North Central Florida's
Amateur Astronomy Club
29°39' North, 82°21' West

March / April 2009
Issue 79.1/80.1

Member
Astronomical
League

Member
International
Dark-Sky Association

First Light

Newsletter of the Alachua Astronomy Club

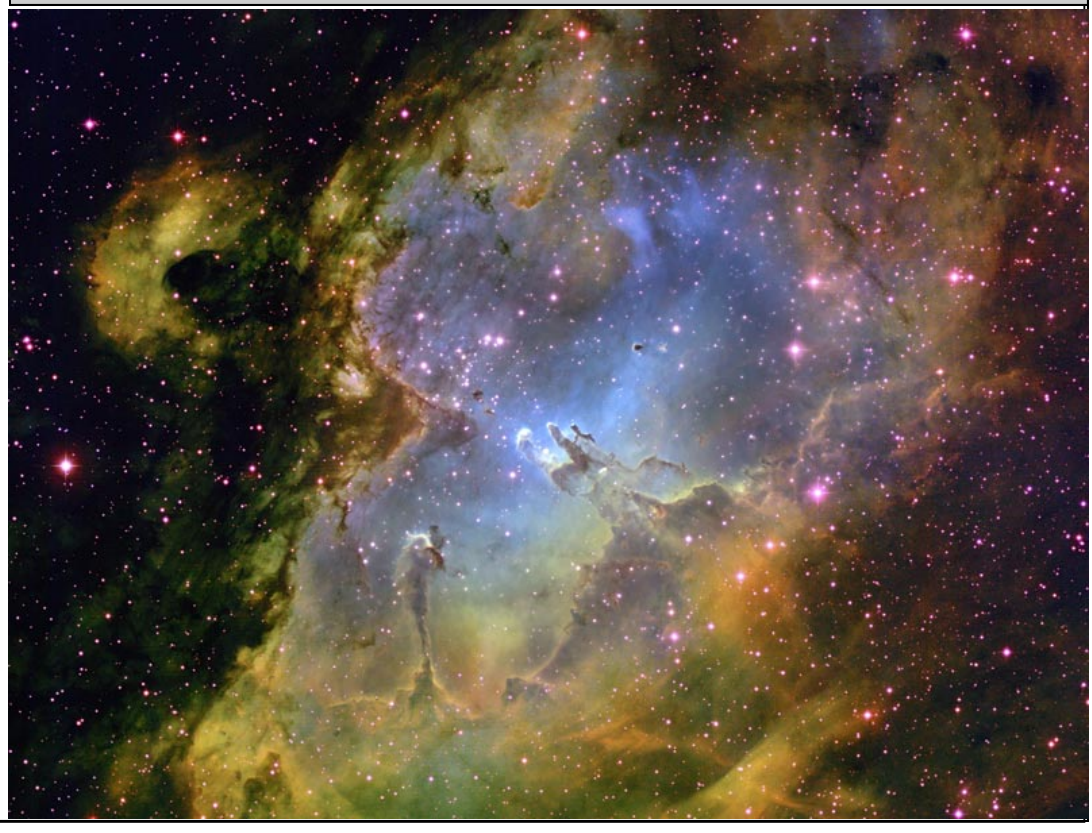
UF Celebrates The International Year of Astronomy 2009

The University of Florida Department of Astronomy invites the UF and Gainesville communities to celebrate the International Year of Astronomy. They are hosting a monthly lecture series featuring UF Astronomers and special astronomy guest speakers. These talks will generally take place on Friday evenings in the New Physics Building and will be followed by an open public observing night at the nearby Campus Teaching Observatory.

On Friday, April 3rd they are having a special event to recognize the 100 hours of Astronomy Cornerstone Project. The event will start with a public lecture given by Professors Elizabeth Lada and Rafael Guzman on the topic of telescopes from the time of Galileo to the present and future. They will feature the completion of UF's telescope in the Canary Islands, the Gran Telescopio de Canarias, as it begins its first scientific observations this spring.

After the talk, the astronomy department has invited the Alachua Astronomy Club to co-host a telescope workshop to assist people in using their own telescopes. The public will also have an excellent opportunity to view Venus and the first quarter Moon at the Campus Teaching Observatory. We hope you'll plan to attend.

Inside the Eagle Nebula: **Credit:** T. A. Rector & B. A. Wolpa, NOAO, AURA



Firstlight and Board Minutes Available On-line

We remind AAC members that issues of *FirstLight* are available on-line from the AAC web site as pdf files either from a link on the AAC home page or directly from: floridastars.org/firstltonline.html

However, beginning with the 2009 Jan/Feb issue, only paid up AAC members can read or download 2009 and future issues.

In addition, monthly minutes of the AAC board are now available only on-line along with *FirstLight* to save printing costs. Monthly minutes will usually be available a month after the board meets and approves the previous minutes. The pdf files for both *FirstLight* and the board minutes require the free Adobe reader available from www.adobe.com.

Note that student members do not receive hard copies by mail but can only read *FirstLight* through the AAC web site.

But You Need a User Name and Password
People either renewing their AAC membership or joining for the first time should receive a welcome message from our treasurer, Larry Friedberg, containing a 2009 User ID and password.

If you have already renewed or joined and have not yet received your 2009 User ID and password, contact Larry at treasurer@floridastars.org.

Advantages of FirstLight On-Line
Having *FirstLight* available on-line has several advantages including:

- You need not save or archive hard copies of past issues
- Past issues are always available
- Pictures are in “breathtaking” color!
- On-line versions will be available sooner than mailed copies

Renew your AAC Membership
Access to *FirstLight* on-line is another a good reason to join the AAC or renew your membership.

In fact, we will drop current members from our membership roles if we have not received renewals by April 2009.

Join or renew now by going to our membership page (at floridastars.org/join.html) and download a membership form. You may also use the form enclosed in this issue of *FirstLight*. Then send your membership form to us with your check for your dues.

