

NOVAC

THE NEWSLETTER OF THE NORTHERN VIRGINIA ASTRONOMY CLUB

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The great 1966 Leonid meteor storm

by J. Scott Duresky

Date: November 17th, 1966

Place: Richfield, Minnesota—about 15 miles SW of Minneapolis

Conditions: Clear, moonless, winds calm, temperature in the high 20s

Apparently, on the morning of November 17th, 1966, most of the Eastern half of the United States was experiencing overcast conditions. That, and the later arrival time of the meteor storm, is the reason why most reports of the 1966 Storm come from the Central Time Zone and points west. This is mine.

I was 16 and it was a school day. But having read about a “big meteor shower” in the pre-dawn hours, I set my alarm for 4:00 am and went outside, only to encounter very foggy conditions. I went back to bed, set my alarm for 5:00, and approached the front door without much enthusiasm.

To my delight, the fog was rapidly lifting, revealing a clear, dark sky. Looking toward the constellation of Leo, I probably watched for about 5 or 10 minutes when I saw two meteors streaking from the radiant. Before I could think, “Wow, two meteors!”, four or five more flashed out from the same point. It’s hard to remember exactly, but within 5–10 minutes more and more and *more* meteors began lighting up the night sky, until the Storm was fully engaged.

I rushed into our house, woke up my Dad, and once he looked up and saw what I was so excited about, he woke up my entire family—all nine of us! So



Adolf Vollmy's famous engraving of the 1833 Leonid meteor storm, based on an original painting by Karl Jauslin.

see “Leonids” on page 3

MESSAGE FROM THE PRESIDENT

Jump right in!

If you are new to the club or just want to try some different aspect of observing, we have a group for you.

- The **ATM SIG** meets once a month and brainstorms and demos telescope making ideas.

- The **VOID SIG (Video, Occultation, and Imaging Digitally)** meets every couple of months.

- The **robot observatory**

project is work- NOVAC President Ed Karching on a remote CCD scope to be located at a dark site at elevation in West Virginia.

- The **CCD SIG** should be up and running by the time this is published and at least one new SIG is in the works.

- There are also the **monthly observing sessions (MOS) team** and the **welcome team** that welcomes new members.

- There are also site maintenance activities when needed.

The board welcomes your suggestions for any other activities you may want, just drop a line or come by the monthly board meeting.—Ed. ✪



Star Gaze photos, page 5



PHOTO BY PHIL WHERRY

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Events at the University of Maryland

by Elizabeth Warner

New Telescope Owner Nights

The University of Maryland Observatory would like to announce that the dates for its annual New Telescope Owner Nights have been set. We will hold the program on the 15th and 18th of January 2003 from 6–9 pm. Details and a flier are available at our website: www.astro.umd.edu/openhouse.

Open House

Reminder that the UM Observatory is open to the public on the 5th and 20th of each month. The program is a short lecture followed by a tour of the observatory and observing (weather permitting). (www.astro.umd.edu/openhouse/programs/oh.html)

Group Programs

We have slightly revised our group programs. Groups have the option of coming on an Open House night. Their presentation would be an hour before the regular public one. Groups should contact me to arrange which date they'd like to come on. In addition, there will be a few Friday and or Saturday nights available for evening observing only. We have also acquired some solar filters (visible and h-alpha) to use with our 8" SCTs, so we can also do some day programs. Groups interested in coming to the observatory should contact Elizabeth Warner at 301-405-6555 or warnerem@astro.umd.edu to make a reservation. (www.astro.umd.edu/openhouse/obs_info/groups.html)

Docents Program

Individuals get trained on the telescopes, commit to help with a couple of Open Houses, and then get to use the equipment on our Docents Nights. (www.astro.umd.edu/openhouse/amateur/docents.html)

Other plans...

These are possible future programs that we would like feedback on:

- A page where people can request observations of a particular star, asteroid, or other astronomical object within the

capabilities of our instruments. Once the image is acquired, it could be e-mailed, printed and mailed, or mailed on disk if one is provided.

