The Focal Point

The Atlanta Astronomy Club
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October Special Event: The Peach State Star Gaze 2004

by Nancy "Gumby" Cronin

October is all about the Peach State Star Gaze!

This year it will be held from Wednesday, October 13 through Sunday, October 17th, over our traditional third Friday General Membership Meeting. The PSSG Committe has gone to great lengths to secure wonderful speakers, workshops, and door prizes for this event. Therefore we will not be having a meeting at Emory this month.

In this month's space, we'll showcase the speakers of the PSSG, beginning with our keynote speaker.

Eric Honeycutt

Eric's talks at this years PSSG will be "PNe's" and "Challenges of the Fall Sky".

This year's PSSG keynote speaker is Eric Honeycutt. Eric Honeycutt of Raleigh NC, is one of the top planetary nebulae (PNe) observers in the U.S.. He is the owner and moderator of the Planetary Nebulae Yahoo Group and is a regular speaker at star parties. Eric's accomplishments include: successful observations of the entire Abell Planetary Catalogue; a featured PNe article in Sky and Telescope's May 2002 issue.

Eris Planetary Nebula Resource for the Advanced Amateur Astronomer website can be found at http://www.icplanetaries.com

Ron Buta

"Spiral Galaxies: from Lord Rosse to the Present"

Spiral galaxies are massive pinwheel-shaped systems of stars, gas, and dust bound together by gravity into a single unit. These intriguing objects, the ultimate in "deep-sky" observing targets and also the chief victims of light pollution, have always had an air of mystery about them. How did they get their shapes, and what causes the variety of features seen in spirals? I have spent much of my professional career studying spiral galaxies, ranging from classification, to my PhD thesis on the structure and dynamics of ringed spirals, and most recently to studies of leading arm spirals and the morphology and dynamics of barred spirals. I have also seen many spirals with large observatory telescopes. The appeal of the spirals to me is their rich history, which encompasses many of the most famous names in astronomy, the role these objects played in opening our eyes to the vast Universe we live in, and the immense beauty and complexity of their structure which in many ways is unrivaled by other types of objects.

This talk will describe the discovery of the nature of the spirals, beginning with Lord Rosse's observations at Birr Castle in the 1840s. Lord Rosse and his assistants used the world's largest telescope at the time to detect spiral structure in more than two dozen "nebulae". The role of astrophotography, beginning in the 1880s, in verifying these findings will be described, as will the steps to establishing the extra galactic nature of spirals. The Hubble classification of spirals, published in 1926, was an important step in further understanding the spirals, but it was not until the 1960s that theory finally caught up with observation and provided an explanation for how spiral structure is produced. Today we can observe spirals in unprecedented detail and at unimaginable distances compared to what could be done only two decades ago. I will finish

my talk by describing some of the surprising findings about spirals made in the last few years.

Ron Buta Background Information: Ron Buta received his PhD from the University of Texas at Austin in 1984. His PhD supervisor was Gerard de Vaucouleurs. Ron was a postdoc at the Australian National University's Mount Stromlo Observatory from 1984-1986, from 1986-1988 Ron was a postdoc with de Vaucouleurs, working with him and others on the Third Reference Catalog of Bright Galaxies. Ron Buta joined the Physics and Astronomy faculty at the University of Alabama in 1989.

Says Ron Buta, "I have enjoyed the PSSG the past several years and I look forward to this year's event. I was once an avid visual observer, and never lost interest in it even after many years of professional astronomy. The PSSG is my one chance every year to see the nebulae."

Rich Jakiel

"Mars"

The talk will discuss the current state of Martian Geology (and the search for water/life) with heavy emphasis on the findings from the latest probes and landers/rovers. Numerous images from the Mars Global Surveyor (MGS), Mars Express (ESA), Pathfinder and the current Mars Exploration Rovers (Spirit, Opportunity) will be shown, many of which have not been published in science and astronomy magazines.

Richard Jakiel has a MS from Georgia Tech in the field of isotope geochemistry and a BS in geology and biology. He is currently employed for the State of Georgia's Radiation Protection Division as a research scientist. Over the past fifteen years he has written nearly fifty articles in the fields of astronomy, geochemistry and paleontology.

