

Robotic Telescope Update

By Phil Wherry • Photos by Bron Gervais

It's been a while since the robotic telescope's engineering team has provided an update on the status of the project. I recently volunteered to provide the club and its Board of Trustees with a status report, so here's the latest news.

Five NOVAC members spent the afternoon on Sunday, August 24 at the telescope site in Lovettsville, VA: Bron Gervais, Pete Johnson, Arlen Raasch, Craig Tupper, and Phil Wherry. We assessed the state of the telescope, control systems, mount, and observatory structure and made plans for follow-up activities.

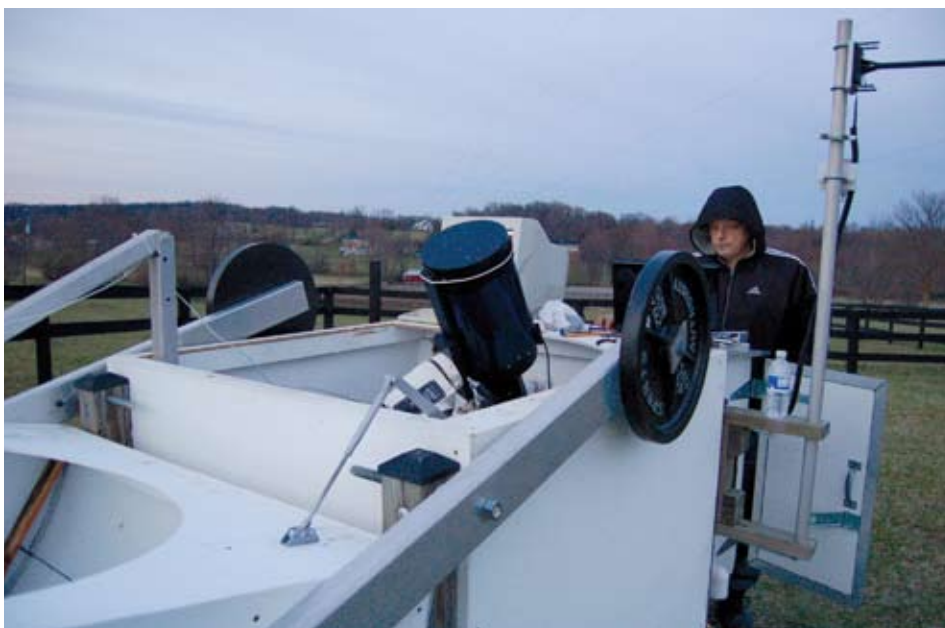
News on the hardware front wasn't especially good. The Astro-Physics mount appears to be nonfunctional. Acting on advice from Astro-Physics, we tried connecting it to a computer in order to operate it without the control keypad attached. This didn't appear to work, though the testing process was complicated by problems with the imaging computer (see below).

One of the two computers that operate the observatory has also failed. We don't yet know the severity of the failure; we suspect that it's a power supply issue (none of the fans are turning) but can't be certain of this until some bench diagnostic work is completed.

The team agreed on several next steps:

1. Craig Tupper will work with Astro-Physics to get the mount and associated electronics repaired.

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Pete Johnson with the Robotic Telescope

Star Gaze 2008 to be Held Oct. 4

By Richard Grauel,
Star Gaze Coordinator

Star Gaze 2008 will be held at CM Crockett Park on Saturday, October 4th, beginning at 3 p.m. Star Gaze is a joint partnership with the club and the park, and is a public event. It is one way that NOVAC shows its appreciation for the regular use of Crockett. Star Gaze is also one of the club's three premier events during the year. Along with Astronomy Day and Almost Heaven Star Party, this event draws major participation from club members and a good public response. In previous years, 50 to 75 members with scopes have participated, making this one of the largest such events in the Washington area. NOVAC will provide members with soft drinks and light hors d'oeuvres during the afternoon at the club tent.