- Possibly allow individuals/clubs to come in and use the instruments for a particular project.
- Last year we held our "Learn the Sky Fridays" program, an intro program for people interested in astronomy. We are planning on holding it again this year. In addition, we are thinking about holding a more advance program dealing with amateur projects (how-tos, equipment needed for asteroid/comet hunting and observing, supernova searches, GRBs, occultations, and so on).

Generally, all of these would be free, but we would gladly accept \$\$ donations!

Looking for guest speakers...

We usually try to have some of the faculty from the UM Astronomy Department give presentations at our Open Houses, but if you have a member that is a good speaker and has an interesting talk, we would love for them to give a presentation. I am currently setting up our spring and summer schedule. The dates would be the 5th and 20th of each month.

Need a guest speaker...

Quid pro quo . . . I understand that many clubs are also looking for speakers at their club meetings. I will be happy to give a presentation . . . either on some astronomical topic (astrophotography, comets, occultations) or . . . I am also the "Liaison to Amateur Astronomers" for the Deep Impact mission so I could talk about the mission and what amateurs can do to be involved. (deepimpact.umd.edu/)

Happy stargazing! ★

Contact Elizabeth Warner at warnerem@astro.umd.edu or 301-405-6555.

NOVAC robotic observatory project comes to life

by Craig Tupper

In October 2002, Craig Tupper announced to the NOVAC email list that the long-running NOVAC CCD Project (www.novac.com/craig/) was coming to an end. Pete Johnson asked whether Craig had ever thought about an internet-controlled CCD observatory for all NOVAC members. After a great deal of discussion among Craig, Pete, and Bob Parks, Craig and Pete made presentations to the NOVAC Board on November 5; the Board approved it. Craig, Pete, Bob, John Deriso, Hank Doyle, Alex Lim, Mike Mills, and Bob Neff are currently working on it.

We intend to build a robotic observatory for CCD imaging, accessible by all members via the Internet. To keep costs down, we are going to use as many existing or donated assets as possible, including the club's 10" LX200 telescope; Craig's CCD camera, wedge, and balance weights; and donated computers. The observatory will be placed on a mountain near Moorefield, WV, on land owned by Bill Bryson, who will give us a long-term lease. (Thanks, Bill!) There is no public access to this remote, gated site; there are several other observatories already on the mountain, and no prior vandalism. The site is close enough to D.C. for construction and maintenance (2 hours from the beltway), and the skies are pretty dark—about magnitude 6.5 or better, with limited potential for decay.

We hope to start site construction by early spring, and be online before summer. Once it's done, members will be able to obtain CCD images from the comfort of their keyboards. This should be fun and educational, as members will learn about CCDs, observatories, or other aspects of astronomy. It will also enable members to do scientific projects, such as asteroid and/or comet discovery,

supernova hunting, variable star photometry, searches for extra-solar planets, or lots of other potential, multi-member, science projects.

Imaging will not be "real-time." That is, we can't have nine people trying to joy-stick the telescope at the same time. Instead, the software package we have chosen provides a simple web-based form to request images of individual objects, and also accepts formatted lists of targets for scientific projects needing multiple exposures. The software consolidates the observing requests, builds an imaging queue based on position on the sky, takes observations, and posts images via ftp for retrieval. This should enable full use of every minute, all night long, every clear night.

The cost of the project should be around \$5000 to \$6000 to get up and running, and about \$1000 per year for internet access, maintenance, and AC power. Donations to NOVAC in support of the project may be sent to the club Treasurer, Pedro Martinez. We also welcome potential collaborations with universities or other organizations.

This is an exciting project that will be used by many members. We hope it will focus our large, diverse club on a big project, without the need to buy land in a remote location that few will visit. For more information, including regular updates, tune in to the club email list or visit the project web page at www.novac.com/robot/. ✪



Just one of many designs being considered for NOVAC's robotic observatory

Leonids, from page 1

there we were, most of us with coats and sweaters thrown over night clothes, standing in the cold night and watching a display of indescribable beauty.

What did we see? Well, it's hard to *imagine* 50 meteors per second, much less count them. Just the same, this is probably what we had. All we could do was watch, and enjoy the once-in-a-lifetime heavenly show.

