

Star Gazer News

www.delmarvastargazers.org

June 2005

Volume 11 Number 12

May Meeting notes

By Jerry Truitt

Delmarva Stargazers May 3rd meeting was called to order at 7:05 P.M. Our president Don Surles was present but allowed vice president Jerry Truitt to run the meeting.

There were no new members or guests present at this month's meeting. However, Billy Westergard was in attendance again this month. DAS is having a dinner meeting May 17th at Lamberti's Cucina restaurant. They are having a guest speaker, from the Goddard Space Flight Center, Dr. John Wood. Billy invited all DMSG members to attend.

The first presentation of the night was by Doug Norton on packing for a night's observing. Doug Air Force experience really shows as he went over how to organize your equipment so you make sure you don't forget something. He pointed out that in this area you need to be ready to go in a moments notice and there is nothing more disappointing than arriving at the scene after scrambling to get there and finding you missed picking up that dew heater or other vital piece of apparatus.

Doug suggested that you organize your stuff so everything has a place and if it's not in its place there is an obvious hole or gap that jumps out at you. Doug noted when he was in the service they paint the area where a tool should go yellow. That way you can tell in a glance that something is missing.

Doug recently purchased a C4 Meade from some junk dealer. Wait? That wasn't a junk dealer that was Don's, our president, basement. His basement just looks like some astronomical junkyard. Anyway, Doug loved the scope but for some reason it wouldn't stay collimated. He did some research and found that the primary mirror was loose. He went through his procedure of disassembling and correcting this problem. After correcting the mirror problem he wanted to get a really good collimation on the scope. He used Polaris and provided pictures and a how to guide to collimate a Cassigrain scope using the star method. Look for details of Doug's procedure in this month's newsletter.

Jerry Truitt our Night Sky Network coordinator had just recently received a new kit from NASA, Our Galaxy, Our Universe. Jerry went over the tools provided with the kit and the concepts the kit is used for with the public. The focus of this kit is scale and distance, of our solar system, our galaxy and the

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Star Gazer News under new management

Pj Riley

After years of exemplary performance as newsletter editor, Frank Sheldon has decided to 'retire' as editor in order to pursue other interests. I thank Frank for all his work, and I hope, with everyone's help, to keep up the quality of our newsletter.

Meeting June 7th 7PM

**Tripods - Designs & Functions
NASA programs for
Space Exploration
ADs - then and now
Programs for 2005-2006
NASA update
Monthly star chart**

First Presbyterian Church, Smyrna

Uncle Don Wants You...



...Out at the field tonight!

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universe as a whole. It gives us some unique tools and techniques for demonstrating to the public how vast things are in the astronomical sense.

The kit also included a DVD on the Hubble Space Telescope. We watched about 15 minutes of the DVD. I guess the disappointing thing to us astronomers was it had too much artist concepts and not enough Hubble images. The crux of it was trying to get the public to understand how many great discoveries the Hubble has made.

It's the time of year to nominate next year's officers. As I think you all know Don has elected to not run again. Keith Lohmeyer nominated Lyle for the office of president. Lyle accepted the nomination. All the other officers from last year agreed to stay in office. No one else expressed an interest in holding an office. Don said since everyone is unopposed there is no need for an election and the officers are as follows:

Lyle Jones	President
Jerry Truitt	VP
Paul Riley	Secretary
Kathy Sheldon	Treasurer
Leonard White	Aide-de-Camp

We also had a discussion on the 4th of July picnic / business meeting held every year. Some members noted that the 4th is a tough weekend and many can't make it because we have it during the holiday.

Billy Westergard made a suggestion we combine with DAS and have a summer astronomical picnic for both clubs. So as it stands now we will be changing the date and place for the picnic business meeting and will post when it is all set.

There were a couple of members who said they were looking to get more involved, but could not hold an office because of family commitments. I suggested they take the lead on some projects the club has that need some leadership to get done.

Specifically I suggested we need someone to spear head the 22" mirror and telescope build. We also have funds in our treasury that only needs somebody creative to come with a project.

One of our members, Rick Barnes, has been awarded a NASA scholarship to attend Delaware Technical and Community Collage and take astronomy courses.

Collimation of Cassegrains

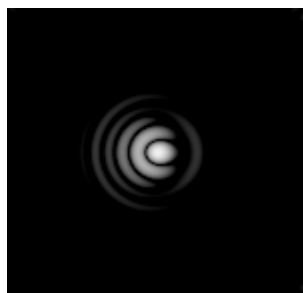
by Doug Norton

Collimation is simple in concept, but there are plenty of subtle touches you can learn to make collimation easier. Collimation is important on any telescope, but it is particularly important on many Cassegrain designs because mis-collimation causes poor resolution.