Save the AAC Money

You can save the AAC money in the future by electing to receive *FirstLight* only through our web site as a pdf file rather than receiving a mailed copy. This will not reduce your dues to the AAC but will save us reproduction and mailing costs.

To elect this option, please send an e-mail to our treasurer giving your name with the request that you no longer wish to receive a hard copy of *FirstLight*.

Remember the AAC is a public, not for profit organization, dedicated to public service, and operated entirely by volunteers. The AAC needs your membership dues to continue its successful operation.

¤

Howard L. Cohen
AAC Webmaster

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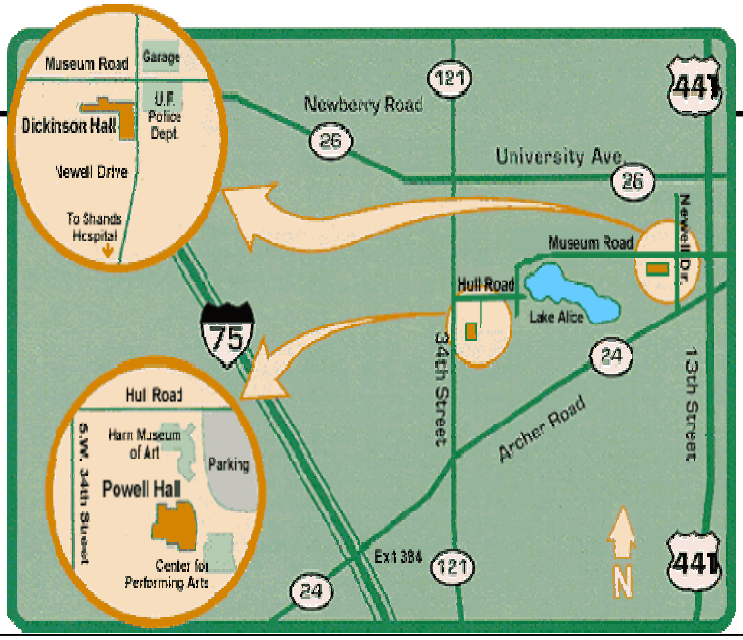
AAC Meeting Location - AAC regular meetings are held on the second Tuesday of each month **at 7:00 p.m.** at the Florida Museum of Natural History, **Powell Hall**, in the Lucille T. Maloney Classroom, on UF campus, unless otherwise announced. All meetings are free and open to the public. Join us for some great discussions and stargazing afterwards. Please visit our website for more information (floridastars.org). There is no monthly meeting in December.



Submitting Articles to FirstLight

The AAC encourages readers to submit articles and letters for inclusion in *FirstLight*. The AAC reserves the right review and edit all articles and letters before publication. Send all materials directly to the *FirstLight* Editor.

Materials must reach the *FirstLight* Editor at least 30 days prior to the publication date.

Submission of articles are accepted **by e-mail or on a CD**. Submit as either a plain text or Microsoft Word file. (In addition, you can also send a copy as a pdf file but you also need to send your text or Word file too.) Send pictures, figures or diagrams as separate gif or jpg file.

Mailing Address for Hard Copies or CDs

Note: Since our mailbox is *not* checked daily, mail materials well before the deadline date. (Hence, submission by e-mail is much preferred!)

c/o FirstLight Editor
The Alachua Astronomy Club, Inc.
P.O. Box 141591
Gainesville, FL 32614-1591 USA

By E-Mail; Send e-mail with your attached files to **FirstLight@floridastars.org**.

FirstLight is the bi-monthly publication of the Alachua Astronomy Club, Inc., Gainesville, Florida.

March Club Meeting

Tuesday, March 10 2009, 7:00 p.m. ET

Speakers: **Laurent Pellerin,** Director, Kika Silva Pla Planetarium
Kristin Fiaccato, Planetarium Assistant, Kika Silva Pla Planetarium

Title: *Black Holes: The Other Side of Infinity*

Location: Kika Silva Pla Planetarium,
Santa Fe College Campus,
N.W. 83rd St., Bldg X, Room 129, Gainesville, Florida

Laurent Pellerin, Director, Kika Silva Pla Planetarium

Kristin Fiaccato, Planetarium Assistant

Preview: The AAC Monthly Meeting will have a change of venue for March when we will be guests at the Santa Fe College Kika Silva Pla Planetarium. The AAC had its July 2007 meeting there and received a special preview of the new planetarium prior to its opening to the public. They are happy to have us back and grateful for all of the support that the AAC has given them at past and ongoing events! Following our brief business meeting, Laurent and Kristin will dazzle us with all the planetarium has to offer including a 25 minute presentation of "Black Holes: The Other Side of Infinity" and a demonstration of the amazing CHRONOS Projector with a preview of the sky for our March star party!

NOTE: Although the planetarium is currently changing its seating arrangements and plans to have approx. 60 seats available, reservations are suggested for this event. Since our average meeting attendance is around 30 – 40, we should be able to get everyone in.

However, to assure a seat please RSVP to Programs Chair at: programs "at" floridastars.org

About the Speakers:

Laurent Pellerin is the Planetarium Director at the Santa Fe College Kika Silva Pla Planetarium. He came to SFC in May 2007 after 14 years at the Seminole Community College Planetarium. Laurent grew up in Key West, FL and first got turned on to the stars when Apollo 11 landed on the Moon. He graduated from Seminole Community College in Sanford, FL and then pursued a Secondary Science Education Degree at the University of Central Florida, earning his Bachelor's Degree in 1993. Laurent has also worked with scientists from NASA and major Universities on meteor research projects. He was part of a six man team who finally proved in 1999 that flashes reported on the moon for centuries are actually meteor impacts. He also enjoys mythology related to the heavens and Native American star lore. He lives with his wife and their combined families in Gainesville.

