

# NOVAC

THE NEWSLETTER OF THE NORTHERN VIRGINIA ASTRONOMY CLUB

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May/June 2000

## Moving On...

I just wanted to write a note here, to let NOVAC members know that in May I will be leaving this area. After 13 years at the U. S. Naval Observatory, I've accepted a new position. I'll be working at the Astrogeology Department of the U. S. Geological Survey, in Flagstaff, Arizona. My work up to now has concentrated on determining the Earth's rotation, and improving the terrestrial and celestial coordinate systems (latitude and longitude for the Earth, right ascension and declination for the sky). My new job will be in the area of improving the coordinate systems of other planets, moons, and asteroids, as part of the USGS planetary mapping effort. This is something I've always had an interest in, so this job is certainly an exciting prospect for me and I'm looking forward to it. My wife, JoAnne, who many of you know, will also be finding new work in Flagstaff as well, after working for several years for the Fairfax County Adult Education program.

Aside from the job changes, we're certainly looking forward to moving to northern Arizona. It seems to us a spectacular area to live, and of course we're really anticipating the clear, dark night skies there. We've got a contract down on a house a little outside of town to the northeast, at 7,000 feet or so elevation, with wonderful views of the mountains, and away from what little skyglow there is from the well designed lighting of Flagstaff (where Brian Skiff, a friend from Lowell Observatory, complains that the limiting magnitude is only 6.5!). And we're looking forward to being closer to friends and relatives all over the southwest, and to making new friends as well.

Of course the down side of all this is that

we will indeed miss our friends back here, particularly from NOVAC. We joined the club not long after our arrival here in 1987, and we've met a lot of wonderful folks and made a lot of friends. We've certainly enjoyed ourselves attending and helping out at countless meetings and events, and I tried to help as I could, particularly with programs, and in getting the club incorporated as a non-profit corporation. But we've really been amazed by all the good people in NOVAC, past and present, and what they've contributed. There's really no adequate way I can think of to do it here, but still I'd really like to say thanks to all those members, particularly all those dedicated elected and volunteer officials of the club, who've made NOVAC what it is over the last decade and more.

Surprisingly to me, I realize I've been in NOVAC long enough now to have seen much of its history. NOVAC started only a few years before our arrival here, as a high-school astronomy club in Springfield, with Nils Thomas, Blaine Korcel, and John Huggins as the chief "instigators", and with Al and Marylyn Schumann, Al Boldt, and Brenda and Kevin Jones as some of the early (and still current) members. By the time we arrived here it was a group of about 40-50 people that met irregularly at Fairfax county libraries. And now look. It's an organization of ten times that size, with regular, well publicized meetings, star parties, a great web site, and educational events, and it has done a lot for the northern Virginia area.

In the time we've been here we've also seen the metropolitan area expand and light pollution do it's worst. The club moved from using the Manassas Battlefield park and Burke Lake Park as regular observing sites, to using other sites like Parsell's Field, now already abandoned. We enjoyed the dark skies of the then new Crockett Park in the late '80's, only to see the skies slowly dete-

riorate, so that it and the much newer (well, for me!) Savage farm site have a much brighter sky than one would like. The good news is that NOVAC members are at it again, particularly with the help of Bob Gent and John Nusbaum, in fighting the light pollution problems of this area - and we are seeing great progress in improved lighting and passed or pending ordinances controlling outdoor lighting in VDOT and many counties in this area.

Anyway, we will miss the meetings, we will miss the observing, we will miss you all. We will never forget the many star parties we attended and helped out with at Crockett Park, particularly the observing of Comets Hyakutake and Hale-Bopp. And I'll never forget that trip to Big Meadows with Bob Bunge and Bob L'Hommedieu, to see Comet Hyakutake and its tail stretched a third of the way across the sky!

Still, we sure plan to do some observing out west and to help out with public events there too. We also plan to stay in touch as much as we can. We'll of course continue avidly reading the wonderful NOVAC newsletters(!) that Elliott Fein and now Mike Mills have been doing such a great job on, and we'll try to keep up with some of the flood of e-mail on the NOVAC e-mail list. We'll be back for visits occasionally, and I suspect we'll be running into some of you out west! Our updated address, etc. will be sent in for a later newsletter.

We plan to attend the May 14 NOVAC meeting, so will see some of you there. But otherwise, until we cross great circles again, here's wishing you all clear, dark skies. Keep up the good fight against light pollution, and remember... to observe and help others observe!

Regards,

Brent A. Archinal

## President's Message

Pete Johnson

There have been some big changes in the past month, changes that should help members and the public find and access NOVAC's club information. First, we have a new web site and club domain name. The previous <http://astro.gmu.edu/~novac> was difficult to remember. Now we are <http://novac.com> or <http://novac.net>. Simple and easy. We moved our site from GMU to a commercial provider that offers us easier access that should mean more frequent updates.

I would also like to take a second and thank John Wallin and Harold Geller from George Mason University for their support in letting us use their Astronomy Department's Internet facilities for our web site.

We also have a new information hotline: (703) 758-4455. In the past we had used members home numbers for club hotlines. This was a problem as numbers would periodically change as responsibilities for the hot line changed. We now have a commercial number that should be NOVAC's for a long while.

# Support the IDA

Join the International Dark-Sky  
Association

3225 N. First Avenue Tucson, AZ  
85719-2103

[www.darksky.org](http://www.darksky.org)

## A trip to an CCD Bed and Breakfast

William J. Brown

On March 24-25, Kate (my significant other) and I visited "The Florida Imaging Center", which is run by the one and only Jack Newton. The FIC is an astronomy bed and breakfast located near the megametropolis of Chiefland Florida. It is one residence in a tract of astronomy-only observatory/homes called Chiefland Astronomy Village.

The B & B is ably run by Jack's wife Alice, who cheerfully adds to the enjoyment of your stay. Nice accommodations and a "killer enter-

## Observing from Big Meadows

Guy Brandenburg

Last night (Friday/Saturday March 31/April 1), I canceled the mirror-making class at American University and decided to make my way up to Big Meadows along Skyline Drive in Shenandoah National Park, rather than to Savage Farm or Mickey Gordon or to Crockett. Reason? Three or four potential advantages came to mind:

- (1) Higher altitude, thus less atmosphere to see through
- (2) I wanted to see if the obnoxious light next to the filling station had indeed been shielded or not
- (3) If it had been shielded, then there would be a lot less light pollution and skyglow from neighboring communities than any of the other places
- (4) It has a much wider horizon, something like Crockett Park (and unlike Savage or MG)
- (5) Since I have for several years maintained a section of one of the blue-blazed trails in the SNP, I have a pass which allows me free entrance to the park (normally \$10) (sorry, not transferable)

Results:

- (1) Seeing and transparency were good; I did not bother to make calculations on limiting visual magnitude, but the Beehive was a very obvious naked-eye object even with my bad eyesight, and the stars in Coma Berenices were easily visible. Much better than anything I recall at any of the other locations, ever. The altitude at Big Meadows is approx. 3500 ft, give or take 100 or so, if I remember correctly.
- (2) The obnoxious light next to the filling station has, yes indeed, been shielded. Hurrah! Unfortunately, the obnoxious Pepsi machine right next to it is NOT shielded, and it casts its rays all over the meadow. You wouldn't think that would be a problem, but it has a translucent front with lights inside.

tainment center" keep you from getting antsy.

At first I was apprehensive about showing my vast body of ignorance of CCD imaging, but Jack allayed my concerns, assuring me that this was a fun experience with a learning by-product. After stuffing our faces with pizza at the local bistro, Jack opened his roll back roof observatory and we got down to business, while Kate and Alice watched TV and jawed. Since we were the only visitors, we had exclusive use of the 16" LX200.

