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AAVSO Newsletter

SINCE 1911...

The AAVSO is an international non-profit organization of variable star observers whose mission is: to observe and analyze variable stars; to collect and archive observations for worldwide access; and to forge strong collaborations and mentoring between amateurs and professionals that promote both scientific research and education on variable sources.

FROM THE DIRECTOR'S DESK

ARNE A. HENDEN (HQA)

The summer is underway, with lots of exciting news from headquarters. The new website will be released soon. Everyone on staff has worked to make this new site better than ever, with easy navigation and dynamic elements to highlight the day-to-day activity of our members and observers. We have a number of new observing tools that are under development, and observer certification (a first for the amateur photometric community!) is just around the corner.

The headquarters building is undergoing an exterior remodel. We needed to repaint the walls, and the exterior siding was starting to deteriorate. It was time to perform normal maintenance at the same time as preparing for the 2011 celebrations. So contractors are working as I write, stripping the old siding from the building and installing new siding, as well as preparing for the painting job. They then move inside to perform Phase I of the update of the Conference Center. Much of the cost of this renovation is being funded from Dorrit Hoffleit's bequest (the remainder is coming from a donation by the Hendens), and the Conference Center will be dedicated to her in 2011. Ginny Renehan, Mike Simonsen, and I will be remodeling two of the interior bathrooms as well.

AAVSOnet is maturing. We have several new telescopes coming on-line shortly, including two Bright Star Monitors in the south (BSM-Argentina at Jaime Garcia's observatory and BSM-South being run by Peter Nelson's team). Part of the HQ exterior renovation is to finally install Lou Cohen's 12-inch telescope on the roof, so that staff have a local telescope and so that we can make use of the good nights here in Boston to contribute to the network. John and Meg Menke have been gracious enough to provide funding for installing Lou's observatory. The CCD camera and spectrograph for the Mt. John 24-inch telescope have arrived in New Zealand and will be tested soon. We are awaiting two CCD cameras from QSI: one on short-term loan for testing, and one being donated by QSI to the AAVSO. Our corporate donors have really made AAVSOnet possible. The automatic file transfer to the Amazon Cloud server to support Photometrica is in place. If you haven't tried AAVSOnet, you should consider putting in an observing proposal!

APASS is nearing its first data release, which should happen near the time that you get this newsletter. We are hoping to release about 5,000 square degrees in five passbands. Tom Smith is working hard to cover as much sky area as possible before the summer monsoon arrives in New Mexico. Sometime during July or August we are expecting to ship APASS to CTIO, where Dan Reichart (Univ. North Carolina) has graciously provided one of the PROMPT domes for the duration of the survey. We hope to continue in the

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PRESIDENT'S MESSAGE

JAIME R. GARCIA (GAJ)

I am very happy for the success of our first AAVSO "Spring" Meeting in Latin America—and also in the southern hemisphere—that took place last April in Valle Grande, Mendoza, Argentina. About 100 people took part in the event and we had very interesting talks within three workshops and two scientific paper sessions. The event also included observing nights with clear dark skies, and people from the northern hemisphere were able to enjoy the wonderful show of the center of the Milky Way just over their heads, the Magellanic Clouds, and our southern symbol, the Southern Cross. But most important was the marvelous interaction between people coming from very different places around the world. I enjoyed seeing my friends from different places making friends with each other.

Regarding the world of variable star astronomy, the mid-eclipse of epsilon Aurigae involved the full (and crucial) participation of the astronauts at the International Space Station to cover the gap due to the apparent proximity of the star to the Sun, making near impossible the measurement of the star brightness for ground-based observations.

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DIRECTOR'S MESSAGE
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north with an APASS clone as well, depending on funding.

George Silvas has developed a great web site for those of you wanting to volunteer to catalog the Eggen photometric index cards that have been scanned at HQ. We're also anxiously awaiting shipment of about 500 pounds of observation reports from the RASNZ. When Frank Bateson retired, many observations submitted to the RASNZ by southern observers over the years had never been entered. Grant Christie has had these reports at his house for a few years, and has recently crated them up for shipment to the AAVSO. We will digitize the reports and make them available for researchers. We may ask for volunteers to help in the "validation" process to ensure that all observations are properly entered into the International Database.

Aaron Price has been promoted to Assistant Director, and Matt Templeton has been promoted to Science Director at the AAVSO. They are bringing new enthusiasm to their roles at the AAVSO, as well as providing closer supervision for other staff members. We've lost several valuable staff members this year (Kerri Malatesta, Gamze Menali, and Kate Davis). This actually gives the opportunity to adjust our staffing, giving existing employees different responsibilities and enabling new methods of handling our services. I'll give you more details as things evolve.

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Citizen Sky is going great, with mid-eclipse for epsilon Aurigae occurring any day now. We need observers to remain diligent for the next year as the star comes out of eclipse; there are many aspects of the system that we still don't understand, and a careful, precise light curve is just the thing to solve some of these puzzles. David Benn has been updating VStar, a neat light curve plotting and analysis tool, and a marvelous piece of volunteer software. The CS project was just selected as one of the NSF Highlights for 2010, showing both the quality of the project and the enthusiasm of the contributing observers. Keep it up!

I'm continually impressed by our members and observers and volunteers. You give up major portions of your lives to provide data and services to our organization. The AAVSO would not have the reputation in the professional and amateur world that it enjoys without your help. If there is anything that we here at HQ can do in return, just let us know! ★

PRESIDENT'S MESSAGE
CONTINUED...

The privileged position of the astronauts in orbit gave them the possibility of visual observing sessions during this season. Anyway, our citizen scientists continue contributing in several other ways through our special website, citizensky.org.

Speaking about websites, we are very close to a big change in our main website. Our staff is doing a fantastic job renewing the complete website in a way that I am convinced you will enjoy very much. Keep in touch and you will be happily surprised.

Our AAVSONet is growing. I am involved in one of the southern skies projects, the Bright Star Monitor in Argentina, and it is quite close to starting operations during this July. As I am writing these words, we are putting everything together to begin the final adjustments.

We are approaching our centennial celebration. Next year we will have a lot of fun with two incredible meetings in the Boston area. The first one will be a joint meeting with the American Astronomical Society (AAS). The second one will be our special centennial annual meeting. The place for the latter is fantastic, the Hilton Hotel in Woburn, Massachusetts. Mike Simonsen has recently shared in Facebook several pictures of it. And the program will be unique...