Kristin Fiaccato grew up in the city of Chicago where she was barely able to see the moon through the towering buildings there. After moving to Deltona, FL in 1993, she was lucky enough to have a local astronomy group pay a visit to her class when she was in the fifth grade. Kristin instantly fell in love with astronomy when she gazed at the full moon through one of the telescopes. In was in that breathtaking moment that she knew she was hooked for life. Kristin recently graduated from the University of Florida, receiving Bachelor Degrees in Astronomy and Physics. She has volunteered at UF Campus Teaching Observatory almost every Friday night since 2005. It was her work there that led to her current position as Planetarium Assistant at the Kika Silva Pla Planetarium. Kristin lives with her husband, Nick, and dog, Cosmo, in Gainesville.

China Total Solar Eclipse Tour 2009

The International Year of Astronomy 2009 is underway. Continental Travel & Cruises is offering a five-star tour that auspiciously coincides with this momentous year.

Continental Travel & Cruises in Gainesville has planned an exceptional trip to China to see the 2009 July total eclipse of the Sun, longest of the 21st century (nearly six minutes from eastern China)

They have planned this trip with the help of Howard Cohen, an emeritus professor in the UF Department of Astronomy and AAC member. Dr. Cohen has previously helped the travel agency arrange many similar excursions.

The tour also includes a superior itinerary to explore both the wonders of this mysterious, ancient and modern land -- a wonderful way to celebrate the International Year of Astronomy 2009.

Professional contacts in China have helped Continental Travel design an exceptional 19-day luxury tour that includes some of China's most scenic natural attractions and wonderful cities. The tour also has the finest itinerary available for the China eclipse.

The tour can accommodate no more than thirty participants to assure personal service and access to the guides and escorts. The hotels chosen are among the best in the country and have the wonderful amenities for which their tours are known. Included is a spectacular four-day Yangtze River cruise with a five-star cruise line.

Visits to many attractions are included but the tour also allows time to explore both Beijing and Shanghai on your own. Their tour guides will be happy to make recommendations.

Past travelers are aware of the high quality and excellent value of Continental Travel trips and their tours are among the very best in the travel industry. Please visit their website and follow the link for the Magnificent China Solar Eclipse Tour.

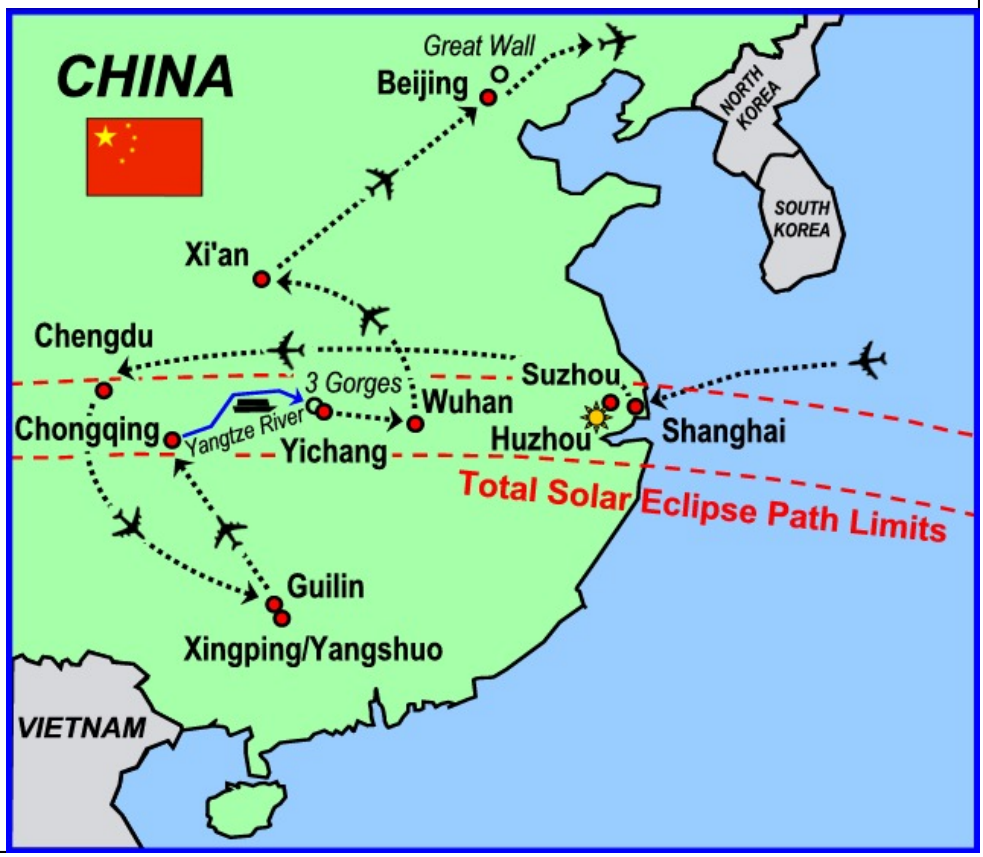
For more information visit the website:
www.astroadventures.net

or contact

Marian Cohen of Continental Capers Travel, Inc.
to make reservations.

Marian@Flycapers.com.

352-240-1004(direct)
352-378-1406
800-446-0705 x104(toll free)
352-378-0937(fax)