First up was NGC 2903, a spiral galaxy in Leo, imaged 9 seconds for 5 exposures. Amazing what dark skies and a CCD can do. Next we took tricolor shots of the Eskimo nebula, and those old stand-bys, M51 and M42. The tricolor

shots took up to 13 exposures. Processing on Maxim DL and a little clean up with Adobe gave us a satisfying group of objects.

The next day, Kate and I explored Cedar Key and went Manatee hunting. When we got back we had our pick of DVD movies while waiting for dark. Jack had to drag me kicking and screaming away from his 60" TV for our second observing night.

Dark Florida skies, great equipment and nice people-what more could you want for an astronomy get away! See Jack's web site at [www.jacknewton.com](http://www.jacknewton.com) or mail me at [wbrown@pepco.com](mailto:wbrown@pepco.com) if you would like specifics.

- (2) Other than the occasional driver who decided to cast the rays of his headlights onto the field, and the aforementioned Pepsi machine, there was indeed MUCH less light pollution or sky glow than I recall at any other nearby location, even including Sky Meadows. A small light dome from Luray, but very little. But those headlights can be a nightmare, especially when camping season begins in earnest (last night was the first night of operation for Big Meadows campground) -- at least until the small belt of trees next to the Drive begins to grow their leaves. The belt of trees was planted, or allowed to grow, I assume, so that motorists would not be able to drive their cars onto Big Meadows proper and scare all the cute little deer and so on. [On the way, as I looked out over the horizon at "overlooks" on the Skyline Drive, I noticed a lot of haze to the north along the Blue Ridge, brilliantly illuminated from below by developers, car lots, gas stations and so on. Ques-

*(Continued on page 7)*

## What's Up?

Al Schumann

A while back I was thumbing through a copy of *Astronomy Through the Telescope* by Richard Learner, 1981, Harrow House Editions Ltd. It is one of those coffee table books you generally find on the bargain shelf with the price marked way down. Since my hero, Galileo, was pictured on one of the opening pages, I bought it. This was many years ago, when the Keck and Hubble telescopes were still dreams, so the book is dated. Be that as it may, we generally credit Galileo with being the first to study the sky with a telescope. This probably isn't true. However, he sort of snatched the title in March 1610 by being first to publish his observational findings in *The Starry Messenger*. It was a sensation. So, you see, publish or perish is a time honored tradition which goes back to at least the early 17th century.

The fact is, there were three other folks, any one of whom could have been the first. Johann Fabricius, a Dutchman, was one, Christoph Scheiner from Bavaria was another, and the third was Thomas Harriot, an Englishman. That sounds like the start of a joke: A Dutchman, a Bavarian, and an Englishman went into a bar... Anyhow, all of these men were engaged in celestial observations at the same time as Galileo, so in truth, any one of them could have been first.

Bear in mind that none of them actually invented the telescope. Lenses had been ground for magnifying glasses and spectacles for many years. The honors for putting together the first telescope go to a Dutch eyeglass maker named Hans Lippershey. He found that by placing a convex lens (the objective) at one end of a tube and a concave lens (eyepiece) at the other, a distant object would be magnified. Voila! The telescope was born. Crude? You bet. The optics must have been horrible, but it was a start, and the idea swept Europe in short order.

Fast forward to the year 2000. I'm at the dining room table as I put this story together. Before me are 30, count 'em, 30 sketches of the sun. They were made during the period from the last few days of February through the first week of April. I told you I was going to get serious one of these days. There were relatively few days when I couldn't get an observation because of heavy clouds or rain. At times I had to move fast so as to take advantage of fleeting opportunities. The observations didn't take long, usu-

ally only a few minutes. After all, there isn't a whole lot to see in a four-inch telescope. Basically, you have your big spots, your little spots, the squiggly bits, and a combination thereof.

A can of cream of mushroom soup (Campbell's) was my pattern for the solar disc. My dear wife, Lynn, was probably wondering what the heck was I doing with a can of soup on my workbench in the garage. Since that's not the first odd thing she has seen me do in our 43 years of marriage, she did not ask. I drew an equator and a meridian on the circle to make spot location a bit more accurate. I did not take into account the seven-degree tilt of the sun or the tilt of the earth. Further, I did not alter the equator for the mild slope of the driveway. The Astroscan on my homemade pier was the instrument used throughout the exercise. I used the Tuthill Solar Skreen arrangement I wrote about in the last issue. Finally, I employed a 24mm eyepiece, which gave me about 18X. My observing technique was the same every day. I kept the telescope erect, that is, with the eyepiece pointing straight up. I stood directly behind the instrument and looked straight down into the eyepiece from above. I wanted to see the same image each time I made an observation and sketch so as to eliminate daily variables.

The sun was busy all the time. There was never a lack of sunspot activity to record and track from day to day. Some of the spots-or groups of spots-maintained their integrity pretty well as they moved slowly across the solar disc. Other spots gradually faded away. Some were here today and gone tomorrow. Still others appeared out of nowhere. A whole quadrant might have been clear one day, and when I made the next observation, there could be a spot or two in evidence. They did not come around the limb, they just appeared.

My Astroscan is basically a Newtonian reflector built into a ball. It rides on sort of an altazimuth or bastardized dobsonian mount. How's that for waffling? In any case, without any equatorial alignment possible, my view through the eyepiece had the sunspots moving generally from northwest to southeast. But, they did not move in a straight line. They appeared to move in something of an arc. The sun rotates, but not at the same rate in all latitudes.

I tried to imagine what Fabricius, Scheiner, Harriot, and Galileo were able to deduce when they turned their crude telescopes towards the sun. "Alia," you say, "That's why he rambled on about those four dead guys." Well, Scheiner

took the safe approach. He used his telescope to project an image on a sheet of paper. His recorded observations were probably the best of the lot. Harriot used a much more risky technique. He looked directly at the sun through the morning mist. Once, he even took a look at the sun at noon on a clear day. He saw a sunspot and noted later that his sight was dim for an hour. Wow! All four observers detected sunspots at about the same time. Galileo noted that the spots changed position from one day to the next and figured that the sun rotated on its axis. Almost 400 years later, and with far superior equipment, I was able to see sunspots, saw them move across the surface from day to day, and figured out that the sun rotates on its axis. So, I saw the same thing they did, only better and safer. Aside from deciding that the sun rotated at different speeds at various latitudes I could not reach any further conclusions. Thank God for books. It must have taken years of steady observation to determine the period of rotation-about 25 days around the equator and 35 days near the poles. I suppose it takes a total eclipse and a look at the corona to determine the sun's seven-degree tilt.

Overall, the exercise was a lot of fun, and now that I have a routine established, I'll try to keep at it. There is always a measure of excitement when setting up. Are yesterday's spots where I think they should be? Are there any new ones? What surprises are in store for me today? While we are in this period of sunspot maximum I urge you to take advantage of the opportunity. Don't use the Harriot approach though. Be safe. Check it out.

I'd like to give Elliott a tip of the hat and a round of applause for his sterling work as newsletter editor. It is a tough job with lots of worries, but Elliott handled it brilliantly. From Williamsburg, Lynn and I want to extend our thanks for a job well done. Michael Mills now has the torch, and I hope everyone will make his job as easy as possible. Here's one way to help. I'd like to see a lot more articles by club members. We have a wealth of talent in this club. Not only that, but we have more people who actually go out and observe than any other club I know. We really use our telescopes rather than sitting around talking about them. Next time out at Crockett, Savage or wherever, take some notes, read up on what you saw, and write it up. It isn't that hard, and I think it would be great if we had to fight for space in the newsletter.

## MARK YOUR CALENDAR!!

Spruce Knob, WV Trips—June 3-4 and July 29-30

See page 8 for more details

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# Upcoming NOVAC Meeting Programs

Craig Tupper

**May 14**

## NOVAC members: Astronomy Software Demonstrations

The variety of software applications now available to amateur astronomers is mind-boggling. There are planetarium programs that can show you the sky and control a telescope, object databases and observing session logs, all available in freeware, shareware, and way-too-expensiveware versions. Not everything out there is right for everyone.

