# STARSCAN

*Johnson Space Center Astronomical Society*

VOLUME 21, NUMBER 10

October 2005

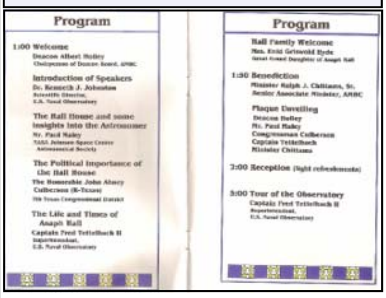
# IN THIS ISSUE

# JSCAS — Making History in Washington, DC

Paul Maley

Alexander Memorial Baptist Church Fellowship Hall at 2715 N St. NW in Washington, D.C. is the former home of astronomer Asaph Hall. The primary church structure is to its right. Hall and his family lived here from 1867 forward and also during the time of his assisting in the defense of the capitol from invading Confederate forces, as well as during the discovery of a white spot on Saturn, his discovery of the only two known moons of the Planet Mars, and his expeditions to San Antonio, Texas in 1882 and Vladivostok, Russia in 1874 to observe the transits of Venus.


The Hall house as it was in 1900. Appeared in the "An Astronomer's Wife: the Biography of Angeline Hall" by Angelo Hall published in 1908.




On August 11 and 17, 1877, Asaph Hall, an astronomer at the United States Naval Observatory, discovered the only two known natural satellites in orbit around Mars. On August 14th, 128 years later, JSCAS installed a plaque at the house where Hall lived during that historic period. Located at 2715 N St. NW in Georgetown, the structure is currently part of the Alexander Memorial Baptist Church. Last year, I accidentally located the house in Washington DC. After working with the Church I was able to reach an agreement that it would be acceptable to affix a plaque to their building commemorating Hall's residence there. In addition, I was able to develop a plan that worked around the complexity that might be otherwise involved if a formalized historic marker was created on a building under the governance of the Old Georgetown Board. This board was created in 1950 to approve all activities related to historic semi-public and private buildings in the Georgetown historic district. After some months of work, a plan was in place to inaugurate the plaque with a formalized ceremony.

Hall's home today is the fellowship hall of the church and is essentially the same building as it was in 1877, except that the three floors have been renovated. The basement is the same and the front appears nearly as it did in a published photograph taken around 1900. We proposed to place the 12-inch square marble plaque outside on the brick face using fast drying two-part epoxy; handy church members were able to affix it after the ceremony.

About 50 people participated in the plaque installation, including NASA historian Dr. Steve Dick, about 20 of the nearly 250 known descendants of Asaph Hall (nearly 80 of whom had gathered in DC the previous weekend for a reunion), and representatives of the U.S. Naval Observatory. Also attending was the U.S. Congressman and amateur astronomer from the 7th Texas Congressional District from Houston, John Culberson, and his family.

The ceremony took place indoors. Outside it felt worse than a sweltering day typical of Houston in August. Speakers included myself, the Superintendent of the US Naval Observatory Capt. Fred Tettelbach and Congressman Culberson.

I was privileged to relate some historical items about Asaph Hall and his family as well as details about the Hall house itself. Congressman Culberson related political implications and the initiatives he was working on. Capt. Tettelbach provided personal insights into Asaph Hall and his contributions to astronomy.

The Hall family was led by matriarch Enid Hyde Griswold, who is the great-granddaughter of Hall. She gave an introduction to the various generations of Hydes and Griswolds who descend from Angeline Stickney Hall and Asaph Hall on both sides of the family

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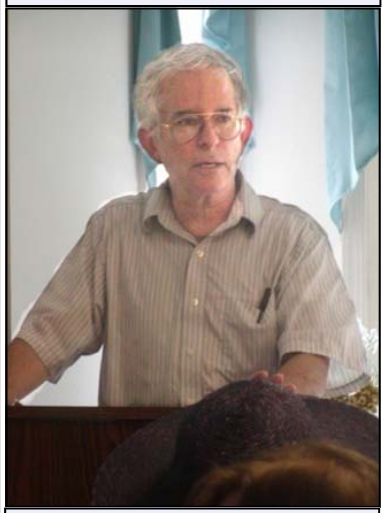
Attaching the plaque to the fellowship hall. Remaining images by Lynn Palmer.



Paul Maley

Congressman John Abney Culberson

Capt. Fred Tettelbach, Superintendent U.S.Naval Observatory

tree. Also on hand was Jonathan Hall, the grandson of Hall (the son of one of Hall's four male offspring, Percival) as well as several clan members previously unknown.

About 20 members of the church were on hand and they hosted a reception afterward. Many of them were on the USNO tour later in the day.