The entire sky, from zenith to horizon, in all directions, was filled with meteors. On a clear, moonless night in 1966, the skies in Richfield were very dark, and the constellations prominent. In this morning Minnesota sky, the meteors were so thick and numerous that the constellations could barely be distinguished. It was exceedingly difficult to distinguish the constant stars from the falling, inconstant ones!

The meteors seemed to be of nearly every color and brightness, ranging from the bright fireballs with long, vaporous trails to the popping flashes of those near the radiant, which seemed to be coming straight at us!

Looking toward the radiant, the storm resembled very much the look of large snowflakes, caught in the highbeams of a car cruising at 60 miles per hour. Only this time, it was the *earth* hurtling into a dense swarm of dust and grit! I have never again experienced such a clear perception of the earth moving through space.

After about 30–40 minutes, the sky began to visibly brighten, and it was time to reluctantly go back inside to continue the day's responsibilities. Even as we finally wrapped things up, the brighter meteors could still be seen, stitching the dawn with the brilliance of their incandescent fire.

Footnote: Some of you, in reading about comets and meteors, or about the history of astronomy, may have come across an illustration of a woodcut of the Great Leonid Meteor Shower of 1833 (see page 1). This is what it looked like, folks! Apparently, every 133 years, the earth moves through the main meteor cloud of the Leonids.

Next time for the display reported here: 2099. Something to pass on to your grandchildren (or great grandchildren) . . . ✪

New members

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Highlights from NOVAC Star Gaze 2002



PHOTO BY PHIL WHERRY



PHOTO BY MIKE MILLS

Upcoming NOVAC meeting programs

January 12, 2003

Preparing for an observing session • Pete Johnson

The skies are clear, but are you prepared to make the best of your time under the stars? Pete Johnson, former President of NOVAC and gifted amateur astronomer, will speak on some of the materials and techniques that will help you maximize your observing session.

February 9, 2003

Amateur radio astronomy • Harold Geller

Some amateur astronomers like to do more than just look at the sky in what scientists call visible light, which is but one small portion of the electromagnetic spectrum. Some amateur astronomers also look at the sky in the radio wave region of the spectrum. Learn something about what these amateurs do and how they see and hear the sky a little differently. See what some objects look like in radio and how you too can enjoy the sky with big dishes, ears and computers. Tonight's speaker is Harold Geller, GMU Professor of Astronomy and NOVAC member.

March 9, 2003

Using digital weather forecasting in astronomy • Bob Bunge

The National Weather Service has recently started to produce digital forecasts that show some promise for better predicting conditions at observing sites. Forecasts every three hours and for five-kilometer grids are two of the more interesting developments. The program will discuss how the digital forecasts are produced, their pros and cons, and how amateur astronomers might use some of the web interfaces into these products. Speaking tonight is amateur astronomer and meteorologist, Bob Bunge (he is also an active NOVAC observer).

April 13, 2003

NOVAC's "Robo-Scope" • Craig Tupper

NOVAC meetings are held at 7:00 pm on the second Sunday of each month in Room 80 of the Enterprise Hall at George Mason University in Fairfax, Virginia. See www.novac.com/GMU.htm for a map and directions. **Please note:** The schedule of speakers is subject to change. Please check at www.novac.com/craig/speakers.htm for the latest info prior to the meeting.

What's YOUR interest? Let SO'Brien@retail.si.edu know. Come share and learn about your favorite topic!

Clockwise, from top left: Mike Lewis readies his scope for observing; Children learn about relative planetary distance scales on the solar system walk; Greg Piepol demonstrates solar H-alpha observing using the club's SolarMax filter on his refractor.



PHOTO BY MIKE MILLS

Announcements

New mentor program

by Kevin Beamer

NOVAC is pleased to announce its new mentor program. The mentor program is an effort to accomplish the goal of the second part of the NOVAC slogan, "... and to help others observe." The mentor program helps novice observers get in touch with more experienced observers (mentors) who can help them with questions, developing observing skills, and assist them with selecting and using equipment.