When Should I Collimate?

There are several signs that indicate a need for collimation:

- 1) Coma on star images. This is a tail of any kind on a star image. If stars aren't pin-point sharp, suspect collimation.
- 2) Out-of-focus star images. Stars show a secondary shadow that isn't at the center of the out-of-focus image.
- 3) When you are close to focus, you see several offset images of a planet, instead of one.



What Does Mis-Collimation Look Like?

The image at left shows what a mis-collimated scope will look like. The diffraction rings are not concentric -- they are pinched or bunched up in one direction. You may also see some flaring or fuzziness on the side away from the pinching. This is the typical

starting point when a scope is only somewhat out of collimation. For a very badly collimated scope, the diffraction rings may be very tightly bunched on one side, and very broad on the other. In such a case, you simply need to make larger initial adjustments. The diffraction rings may not be circular -- don't worry, that's normal. They will only start to look circular when collimation is getting closer.

How do I Collimate?

The best way to collimate is on a star, at night. You will need reasonably steady seeing to do collimation. You use the diffraction rings around a slightly out-of-focus star to perform collimation, and if the air is turbulent, the diffraction rings will be so spread out that you won't be able to see them clearly.

What Tools Do I Need to Perform A Collimation?

Two or three eyepieces that offer a range of magnification from about 200x to 600x. An Allen wrench or screwdriver appropriate to the screws that you will use to set

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

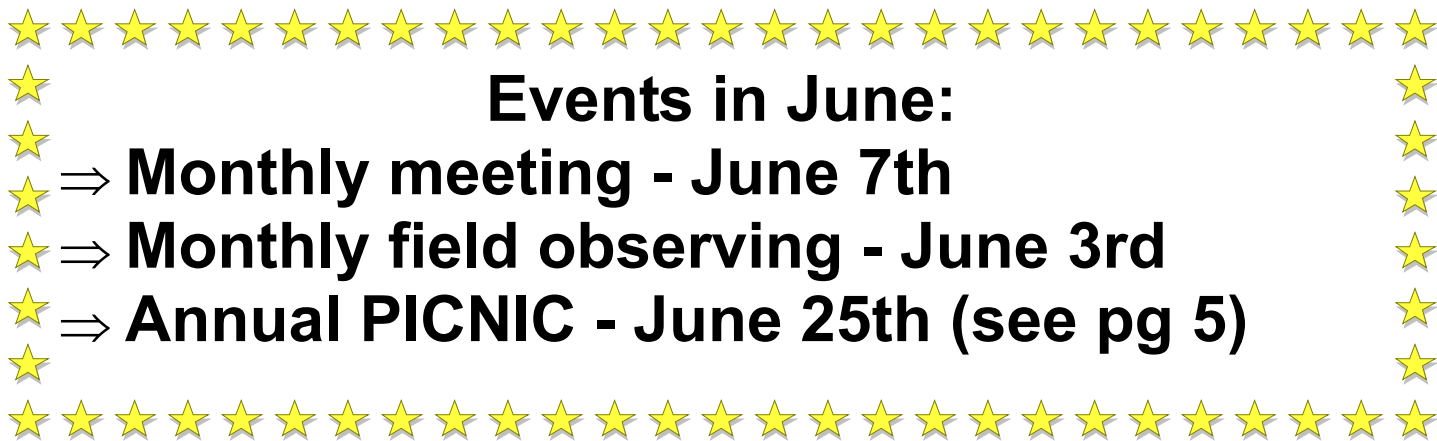
NAME _____

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 Lyle Jones at 302-736-9842 for more information.



Events in June:

- ⇒ Monthly meeting - June 7th
- ⇒ Monthly field observing - June 3rd
- ⇒ Annual PICNIC - June 25th (see pg 5)

Bill McKibben has receives "Messier" Certificate

James T. Morgan

It is with great pleasure that I announce that Bill McKibben has received a "Messier" certificate for observing from the Astronomical League through the Delaware Astronomical Society. This certificate was awarded by Lynn King, Secretary of the Delaware Astronomical Society at the annual dinner meeting held at Price's Corner.

Bill has observed more than 70 of the Messier objects and joins more than 2,400 people who have worked to achieve this honor. Charles Messier compiled a list of 110 objects that have become one of the great standards of observing by amateur astronomers.