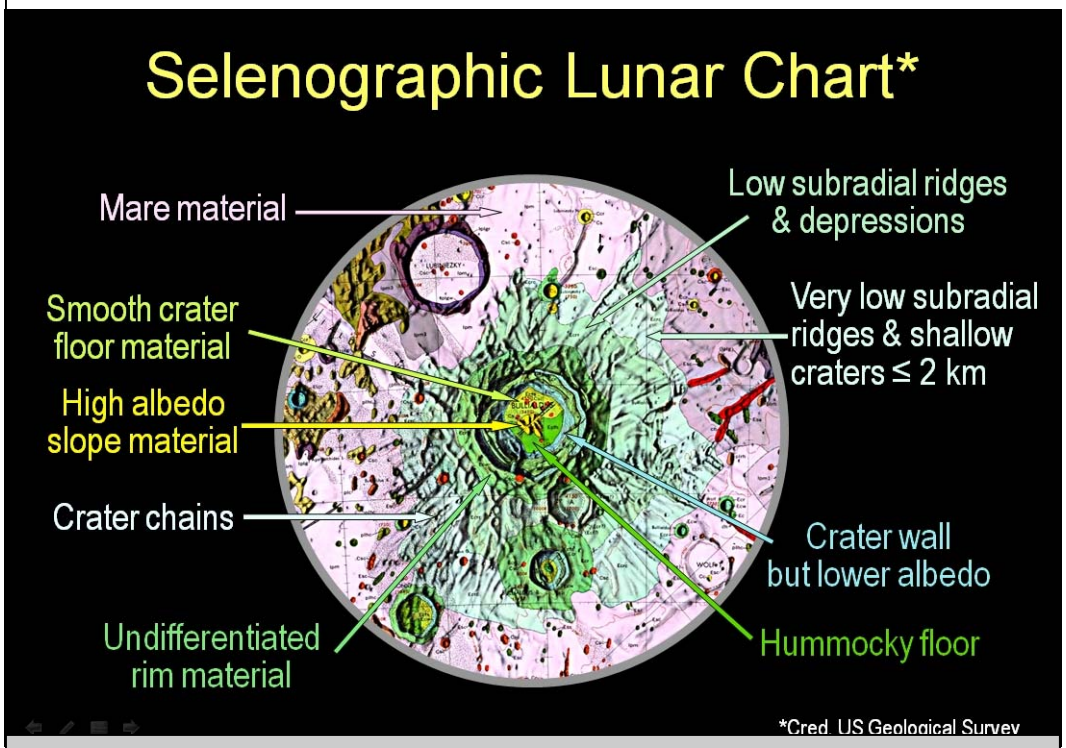
First 2009 Lunar Observing Group Session: A "Stellar" Success

By Bob O'Connell

Howard and Marian Cohen hosted the first AAC Lunar Observing Group (LOG) event of 2009 at their home on January 7, 2009. The weather cleared just in time for the session attended by twenty-six members and guests under a waxing gibbous Moon in Aries.

The program ran from 7:00 p.m. to 10:00 p.m. EST with pizza, soft drinks and Moon Pies provided. The observing theme for this LOG was "Crater Formation and Lunar Geology" based on the first article in a series from the journal *Selenology* by Eric Douglass. [1]

Chuck Broward, Don Loftus, Bob O'Connell and Howard Cohen gave four Power Point presentations on the craters Messier, Copernicus, Plato and Bullialdus respectively. The well-researched presentations ranged from a dozen Power Point slides to more than seventy slides. Future LOGs will focus on other topic in the *Selenology* series including impact basins, volcanism and tectonic processes on the Moon.



Above: Slide from Howard Cohen's Bullialdus presentation.

Speakers showed their presentations on a large screen set up near twelve telescopes to encourage participants to view the lunar features under discussion. A live video feed of the Moon was also used to help feature identification.

Participation ranged from just watching presentations and enjoying pizza and Moon Pies to meticulously following along through telescopes as the presentations covered specific details of lunar geology.

We developed and refined this LOG format of presentations *and* simultaneous live viewing during previous LOGs. This method worked well to help participants more fully appreciate the complex geology of our nearest celestial neighbor. We rescheduled this LOG event from late 2008, which was cancelled due to bad weather.

By any measure the session was a success and despite dropping temperatures and increasing humidity, no one left early. Of special note, Dr. Mike Reynolds and Mike Ramirez of the North East Florida Astronomical Society (NEFAS) traveled from Jacksonville to participate in the event. We also discussed the idea of a joint AAC/NEFAS LOG later in 2009.

Our LOG is planning future events so please check our web page on the AAC website for future events. We have scheduled the next LOG session for Thursday, April 2nd and will introduce participants to Chuck Wood's "*Lunar 100*" list and the Astronomical League's Lunar Club lists.

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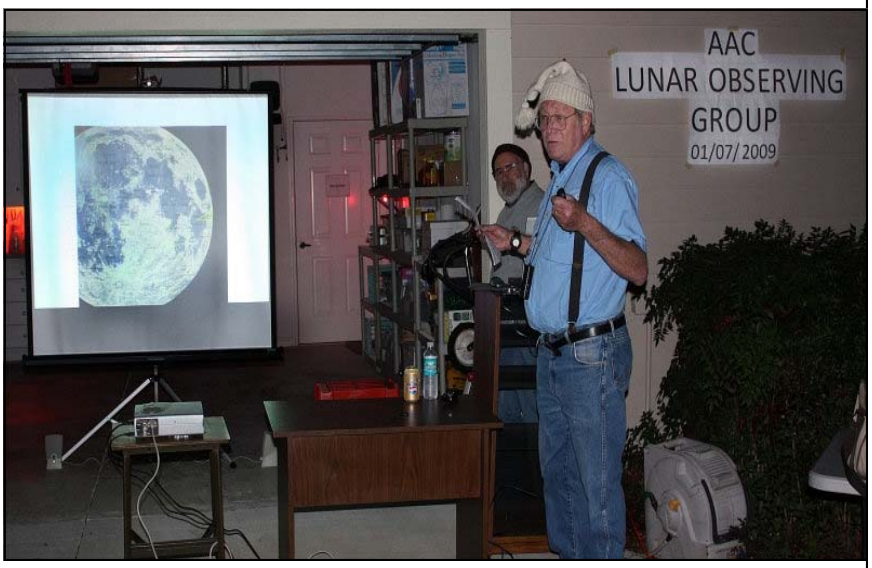
[1] Douglass, E. 2006, "Geologic Processes On the Moon," *Selenology* 25, 2-8.

Bob O'Connell has served the AAC as Board Member and now as Chair of the Lunar Observing Group (LOG). Bob is a Registered Nurse and resides in Keystone Heights with his wife Jane. Bob can be contacted at: thestardoggedmoon@gmail.com*. See the LOG website for further info and photos:* http://www.floridastars.org/LOG/log_sessions09.html

Left: Howard Cohen preparing his telescope for a night of lunar observing before his presentation at the Lunar Observing Session.