Please put October 4th on your calendar and plan to bring your observing equipment and family. We will need volunteers to help layout the observing field, direct cars to parking area, welcome visitors at the main entrance, man a club information desk, assist with publicity, and give short talks to the public. Volunteer assignments will normally last about 1½ hours. NOVAC members who come with observing equipment and present their NOVAC membership card are allowed in free. Normal park entry fees of \$6 per car apply to the public. Directions to Crockett are found in the Members section of our web site under observing sites. The address is 10066 Rogues Rd. (Rte 602), Midland, VA 22728. Crockett's

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2. Since we believe the most recent failures are lightning-related, we are going to devote some engineering effort to strengthening the lightning protection at the observatory. We intend to once again eliminate the copper wire link to the Internet tower through the use of optical fiber media converters. We're additionally planning to improve the ground wiring within the observatory. It should be noted, though, that lightning protection is largely about risk management for near misses; it is flatly impossible to completely prevent damage should a direct hit on the tower or observatory structure occur. Arlen Raasch has extensive experience in lightning protection, and he's leading the effort to harden the telescope site.
3. We note that the imaging computer system has been extremely unreliable by comparison to the observatory control computer system. There are some important differences in the physical hardware between these two systems (namely that the observatory control system draws much less power and therefore generates much less heat). We think these differences at least partially explain the dramatic

differences in reliability that we've seen, and therefore intend to replace the imaging system with new computer hardware that is similar to that used for observatory control functions. The sort of hardware we want isn't expensive, and a couple of team members are going to research and coordinate this purchase. Bron Gervais is currently in possession of the failed computer, and he's planning to head the hardware diagnostic process and will also work to re-host the imaging computer on new hardware, with advice and assistance from Craig, Pete, and Phil.

We're keeping NOVAC's Board of Trustees apprised of the project's progress. While we're no happier than anyone else that the telescope isn't currently available for use, I think we made significant progress by cataloging all of the known issues and connecting each one with a NOVAC member who will take the lead for its resolution.

Comments and questions are welcome. Let me know, too, if you'd like to join the email list for the engineering team; any interested member is welcome to participate in (or simply observe) these discussions. *



Pete Johnson (left) and Craig Tupper at work on the Robotic Telescope

A Week at Astronomy Camp

By Gayathri Cheran

It is enviable to think that come fall, when their friends ask them what they did over the summer, only 29 of over 50 million high school students across the United States will be able to say that they attended the 2008 Advanced Teen Astronomy Camp. Only 29 students, plus their 11 counselors, will be able to say that they had the chance to see Jupiter and the Whirlpool galaxy through a 61 in. telescope, that they used liquid nitrogen to freeze ice cream, and that they camped out in the lobby of the Large Binocular Telescope (LBT) atop Mt. Graham.

To all who seek to experience such rare, once-in-a-lifetime adventures, let me be the first to tell you about astronomy camp, the ultimate destination for anyone who likes science.

But first, you may be wondering: just what is this “Astronomy Camp”? Well, it is many things. Astronomy Camp is a ten day scientific engagement of the mind, in which campers at all levels plunge into the depths of the world of astronomy, armed with eleven counselors and four telescopes equipped with spectrometers, photometers and CCD imagers to explore the universe and answer their own questions about it. It is, to my knowledge, the only camp in the world whose participants can boast the gaining of a deepened scientific curiosity, a strengthened sense of articulation and eloquence, experience in the expansion of one’s comfort zone, a better understanding of oneself, and last but certainly not least, fearlessness towards moths—all within ten days! Said simply, astronomy camp is an unofficial synonym of the word “paradise,” or so I have declared after my experiences there this summer.

It all started at home in Burke, Virginia, when I first began researching for my admissions essay, a description of life on a hypothetical planet of the binary star Procyon A. Five days of skipping lunch-time at school to go to the library instead paid off when I proudly placed my essay and forms in an envelope and mailed it off to Arizona, an action which was followed by what seemed like ages of waiting

impatiently for a reply. My eagerness was quickly replaced by exhilaration when I received notification from Dr. McCarthy, the camp director, informing me that I had been accepted into camp. Before I knew it, I was aboard a plane; destination: Arizona, and the promise of excitement in the days to come!

My first and perhaps greatest mistake was in wearing a long sleeve shirt on the plane. I realized with embarrassment what a stupid thing that was to do when I arrived at the Tucson International Airport, a sleek and thankfully air-conditioned building full of friendly tan folks dressed in tank-tops and shorts. My idiocy hung even heavier over me when I stepped outside into the sweltering 107° heat, although I got used to seeing through

perpetual heat waves after the first couple of hours. Luckily for me, the temperature atop Mt. Lemmon, our soon-to-be residence for the next week, would be much cooler.