Those that are interested in working towards this goal should contact the author for help in observing. Regular observing is the best way to achieve this goal and there are several things that we have that can help to achieve this.

Delaware Astronomical Society "Astronomer of the Year"

Jerry Truitt

In his modesty James left out that he was also honored as the Delaware Astronomical Society "Astronomer of the Year". This was given to James in recognition of the many hours he devotes to doing public out reach events, serving with the Astronomical League and the program he set up for new members to the DAS. Congratulation from the Delmarva Stargazers to both James and Bill on their accomplishments.

Comments from Don

Don Surlles

Well, we survived another winter and spring is reluctantly becoming warmer each day. The sun really does feel good. And it has been a very beautiful, if cool spring.

I hope each of you has taken advantage of the recent spell of dry weather to observe the heavens. Jupiter, Saturn, the moon, Leo, Virgo, Coma Berenices, Ursa Major, Bootes...this is the time to enjoy them at their best.

I have ventured out a couple of times; once with my 10" dob and again with the 17.5" (both on my driveway). Although the mind was willing, in both cases the body was not ready. There is a lot of twisting, bending, and scope moving involved and after a few minutes the effort surpassed my desire; so, I retreated to my Lazyboy. But, I am looking forward to the day when I can reassemble the 25" Obsession and really see, and share with you, the Wonders of the Universe!

You have elected a fine group of people to lead Delmarva Star Gazers for the coming year. Lyle Jones is our president, Jerry Truitt our vice president, Paul Riley is our secretary and has also assumed the duties of assembling The Stargazer News, Kathy Sheldon will again handle the checkbook as she has done for the entire life of DSG, and Leonard White remains our Aide De Camp. Leonard has really pitched in to help in all our programs.

Congratulations to you for electing them and Congratulations to our new officers. I know they will improve DSG in the coming year and I look forward to working with them, and with you, to implement the agenda DSG'ers choose.

This is the time for you and I to convey our sincere thanks to Frank Sheldon for his many years of editor for the

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Your 2005-2006 Officers

Office	Officer	Phone	e-mail
President	Lyle Jone	302-736-9842	lyjones@state.de.us
Vice President	Jerry Truitt	410-885-3327	truittjs@netscape.com
Secretary	Pj Riley	302-738-5366	pjr127@yahoo.com
Treasurer	Kathy Sheldon	302-422-4695	kathy.sheldon@att.net

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collimation. A flashlight in case you need to look closely at the collimation screws.

Collimation Guidelines

Convention says always put the eyepiece directly into the visual back of the telescope. Never use a diagonal. You want the straightest possible light path for collimation. I disagree with this statement. Suppose you get perfect collimation without your diagonal. Once you put the diagonal back in the light path, any errors inherent with the diagonal will upset the collimation. Pinched mirror, misaligned mirror, etc. I say collimate with whatever and however you normally observe.

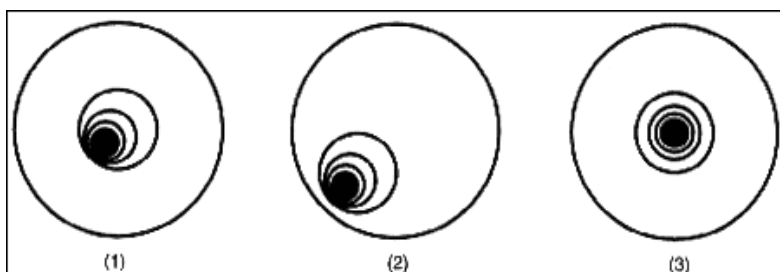
Star Diagonal (prism) vs. Mirror Diagonal? There isn't much difference between the two unless you buy the newest dielectric coated mirror diagonals.

Make one adjustment at a time. When you make an adjustment, loosening one collimation screw leaves the secondary dangling, and you will need to tighten the other two screws to take up the slack.

Setting Up For Collimation

To start collimation, point your telescope at a moderately bright star. Polaris works for three reasons. It doesn't move, no drive corrector is required and it is always up. Place a low power eyepiece in the diagonal/visual back, and center the star in the field of view. Defocus the image slightly. You will collimate by making adjustments until the diffraction rings of the out-of-focus image are as perfectly concentric as you can make them.