Renovations and improvements are taking place in the Headquarters building in preparation for our Centennial Celebration, so as to present a beautiful face for the ceremonies. We have received special donations for this purpose. Naturally, any additional generosity from you is always very welcome!

Finally, I would like to continue hearing about your ideas for how the AAVSO can contribute to the future of variable stars. And I am looking forward to see you in Boston (I will spend a whole week at Headquarters) for our next Annual Meeting. Have a nice season! ★

Ed. note: the Spanish language text of Jaime's message can be found on page 9.

The *AAVSO Newsletter* is published in January, April, July, and October. Items of general interest to be considered for the *Newsletter* should be sent to mike@aavso.org. Photos in this issue courtesy of Sara Beck, Linda Henden, Jim Roe, and NASA.

Membership in the AAVSO is open to anyone who is interested in variable stars and in contributing to the support of valuable research. Members include professional astronomers, amateur astronomers, researchers, educators, students, and those who love variable star astronomy.

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A CAMPAIGN WITH THE INTERNATIONAL SPACE STATION (ISS)

AARON PRICE (PAH), AAVSO HEADQUARTERS

As part of the Citizen Sky project, astronauts on board the ISS will attempt to observe epsilon Aurigae while it is close to the Sun. Until September 2010, epsilon Aurigae will be lost in the glare of the Sun for most optical Earth-bound observers. However, from space astronauts can still see it because the atmosphere is not in the way. Although they have to be careful, as the Sun appears much brighter in space also.

On a cold January day in Boston, Aaron and Brian (Citizen Sky graduate student) were sitting at a table in the AAVSO Headquarters brainstorming projects for the year. They lamented the fact that epsilon Aurigae's mid-eclipse was going to mostly occur during solar conjunction this year. Observers weren't going to be able to observe the project during the time of the fabled "mid-eclipse brightening," thus we might not be able to settle that part of the debate for another 27 years.

The existence of a mid-eclipse brightening has been debated for decades. If it does exist, it would help shed light on the structure of the eclipsing dust cloud. For example, it could be caused by a hole in the middle of the dust cloud, which would further imply that the cloud is spherically shaped like a torus. Even if it does not exist, it still helps by ruling out many of those scenarios.

Stuck with a dilemma, Aaron blurted out: "What if we just asked an astronaut to look out the window?"

He and Brian tried to think of reasons it wouldn't work, and really couldn't come up with any—except one: bureaucracy. How to get the request to the right people at NASA? Aaron and Arne put out feelers to many people, such as our NSF program officer, Aaron's physics advisor at Tufts (who knows many astronauts), and former astronaut Dr. John Grunsfeld (who is a friend of the AAVSO and spoke at our 2000 spring meeting in Huntsville, AL), and also tried various NASA education-in-space solicitations. They all gave us leads to follow. Aaron even tried to send a twitter message direct to the ISS!

The trail went cold in April and it looked like all the leads were hitting dead ends. We were even told by one person that we'd have to pay for such a project.

Astronaut Nicholas Patrick looking out the Cupola windows of the International Space Station. NASA

But, happily, someone at NASA found the idea interesting and shepherded it through the right channels. We had to devise some instructions and make a specialized chart. There are interesting limitations to working in space. For example, astronauts can get sunburned by just looking out the window a few minutes too long when the Sun is shining! So they need to observe when the Sun is just behind something blocking it (like the Earth).

The astronauts have been sent instructions on how to make a variable star estimate along with an AAVSO chart and an additional finder chart that has the Sun's position annotated. This will be an entirely optional task for the astronauts' spare time. So there is no guarantee they will find the time. However, NASA managers have told us anecdotally that "astronauts love tasks that require them to look out a window" (paraphrase). So our hopes are high. If and when the first data point comes in, we'll be sure to highlight it on the Citizen Sky web page. Stay tuned! ★

STUDENT VOLUNTEER AT AAVSO HEADQUARTERS

MATTHEW TEMPLETON (TMT), AAVSO HEADQUARTERS

The AAVSO was happy to have Hunter Johnston, a local middle school student from Boxford, Massachusetts, visit Headquarters during the last week in May. Hunter is a student at Stoneridge Children's Montessori School in Beverly, and spent the week at the AAVSO as part of his School Internship Program. During his week at the AAVSO, Hunter worked closely with Sara Beck to enter previously undigitized archival observations by Leon Campbell published in the Harvard Annals in the early 20th Century. He later moved on to digitize archival observations of S Persei by a number of other observers. Hunter's work was an early first step in our long-term project to completely digitize all AAVSO data from our earliest days at Harvard under E.C. Pickering to the present day.

Along with that work, Hunter also helped with data processing of AAVSOnet telescopes and got a lesson in CCD technology from Stephen Levine, who was preparing instrumentation for the Mount John observatory during Hunter's visit. Hunter also spent time talking to several AAVSO staff members, enjoyed a lunchtime solar observing session in our parking lot, and gave an impromptu piano recital in our conference center!

The AAVSO has a number of clerical and data processing tasks that might be suitable for both young adults and college-aged students, and local AAVSO members and college students are welcome to contact the AAVSO about possible summer internship opportunities.

Many thanks and good wishes for the upcoming summer to Hunter! ★

SPRING MEETING IN ARGENTINA

LINDA HENDEN, AAVSO HEADQUARTERS

Our trip to the 99th Spring Meeting of the AAVSO and Star Party 2010 began Tuesday evening, April 13, 2010. We flew to Mendoza, Argentina, by way of Santiago, Chile. Due to a poor connection in Santiago, we didn't arrive at the Valle Grande Resort Hotel until after 10:30 Wednesday night. A very long trip, yes, but the 5 days we spent in Argentina were worth it.

Upon our arrival, to a closed dining room, we were greeted by friendly hotel staff who graciously offered us a snack tray and locally-produced wine. It was Arne and my first introduction to Malbec, and we enjoyed it very much. Most other AAVSO members who chose to attend this meeting arrived earlier in the day and had already canvassed the area. Several had decided to extend their trip by a week or two in order to visit other areas of this vast, wondrous country. After hearing their stories, we wished we had been able to do likewise.

Our hotel in Mendoza

Rafting on the river

Thursday morning we awoke to sunshine and a bright blue sky. We found ourselves in a gorge (Cañón del Atuel) with a rushing river of clean, clear water right behind the well-appointed hotel. All meals were served in the rather large dining room, which overflowed with meeting attendees—roughly two-fifths were English-speaking, the rest Spanish. The two groups mingled well, and had fun trying to speak and understand each other's language. Also, the predominately Italian-style food was delicious.