After meeting the counselors and other campers, we began the drive from Tucson to Mt. Lemmon. There were 29 of us from 13 different states and Mexico. Our counselors were mostly former astronomy campers, ranging in profession from astronomers to professors/educators and some of them were students in college who were majoring in astronomy or physics. We had plenty of time to get to know each other during the two hour drive from Tucson to Mt. Lemmon. When we finally arrived, we had time only to lug our suitcases to our rooms

before Dr. McCarthy took us on a tour of the buildings and various telescope domes that speckled the mountain. We watched the sunset from the roof of the army tower, a building where we would gather each day to dine and see the counselors’ presentations. The mesmerizing hues of the sunset rivaled the beauty of the stars and view of the Milky Way, when night fell. The seemingly infinite number of stars sharply contrasted with what I was used to seeing at home- 20 stars maximum on a really clear night. I saw for myself the true effects of light pollution and was stunned. We ended our first day of camp by driving to the 61 in. telescope on the nearby Mt.

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The Sub-Millimeter Telescope (left) and Large Binocular Telescope (right) atop Mt. Graham. PHOTO BY EMILY JOSEPH



The campers write their telescope proposals, with the help of the counselors. PHOTO BY EMILY JOSEPH

Hanny's Voorwerp

By Kurtis Williams | www.professor-astronomy.com/blog/index.shtml

A couple of months ago, I was looking at the daily Astronomy Picture of the Day (<http://apod.nasa.gov/apod/>), when I saw the weird green thing near a normal galaxy in picture above. Even stranger was the object's name: "Hanny's Voorwerp" (which, it turns out, is Dutch for "Hanny's Object"). It was a cool picture of an object the likes of which hadn't been seen before. So, I stuck it in the "weird astronomy things" file in my brain and went on.

Now, a couple of months later, CNN.com has made Hanny's Voorwerp its lead story. It must be a slow news day, because while the discovery (and method of discovery) are good stories, I'm not sure it should rank above the news about the Olympics, or news from Iraq or Afghanistan, or the U.S. election. But it is a nice change.

So, what's the story? It starts with a project called Galaxy Zoo (www.galaxyzoo.org/). Galaxy Zoo was set up to get people at home involved in a science project that requires human eyes and brain power to classify galaxies, but is too labor intensive for any astronomer to undertake. Basically, galaxies come in three basic shapes — spiral, elliptical, and irregular. (That's an over-simplification; there are sub-classifications and many details that I won't go into, because they aren't important here). Computer algo-

rithms for identifying galaxies do okay, but they aren't perfect, and they tend to miss interesting objects. In the Galaxy Zoo, pictures of millions of galaxies taken as part of the Sloan Digital Sky Survey have been looked at by volunteers around the world.

Hanny's Voorwerp is one of those interesting objects that I doubt a computer would have recognized, because it is unlike anything we've seen around other galaxies. It appears to be a large patch of gas near a big galaxy, but this gas doesn't seem to have its own stars. It's just sitting there in space and glowing. It was discovered by a school teacher from the Netherlands, Hanny van Arkel.

So, what is Hanny's Voorwerp? We don't know! But that doesn't keep us from guessing. Initial data from the picture and from spectrographs indicate that this is really hot gas at the same distance as the galaxy in the picture above, and that the gas has probably been heated by a shock wave (like a blast wave from an explosion, or a collision with something). The best guess, according to astronomer Bill Keel's work, is that the galaxy above Hanny's Voorwerp harbors a big black hole at its center (as most galaxies do), and that it recently was "active," or swallowing dust and gas at a prodigious

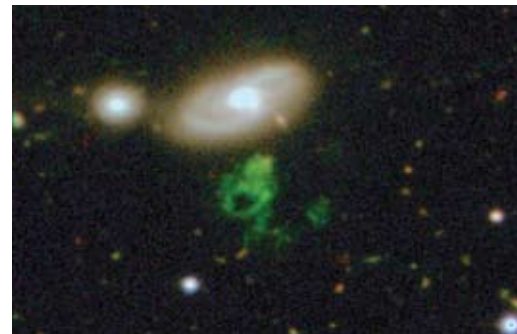


PHOTO CREDIT: GALAXY ZOO, ING, APOD

rate. When a black hole is gobbling material like this, the material tends to heat up, and some of it can get shot away from the black hole before it is swallowed in gigantic, high-energy jets (like these). And then, within the last 100,000 years or so (very recently by astronomical standards), the black hole ate everything within reach, and went into hibernation, turning off the visible light.