Collimation Check At Low Power



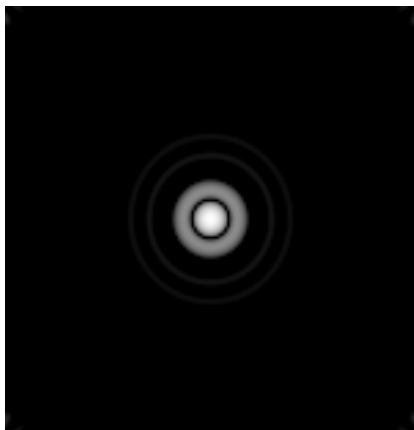
Start with low power.
Defocus your star slightly.
Center the out of focus star in the eyepiece field of view. (1)
Move the image in the direction of the offset. (2)
Adjust screws to bring image back to center. (3)

Evaluating The Adjustment: Examine what has happened to the out-of-focus star image. You should see an improvement in collimation (unless you made too large of an adjustment). The area of the pinch may be less pinched, or the diffraction rings may be less oval. Flaring may be less, or may have disappeared. The exact nature of the improvement varies with the type of scope and the amount of mis-collimation you started with. Repeat adjustment for opposite side of focus. (Inside or Outside focus)

These two sides should match. If not, adjust repeatedly until they do.

Evaluation Part 2: Note whether the pinching has changed direction. This may affect your choice of which screw to use for the next adjustment. If collimation looks perfect or very close to it, change to a higher power eyepiece and continue until perfection is achieved, or whatever the seeing will allow. It is only when you get to around a 600X eyepiece that you will get the kind of collimation that will knock your socks off while viewing planetary detail on a still night.

Evaluation Part 3: When you have gotten good collimation while slightly out of focus, you can improve it further by collimating in focus. It takes really steady seeing and a high-power eyepiece to collimate in focus. See Thierry Legault's web site for tips on in focus collimation (<http://legault.club.fr/collim.html>).



Your final results will look like the image at left. A perfect star image with a concentric Airy disk.

Presidential Notes

Lyle Jones

I would like to thank the Delmarva Stargazers for the opportunity to serve as you President and thank Don for this leadership and guidance over the last thirteen years. I have some big shoes to step into. With new officers there will be change, hopefully the Stargazer will accept some change and let the Officers know the ones that they cannot accept! My goal is to move the President and Vice- president positions into a three-year rotation. The President will serve for three years - one as Vice-President, one President and one as Past-President, which serves as advisor to

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Join us for the Annual Family Picnic June 25th 2PM Dover Park Pavilion

The club will supply hot dogs, hamburgers, rolls, corn and sodas.

Everyone and their families are invited

Bring your favorite picnic dish, dessert, or bag of chips.

See Lyle's notes below for further details

Did you know ?

M57 - The Ring Nebula - isn't really a ring, but a cylinder, with our viewpoint looking down through the cylinder. When the central star shed material to form the 'ring', the stellar material was shed in all directions. The 'experts' theorize that interstellar dust (dark matter) and gas jets caused the nebula to form into a cylinder. IC 4406 - The Retina Nebula - is also a cylinder, but we view it from the 'side', hence it looks 'square'.

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Stargazer News. Frank has done a wonderful job creating and improving the quality of our newsletter each month. We owe him for his devotion, talents, and perseverance to ensure the newsletter was always in your hands prior to the monthly meeting.

I want to say thanks to all Star Gazers who extended their best wishes for my recovery during the recent bout with my heart. The depth of DSG and the friendship we have for each other is truly amazing. You ladies and gentlemen are a treasure and I want you to know this ol country boy from the cotton and tobacco fields of North Carolina recognizes the value of your phone calls, emails, get well cards, prayers, and well wishes. You make me proud to be a member and past president of DSG!

Next year will be the first time since DSG was created in 1993 that I will not be president of DSG. I have mixed feelings about stepping down but DSG deserves a president who can devote the time required to be successful leader. I am 100% sure that Lyle, the other officers, and us, will together, improve the Star Gazers in the coming months and years. I am proud of our organization – I look forward to a new chapter in its history.

See you at the Church or at Tuckahoe.

Don...

Ye quenchless stars! so eloquently bright,
Untroubled sentries of the shadowy night.
The Starry Heavens.

Robert Montgomery (1807-1855)

(Continued from page 4)

the officers. At the end of the second year in office, the Vice-President will become President. Thus only the Vice-President will be elected every two years. The Secretary and Treasurer will also be elected every two years. In order to make this modification, the By-Laws will need to be changed. Unfortunately, none of us are getting any younger and in order for the Stargazers to continue to sustain itself, we need new faces with different ideas and perhaps with more energy than some of us older farts. I believe this By-law modification will give the consistency that the Stargazers have chosen for the last thirteen years and push other club members into the leadership roles.