Photo Credit:
Don Loftus



Right: Chuck Broward begins his presentation on the Messier crater pair.

Photo Credit:
Don Loftus

Left: Participants of the first AAC Lunar Observing Group event of 2009

Photo Credit:
Don Loftus

April Club Meeting

Rich Russin,
AAC Photographer

Tuesday, April 14 2009, 7:00 p.m. ET

Speaker: **Rich Russin**, AAC Photographer

Title: *Sinagua Sunwatchers - Archaeoastronomy of the V-BAR-V Heritage Site*

Location: Powell Hall, Florida Museum of Natural History
Lucille T. Maloney Classroom,
UF Campus, Gainesville, Florida

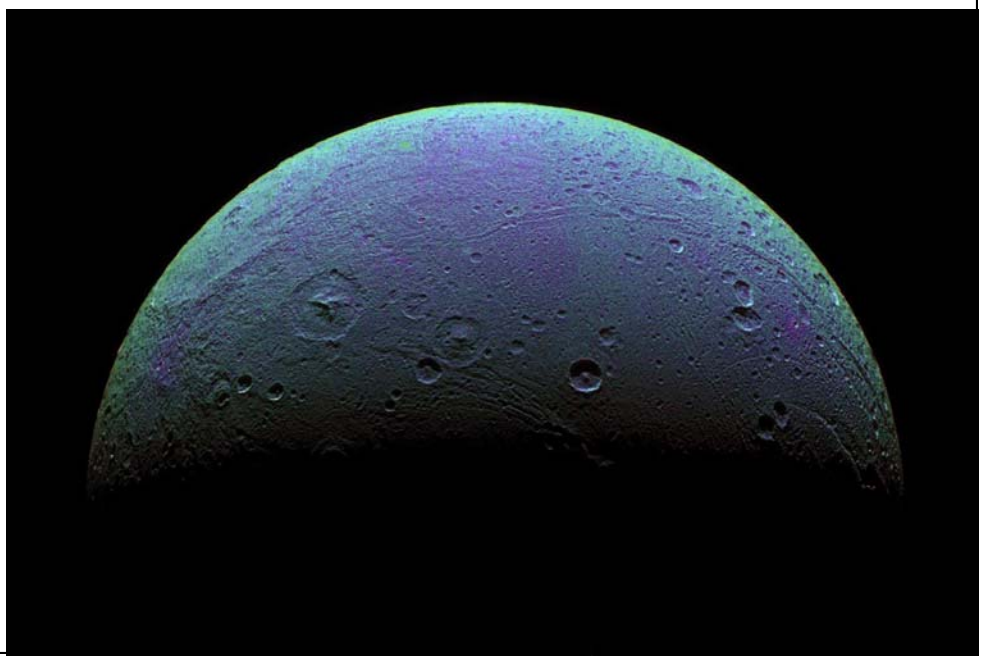
Preview: The V-Bar-V Heritage Site is located approximately twelve miles south of Sedona Arizona. A recent archaeoastronomy survey, by Kenneth Zoll, describes an abundance of evidence to suggest that this site was used as a seasonal calendar by the Sinagua Indians, from 1150 to 1400 A.D.. The site features a prominent solar panel containing approximately 1030 petroglyphs. Of the 125 classified markings, 11 are believed to have astronomical significance. The precision in placement of these symbols, relative to observable astronomical events, could not have happened by chance. To support this claim, we will examine the cultural relevance of the site to the Sinagua, along with the evidence of astronomical intent.\

About the Speaker: Rich has enjoyed a lifelong interest in photography and astronomy. Over the last three years, his focus has shifted more to astronomy. Recently, he has developed an interest in the archaeoastronomy of the American Southwest. According to Rich, "I also enjoy the hardware side of modern astronomy. Combined with a love of the past, it gives me a great appreciation of our continuing quest to understand the universe." Rich still maintains his interest in photography, and currently contributes his talent as the AAC's official photographer.

Dione Has Her Faults

Saturn's icy moon Dione has undoubtedly experienced geologic activity since its formation, as evidenced by the tectonic faults and craters on its surface.

To create this enhanced-color view, ultraviolet, green and infrared images were combined into a single black and white picture that isolates and maps regional color differences. This "color map" was then superposed over a clear-filter image. The origin of the color differences is not yet understood, but may be caused by subtle differences in the surface composition or the sizes of grains making up the icy soil. This view looks toward the leading hemisphere on Dione.



Fill out and return the following Membership Form to Renew you AAC Membership.

Alachua Astronomy Club, Inc.
A Not For Profit Organization

2009 Membership Form

Date ____/____/____ (Please CHECK one) **New Membership?** ____ or **Renewal?** ____

Name (Primary Applicant) _____

Address _____

City _____ **State** _____ **Zip** _____ **Country** _____

Telephone(s) Home (____) _____ **Business** (____) _____ **Cell** (____) _____

E-mail _____ NOTE: *Please fill in all information since we are updating our records.*

Astronomy Level (CHECK one) ☐ **Beginner** ☐ **Intermediate** ☐ **Advanced**

Own Telescope(s)? (CHECK one) ☐ **No** ☐ **Yes** **Type(s)** _____

How Long Interested in Astronomy? _____

If new member, how did you learn about us? ☐ **Web** ☐ **Newspaper** ☐ **Word of Mouth** ☐ **Other (specify)** _____

Special Interests/Abilities _____

Any Club Duties Would Like to Volunteer For? _____

Dues Categories: AAC membership allows *voting rights and election to club offices for the primary applicant and each included Associate membership.*

CHECK ONE dues category under either **A. Individual** or **B. Dual/Family** (*includes one Associate membership*). CHECK **Additional Associates** under **C. Other** if you want other family members to have voting rights.