September General Meeting Minutes

The meeting was held at White Hall at Emory University at 8 PM on Friday, September 17, 2004. Fifty-seven people were in attendance. Chuck Painter, president, & Nancy "Gumby" Cronin, program chair, called the meeting to order. Chuck Painter awarded a door prize (an AAC coffee mug) to a man who correctly answered the question: "What is the name of the asteroid that will pass close to the earth on September 29?" The correct answer is Toutatis. The officers gave updates and announcements. Phil presented Astronomical League awards. Sharon Carruthers earned an honorary Messier Observing Award (#2153). Keith Burns earned the Arp Peculiar Galaxies Award (#34V). Keith Burns talked about the AL Lunar Mentoring Program, which was accompanied by a very funny Powerpoint presentation replete with jokes and "bovine humor". The Member Focus of the evening was given by Debbie Jones, Observing Supervisor of the Charlie Elliot Chapter of the AAC. She pointed out how important volunteers were in establishing the chapter and organizing public programs and other activities. Nancy Cronin then introduced our featured speaker of the evening, Dr. Amy Lowell, Ph.D., of Agnes Scott College. Her lecture was entitled "Taking the Asteroids' Temperatures". She discussed how her observations of asteroids with microwaves and millimeter waves were used to determine surface temperature variations, which she is using to determine surface topography. She answered questions after her talk. When the meeting was over, many members drove to Athens Pizza Restaurant.

Charlie Elliott Chapter September Meeting Minutes

Larry Owens, Chapter Director, began the monthly meeting of the Charlie Elliott Chapter (CEC) of the Atlanta Astronomy Club (AAC) at 5:00 PM, Saturday, September 18, 2004. Members and visitors totaling 12 individuals attended the meeting. Larry reviewed improvements made to the club's 16" Starfinder. Larry mentioned the proposal for the telescope shed on the observing field, which had been presented to the Charlie Elliott management, was still pending. Debbie Jones, Observing Supervisor, presented a short program on "Three Treasures of the Swan" plus a bonus. Clevis Jones presented some updates regarding ongoing NASA missions. At our July meeting Dr. Richard Schmude, Jr. (Gordon College, Barnesville, GA) presented a program on photometry. This month he was back with a follow-up program to discuss the how to do, challenges, and rewards of photometry of the planets. He used the 2003 dust storms on Mars as an example. The skies were clear for those who wished to view at the observing field.

Restoring the Charlie Elliott Chapter's 16" Meade Starfinder (Part II)

(Editor's note: Several lines were accidentally deleted from Part I in last month's printed Focal Point. For the correct version, download the September Focal Point from the AAC website.)

by Larry Owens

In last month's Focal Point, I detailed our efforts to restore and improve Charlie Elliott's donated 16" Starfinder EQ telescope. Accessories were added to make the scope easier to setup and transport. Improvements were made to make the scope more reliable and durable in the field. A scope that required three people to assemble has now been transformed into one that is very durable, easily transported and assembled by one person. This month, after several sessions under the stars, I would like to share my evaluation of the big scope's performance.

This is a view of the Starfinder with a 5" refractor attached. The refractor proved to be essential for finding deep sky objects when not using the Magellan II computer. A dovetail adapter was added so that standard Losmandy attachments could be used.

The Meade Starfinder 16 EQ is equipped with a Magellan II computer. As I mentioned last month, the combination of a computer and shaft encoders make this scope a "semi-goto"

system. The first item on the agenda was to master the intricacies of this system and to see how well the Magellan II performed in the field.

The Magellan II computer's hand controller pictured here is well illuminated and easy to read under the stars.

The Magellan II hand controller looks much the same as the one used on "vintage" Meade LX200 telescopes. Slew rates are easily selectable using the left column of buttons, and there are selections for Messier and NGC catalog objects stored in the computer's database. All of the functions of the telescope are controlled from this hand controller including manual slewing, slow motion, alignment and semi-goto functions. The LCD display near the top of the controller provides feedback on selected functions, various settings that are required and the coordinates of the object in view.

Before most of the functions of the hand controller can be used, the mount must be polar aligned (a good topic for another article) and a "guide star alignment" must be performed to help the Magellan computer calculate a model of the night sky. The alignment can be done with a single known star, or two stars for greater accuracy. When choosing guide stars for a two star alignment, the manual recommends that the stars should be several degrees away from the pole and at least 45 degrees apart.