What's right for you, and where can you find it? Our May program may be able to help. We will have NOVAC members demonstrating the applications they use, on the big screen in the front of our lecture hall, and taking questions. Here's what, and who, is on:

- SkyGlobe - Craig Tupper
- Star Chart - Ralph Marple
- MegaStar with RealSky - John Nusbaum
- Red Shift - Pete Johnson
- Sky Map Pro - Joe Colaccino

and more to come!

**June 11**

## Steve Robinson: "High-Energy Astrophysics for Amateurs"

## John Nusbaum: "Observing Planetary Nebulae"

Many of the recent discoveries and advances in high-energy astrophysics (HEA) remain relatively unknown to the public and are poorly understood because of their esoteric nature. The NASA Marshall Space Flight Center and the American Association of Variable Star Observers are sponsoring an intensive HEA workshop for amateur astronomers, primarily as a means of education and outreach. Steve Robinson will be attending the workshop and will bring us about 30 minutes worth of news about current professional research, as well as how amateurs can get involved. Here's another way that amateurs can do some real science.

The second half of our program will be John Nusbaum on "Observing Planetary Nebulae". These objects run the gamut from easy showpiece Messier objects to some real challenges for the largest scopes. Come learn how best to see the "last gasps" of dying sun-like stars.

PLEASE NOTE: the schedule of speakers is subject to change. Please check at <http://users.erols.com/ctupper/NOVAC/speakers.htm>

for the latest info prior to the meeting.

What's YOUR interest? Let [ctupper@erols.com](mailto:ctupper@erols.com) know.

Come share and learn about YOUR favorite topic!

# NOVAC Public Outreach Programs

Group/Location	Date	Time	Topic	Location
Franklin Park	May 6	8:30-10pm	General Star-gazing	Purcellville, VA
Ellanor C. Lawrence Park	August 30	8:30 PM	TBA	Fairfax, VA

## Air and Space Museum Observing Nights

Sean O'Brien of the Albert Einstein Planetarium at the Air and Space Museum has asked for volunteers to help with a series of observing nights at Sky Meadows State Park. The observing nights are all Saturday: May 6, June 3, July 1, August 19, September 23, and October 21.

Sky Meadows is west of Washington, D.C. on US Route 17 North, 1 mile south of US Route 50, or 7 miles north of Interstate 66, Exit 23. There is a \$2 parking fee per car, NOVAC members with scopes will get in free. See page 10 for further details.

NOVAC POC:

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# Jeff's Observing Report

Jeff Stetekluh

Jeff's astronomical calculations are made for the Northern Virginia area. See credits at the end of this article.

## The Sun

May 14 rises at 5:56 AM, sets at 8:13 PM  
Jun 11 rises at 5:43 AM, sets at 8:34 PM  
Jun 11 rises at 5:43 AM, sets at 8:34 PM  
Jul 9 rises at 5:51 AM, sets at 8:35 PM

## The Moon

May 18 Full Moon  
May 26 Last Quarter  
Jun 2 New Moon  
Jun 8 First Quarter  
Jun 16 Full Moon  
Jun 24 Last Quarter  
Jul 1 New Moon  
Jul 8 First Quarter

## Events

May 19 Mercury passes 1.1 degrees north of Mars (morning) (from AM)  
May 31 Jupiter passes 1.2 degrees north of Saturn (evening) (from AM)  
Jun 1 Pluto is at opposition. (from AM)  
Jun 9 Mercury at Greatest Elong: 24.0°E (from Espenak)  
Jun 9 Mercury is at greatest eastern elongation (from AM)  
Jun 11 Venus at Superior Conjunction (from Espenak)  
Jun 11 Venus is in superior conjunction (from AM)  
Jun 20 Solstice (summer begins) (from AM)  
Jun 20 Summer Solstice (from Espenak)  
Jul 1 Mars is in conjunction with the Sun (from AM)  
Jul 1 Mars-Sun Conjunction (from Espenak)  
Jul 1 Partial Solar Eclipse; mag=0.481 (from Espenak)  
Jul 1 Partial solar eclipse (visible in southern Chile and Argentina) (from AM)  
Jul 6 Mercury at Inferior Conjunction (from Espenak)  
Jul 6 Mercury is in inferior conjunction (from AM)

## The Planets

(\* degrees elevation at sunset taking into account atmospheric refraction)  
(Mag = apparent magnitude, Diam = apparent equatorial angular diameter)

May 14	Rises	Transits	Sets	Mag	Diam	Notes
Mercury	6:14 AM	1:32 PM	8:50 PM	-1.6	5.2"	WNW, 6*
Venus	5:39 AM	12:35 PM	7:32 PM	-3.9	9.7"	
Mars	6:41 AM	2:00 PM	9:20 PM	1.5	3.7"	WNW, 11*
Jupiter	5:48 AM	12:46 PM	7:45 PM	-2.0	32.9"	
Saturn	5:58 AM	12:54 PM	7:49 PM	2.2	16.3"	

June 11	Rises	Transits	Sets	Mag	Diam	Notes
Mercury	7:27 AM	2:52 PM	10:17 PM	0.8	8.6"	WNW, 18*
Venus	5:44 AM	1:08 PM	8:33 PM	-3.9	9.6"	
Mars	6:05 AM	1:33 PM	9:01 PM	1.6	3.6"	WNW, 4*
Jupiter	4:18 AM	11:23 AM	6:27 PM	-2.0	33.4"	
Saturn	4:19 AM	11:18 AM	6:17 PM	2.3	16.5"	

## References for Jeff Stetekluh's Observing Report

Sun and moon rise and set times, moon phases and Galilean moon events are calculated using my software that is based on algorithms from the book "Astronomical Algorithms" by Jean Meeus, 1991. This includes Bretagnon's and Franco's VSOP87 (the 1987 version of Variations Seculaires des Orbites Planetaires) planetary theory, the Chapront ELP-2000/82 (ELP means Ephemerides Lunaires Parisiennes, although this work is not an ephemeris (a list of calculated positions) but rather an analytic theory (a series of periodic terms)) lunar theory and Lieske's theory E2 and E2x3 of Jupiter's satellites. The Preliminary NOVAC Observing Reports are created using my software; some of the algorithms listed above and the following as noted.  
from Espenak: Fred Espenak's Twelve Year Planetary Ephemeris: 1995 - 2006; (NASA Reference Publication 1349, available at <http://www-lep.gsfc.nasa.gov/code693/TYPE/TYPE.html>); from S&T: Sky & Telescope's Evening and Morning Highlights for Skygazers, (available at <http://www.skypub.com>); from IMO: the International Meteor Organization calendar (<http://www.imo.net/calendar>); from AM: Astronomy Magazine's Highlights of the Night Sky (<http://www.kalmbach.com/astro/astronomy.html>)

## Highlights of NOVAC Meetings



### MARCH 1 NOVAC BOARD MEETING

19:30 Pete Johnson, President, called the board meeting to order.

Pete Johnson informed the board that our point of contact at Crockett Park, Bonner Davis, is changing jobs and will be going to Franklin Park. Hopefully, this will not impact NOVAC's use of Crockett and Pete plans to meet with Bonner's replacement.

Pete Johnson discussed the upcoming Astronomy Day public event at Crockett Park on April 8. Ed Witkowski will take care of advertising.

The board decided to postpone the raising of dues pending savings in newsletter postage as a result of using bulk mail rates.

Greg Piepol will be taking over the NOVAC web site coordination. The board has decided to move the web site to another host that will provide more access flexibility for updates and maintenance than is currently available at GMU.

Ian Keith presented options for replacing the current NOVAC Hotline with a commercial voice mail number. Pete Johnson is currently paying the cost of this out of his own pocket.

Craig Tupper listed the upcoming general membership meeting programs.