We were surprised to see a marked resemblance between this area and the southwestern deserts of the U.S. The cliffs were red (similar to those surrounding Sedona, Arizona) and the vegetation outside the gorge was much like that seen in the New Mexico lowlands. Even the beautiful reservoir about a mile upstream from the hotel looked like one you might see in Arizona.

The reservoir

The tent

As you know, Jaime Garcia, AAVSO President, hosted the conference and star party—the star party is an annual event for his students. His son, Federico, and daughter, Dolores, helped organize, coordinate, and run the four-day event, and they did an outstanding job. Jaime's wife, Maria, joined the group on at least one occasion, at which time we were honored and delighted to meet her. What a wonderfully bright and gracious family!

Meeting attendees visit the Malargüe Planetarium

Education sessions and workshops were held in a large tent set up on the hotel grounds. Interpreters, using an electronic sound system, allowed English speakers to understand talks given in Spanish, and visa-versa. Though afternoons were a bit warm inside the tent, everyone seemed to enjoy the talks and one another.

As expected, the southern hemisphere provided an outstanding opportunity to view the Milky Way straight overhead in all its glory. What a star party it was!

Other activities included white-water rafting on the Atuel river from the reservoir upstream to a point downstream of the hotel—those who partook had a boat-load of fun—visits to San Rafael about 25 miles north, and an all-day outing to the Malargüe Planetarium and the Pierre Auger Cosmic Ray Observatory.

Carolyn Hurdis and I chose to ride the local bus (which also serves as a school bus) into San Rafael. It followed a "scenic" route off the main highway, through residential areas and past many vineyards. San Rafael, a city of approximately 109,000, is not exactly a tourist mecca, but it IS an interesting place to visit. Since very little English is spoken, we had a chance to practice our Spanish. Thankfully the locals were so polite and friendly that "communicating" with them was actually fun! When we stopped in at a small, historic winery during siesta time, we were given a private tour, in English, that was the highlight of our day.

Jaime Garcia's observatory

The Auger observatory

Saturday morning was unscheduled, so Arne and I, along with a few others, accepted Jaime's offer to visit his home and backyard observatory just south of San Rafael. His home is lovely, comfortable, and welcoming, and includes a new wing built by Jaime for his library and office. Wow, what a library! His observatory, which sits on a portion of his five-acre farm/orchard, is equally impressive. Jaime is obviously a very busy guy.

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ARGENTINA MEETING
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On Sunday we joined the two busloads of folks going to the Malargüe Planetarium and Pierre Auger Cosmic Ray Observatory. Other than being delayed en route by a flat tire, it was truly a fun day. First we were treated to a special lunch at a restaurant in Malargüe. As we approached, we saw several large, upright spits of goat slowly rotating over open fires. The meal was typical Argentine, consisting of a variety of delicious meats and vegetables on platters passed around the table. We were even entertained by mariachis. At the observatory, we were given an introductory talk and then a tour. Late in the afternoon, we reached the planetarium and were treated to a cute and clever show. Both facilities were beautifully impressive, as were their very gracious hosts.

When Monday morning came, we were ready to explore more of this amazing country, but alas, it was time to start the 23-hour trip home. Now that we've had a taste of Argentina, and seen how friendly the people are and how beautiful and varied the landscape is, we are anxious to return for a much longer visit! ★

Arne and Linda Henden with Gary Walker enjoyed meeting some of the local attendees

Some thoughts on the meeting...

For me, the number-one reason to attend any meeting is social. Face-to-face meetings build and strengthen ties that have been forged via email and other electronic, remote media. Traveling to another country is always broadening, and I am delighted to say I now have a much better understanding of folks and folkways that I was sadly deficient in. Many of the local participants in the meeting were not astronomy "nuts" but were folks looking to broaden their own perspectives. We have several real invitations to visit folks in their homes "next trip" (and there just may be a next trip!). As to old friends from the northern hemisphere, there is nothing like the terror of white water rafting to make indelible memories, as Ken Menzies, Carolyn Hurdis, Jody Welch, Yvonne, and I can testify (see accompanying image).

On the technical side, there was the usual mix of rank beginner material and more advanced topics. Personally, I came away with a better understanding of Photometrica (which had been introduced to us last Fall in Boston) and it is now my data reduction program of choice. I finally figured out how to apply some data mining techniques to topics of interest to me and I plan to offer a paper to the Annual meeting.

—*Jim Roe* [ROE]

LIVING IN THE FUTURE: PHOTOMETRICA AND CLOUD COMPUTING

RICHARD KINNE (KQR), AAVSO HEADQUARTERS

A couple of months ago the AAVSO, in cooperation with Geir Klingenberg and Michael Kran, took a small step in moving into the future of computer processing and photometric analysis.

The big news in computing over the last year has been Cloud Computing or Computing as a Service. What is this? Traditionally, if you wanted to use computing power, you had your own computer. You either worked on documents using a word processor on your own workstation or PC or you connected to a server to do work. In either case the workstation and the server were owned by you or your workplace. This is sort of like having your own electrical generator in your house or business if you want to use electrical power.

Over the last year the computing industry started making tentative moves to where our energy industry is now. Today you normally don't own a generator at your home to give you electricity, you contract with the electrical company in order to bring electricity to your home. You don't worry about how the electricity is generated, you just wire your outlets and plug your lights in.

In a like manner, with Computing as a Service you contract with a "computing company" to give you a virtual server with which you can do what you need. In this case you don't have to install and update the operating system or its support systems, they're all in there for you. What you need to do is install the applications (analogous to wiring your electrical outlets) and let your people have access to the program (analogous to being able to plug in your lights).

Computing as a Service looks promising in several situations, but no one in the industry quite knows where it's going or what all of its ramifications are. However, we felt that Photometrica was a prime example of how Computing as a Service could be used to advantage and we decided to use this opportunity to experiment with it as a pilot project.

So, what is Photometrica? Photometrica basically is an aperture photometry software program that analyzes CCD images online. Photometrica is now tightly integrated with the AAVSO and is a substantial membership benefit for us. How does it work?

Being a membership benefit, you can log into the Photometrica website via the Blue & Gold section of the AAVSO website. You'll see a link to Photometrica when you view the Blue & Gold menu. Once in you can start to process images. But how do images get to Photometrica in the first place?