So for my first try, I chose the stars Arcturus and Altair. Arcturus was to the west at the time, and Altair was just across the meridian (an imaginary line drawn from north to south in the sky) toward the east. I centered Arcturus carefully, then manually moved the scope in the direction of Altair. A quick press of the hand controller and Altair was nicely centered in the eyepiece. A press of the "enter" key at this point was all that was necessary to complete the process. Unfortunately, instead of seeing some indication of success, a "Check Star" error was presented. I retried the process a couple of times but received the same error.

The manual indicated that this error usually indicates a misidentified guide star. Well, after 40 years of looking at Arcturus and Altair as an amateur astronomer, I moved on to consider other possibilities. I knew from earlier tests that the encoders were working properly, however there was a setting for encoder "ratios" that I had not set, nor did I know what the settings should be. So for the remaining hours of our first night, we concentrated on visually evaluating the optics and the "manual" use of the scope (more on this later).

Shortly after obtaining the scope, I applied for membership in the Starfinder16 Yahoo group. List servers and email groups are an excellent source of information and upon returning home I posted a question about the encoder ratios. A reply indicated that the settings should be "1.000" for altitude and "either + or –1.000" for azimuth. I didn't understand the significance of "+ or –" until later.

Armed with this new information and a bit of determination, I setout under a clear sky to resolve the issue. This time I would setup the scope at home. I had polar aligned the mount earlier and carefully marked the driveway so that I could repeat the alignment easily. Rolling the fully assembled scope out of the garage and over the alignment marks took mere seconds. A minute or two of leveling with the new leg jacks and the 200-pound scope was ready for business.

After applying power to the scope, I selected an encoder setting of "+1.000" for azimuth. The altitude setting was already set to "1.000" without a polarity option. This time Arcturus was already behind a tree, so I decided to try an alignment using the stars Deneb and Altair. At the time both stars were west of the meridian. I carefully centered each star in the eyepiece as directed by the hand controller. With the second star centered, a press of the "enter" key presented the number "90" on the Magellan hand controller. The number is actually an evaluation of alignment accuracy, and according to the manual, any number between 90 and 110 indicates a successful alignment. Success! Unfortunately there is more to the story.

In an effort to achieve "alignment nirvana" (a score of "100"), I decided to try guide stars that were much further apart. The star Fomalhaut had just topped the trees to the southeast, so I tried an alignment with Vega and Fomalhaut (a cross meridian alignment). This time I received our favorite error, "Check Star". I tried several times, always getting the error. Thinking something had gone wrong, I tried to align on Deneb and Altair again. This worked fine with the score of "90" once again.

I gave this some serious thought at this point and tried two other stars. But this time I chose two stars that were east of the meridian, Fomalhaut and Hamal. Before attempting the alignment, I changed the azimuth encoder from a -1.000 to a +1.000. I then performed the alignment procedure and as I suspected, the alignment was successful with a score of 100 this time. Ah ha!

Confused? I was for a time, but what the above experiment demonstrated is that the system does not account for meridian "flips". If you've never owned a German Equatorial mount you know that when the mount tracks to the meridian, to prevent the optical tube assembly (OTA) from running in to the mount, the pointing of the scope has to be flipped to the other side of the mount. In the case of the Starfinder, the computer thinks the telescope is pointed in the opposite direction after a meridian flip. Fork Equatorial mounts like the Meade LX90 would not have this problem with a Magellan II system, since meridian flips are not necessary.

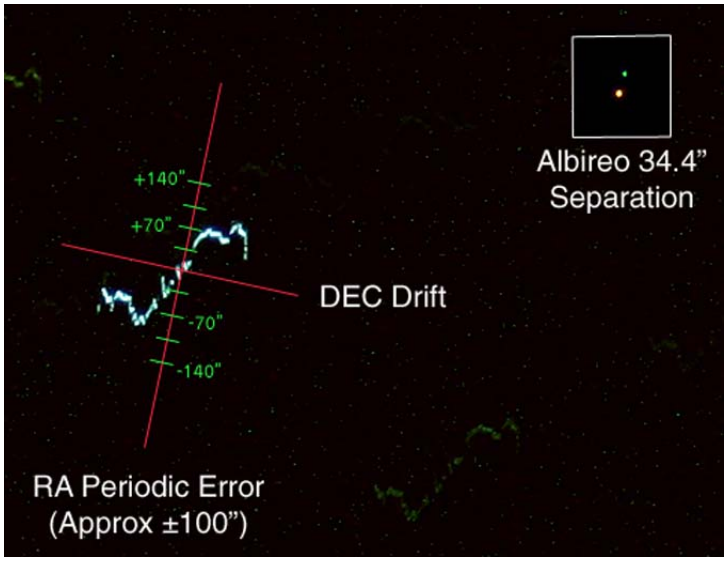
So, this experience exposed one of the drawbacks of using a Magellan II system on this kind of mount. That is that alignments are only good for one side of the meridian. It's not really a major drawback if you plan accordingly, but it can be problematic if your target is near the meridian, or crosses the meridian before you get the chance to view it.