Pete Johnson adjourned the meeting at 21:00

Submitted by Kevin Brown, Secretary

### MARCH 11 NOVAC GENERAL MEETING

18:05 Pete Johnson, President, called the meeting to order. The prospective and new members introduced themselves.

Pete Johnson briefly discussed the upcoming Astronomy Day public event.

Pete Johnson informed the membership that a vote on a dues increase is postponed indefinitely until the impact of the postage savings, as a result of using bulk mail for the newsletter, on the budget is evaluated.

Ed Witkowski informed the membership of upcoming public outreach events.

Craig Tupper, Vice President, listed the upcoming meeting programs.

Ian Keith gave the sky tour.

Sean O'Brien announced the dates for the Sky Meadows public astronomy programs for the April - October 2000 season.

For the main program, Dr. John Rummel gave a presentation "looking for Life in All the Wrong Places".

Pete adjourned the meeting at 20:00

There were approximately 54 in attendance.

Submitted by Kevin Brown, Secretary

### APRIL 5 NOVAC BOARD MEETING

19:30 Pete Johnson, President, called the board meeting to order.

Pete Johnson met with the new point of contact at Crockett Park, Chris Breman. NOVAC's use of Crockett will continue as before.

(Continued on page 6)

# New Members - February 17 through April 20

Kevin Brown

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*(Continued from page 5)*

Pete Johnson recapped the public event that was held at Mickie Gordon Park on April 1. Despite less than ideal weather, approximately 100 people showed up.

The board voted to present an award to Elliott Fein, the recently retired newsletter editor, for his service to the club. Elliott has been doing the newsletter for the past 5 years.

The board decided to continue using bulk mail for the newsletter.

The board decided to create a revolving fund to purchase ATM (amateur telescope making) components. Members interested in building a telescope can than purchase the components from the club at cost.

Greg Piepol informed the board that NOVAC now owns the domain names novac.com and novac.net and that the web site re-hosting effort is underway.

## NOVAC Meetings

Pete Johnson informed the board that the NOVAC Hotline has been changed and is now (703) 758-4455.

Ed Witkowski listed the upcoming public outreach programs.

Pete Johnson adjourned the meeting at 20:30  
Submitted by Kevin Brown, Secretary

### APRIL 9 NOVAC GENERAL MEETING

18:00 Pete Johnson, President, called the meeting to order. The prospective and new members introduced themselves.

Pete Johnson gave a recap of the public event held at Mickie Gordon Park on April 1.

Pete Johnson informed the membership of the

new NOVAC phone hotline and the new web site hosting.

Pete Johnson gave an overview of the ATM special interest group. The ATM group meets at Pete's house on the Sunday evening following the regular membership meeting.

Ed Witkowski discussed the public outreach program and listed the upcoming events.

Bob Gent made some comments about the local light pollution efforts.

Tom Dietz outlined the club observing trip to Spruce Knob, WV on the weekend of June 3.

Ian Keith gave the sky tour on the upcoming conjunction of the moon and planets in May.

For the main program, Dr. Peter Chen gave an update on his large, lightweight optics project.

Pete adjourned the meeting at 20:00

There were approximately 43 in attendance.

Submitted by Kevin Brown, Secretary

(Continued from page 2)

tion to those who went to Savage: was that a problem?

## Big Meadows

After all, Savage Farm is right on the Blue Ridge, about 100-300 yards from the Appalachian Trail, although at a much lower altitude than Big Meadows.]

- (4) The horizon was very good. Not quite as wonderful as at Crockett, but very close to it, especially to the south. And no blasted airport light. I have seen Omega Centauri twice from Crockett in the late spring, but I have my doubts whether it would ever be visible from Big Meadows, even though BM is a bit farther south, because the bowl of the Meadows has a "lip" that comes up a few degrees from horizontal in that direction.
- (5) Nobody was at the gate collecting money by the time I got there (about a quarter to 9), so I didn't get to show my pass anyway. That happens a lot if you get there late at Thornton Gap. But the north entrance gate at Front Royal has a mechanical fee-collector. Or it did last time I went by there.

### Disadvantages:

- (1) This is one heck of a long drive. Getting to the entrance to the park is one thing (about 30-40 minutes farther than Crockett from DC); but then, on the Skyline Drive at a maximum legal speed of 25 mph (and maximum safe speed, if you want to live to a ripe old age and not hit Bambi or any of his sisters, cousins, or offspring, who love to hang out along the drive in the early morning and evening), it takes about another 40-45 minutes to reach Big Meadows.
- (2) You cannot just pitch a tent on Big Meadows the way you can at Savage. I imagine nobody will say anything if you get tired and take a nap next to your scope and stuff, (nobody's ever said boo to me about it, so far) but camping on Big Meadows or anywhere in SNP within eyesight of a trail or road, except in a campground, is not allowed. Back-country camping is permitted, but you need to fill out a permit. Good news: the back-country camping permit is

free. Bad news: you then have to find a site that is out of sight, or they can cite you. (And I bet I

spelled that right, too.) Good news: finding your own campsite in the woods is actually a lot more fun, IMHO, than a regular campsite where you have to cope with hordes of folks who have not a clue as to what they are doing and who keep their mantle lanterns on all night, playing loud music until you complain and who build huge useless bonfires, causing smoke to get in your eyes. Plus, the regular campsites are about \$20 to \$25 a night, plus a service fee.

- (3) There is no way to prevent people with really bright white flashlights or high-beam headlights from coming near enough to rob you of your visual purple. On the other hand, if you publicize what you are doing at the campground and explain that they MUST turn their flashlights off or use a brown paper bag over it -- or offer some cheap red surveyor's tape -- you could easily get a number of interested parties to come by and look at stars for as long as you like. I've done that before up there.

- (4) No camaraderie with other ATM'ers or amateur astronomers, unless you bring them along.

- (5) It can get REEALLLY cold up there. I had Sorel boots with felt liners, 2 pairs of thick thermal socks inside that, long Johns (not cotton), jeans, a thermal worker's one-piece overall (like a snowmobile suit), thermal hunting gloves, wool shirt, sweater, warm jacket, scarf, sheepskin Russian/Canadian hat, and I still got cold. There is virtually no way I could have worn more. But I forgot the chemical hand/footwarmers.

- (6) Since the drive was long and I had to work Friday, I was pretty tired when I got there. Jupiter and Saturn and M42 were already down. Found a number of galaxies in Leo, Coma, and Virgo. Took a nap from about 1 to 4, when the cold woke me again, and I saw the summer Milky Way and the beauties of the constellations, globular clusters, star clouds, open clusters and such near the galactic center; looked at those until the sun

began washing everything out. Cute waning crescent moon. Napped again. When I awoke again, the sun was up, just me and about 15 deer watching me haul everything back to the car.

It never ceases to amaze me: the most absolutely beautiful part of the day when you are out in the woods is dawn. But when people are out in the woods, they get in their tents late, sleep late, and won't get up to see it. I used to do it too, until I was persuaded by my late father-in-law to go deer hunting, which entails going to your stand at least an hour before dawn. Later, I also learned how wonderful it is to sleep under the stars and wake up with the sun. Not that you get a good night's sleep or anything, and your hair will look like the home of a rather depraved rat afterwards because you HAVE to wear a hat all night. But, you can always sleep again later and take a shower when you get home.

One other advantage, for me at least: I happen to have a lot of family connections with Skyland and SNP. My great-great-great uncle was George Freeman Pollock, who set up the resort known as Skyland about 1890; both of my parents stayed at the resort a number of summers when they were little in the '20's and early '30's. Pollock was instrumental in getting the park established. (He died shortly before I was born; records reveal that he was compensated about \$5,000 or so for his property when they established the park; others got much, much less.) Another uncle, Wally Dwyer, a really funny and nice old guy, was the postmaster at Skyland for a number of years. My sister got special permission to be married, a few years ago, at Skyland in the original cabin that belonged to Uncle George's wife before THEY got married. My late aunt spent her honeymoon at Skyland before it became a National Park. When I was young, my parents used to take me and my siblings on hikes up Old Rag and other popular trails every spring and summer. It's a wonderful place, and deserves appreciation.