The church explicitly remarked that any members of the JSCAS who visit DC are invited to attend their Sunday service or to simply stop by and have a look at the plaque, which is fixed to the right side (as you face it from the street) of the building next to the door frame. Though the church building itself is at 2715 N St., the real address of the fellowship hall (to its left) is 2709 N St. Either way, one can approach it by taking the Foggy Bottom metro stop and walking about 15 minutes into Georgetown.

After the presentation, many of the participants drove to the current location of the observatory for a tour that featured the 26-inch refractor used by Hall.

The USNO is now located along embassy row off Massachusetts Avenue. The vice president of the United States also makes his home on the grounds.

The 26-inch telescope, believe it or not, is still in use today as a device for measurement of double star positions. The astronomical library is probably the best of its kind in the US and is in first class shape. Librarian Brenda Corbin showed off the medals given to Hall after his discovery. They were donated to the observatory in 1998 by family members. Also on display was the original log book of Hall's notes describing his view of the moons. The 26-inch dome was open to ambient air and the inside was just as hot and sweltering as on the street: 96 degrees and 100% humidity.

During the tour, historical accounts of how the telescope was used were provided. One unique feature was the wood closet structure located at the base of the telescope, inside which the observer would develop photographic plates. It was related that once, an observer was trapped inside after the door knob had fallen off and attempted to claw and scratch his way out. Those marks are still visible on the interior of the door.

What is remarkable about Hall's achievement is that it is one of three major American planetary discoveries. James W. Christy, also of the USNO, discovered Charon, the moon of Pluto, and Clyde Tombaugh discovered Pluto itself. Hall had to fight off the jealousy of others. One newspaper account indicated his find was accidental. His colleagues backed up his contention that the search was a calculated effort on his part. His boss, Dr. Simon Newcomb, had once given an interview to the press implying that he had been the one responsible for finding the moons but later retracted that.

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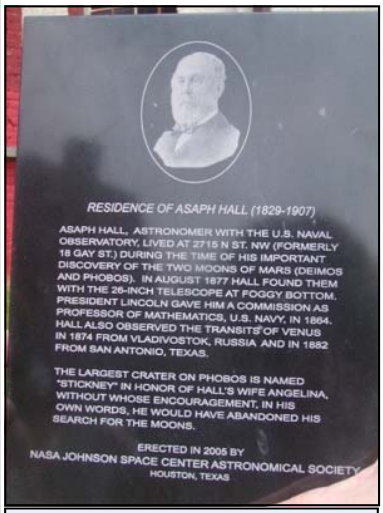



The JSCAS Plaque

Medals awarded to Hall following the discovery of Mars' satellites. Also on display are the actual observer log sheets completed by Hall documenting his observations of the satellites.

The famous 26-inch refractor

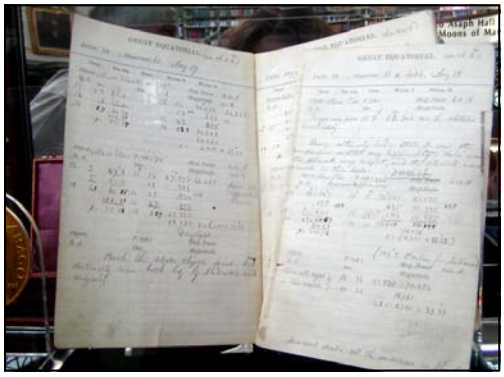
Newcomb's confidential assistant Prof. David Todd, after Hall's death in 1907, claimed to have been the first to see Phobos, but later this was immediately discredited. The 26-inch telescope had been in DC for two years and Newcomb had taken exclusive charge of it hoping for a great discovery.

In 1877 it was indeed the largest telescope in the world. After getting tired of observing and not finding anything, he turned the scope over to Hall who, some months later, used the technique of placing the bright disc of Mars just outside the eyepiece field of view in order to examine the area closest to the planet for signs of satellites. It is this method that proved successful and it is believed that others who had tried in the preceding decades had been looking too far from the disc to locate them.

Well before this time, in 1726, the American novelist Jonathan Swift had written in his classic book "Gulliver's Travels" that scientists of the flying island of Laputia had discovered two moons around Mars. It was this fantasy that perhaps propelled interest by astronomers to look for them in later years.

There is no doubt that Hall's wife Angeline had been the driving force behind his continuous effort to search for the satellites. In recognition of this, the largest crater on Phobos is named Stickney in her honor and a much smaller one named for Hall. Unfortunately I messed up and misspelled her name as Angelina (references show her name spelled two different ways) on the plaque and this went unnoticed until 3 days after the plaque had been installed. Oh well, the good intentions were there!