With caveats in mind, I proceeded to test the pointing accuracy of the Magellan II system. With a fairly casual alignment on Vega and Altair, I selected M57 using the hand controller. Unlike full goto systems, the Starfinder requires a bit of manual intervention. After selecting an object of interest, the hand controller presents the degrees of azimuth and altitude you must move the scope in order to find the object. As you manually point the scope in the general direction of your target, the numbers reduce until the scope is within 2 degrees. At this point the numbers are replaced with two rows of bars. The fewer the number of bars, the closer the scope is to the target. You can continue to move the scope manually now, or simply press the "find" button and let the Starfinder take you the rest of the way automatically. I chose to press "find". The motors came to life and after a few seconds, all was quiet and only one bar remained for each coordinate on the hand controller. I climbed the ladder to peer through the 40mm eyepiece. On the edge of the field of view was the tiny smoke ring of M57.

As the evening progressed, I tested accuracy on both sides of the meridian and generally, if your alignment stars were far enough apart, the Magellan would put the selected object at least at the edge of the field of view of a low power eyepiece. Pointing accuracy near alignment stars proved to be much better.

With the Magellan II computer mastered, attention was turned to the stability and accuracy of the mount. Knowing that several of our chapter members are interested in astrophotography, my hope was that this large German Equatorial mount would support this interesting element of our hobby in some form. My first concern was the periodic error of the mount's clock drive and the second issue up for investigation was vibration dampening.

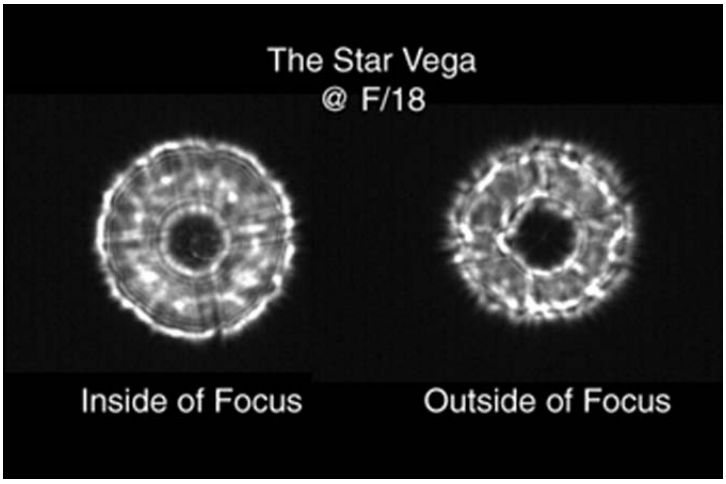
The mount does not have any form of periodic error correction, nor does it have an autoguider port. So any drive errors or declination drift would have to be corrected manually for long exposure astrophotography. Also, for "well guided" images, periodic error needs to be smooth and predictable. To measure this, I took several long exposures of a star field with the polar shaft intentionally misaligned. This technique actually produces a graph of the drive's tracking accuracy in starlight. When the star field contains a double star of known separation, you also have an accurate scale to use.



My choice for this test was the star field around the colorful double star Albireo. With a known separation of 34.4 seconds of arc, our Albireo yardstick is a bit long for the periodic error of many mounts, but I suspected we would need a larger scale for this test. I took several 5, 10 and 15-minute exposures and the 15-minute exposures captured most of a full cycle of error. To determine the exact axis of drift for both right ascension and declination, an exposure was also taken while slowly slewing the scope first to the north, then to the west.