All in all, and especially given the clouds we are having tonight, I think I made the right decision in going there last night. Anybody interested in coming along in the future?

## Software Review

John Deriso

*Skywatching,*  
*A Practical Guide for the Backyard Astronomer*  
by David Levy and Robert Burnham

**Availability:** Discovery Channel Store or Sky Publishing <http://www.skypub.com> (\$34.95).

**Level:** Novice

There are lots of planetarium programs on the internet, some of them available as free downloads or demos. But as a beginner, about

1-1/2 years ago, I found this CD by Discovery Channel really easy to use and a big help in learning the sky; a nice step up from a planisphere. The program has plenty of features that follow the format of the two Nature Company Guide books (*Skywatching* and *Advanced Skywatching*) to explain clusters, nebulae, galaxies, and astronomy concepts to the novice.

The number of stars and deep-sky objects displayed can be adjusted with a "Clarify" slider control to match your viewing conditions. There's a "Zoom" slider to narrow or expand your field of view. I like the intuitive "direction" and "field of view" indicators which are based on compass direction (azimuth) and

elevation. Grids for Alt/Az and RA/Dec can be toggled on or off, as well as an artificial horizon to help you get your bearings. Choose the city nearest your home, then the program shows the sky in real time, or it can be advanced to see "what's up" later. Menus let you find stars, Messier objects, planets, and the kids will like toggling the constellations between stick-figures and mythological outlines.

Requirements: PC or Mac with 2x CD-ROM.

More info: from the Sky & Telescope website <http://www.skypub.com>, click on the "S&T Store" logo, then enter SKYWCD in the search box, and click GO!, then click on the CD ROM title for more details.

# NOVAC Trips to Spruce Knob, West Virginia

Tom Dietz

We are planning two weekend trips to Gatewood Campground near Spruce Knob, West Virginia this year. The first trip is scheduled for the weekend of June 3-4 and the second for July 29-30, weather permitting. Spruce Knob is situated in east central West Virginia and is about a 4 1/2 hour drive from the Washington area. The summit is 4,850 feet above sea level and is the highest point in West Virginia.

We plan to camp at Gatewood Campground, which is a few miles away and about 500 feet lower. A sheltered meadow adjacent to the camping area provides an excellent place to set up telescopes under skies with a limiting magnitude approaching 7 on a clear night.

There is no water or power at the seven-site campground, so remember to bring adequate food and water in addition to your camping gear. The site has two vault-type toilets. Although the Forest Service doesn't accept reservations for the sites, there is no charge to camp. Each site is limited to two vehicles and others

might well be camping there, so we encourage folks to double up on each spot. If you arrive late and find that there are no more sites available at Gatewood, there should be some at Spruce Knob Lake Campground nearby. Camping off the road in the woods is also permitted throughout the National Forest. If you are unable to get a spot at Gatewood campground, it will probably be necessary either to leave your telescope set up on the meadow or pack it up at the end of each night's observing session.

The weather up on the mountain can be fickle, even in the summertime, so bring your cold weather gear. During a trip last year in late July we experienced a forty-degree drop in temperature during one twenty-four hour period. It pays to be prepared.

Look for more information concerning the trips on the NOVAC mailing list or contact Tom Dietz at [tom.dietz@nasm.si.edu](mailto:tom.dietz@nasm.si.edu) as the dates approach. Diehard observers are welcome to arrive early on Thursday and/or depart late on Monday if they wish. There are, however, no rain dates scheduled. Should either trip be cancelled, the membership will be notified via the mailing list.

The directions to Gatewood Campground are below:

1. I-66 West to I-81 South.

2. Exit I-81 at Exit 247B on to Rt. 33 West at Harrisonburg.
3. Take Rt. 33 West through Harrisonburg (you have to go through a traffic circle in the middle of town).
4. Continue 42.5 miles on Rt. 33 to Franklin, WV.
5. Stay on Rt. 33 West for another 13.3 miles where you will intersect with Rt. 28.
6. Stay on Rt. 33 for just less than 1 mile, then turn left on to Briery Gap Road. This is the road to Spruce Knob. There will be a sign for the Spruce Knob Recreation Area.
7. Follow this road for 12 miles to the summit of Spruce Knob or continue on it past the summit for another 5 miles to Gatewood Group Camping Area. The driveway up to Gatewood Campground is on the right about 1 mile before Spruce Knob Lake Campground. The camping area is about 1 mile from the main road and is clearly marked.

Finally, if you haven't been to Spruce Knob before, it's probably a good idea to plan to arrive before sunset. The route isn't tricky, but finding the campground and getting a tent pitched is much easier before dark.

## Editor's Note

Michael Mills

As I take over the editing duties from Elliot Fein, I would like to thank all of the members who have contributed articles in the past and encourage everyone to take part in the future. Articles of all kinds are welcome. Some ideas of things to write about are:

- Tell us about an interesting observation you made.
- Review an astronomy-related book that you have read.
- Relate your experiences with a piece of observing equipment.
- Take us on a tour of your favorite constellation.
- Describe a telescope making project.
- Anything else you'd like to read about!

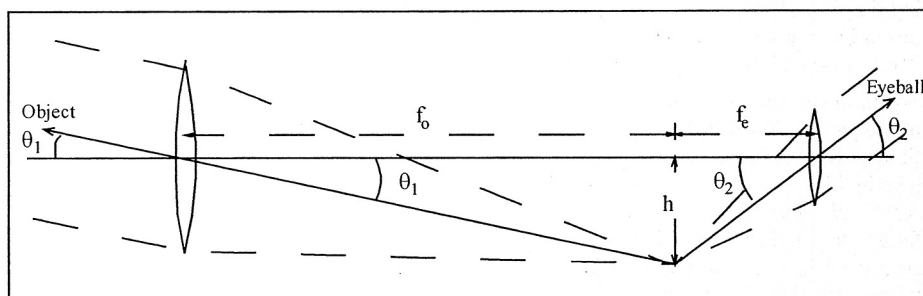
By using bulk-rate or non-profit mail, we are able to pack several more pages into each newsletter, so there's plenty of room for everyone.

Also, we are trying to improve our printing capabilities so that high quality graphics can accompany your articles. When this service becomes available, astrophotos and other images will be welcome. Please send articles and comments to:

Michael Mills  
[mjmills@fpcc.net](mailto:mjmills@fpcc.net)

## Derivation #1: Magnification

Michael Mills



Angular size of object is  $2\theta_1$ . Angular size of image is  $2\theta_2$ .

Magnification  $M = \theta_2/\theta_1$ .

From the figure,  $f_e \tan \theta_2 = h = f_o \tan \theta_1$ , so

$$\frac{\tan \theta_2}{\tan \theta_1} = \frac{f_o}{f_e}$$

For  $\theta_1$  and  $\theta_2$  less than about 5 degrees (i.e., all telescopic images),

$$\frac{\tan \theta_2}{\tan \theta_1} \approx \frac{\theta_2}{\theta_1}$$

Therefore,

$$M = \frac{\theta_2}{\theta_1} \approx \frac{f_o}{f_e}$$

# VDOT Lighting Update

Brent Archinal

My wife and I received letters on April 21 from VDOT about the Beltway and I-66 lighting projects. These apparently are identical to letters others have received, as described on the NOVAC e-mail list. More importantly, I've also received much new information on these projects that I'd like to share with all NOVAC members. I've summarized this information in a message sent to the NOVAC and VA light pollution lists, and am also providing this copy for publication in the NOVAC newsletter.