A. Individual [1]		B. Dual/Family [1, 2]		C. Other	
☐ Member	$28.00	☐ Member	$40.00	☐ Additional Associates	$12.00 each
☐ Senior [3]	$20.00	☐ Senior [3]	$32.00		
☐ Full-time Student [4]	$12.00				
☐ Supporter [5]	$60.00	☐ Supporter [5]	$72.00		
☐ Benefactor [5]	$100.00	☐ Benefactor [5]	$112.00		

New member proration: Remit 50% dues between July 1 – Sept. 30. Remit full dues after Oct. 1 (will be applied toward following year).

[1] Membership includes Astronomical League membership (including one subscription to *Reflector* Magazine) and one subscription to *FirstLight* newsletter. The AAC is a member of the International Dark-Sky Association; please consider individual enrollment.
[2] Includes one Associate membership with voting privileges.
[3] Eligible seniors are 62 years or older. (Seniors can still select regular membership!)
[4] Student membership includes electronic subscription to *FirstLight* newsletter only.
[5] The AAC is exempt from federal income tax (IRS Code, Sect. 501). Contributions to the AAC may be tax deductible. See your tax advisor.

Membership in the AAC (CHECK ONE category from Column A *or* Column B (above)) $_____

Additional Associate Memberships at $12.00 each (CHECK Col. C) **No. of Assoc. Memberships:** _____ **x $12.00 =** $_____

Names of ALL Associate Members _____

_____

NOTE: AAC Mailing Address Has Changed from Previous Years

Total Amount Due $_____

Make check out for total amount of dues to the: **Alachua Astronomy Club, Inc.** **Check Number** _____

Send *completed form and check* for club dues to:

(We cannot accept dues without completed dues form)

Treasurer
Alachua Astronomy Club, Inc.
P.O. Box 141591
Gainesville FL 32614–1591 USA

Ver. 11-11-08

Celebrating the Sun — Howard L. Cohen

"The night has a thousand eyes, the day but one.
Yet the light of a whole world dies with the setting sun."

~ Francis William Bordillon

The Sun is especially important this year. The United Nations and the International Astronomical Union have already proclaimed 2009 "The International Year of Astronomy" to honor Galileo's astronomical use of the telescope. The Sun will also add to the special nature of this year in several ways. For example, a new solar sunspot cycle is now beginning and midyear brings the longest
total solar eclipse of our lifetime.

However, calendrical reckoning will similarly mark 2009 as a special year to praise the Sun! A rare coincidence brings together two events this spring—a celebration of the spiritual birth of our Sun, last observed twenty-eight years ago, and an annual spring festival memorializing the exodus of slaves from ancient Egypt. The simultaneity of these two events, both representing rebirth, is a once in a lifetime occurrence.

Astronomy is filled with cyclic events. Some recur over short times as the rising and setting of the Sun or the monthly cycle of the Moon's phases. Longer events as eclipses require more patience, especially eclipses that are total. Still, even total solar eclipses occur every few years although traveling into the path of totality often requires some effort. But, longer events, such as transits of Mercury across the face of the Sun, are savored more since only thirteen to fourteen occur in a one hundred-year period.

However, events that happen but once, or only a few times in one's life, are prized like no other. If you missed the last close approach of Comet Halley, the next is still more than a half century away. The last transit of Venus across the Sun was in 2004, an event no one alive had ever seen since the previous was in 1882, more than a lifetime ago. Fortunately, transits of Venus now occur in pairs separated by eight year intervals. The next, in 2012, will be the last for anyone living today, So, many of us may still have an opportunity to witness this extraordinary, historic event not to occur again for another 105 years! Meanwhile, Pluto reached perihelion in 1989 and became visible in small telescopes for the first time, a sight not to repeat for almost 250 years.

The Sun itself also teases with events not to be missed. This summer (July 22) will bring the longest total solar eclipse of our lifetime with a duration of totality over six minutes. Nevertheless, one must travel to India, China or the South Pacific to see this ethereal and emotional event. Although three more total solar eclipses of six minute durations occur this century, the next long duration eclipse will be eighteen years hence. And for those who cannot travel long distances to reach paths of totality, the continental USA will not see any total eclipse of the Sun until 2017. This is a long stretch in time since the last for the lower forty-eight was thirty-eight years ago!

In addition, this year the Sun is about to embark on a new sunspot cycle, a cause for celebration by avid Sun watchers since the solar disk has been nearly spotless for the last year. Since, the sunspot cycle typically lasts ten to twelve years, or about 22 years for a complete magnetic reversal, only several complete solar cycles fit into a human lifetime.

Astronomical events as these remind us not only of nature's grandeur but also how short our lives are compared with the existence of the cosmos. For those, who believe that we only "go around once," astral events are not to be missed.

Thinking about this recalls another cycle, a twenty-eight year cycle of the Sun. Most have never heard of this period since it does not mark an actual astronomical event. Instead, this sun cycle is more spiritual, again reminding us of our finite place in the universe.

We count 52 weeks of seven days each during our year, a period of 364 days. Since normally our year is really just over one day more, the same day of the week occurs one day later after the passage of a 365-day year. Therefore, after seven years, the days of the week should occur on the same calendar day. So, should we recycle our calendars every seven years?

No. We partially reckon dates based on the Julian Calendar, which uses leap years every four years, giving us an average year of 365.25 days. So, the repetition of dates does not occur after seven years. Instead, we must wait through four cycles of seven years or 28 years before the same sequence of calendars repeats. Therefore, the days of the week usually begin again on the same calendar day every 28 years, a period of 10,227 days (365.25 x 28).

Early Babylonian and Judaic traditions held that the Sun was created at the vernal equinox in the first hour of the night before the fourth day of creation (cf. Genesis 1: 14-19). Jewish law regards the Sun as having returned to its original position whenever the equinox occurs at the same moment in the week. Therefore, the Sun returns to its supposed point of birth on the equinox every 10,227 days marking an auspicious time to bless the Sun. Ultimately, Jewish law codified this event into a little-known but joyful prayer service, the *Birkat HaChamah* ("Blessing of the Sun"), marking this 28-year cycle (also known as "the large cycle").