In conclusion, the JSCAS is now part of the history of Washington, DC. Visit Hall's house if you are ever in the area. The building is easily accessible from the street and the plaque is clearly visible though set back from the street. You can walk through a small iron gate to reach it. Simply go to the Internet and look up a map for 2715 N St. NW, Washington DC and you should find it easily. I am profoundly grateful to the Alexander Memorial Baptist Church, Deacon Albert Holley, Minister Trish Chittams and church members for allowing us the privilege of commemorating Hall's life in their facility. Thanks also to Brenda Corbin of the USNO, who coordinated the logistics of USNO participation and ceremony activities.



Close-up of the log Hall wrote in on August 17 and that Hall and others wrote (right side) on August 18. From this you can make out two features. First, a standard log format was used in 1877. Next, Hall confirmed that his boss Simon Newcomb and his assistant David Todd were able to see the satellites of Mars thus providing confirmation of the discovery.

**Installation Of Texas Historical Marker On October 22, 2005**
**To Honor The Expedition By Belgian Astronomer Jean-Charles Houzeau**
**To Observe The Transit Of Venus Across The Sun December 6, 1882**

DATE & TIME: Saturday, October 22, 2005, 11:30 am central time

LOCATION: The Bullis House Inn , 621 Pierce Avenue, San Antonio, Texas. This is a bed and breakfast hotel where participants can stay if they like. Call 1.877.4774100 or 210.2239426 for reservations.

WHAT WILL HAPPEN: Installation of a Texas Historical Marker commemorating the Transit of Venus observations made by a team of Belgian astronomers led by Jean-Charles Houzeau in 1882, one of the more remarkable men of his time. The owners of the Bullis House Inn, Alma and Steve Cross, have graciously allowed us to install the marker on their property very close to the original spot where the observation was made. This is a largely unknown chapter in Texas history.

PROGRAM (To Be Announced Soon)

# A New Texas Historical Marker

Paul Maley

The San Antonio Astronomy Association in conjunction with the NASA Johnson Space Center Astronomical Society is proud to announce the creation of an official marker to commemorate a significant event in the annals of science in the region. Persons with a vested interest in the history of the State of Texas and astronomy in general are invited to attend this occasion.

One of the goals of astronomers of the 18th and 19th centuries was to compute the distance from the earth to the sun (called the Astronomical Unit [AU]) or the solar parallax, being the angular diameter of the Earth's semi-major equatorial axis as seen from the Sun's center. The AU is the baseline for stellar parallax determinations, and first step of the cosmic distance scale. The famous astronomer Edmund Halley figured that to determine this unit, the transit of Venus had to be observed from widely distant locations on Earth. He proposed to measure the time of duration of the transit. Others suggested determining ingress or egress times, or precise measurements of the location of Venus on the solar disk, in order to calculate the value of the solar parallax. Two methods were devised to measure solar parallax during this era. One was to use a heliometer to measure the distance between the limbs of Venus and the Sun during the whole time that the planet was seen projected on the solar disk. The other was to take photographs of the Sun during the period of the transit and subsequently measure the negatives.

The Bullis House Inn occupies nearly a full city block in the city of San Antonio. In 1882 this was the site for a team of sky watchers from Belgium who observed one of two passages of the planet Venus across the sun in an attempt to define the earth-sun distance.

San Antonio, Texas was a rather unlikely location for an international astronomical expedition from Belgium undertaken to observe the Transit of Venus on December 6, 1882. This expedition was led by the Belgian astronomer Jean Charles Houzeau of the Royal Observatory. He had lived in

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San Antonio for many years before returning to Belgium and was familiar with it as a potential observing spot. Two Belgian expeditions observed the Venus transit of 1882, the first went to Chile, the second to San Antonio, Texas. These two expeditions were to observe the transit from both the southern and northern hemisphere sites in order to find the parallactic displacement of Venus on the solar disk. Both parties were equipped with identical instruments, so-called "heliometers with unequal objectives". This special arrangement, invented by Jean-Charles Houzeau, director of the Brussels Royal Observatory, consists of two semi-circle-shaped lenses of different diameters and focal lengths, which could be moved relative to each other by a micrometer. They produced a large and a small image of the Sun, plus a large and a small image of Venus. The trick was to shift the two lenses of such a heliometer so that the small image of the Sun, produced by the short-focus lens, coincided with the dark large image of Venus projected on the very large image of the Sun, and to read the heliometer setting.