On Saturday evening, April 15, I gave a tour of USNO to Jim Harrington and his family. Those of you who attended the VDOT hearings on the lighting projects in January may recall that he is an engineer for Greiner Woodward Clyde (of Richmond, VA), the contractor for these projects. It turns out that Jim is the chief engineer for this work. From my discussions with Jim, let me assure you all that he very much understands our concerns about reducing glare and protecting the night sky. He is quite interested in amateur astronomy and knows how important it is to direct light down. He claims that reducing glare is his number one concern on these projects. He also explained that VDOT is now committed to the goal of keeping glare down on these projects and to using good lighting fixtures. As I'll comment on further below, this attitude is very much in response to the comments and letters they received.

To cut to the chase though, they currently plan to use partial cut-off lighting, i.e. "Mongoose" fixtures from Holophane or similar (the inside joke in this name is that "mongoose" fixtures "eat" "cobra-head" fixtures). This is the best fixture he could find that still did not require arms over the roadway, and the resulting maintenance problems such arms would cause (they feel you have to close a travel lane to do maintenance if you use full cut-off fixtures). Information on this fixture is available from Holophane at <http://www.holophane.com/Product/BROCHURE/HL-1855.HTM>. It isn't clear to me which version of this fixture they plan to use (there are many versions, from very good, to very poor), but it must be one of the partial cut-off ones. I personally don't consider this to be the best solution and I told him so. The advantages of using full cut-off lighting should supersede the added cost of their maintenance. It also isn't clear why so many other states are able to use full cut-off lighting without having such problems while Virginia does. Still, this is a few orders of magnitude better solution that what VDOT would probably have come with on its own, and (as John Nusbaum has pointed out on the e-mail list) we should congratulate

ourselves for pushing them at least this far.

Some other miscellaneous points learned from Jim:

- The support from VDOT on this is strong. The issues of reducing glare and protecting the night sky were well received by "Karen", the VDOT person in charge of the projects. She even agreed that although there was only one manufacturer (so far) of the type of commercial fixture desired, that still it should be used as the specification and any companies making lighting would have to meet it if they wanted to bid on this project.
  - They received 59 comment letters by the deadline and received three more later.
  - He personally read all of them several times, and summarized the points being made in all of them. He started to use one as a template that he found had covered about 75% of the issues raised, and only later realized it was mine! His summary has been supplied in writing to VDOT.
  - There was no chance of the lighting not being done, because the general assembly and the governor had already authorized it.
  - He plans to redo the (poor quality) lighting now in existence at the I-66 and beltway interchange. Other currently lit interchanges may also be re-done. Unfortunately he can't redo the god-awful lighting at the US 50 and Beltway interchange because the lighting there is considered to be on US 50.
- As to the letter from VDOT, I would say that it is encouraging, although not as much as my discussions with Jim were. My comments on this letter in particular:
- They once again cite a US DOT study as showing that roadway lighting has the highest benefit to cost ratio in reducing accidents compared to other highway improvements. I have not seen this study, but as I pointed out in my letter to VDOT, if it's similar to other such lighting studies, it's likely quite flawed. If someone could get a copy of this and critique it, and send comments to VDOT, this might help our cause a great deal in the future.
  - It should also be made clear to VDOT that the additional cost of lane closures that might be needed to maintain full-cutoff fixtures, is fully justified by the added advantages of such lighting over partial cut-off lighting. I'm aware that several people recommended that VDOT use lighting arms that would "swing back" so that maintenance could be done on the side of the road - why didn't they use this option if maintenance is a concern?
  - A number of other issues raised by myself and others were not addressed in this letter. For example, there are no comments about why the meetings in January were so poorly announced. There is also no explanation of why an environmental impact statement was

not made--even though this is the only question I specifically asked them to reply to me on. This for projects whose electricity usage will (conservatively) put 3,700,000 pounds (about 1800 tons) of CO2 into the atmosphere yearly, not including any other greenhouse gases.

- They anticipate the plans for this project will be available by late summer at "your local Virginia Department of Transportation Residency Office". An effort should be made to see these when they come out, and to send further comments to VDOT at that time. At the present time, they are willing to accept further comments at:

**Traffic Engineering Division  
c/o Mr. Steven E. Welch, P.E.  
Assistant District Engineer  
Virginia Department of Transportation  
3975 Fair Ridge Drive  
Fairfax, VA 22033**

I also have some news regarding another lighting project in northern Virginia, this time in Alexandria. A source who asked to remain nameless (!) tells me that the city of Alexandria is planning to light the Potomac Yards area with "acorn" lighting. My source is pushing them to use one of the modified versions of acorn lighting, that tries to direct some of the light down, but has not been able to convince them to use full cut-off lighting instead of the poor quality acorn lighting. However, this project is supposedly in an early enough stage that letters to the city may be able to influence them to use such lighting. So I just wanted to let folks in the Alexandria area know, in case they want to look into this further. Now may be a good time to write some letters to the city government there.

Some final comments here from me on all of this. First, regarding the VDOT projects, we have shown that we can make a tremendous difference. I'm aware of about 20 letters that went out from NOVAC members and related folks, and there are probably more than this. That's about one third of the letters they received on these projects. Clearly, VDOT has gotten the message and now considers glare and uplighting to be an important issue.

Secondly, our work is not done. VDOT should be questioned further about this project (as I have noted above) and future projects.

Finally, a key point here is that the highway projects were authorized by the state general assembly and governor, and no amount of comments after the fact was going to change that. The only way to stop these projects or to get some serious consideration of whether they are needed is if we all contact our state representatives. (This goes for you folks in MD and DC too!).

Regards, and clear dark glare-free skies to all,  
Brent Archinal

## Albert Einstein Planetarium Activities

The Albert Einstein Planetarium is located on the second floor of the National Air and Space Museum. Admission is free to the following activities:

### May/June 2000

#### Commemorative Month Program

Mondays, Wednesdays, and Fridays in May, 10:15 a.m.  
also, Saturday, May the 6th and 27th, 10:15 a.m.

#### *The Explorers*

A child visiting our museum today could be the first person to set foot on Mars. As humanity prepares to expand into the Solar System, we study previous colonization efforts on our homeworld. How did the ancient Polynesians navigate the open ocean to colonize the many Pacific islands, including Hawai'i, where they live today? Join us to find some of the answers in sea and sky. This program celebrates Asian/Pacific American Heritage Month.

#### Monthly Star Lectures

Saturday, May 27, 2000

6 p.m.

#### *Extraterrestrial Landslides*

The exploration of the other planets and moons of our Solar System shows us surfaces produced by bombardment from without and eruptions from within. But, another important process that changes the surfaces of other worlds has been largely overlooked-landslides. Where have these features been found? How and why do landslides occur? Mark Bulmer, research associate at the Center for Earth and Planetary Studies (CEPS) in this museum, will provide some answers. We'll also preview the attractions of June's night skies.

Saturday, June 24, 2000

6 p.m.

#### *Astronomy You Can See!*

What can you learn about astronomy simply by looking at the sky? What can you see without a telescope or binoculars? Where can your imagination take you? Join Patty Seaton, a lecturer at the Albert Einstein Planetarium, on a family-oriented tour of the nighttime skies, including those of July. Learn about the stars: how we measure their brightness, temperatures, and ages; and how to mark time by the stars. Learn to identify star patterns, turning them into pictures and stories, as shared from different cultures. Admission is free, but imaginations are required!

Public telescopic observing will follow any Monthly Star Lecture, weather allowing. There may be no observing in some months, due to late sunsets.

For the *Weekly Skywatcher's Report*, a brief recorded message on the current astronomical sky, call (202) 357-2000. The report is also available through the museum's site on the World Wide Web. Access the Albert Einstein Planetarium webpage in the National Air and Space Museum's website: <http://www.nasm.si.edu>. For further information on the Albert Einstein Planetarium show times and ticket prices, call (202) 357-2700, or TTY (202) 357-1729.