The officers will get together in early June to make plans for next year. We will have those plans in our July and August Newsletter to be reviewed by the membership. This will allow the membership at large to comment on our activities and plans.

Summer soon will be here with some of my favorite skies. I sure hope that the skies improve! In July I am looking forward to a week of observing those beautiful southern skies at Spruce Knob, WV. The sky seems to be cloudy every time that I have the energy or time to observe. Work sure gets in the way of observing!

Be sure to mark your calendar for June 25 from 2 to 5 PM for our summer family picnic at Dover Park off White Oak Road in Dover.

<http://www.cityofdover.com/information/parks/display/?park=1><http://maps.yahoo.com/py/maps.py?BFCat=&Pyt=Tmap&newFL=Use+Address+Below&addr=1210+White+Oak+Road&csz=Dover%2C+DE+19901&Country=us&Get%A0Map=Get+Map> .

This year we will share our picnic with the Delaware Astronomical Society. We will supply hot dogs, hamburgers, buns and drinks, and the plates and utensils. You will just need to bring your favorite dessert or dish preferably filled with food. Please call Lyle Jones (302-736-9842) to let us know if you and your significant others are coming. We will set up some solar viewing and see if we can arrange some entertainment.

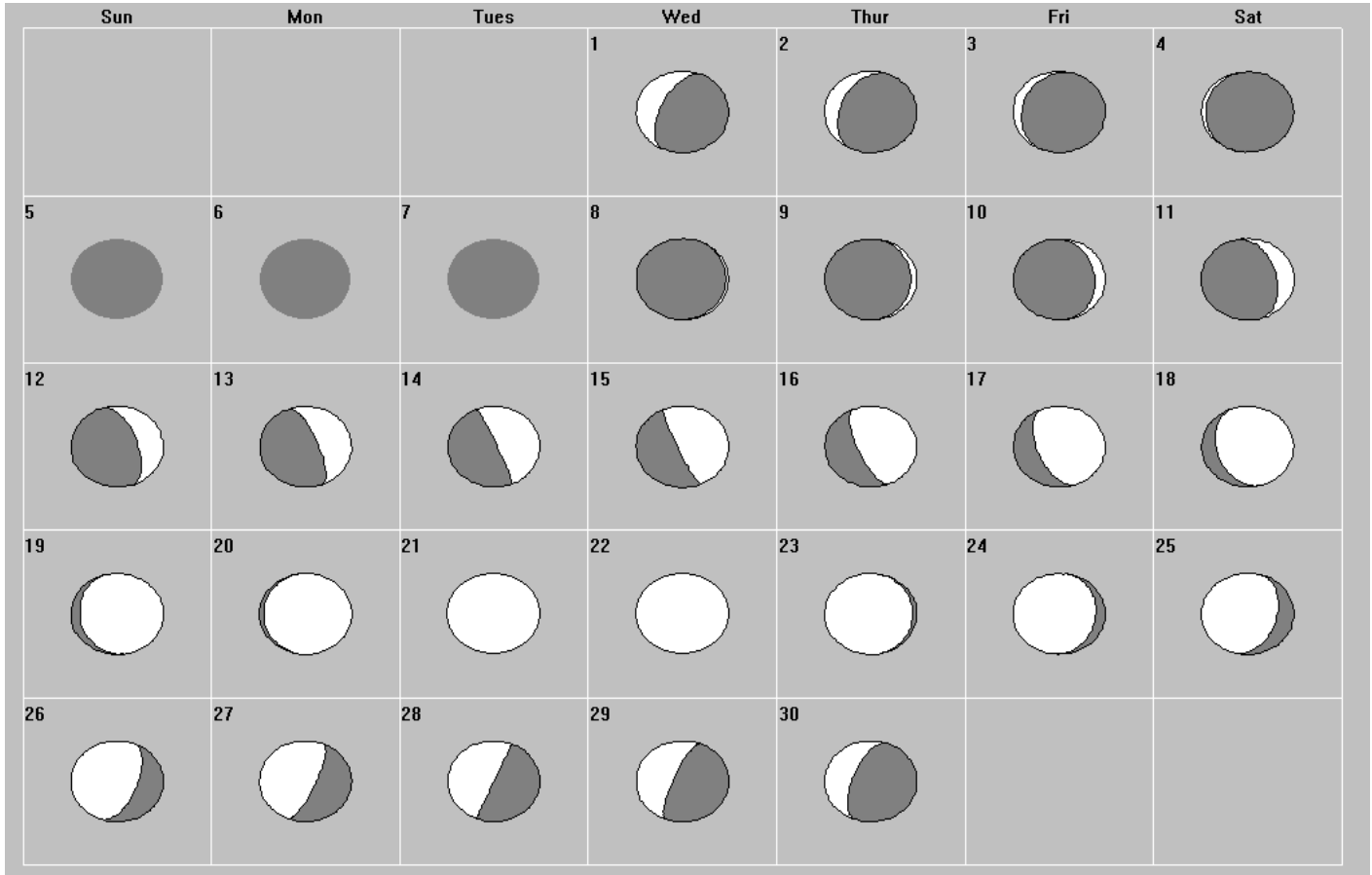