With each drift axis determined, it was a simple matter to create an X and Y axis around a bright star in the exposure using PhotoShop. The news was not good. The test indicated a periodic error of nearly 100-arc seconds peak, with a considerable amount of erratic movement. Not a good thing if you're hoping to use the scope for certain types of astrophotography.

Next on the list was an evaluation of arguably the most important part of the system, the optics. The Starfinder comes with a 16" F/4.5 Pyrex primary and a 4.0" Pyrex elliptical secondary. The primary mirror cell is an aluminum multi-point floating system, supported by fiberboard.



The diffraction patterns of stars, photographed inside and outside of focus at high power provide clues to the optical quality of a telescope. In this star test of the Starfinder's optics, notice that the "inside" pattern exhibits a bright ring around the outer edge. The "outside" image has no bright ring. This indicates that the optics are a bit "undercorrected". In other words, the curve of the mirror is somewhere between a sphere and the ideal shape of a parabola.

To evaluate the optics, I first tried to image a star test. The principle in star testing is to image the circular diffraction patterns that are evident from a bright star at high power with the star a bit inside of focus, then outside of focus. The patterns of concentric rings and the similarity of patterns inside and outside of focus provide a means to evaluate the entire optical system.

One of the drawbacks of testing optics in this way is that you have to wait for very stable atmospheric conditions to get a good test. Complicating factors can include tube currents, local sources of turbulence like hot concrete under the telescope as well as unstable air overhead.

The periodic error curve of the Starfinder's mount is illustrated in this image. A 15-minute exposure was taken with the polar axis intentionally moved out of alignment. The drift induced by this misalignment causes the star to move in the direction of the "x" axis. Errors in tracking cause the star to move in the direction of the "y" axis. The double star Albireo serves as an arc second "yardstick" to accurately measure the amount error.

The star test of the Starfinder indicated a bit of undercorrection, exhibited by a bright diffraction ring around the edge of the "inside of focus" image that was not present in the "outside of focus" test. Undercorrected mirrors have a curve that is somewhere between a sphere and an ideal parabolic shape. This type of curve will cause a bit of spherical aberration, but this is common in short focus systems like the Starfinder. Unfortunately the star test images were not taken under ideal conditions, so a wavelength fraction estimate of the accuracy of the curve was not possible.

So, as an alternative I decided to do a side-by-side comparison of the Starfinder 16 and the venerable Celestron C14, 14" Schmidt Cassegrain. To test the optics, both scopes were directed to star fields, globular clusters, bight stars, double stars and the moon. Objects were chosen that were both near the zenith and near the horizon to test for mirror cell induced problems.

The Starfinder performed well, with an overall performance that rivaled the C14. Resolution tests using the lunar surface were nearly equal to the resolution observed through the C14. The only optical problem I observed was a pronounced amount of astigmatism while viewing stars that were below about 30 degrees above the horizon. This is a problem that other Starfinder users have noticed with a relatively simple solution; a new primary cell or a modified cell that has fewer stress points.

In summary, I would say that the Starfinder is an excellent large scope for visual use. The Magellan II computer does help, but you have to contend with the meridian flip realignment issue. As with most large Newtonian scopes, if you're trying to find something without the computer, a large aperture finder scope or a Telrad is a great help.

The mount, though substantial, has a lot of resonance and vibration and the clock drive has a considerable amount of periodic error with some unpredictable motion. This type of error would be considerably difficult to correct manually during an exposure. So I would not consider this mount suitable for high power "deep sky" astrophotography through the 16" optical tube. On the other hand, using wide field refractors or cameras with telephoto lenses mounted on the 16" and using the 16" to guide could be quite successful. Another photographic option for this scope is lunar and planetary imaging. Exposure times are very short so the stability and tracking accuracy of the mount are of less concern.

The Starfinder does have excellent optics and a mount that tracks well for visual work. The dual axis slow motion controls also work well to keep objects centered in the field of view without pushing or pulling the scope. So if your interest is looking at fuzzies from a dark site with a bit of lunar and planetary photography mixed in, the Starfinder should work well.

This scope is also a very welcome addition to the Charlie Elliott family of tools for exploring the universe, thanks to chapter member Chuck Kibbling. I would like to extend my sincere thanks to Chuck for his thoughtful and generous donation to the chapter.