## NASM Sky Meadows Summer Programs

Dear NOVAC members,

I have organized public observing at Sky Meadows State Park. It's the same format that Geoff Chester used successfully for years. Here's the copy we advertise with:

Dusk-11 p.m., weather allowing, at Sky Meadows State Park near Paris, Virginia, join Sean O'Brien, staff astronomer of the Albert Einstein Planetarium, and other local amateur astronomers, for public telescopic observing under dark, star-filled skies, away from city lights. The evening begins with a short night sky orientation at dusk, followed by telescopic observing of various astronomical objects.

Sky Meadows State Park is west of Washington, D.C. on US Route 17 North, 1 mile south of US Route 50, or 7 miles north of Interstate 66, Exit 23. There is a \$2 parking fee per car. Please cover flashlights with a red filter or a brown paper bag. Dress warmly. In case of clouds or rain, a park ranger will lead a short alternate program.

Here are the observing nights (all Saturdays):

- May 6
- June 3
- July 1
- August 19
- September 23
- October 21

There is no parking fee if you bring a telescope. Observers can stay until 1 am. The observing site is the backyard of the old farmhouse next to the parking lot at the end of the park road. There is auto access from the road through a gate into a fenced field. Another gate from the field opens directly onto the site. You have to move the telescope from there. We are allowed to park in the field.

Kathy Budnie is the ranger I'm coordinating with, and she is very nice and understanding of our needs.

Volunteers are very welcome. You can just "show up" of course, but please contact me if you are interested in volunteering. That way, I have some idea how many astronomers I will have to help out. Attendance varies from less than 50 on "iffy" weather evenings to several hundred on clear nights.

Please feel free to ask any questions you may have.

Sean O'Brien  
Albert Einstein Planetarium  
(202)357-1530  
[sean.o'brien@nasm.si.edu](mailto:sean.o'brien@nasm.si.edu)

### *Looking for Dark Skies?*

Join us at Spruce Knob, WV

June 3-4 and July 29-30.

See page 8 for details.

# Upcoming Events

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
<b>M A Y</b>	30 • <u>Observing at all sites</u>	1	2	3 •Board Meeting	4 NEW MOON	5 •η-Aquarid Peak • <u>Observing at all sites</u>	6 • <u>Observing at all sites</u> •NASM/Sky Meadows
	7 • <u>Observing at all sites</u>	8	9	10	11	12 • <u>Observing at Crockett</u>	13 • <u>Observing at Crockett</u>
	14 • <u>General Meeting</u>	15	16	17	18 FULL MOON	19 • <u>Observing at Crockett</u>	20 • <u>Observing at Crockett</u>
	21 •ATM SIG Meeting	22	23	24	25	26 • <u>Observing at all sites</u>	27 • <u>Observing at all sites</u>
	28 • <u>Observing at all sites</u>	29	30	31	1	2 NEW MOON • <u>Observing at all sites</u> • <u>SPRUCE KNOB</u>	3 • <u>Observing at all sites</u> • <u>SPRUCE KNOB</u> •NASM/Sky Meadows
	4 • <u>Observing at all sites</u> • <u>SPRUCE KNOB</u>	5	6	7 •Board Meeting	8	9 • <u>Observing at Crockett</u>	10 • <u>Observing at Crockett</u>
<b>J U N E</b>	11 • <u>General Meeting</u>	12	13	14	15	16 FULL MOON • <u>Observing at Crockett</u>	17 • <u>Observing at Crockett</u>
	18 •ATM SIG Meeting	19	20 •Summer Solstice	21	22	23 • <u>Observing at all sites</u>	24 • <u>NOVAC Picnic</u> • <u>Observing at all sites</u>
	25 • <u>Observing at all sites</u>	26	27	28	29	30 • <u>Observing at all sites</u>	1 NEW MOON • <u>Observing at all sites</u>

## NOVAC Notices and Benefits Discounts on Sky & Telescope and Astronomy.

As a member of NOVAC, you can get astronomy magazine subscriptions at a discount. To obtain *Sky & Telescope* for \$29.95 (instead of the standard \$37.95), make your check out to "Sky Publishing Co." You can subscribe to *Astronomy Magazine* for \$29.00 for one year. Make your check payable to "Kalmbach Publishing Company". In each case, note on the check: "new subscription" or "renewal." If a renewal, include your customer number. Send your check to Treasurer Pedro Martinez, Jr., 6319 Anneliese Dr., Falls Church VA 22044.

You can also order any publication directly from Sky Publishing at a 10% discount. Just mention the Club Discount Plan and that you are a member of NOVAC.

### Discount on Books

NOVAC is participating in the discount book sales program offered by Kalmbach Publishing. They will sell our members any astronomy-related book in their catalog for 25% off the list price when we send in a group order. Kevin Brown is coordinating the sales. If you are interested, please see him at a meeting, or call him at home (703) 503-9523 to place an order. Make your check payable to "NOVAC" for the price of the book minus the discount, when you place the order. We anticipate doing this 3 - 4 times a year if demand warrants.

### Club Telescopes and Binoculars

NOVAC makes available three six-inch Newtonian reflectors for club members to check out, free of charge, and use for a limited time.

One telescope is a Celestron model SP-C6 on a Super Polaris German equatorial mount and wood tripod. The telescope comes with Orion Ultrascopic 10mm and Meade MA 25mm eyepieces with 1.25-inch barrel sizes.

The second telescope is a homemade six-inch f/5 reflector on a Dobsonian mount, and comes with a 25mm Kellner eyepiece. It is easy to transport to dark sky sites, and easy to use.

The third telescope is a six-inch, f/8 Meade Dobsonian reflector.

To borrow a telescope you will need to show your NOVAC observing pass and leave a \$500 (for the Celestron) or \$250.00 (for the Dobson) security deposit. To borrow the

Celestron, contact Doug Mistler at (703) 437-0513; for the Dobson, contact Bob L'Hommedieu at (703) 978-0946. Note: Checks must be made payable to "NOVAC". The club also has a pair of 10x50 binoculars available for members to borrow. They are kept in the club library in the back of the planetarium, and can be checked out after the regular monthly meeting, for a period of one month. Please show your observing pass.

### NOVAC Library

NOVAC has established a library at George Mason University for use by NOVAC members. Books may be checked out and returned only at the monthly meetings. Members may check out books for one month at a time. To borrow books, see NOVAC Librarians Pedro Martinez or Craig Tupper at the monthly meeting.

The NOVAC library seeks book donations to the library. If you have any astronomy books or materials you are thinking of discarding, please consider a donation to the NOVAC library.

A complete list of all library holdings is available upon request.

### General Membership Meetings

General Membership Meetings are held at George Mason University (GMU), Fairfax Campus, off Ox Road (Rt. 123) on the second Sunday of every month. To reach GMU, take either Rt. 66 to Ox Rd. (South) or Braddock Rd. to Ox Rd. (North). Enter GMU at the main entrance off Ox Rd. (University Drive) and proceed to Parking Lots F, G, or H for free parking. Pay Parking is also available in the Parking Garage.

The meetings are in the Lecture Hall, next to Fenwick Library, on the North side of campus across Patriot Circle from the parking lots. Meetings start at 6:00 p.m.

Trustee Meetings are held on the first Wednesday of every month. Members who are not trustees, but are interested in attending, should contact a club officer or board member for further information.

### NOVAC On-line

NOVAC maintains an e-mail mailing list. Messages sent to the list include reminders about scheduled observing sessions, announcements for unscheduled sessions, requests for quick observing session summaries, MIR observability predictions, etc. For more information, send a message to Bob L'Hommedieu, bobcat@erols.com.

### NOVAC Observing Site Rules

**C. M. Crockett Park:** We have permission from Crockett Park to unscrew the light bulbs on the light sensor fixture on the side of the gate guard building facing the observing field (south side).