Hanny's Voorwerp was an innocent bystander, some gas that happened to either be passing by the galaxy, or perhaps falling into the galaxy, when the black hole turned on and blasted it with intense radiation and jets of material. The black hole then turned off, leaving behind a ghostly glow from the impact.

Congratulations to Hanny van Arkel on her unique and interesting find! *

This content distributed by the American Association of Variable Star Observers (AAVSO) Writer's Bureau.

Star Gaze 2008 to be Held Oct. 4 Continued from page 1

web page is at www.fauquiercounty.gov/government/departments/parksrec/index.cfm?action=crockett

A large tent will be setup for speakers to use and for use in case of inclement weather. Presentations should be about 30 to 45 minutes in length. We will run electricity to the tent and have our projector and screen for use by speakers. Club members who can serve as speakers are needed on the following topics:

Solar observing	Sky tour
Astrophotography	Binocular viewing
Children's activities	Other

This is a rain or shine event., and our speaker program will go on regardless of the weather. Groups requesting NOVAC public outreach support between now and October 4th should be referred to this event, as appropriate.

We plan to assist Crockett with publicity this year. Barbara Whitehead will head up this effort. We will submit event information to radio and TV stations, the *Washington Post*, *Astronomy Magazine*, and *Sky & Telescope Magazine*. Also, we will try to get a TV crew to come out to the event. Barbara is looking for volunteers who could take the information in this

email (or flier which we will prepare) and submit notices to local newspapers in Fauquier, Loudoun, Prince William, Fairfax, Alexandria, Maryland suburbs, etc. If you can help contact local papers, radio stations, etc, in your area, please email Barbara at barbarawww@verizon.net.

Please send me an email if you will be bringing your scope. Also send me an email if you can volunteer to work the event. We also need speakers. Please volunteer for this task if you can speak on a topic of interest for this event. My email is grauelrl@msn.com. Thank you. *

A Week at Astronomy Camp *Continued from p. 3*

Bigelow, where we spent the night viewing various things ranging from the Whirlpool galaxy, to the globular cluster M15.

The next day we set to work on writing telescope proposals for our research projects. There were four telescopes available to us: the 61 in., the 60 in., the 20 in. and the 12 in., each equipped with a spectrometer, a photometer or a CCD. I planned to pursue two projects, which would require the 61 in., the 60 in., the CCD and the spectrometer. My first project was a team effort with two other campers, and it consisted of imaging various merging galaxies and recreating their collision with an online computer simulation. I worked alone on the second project, a spectroscopic study of spiral galaxies to investigate a correlation between the elemental composition of the disk and the intensity of star formation taking place there. Unfortunately, because of cloudy weather, I was not able to collect any data for the second project, so I instead focused on the first one. Our group had managed to image two galaxies: NGC 7256, and UGC 10214 (The Tadpole Galaxy). The three of us were all new to astrophotography, and we had a lot of fun combining the color exposures and editing the images with a program called IRAF. The campers would typically spend their days reducing data collected from the previous night (that is, if they got any).

The cloudy weather that plagued the sky for most of the nights of camp was quite upsetting when the time came to collect data—not just for me, but for everyone's research projects. I recall numerous occasions in which the entire camp would remain in the army tower for the night, playing cards because of thunderstorms outside. We did various activities during times like these, including having dance parties, electrocuting a pickle, freezing things with liquid nitrogen and building our own crystal radios! With 75% of the nights being cloudy, I am especially glad that the skies were clear on the night that we spent at the Large Binocular Telescope. We spent the night



NGC 7256, as imaged by our research team

in the lobby, with the research teams taking shifts to hike down and use the nearby Sub-millimeter Telescope (SMT). Dr. McCarthy took a group of us out to go stargazing at around midnight. It was, in every way, euphoric. I was treated to a spectacular view of the Milky Way and countless meteors. The next day, before leaving for Mt. Lemmon, we took a group photo atop the SMT, toured the LBT and the nearby Vatican Telescope, or the pope scope, as we playfully called it. Of the three telescopes, I found the LBT to be the most impressive. Its two 8.4 meter mirrors seem a lot bigger in person than when you are seeing pictures of them.