Would you like to explore the universe through the Starfinder? Come out to a Charlie Elliott Chapter meeting. Our next meeting will be Saturday November 13th starting at 3:00 PM.

This is our first image through the Starfinder. As you can see, the system is suitable for lunar and planetary photography. The image was taken using an SBIG ST7E CCD camera through a green filter. Three stacked images were assembled into a mosaic using PhotoShop to create the final image.

October's Total Lunar Eclipse

A total lunar eclipse will occur on the night of Wednesday the 27th when the moon will pass just to the north of the center of the Earth's shadow. Don't miss this one - it will be the last total eclipse of the moon until March 3, 2007!

Eclipse Timeline (EDT):

8:06 PM - Penumbral eclipse begins.

~8:45 PM - Eclipse first visible?

9:14 PM - Partial eclipse begins.

10:23 PM - Total phase begins.

11:04 PM - Mid eclipse.

11:06 PM - Full Moon occurs.

11:45 PM - Total phase ends.

12:54 AM - Partial eclipse ends.

~1:25 AM - Eclipse last visible?

2:03 AM - Penumbral eclipse ends.

The lunar eclipse on December 20, 2000. Credit: NASA Kennedy Space Center (NASA-KSC)

For more information visit: http://sunearth.gsfc.nasa.gov/eclipse/LEmono/TLE2004Oct28/TLE2004Oct28.html

September Member Focus

by Debbie Jones, CEC Observing Chair

We have a nice group meeting out at Charlie Elliott. The events we have participated in, such as Jake's Day, the Venus Transit event, and the FFA event could only have been planned for and accomplished because we have had willing volunteers making them happen.

When Charlie Elliott Wildlife Center has had their Jake's Day event each Summer, what would have happened if our CEC volunteers hadn't shown up with their telescopes and their enthusiasm to share their knowledge with those families who came by the Astronomy booth? The look of inspiration and wonder on the faces of some of those kids made the heat of the day fade to the back-ground. Who knows what may result from those few hours we gave to them?

When the FFA facility invited CEC to come out and tell the kids there at camp about the amazing universe we live in, followed by some hands-on stargazing, what would have happened if there had been no one willing to bring their telescope and spend a few hours under the stars with those kids? Or what would have happened if no one had wanted to take the time to coordinate, plan, and organize such an event?

We have members who have volunteered to put programs together and present them at our chapter meetings; members who have supported our meetings by showing up faithfully; members who have even donated quite substantially to help meet the needs of our growing chapter; members who have happily shared their expertise and knowledge.

What would have happened if each time we needed volunteers no one was willing? I'll tell you what would have happened:NOTHING.

On behalf of the Charlie Elliott Chapter of the Atlanta Astronomy Club, I want to thank all those in our chapter who have given of their time, energy, knowledge, and funds. Thank you for 'making it happen'.

Mars Landscape Gallery

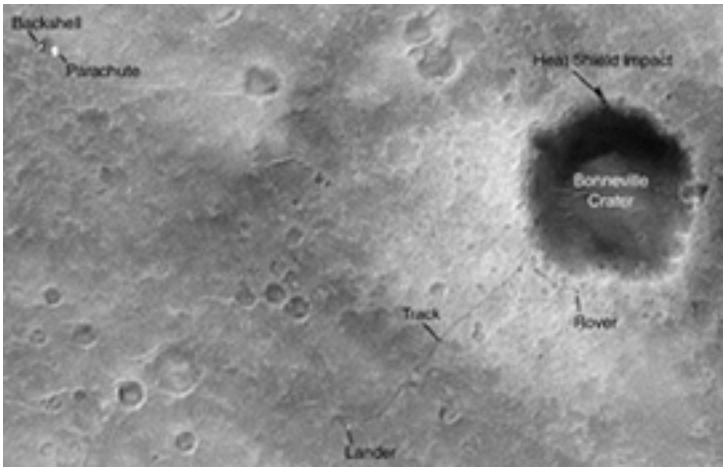
Below: Wheel tracks left by NASA's Mars Exploration Rover Spirit, and even the rover itself, are visible in this image from the Mars Orbiter Camera on NASA's Mars Global Surveyor orbiter. North is up in this image. The tracks and rover are in the area south of a crater informally named "Bonneville," which is just southeast of the center of the image. The orbiter captured this image with use of an enhanced-resolution technique called compensated pitch and roll targeted observation. It took the picture on March 30, 2004, 85 martian days, or sols, after Spirit landed on Mars. The rover had driven from its landing site to the rim of Bonneville and was examining materials around the crater's rim.

