even be viewed in telescopes as small as 10" but others will require more aperture.

In February 2001 some few friends of mine met me at Clark's Creek, a great observing site about 50 miles south of Nags Head, NC. It turned out to be one of the darkest skies in the VA/NC area, and might be one of the darkest along the entire East Coast. Once we had secured permission to use the desolate property we were on our way. As a limiting naked-eye magnitude test from this wonderful location we sighted the 7th magnitude naked-eye star **SAO 28038** below the bowl of the Big Dipper. My primary goal was to look for faint galaxies under this superb sky but first I also wanted to look at faint and difficult planetary nebulae and globular clusters as well.

Sh2-216 Perseus, (p.65 Uranometria 1st edition p.42R 2nd edition) PN. The skies at Clark's Creek are darker than Coinjock NC, a location where I had viewed Sh2-216 a few nights before. Even in these terrific skies this is a faint object. It's odd this planetary is a bit easier *without* a filter, but nevertheless I tried all my deep-sky filters. The Lumicon OIII was best, second best was an Orion Ultra-Block, and the least of the three was the Lumicon UHC. Once Sh2-216 is sighted scan your telescope back and forth and follow a large arc of nebulosity.

Wein 30 Perseus, (p.65 Uranometria 1st edition, p.42R 2nd edition) Galaxy. 4h 33m + 45 29' - Near SH2-216 lies an extremely faint and small 16.5 magnitude galaxy. At 200x I could only see it with averted vision, but at 360x I was able to see it with direct vision.

Pal 4 Ursa Major (p.106 Uranometria 1st edition, p.72R 2nd edition) Globular. 11h 29m + 28 58' – Pal 4 is certainly an object to test one's observing skill. At 14.4 magnitude one would think it would be a relatively easy target but I found it to be quite faint, with very low surface brightness. It lies WSW of a 13.9 magnitude star. Before leaving this area try sighting a few other faint galaxies in the region.

MCG+5-27-81 Ursa Major (p.106 Uranometria 1st edition, p.72R 2nd edition) Galaxy. 11h 31m + 29 18'. A pretty faint, pretty small galaxy, elongated E & W, with a bright core.

KUG 1128+297 Ursa Major (p.106 Uranometria 1st edition, p.72R 2nd edition) Galaxy. 11h 31m + 29 26'. This is not so easy, being 17th magnitude. Even in the 25" it appeared very very faint, fairly small and elongated. Has anyone observed this illusive galaxy?

Since I was observing very faint objects I thought it would be an excellent night to try an object I've heard about but never seen before.