Some areas that mentors can help novice observers with are:

- **Stellar navigation**—finding and identifying constellations and bright stars, star hopping, finding alignment stars for go-to scopes, using star charts.
- **Observing techniques**—finding deep-sky objects, planetary observing, keeping a log book.
- **Equipment**—selecting a new telescope, selecting additional equipment (eyepieces, filters, etc.), setting up and aligning a telescope.
- **NOVAC site logistics**—finding and getting into NOVAC sites. Although the directions on the web site are very good, novice observers may want to follow someone to a site for the first time.

If you want help from a mentor

Send me an e-mail at k_beamer@yahoo.com, and let me know the areas with which you would like help. I will get you in touch with a mentor who is familiar with those areas. You can then set up a mutually convenient time and location to meet. The NOVAC Monthly Observing Sessions are good times to meet, since there will be other NOVAC members around to help in the event that you "stump" the mentor.

If you would like to be a mentor

You do not need to be an extremely advanced observer with ten years of experience and a 20" dob to be a mentor. All you need is to feel comfortable in some observing skills or area of knowledge, and a desire to help someone with less experience. You will help them get started observing, improve their observing skills, and perhaps steer them away from some of the mistakes that you made when you first started.

Send me an e-mail at k_beamer@yahoo.com. I will send you a short questionnaire that will ask about your observing experience. As requests for assistance are received, you will be contacted to see if you can help. After that, you can get in touch with the observer who requested help to set up a time and place to meet.

NOVAC robotic telescope project donations

Pedro Martinez, Treasurer

NOVAC would like to knowledge receipt of charitable contributions from the following individuals for the robotic telescope project. These contributions are tax deductible (for tax year 2002) under the IRS Section 501(c)(3). Additional contributions will be welcomed and appreciated.

Dr. Bruce Wetzel	\$ 50.00
Jean-Paul Richard	50.00
Michele Fain	25.00
Beau Harbin	20.00
Robert McKinney	20.00
Total	\$165.00

Video and digital imaging special interest group (VOID)

by Robert Stewart

A new special interest group has been formed to facilitate the burgeoning video astronomy/digital camera arena. The NOVAC Video Occultation Image Digital (V.O.I.D.) group aims to help foster an interest in planetary, lunar and deep sky video astronomy. My particular interests lie in lunar occultations (did you see the *awesome* video Ed Karch made in the parking lot of the Arlington Planetarium?), but that will not be the only focus. With the upcoming best in our lifetime Mars season approaching, a great many opportunities will present themselves for videotaping and digital photography of the Red Planet.

So if you think you might be interested, step off into the VOID. If you have questions, e-mail Stew at rhshrs1@msn.com, and keep an eye on the NOVAC web page for information as the group develops.

Messier Marathon 2003

First Annual NOVAC Extreme "Messython"

March 2003—first weekend and last weekend are the best for observing

Simple rules: • No charts • No go-to • Do it from memory

Contact Stew at rhshrs1@msn.com for a copy of the rules.
Good luck!

New NOVAC monthly observing session

by Bob Parks, MOS-SIG leader

Starting January 11, 2003, at Crockett Park, NOVAC will hold organized observing sessions each month. The concept of the monthly observing session (MOS) came from my experience setting up public observing nights at Mason Neck State Park. While we did not have great success in getting the general public to attend the sessions, we were able to get a large NOVAC crowd coming out to observe each time. The feedback from attendees confirmed my feeling that the club should try to develop a regular program for members. To this end, we have recently formed the MOS-SIG and have begun to assemble a team of coordinators to manage the events.

The goals of the MOS are simple. By arranging to have a common focal point for observing each month, we hope to get more NOVAC members involved in observing as a group. By attracting a large group, we hope to encourage a feeling of community among members, as well as share the experience of our more seasoned observers with newer members. These sessions are not intended as public events, but we plan to occasionally coordinate the events with our outreach program.

An informal poll of members found that there are several reasons why many members don't get out to observe as a group. Some of the reasons we received:

- The observing sites are too far
- I don't know who will be there
- I don't know anyone and feel insecure about just showing up
- I don't want to look silly in front of the experienced observers
- I don't want to get there and find that I'm the only one who showed up
- I don't know how to get into the observing site
- I don't know how to find anything but the Moon
- I can't set up my scope properly.