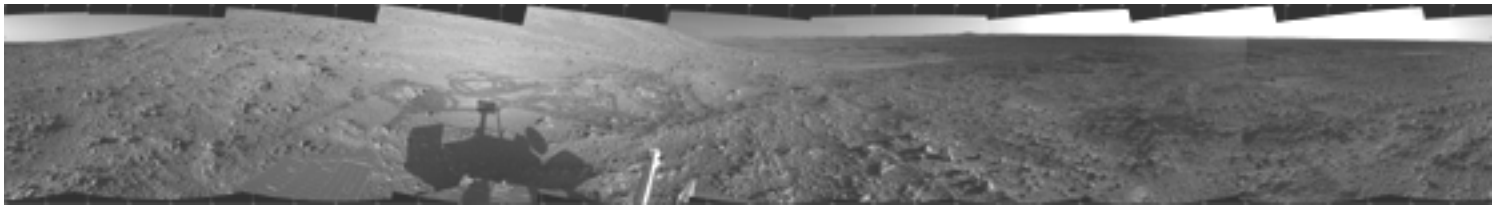
In this portion of the plains inside the much larger Gusev Crater, Spirit created wheel tracks darker than the undisturbed surface, as seen in the rover's own images showing the tracks (for example, PIA05450). The contrast allows the tracks to show up in the image obtained from orbit. Also visible are Spirit's lander, backshell and parachute, and the scar where its heat shield hit the ground.

The full image covers an area 3 kilometers (2 miles) wide, at 14.8 degrees south latitude and 184.6 degrees west longitude. Pixel size is about 1.5 meters (5 feet) by one-half meter (1.6 feet). Sunlight illuminates the scene from the upper left.

Mars Global Surveyor is managed by NASA's Jet Propulsion Laboratory, a division of the California Institute of Technology, Pasadena, for the NASA Science Mission Directorate, Washington.

Caption and Image Credit: NASA/JPL





Above: Spirit Rover at Engineering Flats on Mars. Explanation: Is it art? Here the paintbrush was the Spirit robotic rover, the canvas was the soil on Mars, and the artists were the scientists and engineers of the Mars Exploration Rover Mission. The picture created was mostly unintentional -- the MERS team was primarily instructing Spirit to investigate rocks in and around Hank's Hollow in a location called Engineering Flats on Mars. After creating the ground display with its treads, the Spirit rover was instructed to photograph the area along with itself in silhouette. Both Mars rovers, Spirit and Opportunity, are now back in contact after an expected radio blackout caused by Mars moving behind the Sun. NASA has also announced that it is extending the rovers missions for six months, so long as they keep working. Caption and Image Credit: Astronomy Picture of the Day, 2004 September 22; Mars Exploration Rover Mission, JPL, NASA.

Charles Elliot Chapter Meeting

(NEW FALL/WINTER SCHEDULE)

Please Note: We have canceled the October meeting since it is so close to Halloween and only 2 weeks before the November meeting. Presentations planned for October, will be given at the November meeting. Next observing event will be after the November chapter meeting at the CE observing field. Meetings held at the Charlie Elliott Visitor's Center classroom.

Saturday November 13th, 2004

3:00-4:00 PM. General meeting open to public. Enter through the left side door nearest the back of the building.

4:00-4:30 PM. "Astronomy Current Events." Enjoy a presentation of the latest current events in astronomy. Speaker Horace Sullivan.

4:30-5:30 PM. "The Philosophy of Astronomy." Explore unimaginable "places" in the cosmos and see how the "experience" of astronomy can broaden your sense of reality. Speaker: Larry Owens

Saturday December 11th, 2004

3:00-4:00 PM. CE Chapter Meeting General meeting open to public.

4:00-4:30 PM. "Astronomy Current Events." Enjoy a presentation of the latest current events in astronomy. Speaker TBD

4:30-5:30 PM. "An Interesting Astronomical Topic." Dr. Amy Lovell, PhD, Associate Professor of Physics and Astronomy at Agnes Scott College is coming to Charlie Elliott to give us an interesting talk on astronomy. The topic will be announced soon.