Although the vernal equinox currently falls about March 20 on our civil or Gregorian Calendar, Jewish law originally set the date as March 25. In addition, Jewish law bases the date of *Birkat HaChamah* on the Julian Calendar. Consequently, the inaccuracies of this calendar have now moved the date of this celebration into April on the Gregorian Calendar though it continues to fall on March 25 using the Julian Calendar. (The Gregorian Calendar adds a leap year on century years only if not divisible by four giving an average length of 365.2425 days every 400 years).

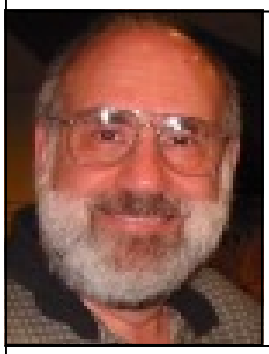
Thus, *Birkat HaChamah*, which is conducted at the first appearance of the Sun on the first Wednesday of the Jewish month of *Nisan*, now occurs on April 8 every twenty-eight years. However, this date for the Sun's blessing is moving later about a day every few hundred years since it remains fixed in the Julian Calendar. Gregorian dates celebrating the Sun this century occur on April 8 in 2009, 2037, 2065, and 2093 but then shift to April 9 in 2121.

This year, after a lapse of twenty-eight years, observant Jews and those wishing to reaffirm the Sun's radiance, strength and hope for renewal, will rise early on the morning of Wednesday, 2009 April 8. As the Sun rises (about 7:11 a.m. EDT in Gainesville, Florida), they will gather outside in the morning dawn to recite *Birkat HaChamah* prayers and special psalms to bless the Sun. Since 2009 is the year 5769 in the Jewish Calendar, this day will signify the 206th birthday of the Sun. Celebrants may also dance in circles and sing joyous songs as "Here Comes the Sun," "Ev'rybody's Happy When the Sun Shines," and "The World is Waiting for the Sunrise"! This ceremony of prayers and songs will not be said again for another twenty-eight years when people again gather to praise the creation of the Sun.

Finally, this year *Birkat HaChamah* has special significance. For, on the very evening of this day that honors the "Sun's birth," begins one of the most important and oldest religious holidays and festivals. This is the Jewish and Samaritan Passover (*Pesach*), a remembrance of the supposed Exodus of the Israelite slaves from Egypt. Passover always occurs on the 15th day of the Jewish month of *Nisan* near the time of Full Moon. The simultaneous occurrence of *Birkat HaChamah* and Passover is truly a rare event in one's lifetime. The last time both *Birkat HaChamah* and Passover occurred together was eight-four years ago, in 1925!

Indeed, *Birkat HaChamah* and its coincidence with Passover have only previously occurred ten times in Biblical history. So, 2009 marks an especially auspicious year for the Sun—the simultaneous celebration of both the birth of the Sun and a spring festival that celebrates the renewal of life. These are once in life time experiences. Celebrating events as these that only happen once every generation or less forces us to take a deeper view of both ourselves and the light and life of the Sun—where we all came from, what are we now, and where will we be in the future.

Perhaps members of the Alachua Astronomy Club, Inc., may also want to gather with family and friends early on the morning of April 8 with telescopes to view the Sun and celebrate, even if only symbolically, the birthday of the Sun. ¤



Howard L. Cohen *is an emeritus professor in the University of Florida's Department of Astronomy and a founding member of the Alachua Astronomy Club, Inc.*

Don't Forget to Renew Your AAC Membership!

Certain Star Parties, AAC Events and access to the FirstLight newsletter online are available to current AAC members only. Be sure to fill out the form on page 9 to renew for 2009.

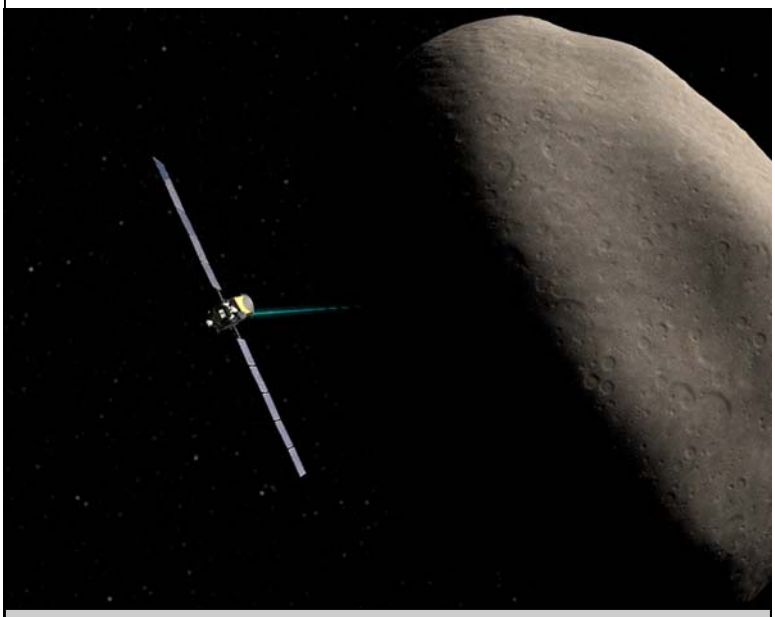
Membership in the AAC entitles you to receive the bimonthly newsletter (*FirstLight*), *The Reflector*, the Astronomical League's quarterly newsletter, reduced subscriptions to *Sky & Telescope* and *Astronomy* magazines, use of club telescopes, observing sites and library materials and free classifieds in the FirstLight.

Where did all these gadgets come from?!

Ion propulsion. Artificial intelligence. Hyper-spectral imagers. It sounds like science fiction, but all these technologies are now flying around the solar system on real-life NASA missions.