Please leave the lights on the far side (north side) active so people can see the gate.

Weekends (Fri./Sat. only), NOVAC has unlimited access to the park for all weekends. The weekends will also be open to the public. The gate will be locked and will not be unlocked unless a NOVAC member enters the park; after which time the gate will stay open to approximately 10:00 p.m., when the Assistant Park Manager will ask the public to leave. The gate will then be locked, and should remain locked through the rest of the evening. NOVAC members may remain until they are finished with their observing sessions.

Weekdays (M-Th & Sun.), NOVAC members need to notify Park Manager Chris Bresnan by e-mail (cbresnan@msn.com) or phone (540-788-4867) by 2:00 p.m. on the day they plan to observe. Assume approval unless the park notifies you in the negative. The weekdays are not open to the public. The gate should remain locked after you enter the park and throughout your observing session.

If any NOVAC member notices any member of the public violating park policy, he or she is to notify the Assistant Park Manager, who lives in the house adjacent to the end of the parking lot. During EDT, set up on the large field to the left. During EST, set up on the paved cul-de-sac 200 yds. past the gate. No loud radios, alcoholic beverages, or loose pets permitted. Please do not leave trash or debris behind. We are guests of the park; Park Management may revoke our observing privileges at any time due to carelessness of one person.

**Savage Farm Site:** Weekends (Friday/Saturday/Sunday): NOVAC has unlimited access to the park for all weekends.

Weekdays (Monday-Thursday.): For unscheduled observing sessions, contact the park manager, Paul McCray, at (703) 729-0596 or <wodtrail@erols.com> at least 24 hours in advance, and leave a message with your phone number or e-mail address. You may use the site for that session *unless* you hear from Mr. McCray stating otherwise.

No loud radios, alcoholic beverages, or loose pets. Pick up after yourself, and do not leave any trash behind. Make sure the gate is

locked whenever you are in the park, and when you leave. We are guests of the NVRP and could have our access to this site revoked at any time if it is abused.

### Mickey Gordon Regional Park:

There is a light pole on the road entering the park and it is a problem near the entrance of the park. It is better to set up further back in the park, or on a lower field behind the baseball diamond to escape the light.

The park is available without notice to all members seven days a week. As sports season begins, we will post the schedule when the lighted baseball facility will be in use.

## Directions to NOVAC Observing Sites

### C. M. Crockett Park:

From the Washington, D.C./Northern Virginia area, go west on I-66 to Exit 43A in Gainesville onto Rt. 29 South toward Warrenton. After 11.8 miles on Rt. 29, stay left (toward Culpeper), to bypass Warrenton (but still on Rt. 29 S.) Go about 1 mile to the Rt. 643 exit, Meetze Road. Turn left (East) on Rt. 643. Go 7.5 miles on Rt. 643. Watch for the C.M. Crockett Park sign on your right, and turn right into the Park Entrance Road.

### Alternate directions to Crockett

From Washington, D.C./Northern Virginia, go West on I-66 to exit 44. (234 bypass around Manassas). Take 234 bypass to Rt. 28 West. Stay on Rt. 28W for about 13.7 miles, through Nokesville, Catlett and Calverton. Turn right at Rt. 643 (store on corner). Go 1 mile to Crockett Park entrance road on left.

### Savage Site:

From D.C., I-66 West to Route 17 North. Stay on Route 17 North until it intersects with Route 50 at Ashby Gap. Turn left onto Route 50 and go 1.0 mile and turn right on Route 601. Continue on Route 601 (Blue Ridge Mountain Road) for 8.4 miles (about two miles past the main gate of the FEMA installation). Turn right at the park entrance after passing the gateposts with *Belle Allee* and *Ball Alley 1875* on your right.

The park entrance on Route 601 is marked by a small NOVAC sign. As you turn into the park, go straight ahead until you reach the gate, which is secured by both a keyed padlock and a combination lock. These locks are located to your left behind the gate as you face it from the outside. The combination is on your NOVAC observing pass. **Always** lock the gate behind you. The NOVAC lock **must be locked to the keyed lock, not to the chain**, to allow emergency access by the fire department. Drive to the observing area (the stone patio next to the house). There is very limited parking at the observing area itself, so please park in the parking area on the right as you face the patio.

### Alternate Directions to Savage via the Dulles Toll Road

Take the Dulles Toll Road west to the Dulles Greenway. Take the Greenway west about 14-15 miles to where it ends at Rt. 7 near Leesburg. Stay in the left-hand lane to go to the exit for Rt. 7 West. Take Rt. 7 West for about 18 miles to Route 601, Blue Ridge Mountain Road, which is at the top of Snickers Gap and marked by a flashing yellow light on Rt. 7. Turn left onto Rt. 601 and continue 2.4 miles to the park entrance, which is on the left about two-tenths of a mile past a driveway on the left with a stone wall marked with the name "Ben Lomond." There is a white "NOVAC" sign nailed to a large tree to the right at the entrance to the somewhat rutted gravel driveway that leads to the park. Drive up to the white gate at the top of the hill. The combination for the gate is on your observing pass. The driveway curves down and around to the right to the observing area after you pass through the gate. Please lock the gate behind you and remember to use parking lights only as you approach the observing area, which is on the left as you reach the lawn in front of the old house.

Parking at the observing area itself is much more limited at Savage than at Crockett or Mickey Gordon. Try to leave an access lane to the area around the stone patio. If possible, unload your telescope and then park your car away from the area. There are plenty of places to park around the lawn and even south of the old house. This will allow those who arrive later to have access to whatever spots remain without having to lug equipment across the lawn. If you plan to leave early, please be considerate of others and either pack up away from the stone patio or avoid using backup lights when you drive down to pack up your equipment.

### Mickey Gordon Regional Park:

The park is located fifteen miles west on Rt. 50 from the intersection of Rt. 28 and Rt. 50. It is only a 20-minute drive from the Centreville area and should be a convenient site for most members in western Northern Virginia. Directions to the park: take Rt. 66 west to Rt. 28 north. Take Rt. 28 to Rt. 50 West. Go 15 miles until you see the brown Mickey Gordon Regional Park sign. Make a right on Rt. 627, Carters Farm La. Go a few hundred yards to the park entrance on the left. The park has a gate but should never be locked.

### Site Locations

Here are the locations of four observing sites as provided by NOVAC members:

- Savage: 39° 04.7' N; 77° 51.7' W
- Crockett: 38° 37' N; 77° 43' W
- Big Meadows: 38°32' N, 78°26' W
- Little Bennett Regional Park: 39°17.0' N, 77°17.5' W
- Mickey Gordon 38°58.58' N, 77°42.31' W

*The NOVAC Newsletter* is the official publication of the **Northern Virginia Astronomy Club** and is published six times per year. The *NOVAC Newsletter* is sent to members of NOVAC as a regular membership benefit.

**Membership in the Northern Virginia Astronomy Club is \$18.00 per year and is open to anyone interested in astronomy or the sciences. Additional memberships at the same address without additional copies of the newsletter are \$6.00 per person. Contact Secretary Kevin N. Brown, 5755 Walnut Wood Ln. Burke, VA 22015 703-503-9523.**

All notices of change of address should be sent to Kevin N. Brown. Please include both old and new addresses.

NOVAC does not knowingly accept advertising for products of inferior quality nor does it accept responsibility for the quality of advertised products.

NOVAC members are invited to submit articles for publication in the *NOVAC Newsletter*. The editor reserves the right to edit all materials submitted.

Send article submissions to the Editor, Michael Mills [mjmills@fpcc.net](mailto:mjmills@fpcc.net), (703)333-5075, 5001 Ridgewood Road, Alexandria, VA 22312.

The deadline for submissions is three weeks in advance of publication, e.g., June 10 for the July/August newsletter.

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# **NOVAC**

**The Northern Virginia Astronomy Club**

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