Sun and Moon Data for June 2005

Tuckahoe MD

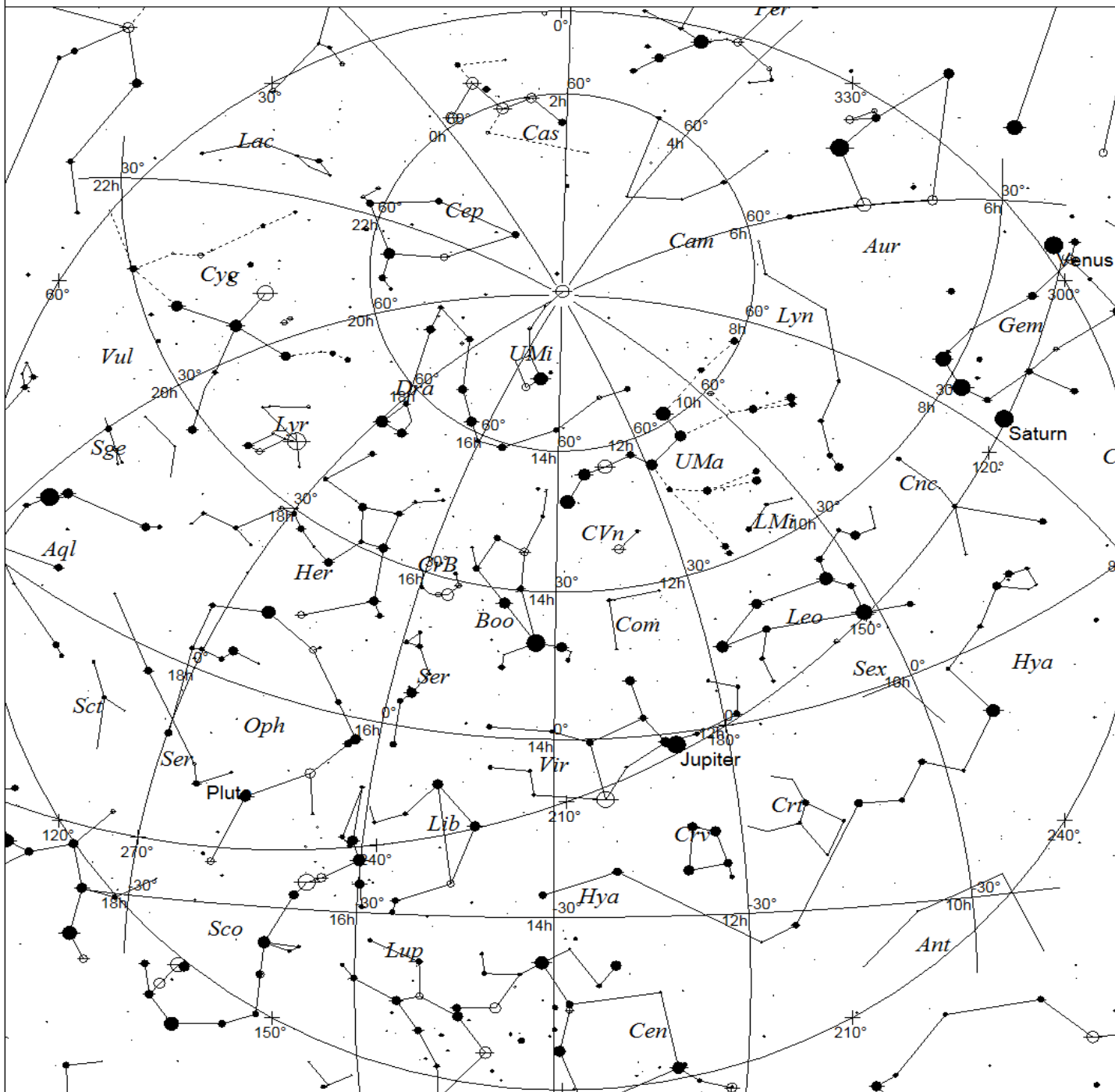
38.98°N 75.93°W 5hrW

Daylight Time Astronomical Twilight

Date	Sun				Moon				%
	Twilight	Rise	Transit	Set	Twilight	Rise	Transit	Set	
6/1/2005	3:45a	5:40a	1:02p	8:24p	10:19p	2:41a	8:52a	3:13p	27
6/2/2005	3:44a	5:40a	1:02p	8:24p	10:20p	3:05a	9:37a	4:20p	18
6/3/2005	3:43a	5:39a	1:02p	8:25p	10:21p	3:29a	10:22a	5:27p	11
6/4/2005	3:43a	5:39a	1:02p	8:26p	10:22p	3:56a	11:09a	6:34p	5
6/5/2005	3:42a	5:39a	1:02p	8:26p	10:23p	4:26a	11:58a	7:40p	2
6/6/2005	3:41a	5:38a	1:02p	8:27p	10:24p	5:03a	12:50p	8:44p	0
6/7/2005	3:41a	5:38a	1:03p	8:27p	10:25p	5:46a	1:43p	9:42p	1
6/8/2005	3:40a	5:38a	1:03p	8:28p	10:26p	6:36a	2:35p	10:33p	3
6/9/2005	3:40a	5:38a	1:03p	8:28p	10:27p	7:33a	3:27p	11:15p	7
6/10/2005	3:40a	5:38a	1:03p	8:29p	10:27p	8:33a	4:16p	11:51p	13
6/11/2005	3:39a	5:38a	1:03p	8:29p	10:28p	9:34a	5:02p	****	20
6/12/2005	3:39a	5:38a	1:04p	8:30p	10:29p	10:36a	5:46p	12:20a	28
6/13/2005	3:39a	5:37a	1:04p	8:30p	10:29p	11:36a	6:27p	12:45a	37
6/14/2005	3:39a	5:37a	1:04p	8:31p	10:30p	12:37p	7:08p	1:08a	46
6/15/2005	3:39a	5:38a	1:04p	8:31p	10:30p	1:38p	7:49p	1:29a	56
6/16/2005	3:38a	5:38a	1:04p	8:31p	10:31p	2:40p	8:31p	1:50a	66
6/17/2005	3:38a	5:38a	1:05p	8:32p	10:31p	3:46p	9:17p	2:13a	75
6/18/2005	3:38a	5:38a	1:05p	8:32p	10:31p	4:56p	10:06p	2:38a	84