If you're using telescopes on the AAVSONet (another benefit to AAVSO membership) you can elect to have your images automatically transferred to your Photometrica account. If you're using your own telescope, or a telescope not on the AAVSONet, you can also manually upload your images to your Photometrica account.

Once the images are in Photometrica you can start to have fun! The program, given the right information, automatically plate-solves your images as they arrive.

When you work with your images, Photmetrica first, in a selected region of your image, finds the star centroids based on the DAOPHOT FIND algorithm in IRAF. Then the program does sky fitting by removing high value pixels from the sky annulus (stars, hot pixels, etc.). It then integrates the data it has found in the actual aperture using the formula –2.5 * LOG ((ADU – Sky) / Exposure Time). It does this for the comp stars as well. With this information it is able to make a final estimation of the star's magnitude. If you use more than one comp star, Photometrica will use an average of the instrument magnitudes of these comp stars to produce the final target magnitude estimate. Finally, since no estimate really means anything without an estimate of the error involved, Photometrica goes on to estimate its error based on the SNR (signal-to-noise ratio) of each star's measurement. Best of all, all this is done graphically!

Photometrica can handle single image analysis, ensemble image analysis, and time series images. It has several methods of reporting your results both in 2D or 3D graphs, as appropriate. All this is done in a point-and-click environment using a Java-based program which makes it usable on virtually every platform: Windows, MacOS, and Linux. We've even tested it on iPhones and Android devices! Yes, you can now do photometric analysis on your phone if you really want to! How's that for living in the future, folks?

Photometrica is a huge step for the AAVSO and its members on several fronts. First, it continues to make strides in making photometric analysis available for an increasing number of people at all levels of expertise. More and more we need to find and develop ways to enable people to make contributions over and above the simple gathering of data, which is how we started out a century ago. Second, Photometrica is allowing us to experiment in what may turn out to be a major shift in how computing is done in the next years.

Finally, Photometrica represents what I've always seen as the best of the AAVSO—that we are our members and observers. Photometrica was not developed at AAVSO HQ. It wasn't even asked for by HQ, per se. Photometrica was developed independently by AAVSO members who then donated its use to the AAVSO membership for the benefit of both the membership and science in general. There is nothing better than when our members make us all shine, and Geir and Michael have certainly done that with Photometrica.

Give it a try! ★

MEET THE STAFF: RICHARD "DOC" KINNE (KQR)

AARON PRICE (PAH), AAVSO HEADQUARTERS

In forthcoming issues, we'll highlight one staff member with rapid-fire questions of the professional, personal, and absurd kind.

Doc Kinne

Q: Why do they call you "Doc"?
A: The name come from the title character of the British science fiction show Doctor Who. The program has been running, on and off, since 1963 and is the longest running science fiction show in the world. The fourth title character wore a terrifyingly long, multi-colored scarf, and I did the same thing during my undergraduate days at SUNY Oswego. My first boss, Ed Beadle, back when I was a student operator at the Instructional Computing Center, gave me the name. It stuck so badly that by my Junior year I had teachers that didn't know me by any other name. Now, today, mayors, CEOs, fellow astronomers, and the United States Secretary of State know me as "Doc."

Q: Tell us about your first variable star observation.
A: My first variable star observation was Z UMa on 2453059.5521. I'd been reading David Levy's *Observing Variable Stars* and given the time of year, etc., this seemed like a reasonable star to go for. I was living in Ithaca, NY, at the time and there was a neighborhood football pitch a few meters from my apartment where I'd go and set up my Dobsonian scope. But in this case I used 50mm binoculars. I think it took me 20 minutes to find the star. Most of that time was spent making sure of the field, and for me the star was just on the edge of my vision. My first estimate turned out to be 7.1.

Q: Before you were employed by the AAVSO, you were a volunteer at Headquarters. What did you work on?
A: I never take vacations, so I got to a point at my last job where I'd have to "use it or lose it." So one year I decided to take a week's "vacation" working at the AAVSO! Aaron and I talked and in concert with Arne figured out that I could work on scanning in the old Alert and Special Notices and submitting them to the ADS. So I worked on that for a week just before that year's Annual Meeting. It turned out to be a prophetic event since it allowed both me and the AAVSO to get a close look at each other.

Q: What is your current job at the AAVSO?
A: What's wonderful at the AAVSO is that while we have areas that we specialize in due to our skill sets, given those skill sets we tend to do everything. But if push came to shove my job is Data Technology. Everything we do nowadays is heavily dependent on computers, and astronomy needs that in spades. So I try to keep the computers, and the services that run on those computers, running. This is just so critical for everything that we do that I tend to concentrate on that almost exclusively. I originally wanted to try to do a bit more classical astronomy, but I've put that aside for now in the rush to both keep everything going and move forward. There really is a massive amount to learn. I think I've learned more in the three years I've been here than in all the time I spent in school!

Q: What is usually the first thing you do when you arrive at Headquarters in the morning?
A: Our discussion lists send me a report every morning at 8:00 a.m.. Largely it's cleaning spam out, but sometimes it's approving mailing list subscriptions. So, the first thing I end up doing, even before sitting down at times, is log into my mail and look at these several email lists.

Q: What is usually the last?
A: That's impossible to answer. There is no "usually the last." It all depends on what is going on that day and which bus I miss to get home! It can range from checking the backup hard drives for the night, finishing up some scope processing, answering last minutes questions from someone on staff, or even answering a question from a high school student who called in asking about details on Julian Date one afternoon. I missed four buses due to that call, but it was more than worth it!

Q: What is the most enjoyable thing you do at Headquarters?
A: Interacting with our staff and membership. Working with our staff and membership. Trying to keep up with our staff and membership. These are the people I want to be when I grow up!

Q: What is the least enjoyable?
A: Having people leave, even for good reasons. That's been the worst thing in any job I've had. The make-or-break issue in any job for me is my coworkers, and I've been given the best. It's very difficult for me when any of them move on.

Q: Coke or Pepsi?
A: HA! Coke, although I'll drink Pepsi if I have to with no complaint. Due to odd circumstances, until I came to the AAVSO, I worked among and with dieticians for almost 20 years. The consensus within the nutritional community is that I'm actually clinically dead (whoever thought zombies could look so good!?). The legend is that I subsist almost entirely on a diet of Coke, M&Ms, and macaroni.