We will try to address all of these issues as we develop the program for the events. A volunteer coordinator and an assistant will run each session. It will be their jobs to develop an informal short program that they feel will help achieve the goals of building camaraderie and sharing experience. This

program may include a brief sky tour; an observing- or equipment-tips talk; or a "walkabout" where the group moves from one scope setup to another and the owners introduce themselves and briefly talk about their equipment, experience, and observing goals.

Each event will start an hour before sunset, so that people will have time to set up in the light and socialize a bit before diving into

By attracting a large group, we hope to encourage a feeling of community among members, as well as share the experience of our more seasoned observers with newer members . . .

the program and observing. Observing locations will rotate so that everyone can be reasonably close to an event at some point. Crockett Park has been designated as the primary observing site by the NOVAC board. Therefore, each year half of the sessions will be held there and the other six sessions will be divided between Mason Neck

State Park and Camp Highroad.

As part of the MOS, we are also forming a Mentor Program. This program will work to match volunteers who wish to share their knowledge of equipment and observing skills, with novice members who would like to have some help getting started or developing new skills. Kevin Beamer has volunteered to be the program coordinator. Kevin is actively looking for mentors and, once a cadre of volunteers has been assembled, will announce how members wishing to receive guidance can apply. He will also be developing a survey form for both mentors and "protégés" in an effort to match up members in terms of skills and interests.

As I mentioned, we are also looking for Monthly Observing Session coordinators and assistants. This is a great way to meet people and you don't have to be an expert to handle the modest amount of work required. All that is required is a desire to make NOVAC a better club and help members enjoy observing together. Organization and communication skills will help and a little bit of cheerleading may also come in handy. To find out more about the MOS program or to volunteer, please contact me directly at bob@innovisionmm.com. If you are interested in the mentor program, contact Kevin at k_beamer@yahoo.com. Please check the NOVAC web site for additional info on the MOS or mentor program, as well as any changes to the MOS schedule.

See you soon? ★

Tentative 2003 monthly observing session schedule

Date	Location	Notes
January 11	Crockett Park	MOS Kickoff
February 8	Mason Neck Park	
March 29	Camp Highroad	Messier Marathon
April 5	Mason Neck Park	
May 10	Crockett Park	Astronomy Day
June 21	Crockett Park	NOVAC Picnic
July 5	Camp Highroad	
August 23	Camp Highroad	Mars Mania
September 20	Crockett Park	NOVAC Star Gaze
October 18	Mason Neck Park	
November 29	Crockett Park	
December 13	Crockett Park	Geminid Meteor Shower

Meeting highlights

Board Meeting November 5, 2002 Arlington Planetarium

- ★ **Craig Tupper** and **Pete Johnson** presented proposals soliciting funding from NOVAC for a member-run project to place a robotic telescope on private property in West Virginia. After presentations and a question and answer period, the Board voted overwhelmingly in favor of funding the **robotic telescope project**. Presentations are on file with the Secretary and available from the NOVAC website.

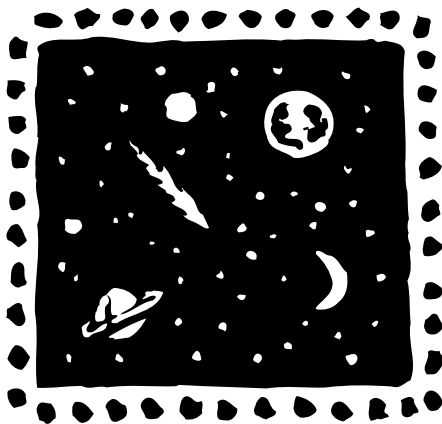
Submitted by Renée Pleasant.

Board Meeting December 3, 2002 Arlington Planetarium

- ★ **Tilly Smith** gave a report on NOVAC's various observing sites. **Treasurer Pedro Martinez** provided an invoice to help Tilly track down the vendor of the porta-john at Savage. The **Savage agreement** is up for renewal this month and Tilly will finalize it.
- ★ The **Camp Highroad** lock issue was resolved, so members continue to enjoy access to that site. Members should carefully use the back entrance at Mercer Park, as there is a problem with mud at the main entrance.
- ★ **Crockett** renewal is due this month; Tilly will finalize it. Mason Neck has about 1/2 dozen regulars. The regular public night requirement was fulfilled in October.