On the last day of camp, we gathered at the army tower to present our research projects to the other teams. The other projects were interesting and varied, ranging from imaging an asteroid, to a study of spiral galaxy morphology. Unfortunately, many of them had been ruined by the cloudy weather as well.

On the last day of camp, we packed our bags and drove back to Tucson for an awards ceremony. All of the campers received an award for something goofy they did during camp. My prize was a textbook and poster, for balancing a notebook on my head for 20 minutes without dropping it. In addition to that, a couple of other people and I were also awarded

with space art, for completing the observing challenge, which was basically a list of stars, constellations, and messier objects to see during camp. There was also an award for best astrophotography, given to a girl named Katy, whose work will be displayed in the National Air and Space Museum. We all exchanged emails and promises to keep in touch before saying our goodbyes and going our separate ways. This was perhaps the most bittersweet moment of camp, knowing that my nostalgia would soon be relieved, but at the cost of the chance to do more astronomy.

I missed the other campers a lot more than I had anticipated, considering the fact that I had only known them for ten days. The sense of unity brought on by the common interest in astronomy was different from anything I had ever experienced before. I enjoyed camp a lot despite the clouds' negative impact on my research project.

Astronomy camp, for me, was among the best weeks of my life, an intellectual voyage beyond fun. I recommend it to anyone who is interested in the night sky. For more information, go to www.astronomycamp.org. ★

Observing at Blue Ridge Regional Park (formerly Savage) By Geoff Chester

Well, I got a late start from home (what else is new?) August 31 and arrived at Savage at around 20:15 to find quite a crowd up there already, 8-10 cars clustered in the vicinity of the patio and a few stragglers in other parts of the field. Plenty of room for all, though...

NVRPA has preserved the fireplace from the old house, layed down a concrete slab, and put a roof over it. They've also opened up some of the area between the slab and the barn. There are a couple of primitive campsites south of the patio, and a bigger one near the barn with 6 raised (though heavily weeded over) tent platforms and a fire pit. Three of us wound up spending the night up there, and what a glorious night it was.

Nice temperature, no wind, no dew, no bugs...what more could you want? Oh, yeah, some of the best transparency I've seen from

around these parts in years!

I set up my 14.5-inch Dob and 80mm Antares Sentinel/iOptron Cube go-to south of the big crowd on the patio. Had plenty of visitors, though, and I hope they enjoyed viewing some of the ol' summer faves (Veil, M13, M11, M17, M22, M15, etc.) as much as I did. The seeing was pretty good as well, and the big globulars really snapped into focus all night long. Between socializing with Phred Smith & Kevin Quin as well as several more folks whose names I didn't catch, I waded into obscure NGC-land, picking up ~20 or so new finds and revisiting some old ones, many seen in both scopes for a nice contrast. I thought my favorite view for the night was a tie between the Pleiades in the Sentinel and M15 in the big scope.

Ultimately, though, the most amazing sight was...nothing! I was looking at what

I think was NGC 6683, a small but compressed galactic cluster set just north of a dense Milky star cloud. When I nudged the scope to the west, the field went totally blank! I had stumbled into Barnard 103, one of many dark nebulae laced among the myriad stars of Scutum and Sagittarius. The sudden change from thousands of faint distant suns to a field of only a handful was simply stunning.

Somehow I managed to get my tent up in the dark of 03:45, and head hit pillow by 04:00.

On the way out this morning I had to wait for 3 wild turkeys to cross the road just after going through the gate. A great way to end a great observing session. I'm looking forward to a productive fall up at Savage (it may be "Blue Ridge Park" to NVRP, but it'll always be "Savage" for me!) *

Observing the Perseids By Ron Bashian

I had an interesting evening from 2:55 to 3:25 AM on August 13, during the alleged "peak" of the Perseids.