Q: iPhone OS vs. Android OS?
A: OK, now you're trying to get me into trouble! The answer is Android OS hands down. I'm convinced that software freedom is critically important, and I have been dismayed at the road Apple has gone down with respect to the iPhone OS. I've used Apple products for decades and in fact was a past President of the Ithaca Macintosh Group of Writers and Programmers. Unfortunately Apple's completely closed policies with regard to programming and the programming environment on the iPhone OS is antithetical to any sort

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MEET THE STAFF
CONTINUED...

of software freedom, which I think is critical for both innovation and education. This February when Jobs announced that the iPad would be going the same way I started to fear that, ultimately, he'd move the entire product line in this direction. That caused me to personally drop all my Apple products. I got a Nexus 1 Android OS phone a few months ago, and migrated all my computing to the Ubuntu Linux platform as well.

Q: We save the best for last, who is the best Doctor?
A: I worry that this will only make sense for Doctor Who fans. As I mentioned, the program has basically been going on since 1963. The first actor to play the role was already old when he took it, so when the first actor, William Hartnell, retired the BBC had to figure out a way to recast the character. They came up with a completely innovative solution! The Doctor's race, when facing death or critical injury, can "regenerate," basically transform into an entirely new body, healing the injury. This allowed the BBC to recast the role when needed and maintain the character's continuity.

Historically my favorite Doctor was the Fifth Doctor, played by Peter Davidson back in the 1980s. That was supplanted last year by the Tenth Doctor, played by David Tennant. The very neat thing is that Tennant was the first actor to play the role who grew up with the program as a child, and his favorite Doctor was Peter Davidson. Two years ago the two actors played the role together in a small Christmas charity program and for those of us who have followed the show for decades, it was something very special.

The Doctor can regenerate 12 times, meaning that 13 people can ultimately play the role. Of course this is science fiction so almost anything is possible. However, I like to say that I am the 13th Doctor. If true, my time at the AAVSO may be limited since I'll have to go to the BBC sometime to play the last Doctor in the TV program! But by then I'll convince Arne that we need to open up a branch office in England. I'd certainly welcome the chance to work closely with our English members and colleagues! ★

GETTING WILDER

SARA BECK (BSJ), AAVSO HEADQUARTERS

On March 5, 2010, AAVSO member John O'Neill (ONJ) and HQ staff member Sara Beck (BSJ) visited the Wilder Observatory of Amherst College in Amherst, Massachusetts. They were graciously given the grand tour by Amherst Area Amateur Astronomers Association (AAAAA) president Tom Whitney.

The Wilder Observatory of Amherst College was built under the direction of David Peck Todd (1855–1939), who was Director from 1881 to 1920. He raised the money to build the observatory in 1903 and equipped it with an Alvan Clark 18-inch refractor mounted on an enormous cast iron pier. The telescope cost $12,000 ($5,000 for the objective lens alone) and was one of the largest refractors in the world at the time.

In 1907 the telescope was transported to the Andes in Chile as part of the Lowell Expedition. The primary target was Mars, having an excellent opposition in July 1907. Photographs were taken by Earl Slipher with a specially constructed camera. The photographs showed great detail (for the time), but alas, no canals, despite publicity to the contrary at the time.

The AAAAA conducts public open nights at the observatory during the summer. For more information you can visit their website: http://www.virtual-valley.com/astronomy/index.html

An online tour of Wilder Observatory can be found at: https://www.amherst.edu/aboutamherst/magazine/nooks/wilder ★

The Wilder Observatory of Amherst College

The Clark 18-inch refractor. The unusual windows in the dome were designed to promote a more uniform temperature inside.

John O'Neill (on left) and Tom Whitney pose at the base of the telescope with three budding student astronomers.
Photos by Sara Beck

Did you know...

Between 1909 and 1916 Wilder Observatory Director David Todd and his wife Mabel Loomis Todd contributed over 2,100 variable star observations to Harvard College Observatory and the AAVSO. The observations are part of the AAVSO International Database.

Ed. note: following is the Spanish language text of Jaime's President's message.

MENSAJE DEL PRESIDENTE

JAIME R. GARCIA

Estoy muy feliz por el éxito de nuestra primera reunión de AAVSO de "Primavera" en América Latina - y también en el hemisferio sur - que tuvo lugar en abril pasado en Valle Grande, Mendoza, Argentina. Cerca de 100 personas participaron en el evento y tuvimos charlas muy interesantes dentro de los tres talleres y de las dos sesiones de trabajos científicos. El evento también incluyó la observación del cielo nocturno con cielos limpios y oscuros, y la gente del hemisferio norte ha podido disfrutar del espectáculo maravilloso de tener el centro de la Vía Láctea sobre sus cabezas, de las Nubes de Magallanes y del símbolo del cielo austral: la Cruz del Sur. Pero, lo más importante fue la maravillosa interacción entre las personas que vienen de lugares tan diferentes de todo el mundo. Me gustó ver a mis amigos de diferentes lugares hacerse amigos entre sí.

En cuanto al mundo de la astronomía de las estrellas variables, la mitad del eclipse de Epsilon Aurigae está ahí y ha involucrado ben abundancia la participación (crucial) de los astronautas en la Estación Espacial Internacional para cubrir la brecha debida a la proximidad aparente de la estrella al Sol, haciendo casi imposible la medición del brillo de la estrella para las observaciones basadas en la superficie terrestre. La posición privilegiada de los astronautas en órbita les dio la posibilidad de tener sesiones de observación visual durante esta temporada. De todos modos, nuestros científicos "ciudadanos" han continuado contribuyendo en varias otras formas a través de nuestro sitio web especial: citizensky.org.

Y hablando de sitios web, estamos muy cerca de un gran cambio en nuestro sitio web principal. Nuestro personal está haciendo un fantástico trabajo para renovar el sitio web completo de manera que estoy convencido que lo disfrutarán mucho. Manténganse en contacto y se sorprenderán alegremente, en cualquier momento.

Nuestra AAVSONet está creciendo. Estoy involucrado en uno de los proyectos de los cielos del sur, el Monitor de la Estrella Brillante (BSM) en la Argentina, y está muy cerca de iniciar sus operaciones durante este mes de julio. En el momento en que escribo estas palabras, estamos poniendo todo a trabajar junto para iniciar los ajustes finales.