- ★ **Pete Johnson, Bob Parks, and Craig Tupper** gave an update on the **robotic observatory project**. Pete Johnson invited more participants at the November ATM meeting and got several volunteers. CAD renderings will be placed on the website. Bob Parks stated that a computer has been donated by Phil Wherry. Craig Tupper stated that he has mounted the scope on a pier on his deck.

- ★ **Bob Garrett, Donna Blosser, Tyler Swing, and Bob Traube** will have a meeting with **Ed Witkowski** to get resources for outreach. They have developed a



questionnaire/survey to determine a volunteer base. Bob Parks suggested steering people to already existing public nights.

- ★ Discussion then followed on the best use of observing sites and the division of activities between the various sites. Consideration was taken of the obligation already existing for **hosting public nights** and Crockett and the volunteers needed for that. A motion was made to use Crockett for 6 nights and 6 other sites throughout the year for **Club Observing Night**. Motion carried. **Bob Parks** and **Tilly Smith** will convene to work out details.

Submitted by Renée Pleasant.

NOVAC Monthly Meeting December 8, 2002

- ★ **Elections were held.** Officers for 2003 are:
 - **President:** Ed Karch
 - **Vice President:** Craig Tupper
 - **Secretary:** Bob Hand
 - **Treasurer:** Pedro Martinez
 - **Trustees:** Alan Figgatt, John Avellone, John Deriso, Rob McKinney, Bob Stewart

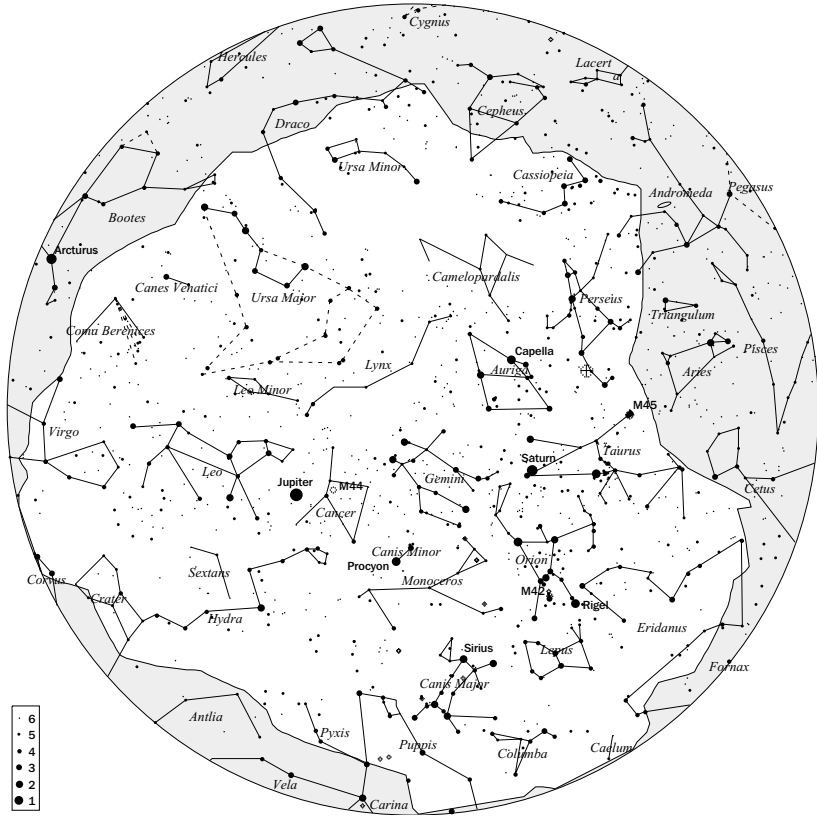
- ★ Bob Parks announced plans for **Monthly Observing Sessions**, which will include a mentoring program. Ed Karch showed the video of a recent lunar graze, while Bob Stewart discussed the **VOID program (video of occultations)**. Mike Mills will give Pete Johnson a break as coordinator of the **ATM group**.