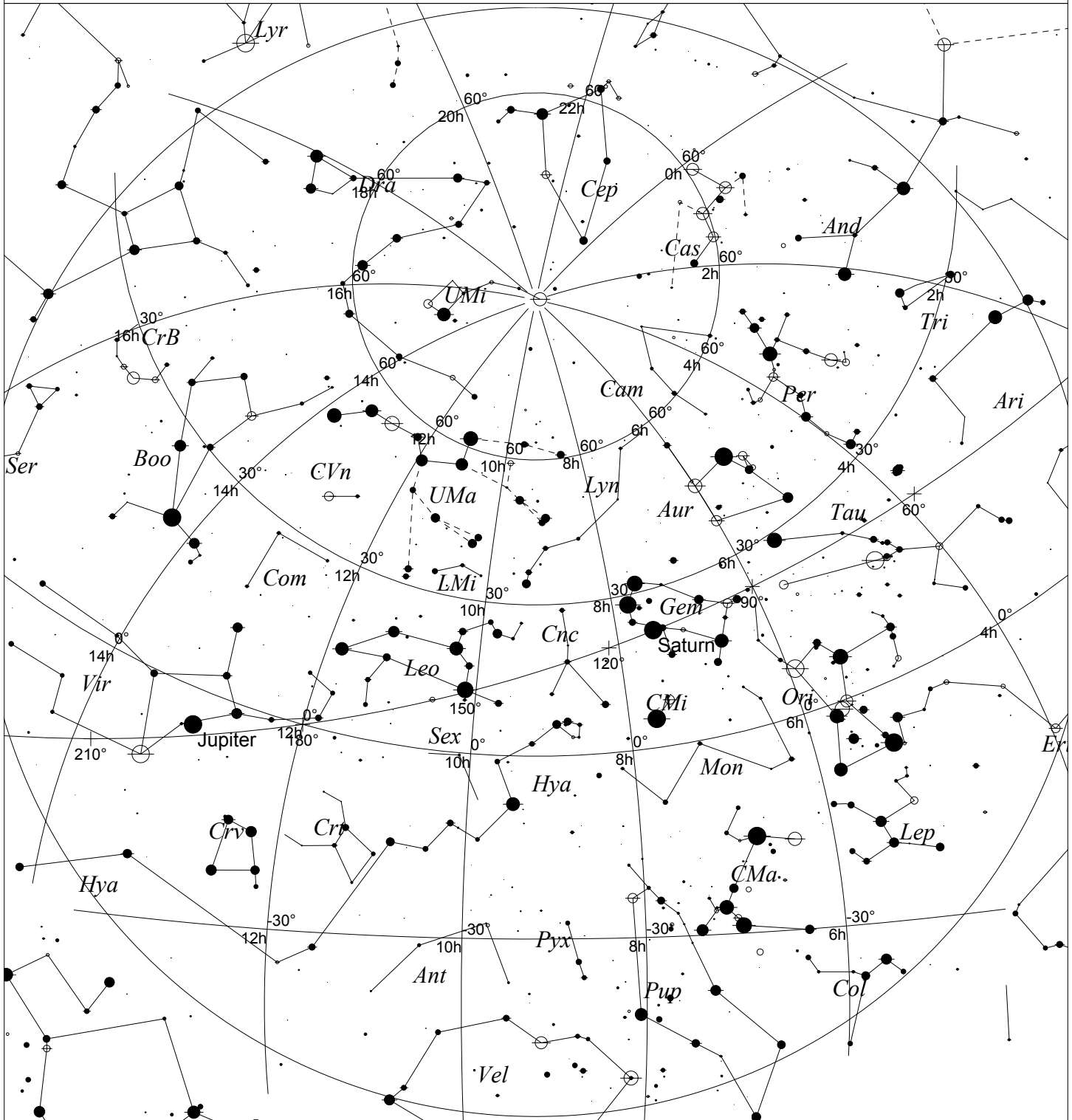
QSO 0957+561 - Ursa Major - 10h 01m + 55 53' (not plotted in Uranometria 1st edition, p.25L 2nd edition)

Quasar. Nicknamed the *Double Quasar*, also *Twin Quasar* and *Dual Quasar*, this gravitational lensing quasar is certainly the most distant object an amateur will ever observe at an whopping distance of 5 billion light years! It's light is bent into two images, mirage like, by the gravitational field of a large foreground galaxy. The lens's components shine around 17th magnitude and are separated by only 5 arc seconds. This object was only discovered on photographic plates in 1979. It's hardly an easy task seeing it, but a few guide stars make it fairly easy to locate. I found it a bit easier to see at 215x than 400x but seeing just wasn't good enough to warrant such high power. It's a great object, if you have a 18" or larger by all means go for it. Some have seen it with a 15" scope, while some fail to see it in a 30". Brian Skiff of Lowell Observatory claims to have seen it in a 7" f/9.6 Astrophysics Starfire refractor! What you'll see are two very close companions looking a bit *fuzzier* than the surrounding faint stars. A great guidepost to locating it is the 11.5 magnitude edge-on galaxy **NGC 3079**. The quasar is about ½ degree to the NW of it. Fascinating object. Has anyone seen it?