Nos estamos acercando a nuestra celebración del centenario. El próximo año tendremos vamos disfrutar con dos reuniones increíbles, que se realizarán en el área de Boston. La primera será una reunión con la Sociedad Astronómica Americana (AAS). La segundo será nuestra reunión anual especial. El lugar para la segunda es fantástico, el Hilton Hotel en Woburn, Massachusetts. Mike Simonsen recientemente compartió varias fotos de Facebook. Y el programa será único....

Nuestra sede está en pleno proceso de renovaciones y mejoras para acoger la celebración del Centenario, con el fin de tener una cara apropriada para nuestras ceremonias. Hemos recibido donaciones especiales para este propósito. Naturalmente, cualquier generosidad adicional de vuestra parte es siempre bienvenida.

Por último, me gustaría seguir conociendo sus ideas de cómo la AAVSO puede contribuir al futuro de las estrellas variables. Y me encantaría verlos en Boston (pasaré una semana completa en la Sede) para nuestra próxima reunión anual, a fines de octubre. ¡Que tengan una buena temporada! ★

IN MEMORIAM

MEMBERS, OBSERVERS, COLLEAGUES, AND FRIENDS OF THE AAVSO

YASUO HIRASAWA (HIR), AAVSO member and observer since 1970, died March 4, 2010, at the age of 82. He contributed 32,280 observations made between 1969 and 2007. He was active in many areas of astronomy and public outreach, particularly in the planetarium at the Nagoya City Science Museum where he worked for many years. Minor planet (4799) is named Hirasawa in honor of Hirasawa-san.

CONRAD M. BARDWELL, a longtime friend of the AAVSO, died May 14, 2010, at the age of 83. Conrad was associated with the Minor Planet Center for over 40 years and served as its Assistant/Associate Director for 11 years. He was involved in many areas of work at the MPC during his career and after retirement, particularly in identifying minor planets making their second opposition since discovery; his procedures vastly improved this identification process and eliminated nearly all of the "lost" minor planets. A Navy veteran of World War II and father of three sons, minor planet (1615) Bardwell was named for him, and he named (2017) Wesson in honor of his wife, Joan Wesson Bardwell.

AAVSO ANNUAL MEETING

PRELIMINARY ANNOUNCEMENT

The 99th Annual Meeting of the AAVSO will be held in the greater Boston area at the Woburn Hilton Hotel, Woburn, MA, on October 28–30, 2010. Very reasonable (for Boston!) guest room rates of $92 per night (plus taxes) have been secured. The AAVSO Council will meet on Thursday, October 28. Friday, October 29, will feature a morning workshop (topic to be announced), a social/interactive afternoon session on roadmapping the future of the AAVSO, and an open house at AAVSO Headquarters in the evening—see the newest building improvements! Saturday will include the AAVSO Membership meeting, scientific paper sessions, and evening awards banquet. Stay tuned to the AAVSO web site for updates and watch for the official meeting announcement to be released in early August. We hope to see many of you at the meeting in October!

DEVELOPMENT REPORT

MIKE SIMONSEN (SXN)

The AAVSO continues to thrive and grow through the generosity and contribution of the membership and our friends in the astronomical community. New memberships are up significantly and the number of members paying at the sustaining dues level is the highest it has ever been.

Our new members now receive a completely revised and updated new membership packet upon joining. They still get their membership certificate and a welcome letter, but the rest of the information is now contained on a CD-ROM. It is chock full of goodies, including Blue & Gold Instructions for First Time Users, How to use VSP, a list of useful links on the AAVSO website, copies of the latest *Newsletter*, *Journal*, and *Annual Report*, the AAVSO By-Laws, *Visual Observing Manual*, *CCD Observing Manual*, Photoelectric Photometry Materials, the new list of Stars That Are Easy to Observe, the 10-Star Training Program, a description of and information on the AAVSO Mentor Program, and articles on the history of the AAVSO.

All members, new and old alike, now have access to the robotic telescope network AAVSOnet and the online photometry program Photometrica (see the article on Photometrica by Doc Kinne in this issue of the *Newsletter*). AAVSOnet has grown from contributions by a host of corporate sponsors and individuals. The copyright and license for Photometrica were given to the AAVSO in the fall of 2009, and generous AAVSO members have paid the cost of hosting the application on the Amazon cloud server for the next few years.

We have made arrangements with the Royal Astronomical Society of New Zealand (RASNZ) to ship crates of undigitized paper observations of southern stars, potentially numbering in the tens of thousands, to AAVSO Headquarters to be examined, digitized, and archived in the AAVSO International Database. An AAVSO member concerned with seeing these data preserved and utilized has donated the AAVSO portion of the shipping costs.

An extensive renovation of the headquarters exterior and the interior of the annex are now underway. The building will be re-clad with insulation and new siding on the second story and plaster and paint on the ground level. The ceiling in the annex will be insulated and raised and modifications resulting in more floor space will improve the function and utility of this space for meetings, workshops, and events. These improvements will be made without dipping into the endowment through a sizable bequest from Dorrit Hoffleit and the generosity of Arne and Linda Henden. The work will be completed this summer, but the official dedication of the renovations and the Dorrit Hoffleit Conference Center will take place in October 2011 as part of the AAVSO Centennial Celebration in Cambridge.

The AAVSO currently has fourteen observers from developing countries whose memberships are sponsored by fellow AAVSO members. This is a worthwhile cause that anyone can help support. As of this writing we have only collected dues for six sponsored members, leaving us short $480.00 to cover the costs of serving these observers. If you can help, please contact AAVSO headquarters, the Development Director, or simply make a contribution online, noting that you would like to help sponsor an observer.

The AAVSO is now on Facebook, and has 1,750 fans, more than the number of members! We are now reaching peoples from parts of the world we only rarely interacted with before, like India, Pakistan, Iran, the Philippines, Indonesia, and Venezuela. One interesting development is the fact that we now have more fans in Italy than any other foreign country. Rounding out the top six countries in order are: Taiwan, the United Kingdom, Australia, Canada, and Argentina. Our Facebook page reaches a higher percentage of female participants than our membership, with more than 25% of our active users being female. We also reach a slightly younger crowd, with 45% of our fans being 25–44 years old.

The 21st century AAVSO may look different to the world, with a new headquarters, digital membership packages, robotic telescopes, sophisticated software, and social media sites, but the most important assets of the organization are as they have always been, the members and observers. ★

THANKS TO OUR SPONSORS!