6/19/2005	3:39a	5:38a	1:05p	8:32p	10:32p	6:10p	11:01p	3:08a	91
6/20/2005	3:39a	5:38a	1:05p	8:33p	10:32p	7:26p	****	3:46a	97
6/21/2005	3:39a	5:38a	1:06p	8:33p	10:32p	8:40p	12:03a	4:35a	99
6/22/2005	3:39a	5:39a	1:06p	8:33p	10:32p	9:45p	1:08a	5:36a	99
6/23/2005	3:39a	5:39a	1:06p	8:33p	10:32p	10:37p	2:15a	6:49a	96
6/24/2005	3:40a	5:39a	1:06p	8:33p	10:32p	11:19p	3:19a	8:08a	91
6/25/2005	3:40a	5:39a	1:06p	8:33p	10:32p	11:52p	4:19a	9:27a	83
6/26/2005	3:41a	5:40a	1:07p	8:33p	10:32p	****	5:13a	10:44a	73
6/27/2005	3:41a	5:40a	1:07p	8:33p	10:32p	12:21a	6:03a	11:56a	62
6/28/2005	3:42a	5:41a	1:07p	8:33p	10:32p	12:45a	6:50a	1:06p	51
6/29/2005	3:42a	5:41a	1:07p	8:33p	10:32p	1:09a	7:35a	2:13p	40
6/30/2005	3:43a	5:41a	1:07p	8:33p	10:32p	1:33a	8:21a	3:20p	30



Skymap June 6, 2005 10 PM



<p>STARS</p> <ul style="list-style-type: none"> ● <1 ● 3.5 ● 1.5 ● 4 ● 2 ● 4.5 ● 2.5 ● >5 ● 3 	<p>SYMBOLS</p> <ul style="list-style-type: none"> ● Multiple star ○ Variable star ☄ Comet ☉ Galaxy □ Bright nebula ☐ Dark nebula ⊕ Globular cluster ○ Open cluster ⊕ Planetary nebula ⊗ Quasar △ Radio source × X-ray source ○ Other object 	<p><i>Tuckahoe State Park, MD</i></p>
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Local Time: 22:00:00 6-Jun-2005 UTC: 02:00:00 7-Jun-2005 Sidereal Time: 13:54:33
 Location: 38° 58' 0" N 76° 56' 0" W RA: 13h54m33s Dec: +38° 57' Field: 182.0° Julian Day: 2453528.5833