- ★ For the **Sky Tour**, Alan Figgatt found treasures in Camelopardalis, including open clusters, a planetary, a few good doubles (or triples) and a galaxy.

- ★ The presentation topic was **Star Parties**. Pete Johnson talked about the **Winter Star Party** in Florida. Alan Figgatt spoke about the **Laurel Highlands in WV**, the **Black Forest in PA**, and the **Year-Long Star Party at Spruce Knob**. Bill Jensen discussed the **Oregon Star Party**. Each discussed how long to get there, limiting magnitude, horizons, food, porta-johns, showers, speakers/prizes/no-frills. My conclusion: not all star parties are the same, but there is one out there for you.

Submitted by Bob Hand.

January skies from Savage Farm



Jeff's observing report

Jeff Stetekluh

Jeff's astronomical calculations are made for the Northern Virginia area. See www.novac.com/jeff/jrefs.html for calculation references and further details.

Jupiter eclipse events on Friday and Saturday nights

Jan 5	6:30 am	Ganymede Eclipse start
Jan 25	7:43 pm	Callisto Eclipse start
Feb 1	6:33 pm	Io Eclipse start
Feb 8	10:46 pm	Io Eclipse end
Feb 9	11:15 pm	Europa Eclipse end
Feb 16	12:41 am	Io Eclipse end
Feb 23	2:36 am	Io Eclipse end

The Sun

Jan 12	rises at 7:26 am	sets at 5:07 pm
Feb 9	rises at 7:07 am	sets at 5:39 pm

The Moon

Jan 2	New Moon
Jan 10	First Quarter
Jan 18	Full Moon
Jan 25	Last Quarter
Feb 1	New Moon
Feb 9	First Quarter
Feb 16	Full Moon
Feb 23	Last Quarter

Events

Jan 4	The Quadrantid meteor shower peaks (active Jan 1 to Jan 5)
Jan 10	Venus is at greatest western elongation (about 34° above the horizon at sunrise from Dec 15 to Dec 20)
Jan 11	Mercury is in inferior conjunction (between Earth and Sun)
Jan 30	Neptune-Sun conjunction
Feb 2	Jupiter at opposition
Feb 3	Mercury at greatest elong: 25.4°W
Feb 18	Uranus-Sun Conjunction