I live in central Arlington (specifically Ballston), but thought I still might see a few meteors at peak hour and time. So, I went to a nearby open space, the athletic field of our Central Library on Quincy Street. It is surrounded by street lights on all sides, but at several hundred feet distance.

Interestingly, I did make out within a strict 30 hour time, 8 specific sightings. Most were near the horizon. However, I thought that even this modest viewing accomplishment might be of interest in the newsletter, or for discussion at the next meeting.

Here are my notes: Observing: 8/12/08: 0255-0325: Perseids (peak day, peak pre-dawn hour)

- Location: Arlington County Central Library sports field. Facing away from library lights, in general north-east direction.
- Transparency excellent, very little star sparkling. Summer triangle seen in west, but little else. Cassiopeia well defined except last inferior star on "w." So, limiting magnitude maybe 3.0.
- Total of 8 meteors seen:
 - » All but 2 near N to NW horizon. Estimated brightness even near horizon more than Vega. Almost all white. Brief, trail of 4-5 degrees. Duration 1" or less.
 - » Brightest one: white trail, smooth, cruising just below zenith, East to West. Time 0315, duration 2 seconds, trail maybe 20 degrees length.

- » Second biggest one: Near zenith, just south of it. Unusual direction (S to N; apparently not from the general Perseid radiant). Distinctly yellow orange, more sputtering trail. Duration ~ 2", trail maybe 15 degrees. Maybe not a Perseid meteor???

- Greatest difficulty: water sprinkler system, from which I had to move twice. Three cars, 2 airplanes seen. Dressed warmly, comfortable temperature. Comfortable beach chair. Not a bad viewing for city skies!

I wonder how many were seen in dark skies on the nights of Aug 13 or 14 however? *

Do you have a story to tell?

Members are encouraged to submit photos, articles, tips and reviews of books, software and equipment. If you would like to submit an article for publication send an email to newsletters@novac.com.

"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 in. reflectors, two 10 in. f/6 reflectors, an 8 in. SCT, and a hydrogen-alpha solar scope. Binoculars are also available for loan.

Club website

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

Large club library

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

Private email listserv

Members keep up with current club information by subscribing to the NOVAC email list, without fear of flame wars or spam emails.

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

Subscriptions to *Sky & Telescope* and *Astronomy* magazines are offered to club members at a considerable discount. Contact Kent Allingham (see contact info at right).

Mentor Program

Young or old, new or experienced, this program is for everybody. If you would like to meet with a mentor, or think you would like to be a mentor, or have any questions about the program, write to: mentor@novac.com.

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. Membership in the Astronomical League is an additional \$7.50 and includes the *Reflector* magazine plus access to their Observing Awards
Contact:

Kent Allingham
3510 Country Hill Drive
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kent.allingham@verizonbusiness.com

Change of address

All notices of change of address should be sent to Kent Allingham. 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, Tim Nicholson, at newsletters@novac.com. The deadline for submissions is two weeks in advance of publication: September 15, 2008 for the September/October 2008 newsletter.

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Next Meeting

September 14, 2008,
7 p.m.

Program TBA

General membership meetings are open to the public, and are held at Enterprise Hall, room 80, on the campus of George Mason University (see www.novac.com for directions) in Fairfax, Virginia. The meeting hall is in the basement floor of the building. Since Parking Lot B is now closed, you should park across the street in the far reaches of the Patriot Center's parking lot, then walk up the path to the rear of Enterprise Hall.

NOVAC Needs You!!!

NOVAC has a great corps of volunteers, and needs their help. Every year NOVAC hosts two premier public events, *Astronomy Day* and *The Star Gaze*.

This year's Star Gaze will take place on October 4th at Crockett Park. NOVAC has an urgent need for volunteers to help at Astronomy Day. See page 1 for more information.

*Thank You
Ed Witkowski
NOVAC, President*

Upcoming Events

September 26-28, 2008
SJAC Fall Star Party

New Jersey
members.aol.com/sjastroc/fall1.html

October 4, 2008
NOVAC's Star Gaze

Crockett Park
www.NOVAC.com

Oct. 27 - Nov. 2, 2008
Mid-Atlantic Star Party

North Carolina
masp.org/location.htm

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c/o Kent Allingham, Membership Director
3510 Country Hill Drive
Fairfax, VA 22030