ELIMINATING ERRORS

MIKE SIMONSEN (SXN)

Everyone makes mistakes. They are a part of everyday life. The best we, as human beings, can hope for is to eliminate as many of them as possible. This is particularly important when submitting data to the AAVSO International Database. A very high percentage of all the errors in the database are simple typos or omissions that change the meaning and value of the data entirely.

How many stars do you observe that have the letter name SS? Are you thinking about SS Cyg when reporting your observation of SS Aur? Or was it SS Cas? Was that RZ Leo or RZ LMi? You need to be sure. A 14th magnitude observation of RZ Leo would be a significant outburst. On the other hand, RZ LMi is in outburst all the time.

Another typical error is forgetting to include the less-than symbol (<, meaning fainter than) in an observation. A reported magnitude without this sign turns a faint upper limit observation into a positive detection of the star. This can lead to all kinds of false alerts (and hope) if the star happens to be a dwarf nova or recurrent nova that only erupts once every thirty years or so.

This omission occurred with such regularity that WebObs was programmed to prompt the user submitting an observation with only one comp star (the usual practice when submitting a fainter-than observation) by asking, "It looks like this is a 'fainter than' observation. Would it be okay if I checked the fainter than box for you?" WebObs is such a polite bit of software. Observers submitting reports as files generated by PCObs or some other program don't get this prompt, and still submit fainter-than observations without the less-than symbol, making them look like a positive detection.

Misidentifications happen more frequently than they should. One that I personally saw several times last winter was observers reporting SU Tau at 10th magnitude when it had been in a faint minimum around 17th magnitude for months. A lack of familiarity with the field caused them to think the 10th magnitude comp star nearby was the variable. Every once in a while someone still submits a 6th-magnitude observation of R CrB, even though it's been at 14th magnitude for over a year now, a new record for this star. I don't know what they are looking at.

Recently we discovered another source of error that isn't human. Photometrica occasionally assigns the variable label to the wrong star, usually a nearby field star in the image. You need to examine your images as you do the photometry on them in Photometrica. Be sure it has correctly identified the variable, comp stars, and check star you wish to use as your sequence. It is not safe to assume our machines will cover for us. They make mistakes, too. After all, who made the machines? ★

OBSERVING CAMPAIGNS UPDATE

MATTHEW TEMPLETON (TMT), AAVSO SCIENCE DIRECTOR

The AAVSO had a busy spring for Observing Campaigns. Here are updates on several of our ongoing or long-term campaigns.

The U Scorpii campaign formally ended on April 9, or day 71 of the outburst. AAVSO observers contributed a total of 13,576 observations during this campaign, making this by far the best observed U Sco outburst, and certainly one of the best-observed nova eruptions of all time. The work of interpreting the observations from all across the spectrum has already begun, and papers are already starting to appear. We're going to learn a lot about U Sco from this campaign, and the observations by AAVSO observers will be generating new knowledge for a long time to come. Thanks again to all participants in this campaign!

The GK Persei campaign is on hiatus until it passes through conjunction and reappears for early morning observers. It is likely that GK Per will be at or near quiescence once it is recovered, but this is still important. Please keep GK Per in your observing program, and for those of you who are early risers, please pick it up as soon as possible. Visual observations are certainly valuable, so visual estimates are encouraged as much as CCD observations.

Likewise, the nova KT Eri (Nova Eri 2009) is still an important target even this late in its outburst, and southern observers are encouraged to pick this one up again. The most recent positive measurements come from April, when it was varying around 11.5 visual. It would be great if we could continue this light curve well down into quiescence, so please take a look if you can!

And while we discuss objects in conjunction, don't forget TT Ari! This fascinating star entered a very deep minimum in 2009, while exhibiting short, large amplitude flares along with the quiescent orbital modulations. Be sure to pick TT Ari up in mid- to late summer as soon as you can! You could be the first to tell us what this unique object is up to right now.

Observations of the potential eclipsing white dwarf V1412 Aql (*Special Notice 126*, 2009 February 26) have thus far produced no firm detections of an eclipse. This campaign is a challenging one, requiring calibrated, precise photometry. Those of you who have calibrated your systems and can produce fully transformed magnitudes in standard passbands are encouraged to take one more stab at this star late in the summer—Michel Bonnardeau has predicted that an eclipse (if they occur at all) may occur during the time period of 2010 September 10–20, with September 15 being the most likely date. See Michel's page for more information:

http://mbond.free.fr/V1412Aql/V1412Aql.htm

We're still in the midst of the Epsilon Aurigae eclipse (in fact we're at the midpoint). As we move through solar conjunction, observations are more critically important than ever, and we encourage everyone to keep observing even while this star is a morning object. As always, please visit the Citizen Sky website for more information: http://www.citizensky.org

As I write this (on June 23) we just received a CCD measurement of 3C 66A as it comes out of conjunction. This blazar was measured at V=14.05 by Stefan Karge (Frankfurt, Germany), which suggests that it is still active. Although

CONTINUED ON NEXT PAGE

TEMPLETON: CAMPAIGNS UPDATE CONTINUED...

the campaign on ten blazars (*Alert Notice 353*) has been quiet, these objects are astrophysically important, and long-term monitoring is desirable.

Finally, last month we sent out *Special Notice 219* (2010 May 19) on another high-mass X-ray binary campaign requested by Dr. Gordon Sarty (U. Saskatchewan) requesting observations of four HMXBs: LPH 115, 123, 127, and 128. This campaign has been an ongoing one, with the most recent major paper appearing in *Monthly Notices of the Royal Astronomical Society* in 2009, and it has directly involved several AAVSO observers both in their own photometry and in assisting with spectroscopic observations at DAO. We're looking forward to seeing more results from this interesting project soon!

The AAVSO is always looking for interesting projects in which AAVSO observers can make valuable contributions to a research program, whether it be monitoring for transients, long-term photometry, or other observations. If you have an active research program where the AAVSO can help, please contact Dr. Matthew Templeton (matthewt@aavso.org) to discuss setting up an AAVSO campaign. ★

GET THE LATEST CAMPAIGN NEWS...

Subscribe online to receive AAVSO *Alert Notices* and *Special Notices* directly to your email's inbox. Stay on top of stellar activity and get detailed information on current and upcoming observing campaigns by visiting http://www.aavso.org/publications/email to subscribe today!