After these faint deep-sky objects I felt I needed a break, so slewed the 25" to **M 51**. It was the best I have ever seen it. Rarely have I detected so much minute, fine detail in the spiral arms, particularly the faint arm extending southward. It was just simply stunning. I wish I had tried to locate galaxies **IC 4277 & IC 4278** shown on page 151 of *Vicker's CCD Atlas North* (I highly recommend this photo atlas no longer available in printed form, but available on CD ROM) which are in the same field of view, but just didn't think to do so. Next on the show objects list were **M 3** and **M 13**, each displaying their magnificent structure better than ever before. Each looked more like open clusters than globulars.

I could go on with superlatives about this particular night but I'll spare boring you with all the details, however I was just too excited not to share at least some of the views with others. If you observe, or image, any of these objects please let me know. Kent Blackwell kent@exis.net

SKYMAP FOR MARCH 2005



STARS

- <1
- 1.5
- 2
- 2.5
- 3
- 3.5
- 4
- 4.5
- >5

- Multiple star
- Variable star
- ☄ Comet
- Galaxy
- Bright nebula

SYMBOLS

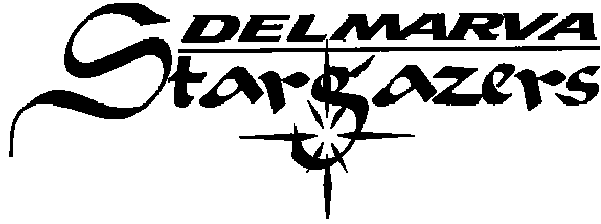
- Dark nebula
- ⊕ Globular cluster
- ☉ Open cluster
- Planetary nebula
- Quasar
- △ Radio source
- × X-ray source
- Other object

TUCKAHOE STATE PARK, MD
MARCH 11 2005

Local Time: 22:00:00 11-Mar-2005
Location: 38° 58' 0" N 76° 56' 0" W

UTC: 03:00:00 12-Mar-2005
RA: 9h11m43s Dec: +38° 57' Field: 182.0°

Sidereal Time: 09:11:42
Julian Day: 2453441.6250



are pleased to announce our Eleventh annual Star Gaze Star Party from
April 8 through April 10 2005
at Tuckahoe State Park near Queen Anne, MD.

The registration fee includes camping fee for the observing area. ALL NIGHT STARGAZER COFFEE, as always, will be free. Sodas and hot dogs will be available at minimal cost. Campers will be permitted to park and set up by their scopes, but there are no hookups or electricity in the observation area.

NOTICE!

This year's Star Gaze will be held at the Equestrian Center.
(See map on registration form or link below).

All attendees are encouraged to register in advance for this event due to limited space and growing popularity of the Star Gaze Star Party. Your badges and entrance parking permit will be sent to you on receipt of payment.

REGISTRATION for Star Gaze XI

This year's registration is \$30 per person. After March 21 \$35 per person.

For more information call or e-mail:

Jerry Truitt, Vice President (410) 885-3327 E-mail: contact@delmarvastargazers.org

Joe Cain (302) 998-4534 E-Mail: JoeCainJr@CS.Com



REGISTRATION FORM

Make check payable to *Delmarva Stargazers*

Mail to Joe Cain 2219 Henlopen Ave. Wilmington, DE 19804 Phone: (302) 998-4534

Name _____ What Day Will You Arrive? _____

Evening/ Weekend Phone _____

Address _____ City _____

State _____ Zip Code _____

Automobile License number _____

Number in your party _____

Attendee #2 _____ Attendee #3 _____

Attendee #4 _____ Attendee #5 _____

Attendee #6 _____ Attendee #7 _____

There is a single Fee of \$30 per person until March 21, \$35 per person after.

TOTAL ENCLOSED _____

YOUR ENTRANCE PARKING PERMIT IS YOUR RECEIPT. Sorry no refunds.

Are you interested in giving a presentation at the Star Gaze?

Moondark for March: Algebra of Easter

The Sunday after the Full Moon following the Spring Equinox is Easter. Of civil and Christian holidays observed in this country, this is the most movable. In 2005, Easter will be Sunday, March 27th. And although this simple explanation works for this year, it isn't the whole story.