GASP (Georgia Astronomy in State Parks) November Event

The final GASP campout and lecture for the public for 2004 will be held at Unicoi State Park on November 20th. If you need additional information about this event, contact Joanne Cirincione at Starrynights@AtlantaAstronomy.org. Visit the AAC Website for additional news about upcoming GASP events.

The **Atlanta Astronomy Club Inc**., the South's largest and oldest astronomical society, meets at **8:00 p.m.** on the third Friday of each month at Emory University's White Hall or occasionally at other locations. Membership is open to all. Membership fees are **$30** for a family or single person membership. College Students membership fee is **$15**. These fees are for a one year membership.

Magazine subscriptions to Sky & Telescope or Astronomy can be purchased through the club for a reduced rate. The fees are **$33** for Sky & Telescope and **$29** for Astronomy. Renewal forms will be sent to you by the magazines. Send the renewal form along with your check to the Atlanta Astronomy Club treasurer.

The Club address is: Atlanta Astronomy Club, PMB 305, 3595 Canton Road A9, Marietta, Georgia 30066.

Atlanta Astronomy Club Hot Line: Timely information on the night sky and astronomy in the Atlanta area. Call **770-621-2661**.

Internet Home Page: **http://www.AtlantaAstronomy.Org**

Send suggestions, comments, or ideas about the website to webmaster@AtlantaAstronomy.org. Also send information on upcoming observing events, meetings, and other events to the webmaster.

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Atlanta Astronomy Club Website

While this newsletter is the offical information source for the Atlanta Astronomy Club, it is only up to date the day it is printed. So if you want more up to date information, go to our club's website. The website contains pictures, directions, membership applications, events updates (when available) and other information. http://www.atlantaastronomy.org

Calendar

Please note: Because the third Friday occurs during the Peach State Star Gaze, there will be no October General Membership Meeting at Emory.

October 5th, Tuesday: Mercury at Superior Conjunction.

October 6th, Wednesday: Moon Last Quarter.

October 8th, Friday: Draconid or Giacobinid Meteor Shower. Bradley Observatory Open House. 8:00PM, Agnes Scott College. “Roving Through Gusev and Meridiani on Mars: Are we there yet?” Speaker: Martha Leake, Valdosta State College.

October 13th-17th: Peach State Star Gaze. Whitewater Express Campground, Tennessee.

October 14th, Thursday: Moon New.

October 20th, Wednesday: Moon First Quarter. Sidewalk Astronomy. 7:30 PM, Delmar Gardens Senior Living Facility, Lawrenceville. Contact Mark Banks for details.

October 21st, Thursday: Orionid Meteor Shower.

October 27th, Wednesday: Moon Full (Hunter’s Moon). Total Lunar Eclipse occurs tonight. See page 5 for details.

October 28th, Thursday: Focal Point submission deadline. 4PM.

October 31st, Sunday: Daylight Savings Time ends. 2AM. Change clocks **back** 1 hour.

November 4th, Thursday: Moon near M44. Sidewalk Astronomy, 7:30 PM. Sierra Club of North Cobb County. Contact Mark Banks for details.

November 5th, Friday: Moon Last Quarter. Conjunction Venus & Jupiter. Bradley Observatory Open House. 8:00PM, Agnes Scott College. “Our Molecular Interstellar Neighborhood.” Speaker: Loris Magnani, University of Georgia.

Atlanta Astronomy Club Listserve

Subscribe to the Atlanta Astronomy Club Mailing List**:** The name of the list is: AstroAtlanta. The address for messages is: AstroAtlanta@yahoogroups.com . To add a subscription, send a message to: AstroAtlanta-subscribe@yahoogroups.com . This list is owned by Lenny Abbey.

Focal Point Deadline and Info

Please send articles, pictures, and drawings in electronic format on anything astronomy related to Kat Sarbell at focalpoint@atlantaastronomy.org. **You can submit articles anytime up and including the deadline date. The deadline for November is Thursday, October 28th at 4:00 PM .... Submissions will no longer be accepted after the deadline**.

ATLANTA ASTRONOMY CLUB EST. 1947

The Focal Point

Newsletter of The Atlanta Astronomy Club, Inc.

FROM:
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We’re here to help! Here’s how how to reach us:

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FIRST CLASS