THE AAVSO WALTER A. FEIBELMAN SUITE

As a reminder, the Feibelman Suite is available to guests who are in the Boston/Cambridge area to perform an AAVSO-related task, that is, the purpose of their visit is to do something for or related to the AAVSO. For details about the suite or making a reservation, please visit http://www.aavso.org/news/feibelman.shtml.

PHOTOELECTRIC PHOTOMETRY PROGRAM UPDATE

MATTHEW TEMPLETON (TMT) AAVSO SCIENCE DIRECTOR

The photoelectric observers of the AAVSO had a productive six months starting at the end of FY 2009.

The AAVSO received 957 PEP observations of all types between October 1, 2009 (JD 2455106), and April 1, 2010 (2455288); the AAVSO PEP-*V* program received 274 PEP observations through the PEPObs interface during the same period. Brian McCandless (MBE) continues his multicolor PEP program, and logged a total of 472 PEP observations. Other PEP observers were: David Williams (WI), 108 observations; Adrian Ormsby (OAD), 89; Thomas Rutherford (RTH), 68; Jim Fox (FXJ, PEP Committee Chair), 65; Charles Calia (CCB), 38; Paul Kneipp (KPL), 29; Thomas Peairs (PTX), 17; Hans Neilsen (NHS), 15; John Martin (UIS01), 12; Henri Van Bemmel (VBR), 11; Nick Stoikidis (STQ), 10; Erwin Van Ballegoij (BVE), 10; Jeff Hopkins (HPO), 8; Glen Ward (WGE), 4; and Robert Crumrine (CRR), 1. Several observers are making multifilter observations; there were 47 Johnson *B* observations by four different observers (MBE, BVE, FXJ, and UIS01), and 106 observations in each of the J and H infrared filters (MBE and RTH). MBE has also submitted a large amount of data in the Wing MA, MB, and MI (Optec Wing A, B, and C) filters, along with data in Johnson *R* and *I*.

Epsilon Aurigae remains the most popular target for PEP observers, with 325 photoelectric observations logged during that time period. The rest of the top ten most-observed stars are: rho Persei (75 observations), NSV 2537 (51), NO Aurigae (42), zeta Aurigae (34), U Aurigae (31), lambda Andromedae (27), PU Aurigae (25), P Cygni (18), and khi Pegasi (18).

There are a number of stars with historically long light curves that should be observed more often. At the top of this list is Betelgeuse, alpha Orionis. It was observed eight times during this six-month period, which is a fair amount, but lower than it has been historically. Other stars deserving of photoelectric observations include R Lyrae, W Bootis, V441 Herculis, RS Cancri, rho Cassiopeiae, eta Geminorum, EU Delphinium, miu Cephei, W Cygni, U Monocerotis, R Scuti, and AC Herculis. Some of the brighter stars can be covered by the AAVSO's Bright Star Monitor, but this single telescope cannot cover all bright stars all the time (and it is sometimes clouded out), and multiple observers are still needed. In addition, photoelectric observers can typically obtain much, much higher precision photometry of bright stars than can CCD or DSLR observers (including the Bright Star Monitor!), and, indeed, much of the recent bright star photometry submitted to the AAVSO suffers from either large photometric error or saturation. PEP observers can still make important contributions!

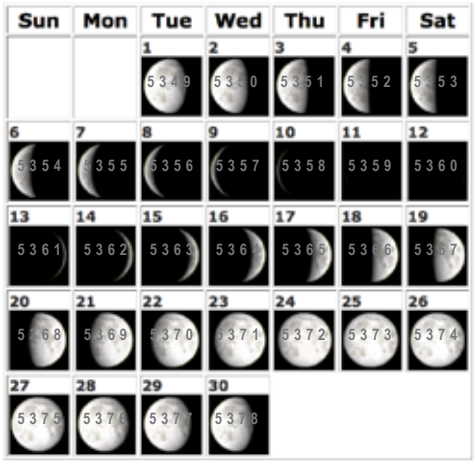
Finally, I note that AAVSO photoelectric observers of P Cygni made an important contribution to a recent paper, "The Spatially Resolved H(alpha)-emitting Wind Structure of P Cygni" by Aurelian Balan et al. This paper has formally appeared in print as I write this summary, in the *Astronomical Journal*, v.139, 2269 (June 2010). Many thanks to the AAVSO PEP-*V* observers whose observations contributed to this paper!

Clear skies! ★

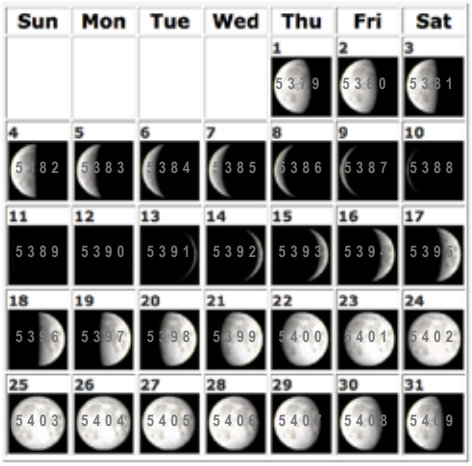
JULIAN DATE / MOON PHASE CALENDARS

2,450,000 plus the value given for each date

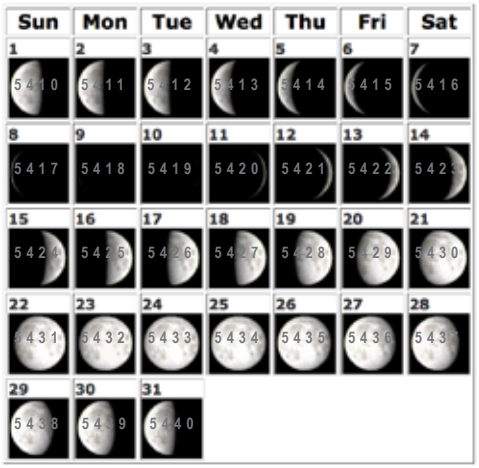
JUNE 2010



JULY 2010



AUGUST 2010



Moon calendars courtesy StarDate online
http://stardate.org/nightsky/moon/

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Help support the mission of the AAVSO and enjoy exclusive access to publications, access to robotic telescopes, and more!

Types of Memberships Offered and Dues

Annual:	Adult	US $60.00
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Sustaining:		US $120.00

All applicants please add a one-time application processing fee of US $10.00.

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Telescopic Equipment _____

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Card#: _____-_____-_____-_____

Exp. Date:_____3-Digit Security Code (on back of card) : _____ Amount:$_____