In 1582, the Pope instituted calendar reforms resulting in the eponymous Gregorian calendar, the system used around the world today. Ten days were deleted, October 15th followed the 4th, restoring the vernal equinox to about March 21st. To better match the Earth's revolution, century years (multiples of 100) were no longer leap years unless evenly divisible by 400 (which, incidentally, is why 2000 was a leap year). In addition, new tables of the Full Moon were adopted for the calculation of Easter.

Accordingly, Easter is defined to be the Sunday following the ecclesiastical Full Moon that falls on or next after March 21st. The 21st is defined as the vernal equinox, even though it does not necessarily fall on that date. The ecclesiastical (or Paschal) Full Moon may differ from the astronomical as well, although adopted reforms henceforth keep calendars and astrophysics roughly in synchronization. Importantly, rules allowed Easter to be determined simply for practical purposes long before orbits were known to sufficient accuracy.

The earliest possible date is March 22nd, and the latest is April 25th, and April 19th is the most common date over the long term, although March 31st, April 15th and 20th occur most frequently (five times each) in this century. Astronomical and ecclesiastical rules yield different dates only 18 times in 1900-2100, most recently in 1981 and not again until 2038. And because adopted rules and astronomical phenomena can differ, full moons can occur *on* Easter Sunday, as happened most recently in 1998. Easter Sunday's Full Moon can even be eclipsed, and this will next occur on April 5th, 2015. Amazingly, the cycle of Gregorian Easter dates takes 5.7 million years to repeat.

In Greece, Easter will be celebrated five weeks later on May 1st, 2005. The 1582 calendar reforms were rejected by the Eastern Orthodox churches, and they have continued to use the Julian calendar and traditional lunar tables to calculate Easter. In this century, the Julian Calendar is 13 days behind the Gregorian, and Easters can coincide or differ by one, four or five weeks. Differences between these calendars are still accruing, and starting in 2437 the two Easter dates can differ by as much as six weeks, and they can no longer fall on the same date after 2698. Calculation of Julian Easter is algorithmically somewhat simpler, and the cycle of dates is much less complicated, repeating every 532 years.

Of course the dates of Easter so far off into the future are of little practical importance and only computable if churches maintain their current practices. One alternative fixes the date as the second Sunday in April, i.e., between the 8th and 14th. Another proposal uses the astronomical equinoxes and full moons at the Jerusalem meridian. While advocates argued this be initiated for the new millennium, no church has adopted this proposal.

Whenever Easter falls, things are sure to be looking up for star gazers. While the days grow rapidly longer and the nights shorter, low temperatures are no longer bone-chilling. Winter's familiar bright stars—Aldebaran, Rigel, Betelgeuse, Sirius and Procyon—are fading into the western twilight. The sky overhead seems empty in comparison. But those with telescopes know to wait patiently for the dark of the Moon and look more deeply. The spring sky is filled with enough galaxies to last until our home, the Milky Way, returns with summer's hazy nights.

A [Google.com search](#) will yield innumerable pages related to [dates of Easter](#), [calculator applets](#) and [calendrical systems](#) in general. In hardcopy, good sources include the [Explanatory Supplement to the Astronomical Almanac](#) (1992), and any of the books by astro-calc-guru [Jean Meeus: Astronomical Algorithms](#) (1991) Chapter 8, [Mathematical Astronomy Morsels](#) (1997) Chapters 59 and 60, and [More Mathematical Astronomy Morsels](#) (2002) Chapter 25, all published by [Willmann-Bell](#).

*The full moon
will rise just two
days before
Easter Sunday
this year...*



[Moondark](#) is written by [Doug Miller](#), published [online](#), and printed in the [Delmarva Star Gazers' Star Gazer News](#). Last revised on 20 Feb 2005. Text and images copyright © 2005 by Douglas C. Miller, All Rights Reserved. This material may not be reproduced in any form without prior permission.