How did they get there? Answer: the New Millennium Program (NMP). NMP is a special NASA program that flight tests wild and far-out technologies. And if they pass the test, they can be used on real space missions.

The list of probes that have benefited from technologies incubated by NMP reads like the Who's Who of cutting-edge space exploration: Spirit and Opportunity (the phenomenally successful rovers exploring Mars), the Spitzer Space Telescope, the New Horizons mission to Pluto, the Dawn asteroid-exploration mission, the comet-smashing probe Deep Impact, and others. Some missions were merely enhanced by NMP technologies; others would have been impossible without them.



Dawn will be the first spacecraft to establish orbits around two separate target bodies during its mission—thanks to ion propulsion validated by Deep Space 1. Image by: NASA

"In order to assess the impact of NMP technologies, NASA has developed a scorecard to keep track of all the places our technologies are being used," says New Millennium Program manager Christopher Stevens of the Jet Propulsion Laboratory.

For example, ion propulsion technology flight-tested on the NMP mission Deep Space 1, launched in October 1998, is now flying aboard the Dawn mission. Dawn will be the first probe to orbit an asteroid (Vesta) and then travel to and orbit a dwarf planet (Ceres). The highly efficient ion engine is vital to the success of the 3 billion mile, 8 year journey. The mission could not have been flown using conventional chemical propulsion; launching the enormous amount of fuel required would have broken the project's budget. "Ion propulsion was the only practical way," says Stevens.

In total, 10 technologies tested by Deep Space 1 have been adopted by more than 20 robotic probes. One, the Small Deep Space Transponder, has become the standard system for Earth communications for all deep-space missions.

And Deep Space 1 is just one of NMP's missions. About a half-dozen others have flown or will fly, and their advanced technologies are only beginning to be adopted. That's because it takes years to design probes that use these technologies, but Stevens says experience shows that "if you validate experimental technologies in space, and reduce the risk of using them, missions will pick them up."

Stevens knew many of these technologies when they were just a glimmer in an engineer's eye. Now they're "all grown up" and flying around the solar system. It's enough to make a program manager proud!

The results of all NMP's technology validations are online and the list is impressive:

nmp.nasa.gov/TECHNOLOGY/scorecard/scorecard_results.cfm. For kids, the rhyming storybook, "Professor Starr's Dream Trip: Or, How a Little Technology Goes a Long Way" at spaceplace.nasa.gov/en/kids/nmp/starr gives a scientist's perspective on the technology that makes possible the Dawn mission.

This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Star Party Recap

I would like to begin by thanking Mike Toomey on behalf of all members and officers for his dedication and contribution. Mike Toomey has finished his work as Star Party Coordinator with the end of 2008, and stepped down from his officer position. Marianne Gamble has graciously stepped up as 2009's Star Party Coordinator - backed up with full support by Assistant Coordinators, Sandon Flowers and Thomas Hettinger.

Despite moderate cloud cover, chilly weather, and an early bedtime, Stargazing at Hickory Ranch produced a great turnout. Over 250 visitors made their way, scope by scope, patiently waiting in line to catch a glimpse at Venus, Orion, and other deep sky objects. Its always great to see children attending and learning from astronomy outreach programs.

Unfortunately, our first AAC party of the year was canceled due to poor weather. We were unable to test out the Newberry Sports Complex as an observing location. Hopefully, we can arrange another event in the future, with promising weather.

Weather in March shouldn't deter our observations at the Loftus Family Farm. With a rain date set for the following week, we will have two chances to make use of the dark skies north of Gainesville. This is a great location to introduce a friend to star gazing. The location is comfortably close to the heart of Gainesville, yet sufficiently distant to offer an impressive view of the sky. So bring somebody new along, and show them the radiant arc from the anti-center of the Milky Way.

We return to Paynes Prairie in April for our monthly star party at Hickory Ranch. We get to stay up all night this time, so bring your coffee and energy drinks. After viewing dark northern skies at the Loftus farm, we will have our chance to view dark southern skies from the prairie. Saturn will be high in the sky, with it's rings edge-on. Make sure to give them one last look before they disappear!

Thomas Hettinger
Assistant Star Party Coordinator
Alachua Astronomy Club

Below: AAC members setting up for the Stargazing at Hickory Ranch Star Party at Paynes Prairie.
Photo Credit: Tom Hettinger

STAR PARTY / OBSERVATION SCHEDULE: Upcoming Events - 2009

Star Party Event	**Date**	**Location** Check the website for directions and map	**Start/End Time**
AAC March Star Party	March 21st, Saturday	Loftus Family Farm Rain Date is March 28th	Sunset approx. 7:40 pm EST.
April Lunar Observing Group Star Party http://floridastars.org/parties09.html Click on LOG Sessions	April 2nd, Thursday	Rich Russin's Residence - See website for directions	Setup Tim: 7:00 - 7:30 pm EST.
AAC April Star Party	April 25th, Saturday	Hickory Ranch at Paynes Prairie	Sunset approx. 8:00 pm EDT
Astronomy Day at Santa Fe College	May 2nd	Santa Fe College	Sunset approx 8:05 pm EDT

Below: AAC members gazing at Venus while waiting for the sun to set at Hickory Ranch.
Photo Credit: Tom Hettinger

FirstLight
March / April 2009

Mauna Kea Milky Way Panorama **Credit & Copyright:** Wally Pacholka (TWAN)
Explanation: Aloha and welcome to a breathtaking skyscape. The dreamlike panoramic view looks out from the 4,200 meter volcanic summit of Mauna Kea, Hawaii, across a layer of clouds toward a starry night sky and the rising Milky Way. Near the center are the reddish nebulae, stars and dust clouds of the central Milky Way. Below, illumination from the city lights of Hilo creates an eerie, glow in the clouds. Red supergiant star Antares shines above the Milky Way's central bulge while bright Alpha Centauri lies still farther right, along the dusty galactic plane. Finally, at the far right is the large Gemini North Observatory. The compact group of stars known as the Southern Cross is just left of the telescope dome.

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