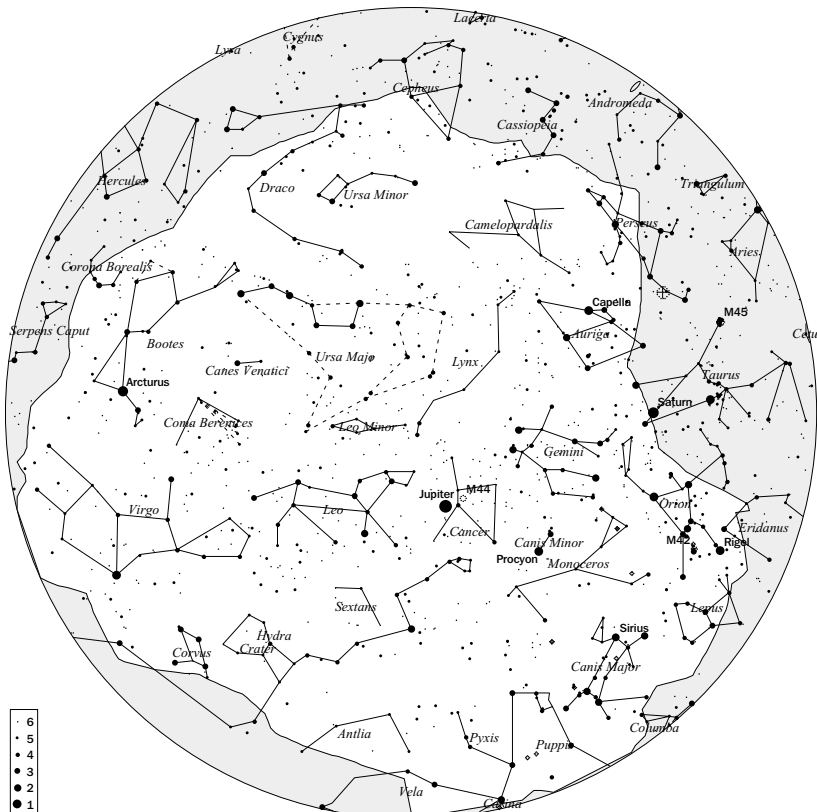
The Planets

Nov 12	Rises	Transits	Sets
Mercury	07:19	12:06	17:03
Venus	03:53	08:57	14:00
Mars	03:22	08:21	13:20
Jupiter	18:54	01:56	08:55
Saturn	14:54	22:12	05:34

Feb 9	Rises	Transits	Sets
Mercury	05:51	10:42	15:33
Venus	04:25	09:16	14:07
Mars	03:01	07:47	12:32
Jupiter	16:45	23:48	06:55
Saturn	12:58	20:16	03:38

Each map depicts the sky at 0 hours for the 15th day of the respective month. The shaded area approximates the local horizon obstruction at the site.

February skies from Savage Farm



“To observe, and to help others observe”

NOVAC is a non-profit, all-volunteer organization chartered to advance amateur astronomy in Northern Virginia. Members benefit from:

Access to dark sky observing sites:

NOVAC maintains agreements that provide club members with year-round access to observing sites away from city lights

Monthly meetings

Monthly meetings are held at 7 p.m. on the second Sunday of each month in Room 80 of the Enterprise Building on the campus of George Mason University. Each meeting features a lecture on an interesting topic by a local expert. See the web page or future newsletters for a schedule of speakers.

Bimonthly newsletter

The NOVAC newsletter provides information specifically for NOVAC members, as well as general interest articles on such topics as observing reports, equipment reviews, upcoming events, ATM projects, and more.

High-quality telescopes to borrow

NOVAC members may borrow one of the clubs several “loaner” telescopes at no charge. Members may choose from among three 6” reflectors of different focal lengths, one 10” f/6 reflector and a couple of SCTs. Also available for loan is a 7x50 binocular.

Large club library

NOVAC maintains a well stocked library that members may borrow from by contacting John Deriso (seaotter@bellatlantic.net). A full list of titles is available from the club website.

Club website

Up to date information about club events and activities is maintained on the club website at www.novac.com.

Private e-mail list-serve

Members keep up with current club information by subscribing to the NOVAC e-mail list, without fear of flame wars or spam e-mails.

Public outreach opportunities

Several times each year, volunteers from NOVAC present astronomy programs to schools, churches, Scout troops, and other public groups.

Membership in the Astronomical League

Through NOVAC’s membership in the Astronomical League, NOVAC members gain access to the AL’s newsletter, services, and observing programs.

Discounts on astronomy magazines and books

Subscriptions to *Sky & Telescope* and *Astronomy* magazines are offered to club members at a considerable discount. Also, astronomy books purchased through the club are eligible for a 10–25% discount.

See your *Membership Guide* for more details.



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

Membership in the Northern Virginia Astronomy Club is \$25.00 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 \$5.00 per person. Contact:

Joe Pierson
15091 Jarrell Place
Woodbridge, VA 22193
703-680-6343
jmpierson@comcast.net

Change of address

All notices of change of address should be sent to Joe Pierson. Please include both old and new addresses.

Advertising

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

Submissions to the newsletter

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, at mjmills@fpcc.net. **The deadline for submissions is two weeks in advance of publication: February 7 for the March/April 2003 newsletter.**

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In this issue...

News and articles • 1966 Leonid meteor storm • Events at UMD • NOVAC's robotic observatory project • Highlights of Star Gaze 2002 • New monthly observing session

Announcements • Mentor program • Robotic telescope project donations • Video and digital imaging special interest group • Messier marathon 2003

Regular features • President's message • Upcoming NOVAC meetings • New members • NOVAC meeting highlights • Sky maps • Jeff's observing report • Events in 2003



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