Moondark for June: Matariki Rising

Perhaps the best known and certainly most distinctive star cluster in the sky is [Matariki](#). This name is used by the [Maori of New Zealand](#), while others know it as the [Pleiades](#), the Seven Sisters, or simply M45. Located in Taurus the Bull, we associate it with the bright stars of late winter. But to these indigenous peoples of “the [Land of the Long White Cloud](#),” its reappearance in the morning twilight heralds a new year.

Seasons are opposite south of the equator, and just as our days will shorten after this month’s solstice, winter’s dark days “down under” will soon lengthen. New Zealand is surrounded by ocean, and thus the [climate is quite temperate](#). Traditionally, *Matariki*’s rising and the Maori new year mark the planting of the *kumara*, a Polynesian [sweet potato](#), a dietary staple even today readily available in supermarkets. More precisely, [Matariki festivals](#) are held on the first New Moon following the morning reappearance, while some *iwi* (or tribes) celebrate on the first following Full Moon.

A [heliacal rising](#), such as that of *Matariki* / Pleiades in late May or early June, occurs when stars (or planets or the Moon) first become visible in the twilight of dawn. Until then, its stars are too close to the Sun and drowned in twilight. Each day, the Sun moves a degree east, and stars rise 4 minutes earlier. Thus the reappearance of stars is notable, annual and predictable, ideal for marking time. Ancient Egyptians used such risings as a clock, and many [ancient civilizations](#) timed agricultural activities with these heliacal risings. Even today, a common “explanation” for the [“dog days” of summer](#) is the August heliacal rising of the [Dog Star](#), Sirius.

In the [Maori language](#), there are two meanings: [Mata Riki](#) or “tiny eyes,” and [Mata Ariki](#), “eyes of god.” In some stories *Matariki* refers to a single star, which represents either a mother or father, surrounded by daughters named [Tupu-a-Nuku](#), [Tupu-a-Rangi](#), [Waiti](#), [Waitā](#), [Waipunarangi](#) and [Ururangi](#). *Matariki* portends the weather and harvest: if clear and bright, the year will be warm and food plentiful. If hazy and shimmering, the chill of winter persists and will necessarily delay planting.

Remarkably, [many cultures](#) associate *Matariki* / Pleiades with a family of sisters, usually six or seven. In [Greek mythology](#), the [Seven Sisters](#) are the daughters of Atlas and the sea nymph Pleione. They were involved in legends of much drama, including mass suicide, and all but one bore children by their affairs with gods. [Merope](#) shines less brightly in shame brought on by her affair with a mortal.

Here on Delmarva, we are roughly the same distance north of the equator as Auckland is south. [Will the Pleiades' heliacal rising occur earlier or later here than in New Zealand?*](#) Look for it next time you rise well before the Sun. On the other hand, I catch the Pleiades on the way to work each morning, cloudy or clear, on my car’s steering wheel. [Subaru](#) means Pleiades in [Japanese](#) and the [company logo](#) is a stylized representation of the cluster. The Pleiades’ striking appearance guaranteed notice by star gazers throughout history, and the mythology and legends of each culture are certainly just as relevant today.

This year, [Matariki, the Maori New Year](#) will be marked on the first weekend of this June, with the first new Moon on the 8th. [Proverbs](#) at right are taken from the *Te Taura Whiri i Te Reo Māori* - [Māori Language Commission web site](#) and [2001 pdf booklet](#). *The date of heliacal rising is a complex function determined by right ascension, declination (and ecliptic latitude and longitude) and observability parameters such as angular elevation above and the solar depression below the horizon; see J. Meeus’s [Mathematical Astronomy Morsels](#), Chapter 46. Or use any planetarium program, and set you location to Auckland at 37° South, 175° East. Better yet, stay awake till dawn at your favorite observing site! The Hyades (and Aldebaran, top right) and Pleiades (left, below center) appear upside down. Heading northward, [Comet Machholz](#) is visible in bottom left corner.

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The tiny eyes of Matariki



Matariki will keep you awake



Matariki scoops up the food



Matariki has many admirers