Jean-Charles Houzeau himself headed the "Texas" party, which suffered from clouds during the early portion. Other members of his team included Albert-Benoit Lancaster (meteorological inspector) and E. Stuyvaert (assistant astronomer). Houzeau rented a house in the Government Hill district across the street from Fort Sam Houston. According to Houzeau's survey his telescope piers were located 195 meters south, 289 meters west of the Quadrangle Tower, the main feature of the fort. Only about half of the transit could be observed, and 124 measurements were completed. Houzeau published the report[1] of the campaign and revealed his final result of 8.911±0.084 arc-seconds for the value of the solar parallax. He wanted a more precise value but blamed the larger than expected error on the poor sky conditions in San Antonio. Houzeau further commented that after the haphazard results of the various international expeditions for the transit that occurred 8 years before, his approach to the problem was at least a uniquely fresh method to observe a Venus transit.

The structure of the solar telescope.
Photo J. Cuypers

For additional information and maps to the installation ceremony visit:
http://www.eclipsetours.com/historysa2

[1] [see: Houzeau, J. C. 1884, Passage de Vénus du 6 Décembre 1882, Annales de l'Observatoire Royal de Bruxelles, N. S., Tome V., premier fasc.]

# Family Space Days

Text and images by
Matt Hommel

The Family Space Day theme for the month of September was Extraterrestrials. Kids built models of aliens and answered questions such as “how does this creature gets water”, “how does it defend itself”, “where does it live”.

The turnout was moderate with about 40 or so attending. Dr. Stephanie Shipp was traveling so Mike Madera was at the helm and did a great job as always.

As has become the tradition after participating in all the activities the kids take a moment to make and fly paper airplanes in the great room. A great time was had by all.

My thanks once again to the great folks at the LPI who give up a big chunk of their Saturday to put on this FREE event for us each month.

Till next month.

# About Family Space Days at LPI

FREE!

Children are invited to bring their families to explore space science! Families are encouraged to bring lunch on sunny days and to enjoy a picnic on the Lunar and Planetary Institute's grounds.

**When:** From 10:00 am to 1:00 pm on the third Saturday of each month.

**Where:** The Lunar and Planetary Institute! The Institute is located at the USRA Center for Advanced Space Studies (CASS), 3600 Bay Area Boulevard, Houston, Texas 77058. A map of the region and the LPI location is available for download.

**Events:** Hands-on activities and demonstrations will allow the children and their families to explore the theme of the day for themselves. Read stories! Color pictures! Get messy with theme-based crafts!

Future Events
2005
October 15th – Tour stop 1 – What's a planet/Mercury
November 19th – Tour stop 2 – Venus and its volcanoes
December – no family space day
2006
January 21st – Tour stop 3 – Mars
February 18th – Tour stop 4 – The Moon
March 25th – Sun Earth Day/Eclipse

Please note: Each child must be accompanied by a responsible parent or adult the entire time they are visiting the LPI.

For more information contact Mike Madera, Education Specialist, 281-244-2040, or madera@lpi.usra.edu.

# Making the Best of a Bad Thing

Ken Lester

Every year hurricanes disrupt lives, cost millions of dollars in damages and some times take a human toll. Living on the Gulf Coast, we live with the knowledge that eventually, one will come our way. Following the devastation inflicted by Hurricane Katrina, when Hurricane Rita entered the Gulf and quickly went to category 5, state and local officials along the Texas Gulf Coast started making plans to evacuate flood prone areas.

Living in a category 4~5 evacuation zone, Lisa and I packed up our telescopes, pets, and pop-up trailer and made our way out to Ft. McKavett. We left early enough on Wednesday that traffic was not yet a major problem. The 6.5 hour trip only took 9 hours.

At the fort we were met by Matt and Lisa Hommel who had arrived earlier in the day. The Hommels had brought their scopes, kids, and a case of their newly bottled wine.

Wednesday night was clear, however no one was quite up to observing. The tension of an on-coming hurricane, along with a longer than usual drive took its toll.

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Thursday, I pulled out the PST and we observed a tremendous outburst from the Sun's surface. I managed to get a half-way descent image.

Thursday night was again clear. We set up Lisa's 16" and were joined by the Hommels. Scorpio and Sagittarius were high in the sky with a brilliant Milky Way overhead. The usual Fort McKavett wind was non existent. We visited many of our favorite Messier objects and poked around the Milky Way until the Moon was up and washing out the sky. Lisa took advantage of the Moon and did some A-focal imaging.

On Friday, David and Connie Haviland made it to the fort after a long, long drive. Friday night we all held a 'sketti feast in the Maintenance Building, cooked by Matt and Lisa.

On Saturday, the Hommels left for New Mexico to take care of some business there. That night Buddy and Beatrice Garza served up a wonderful brisket dinner, complete with salad, beans, sausage, and ice tea. We were joined by members of the Garza family who had also fled the storm.

Afterward, we gave the clan a star party under the beautiful West Texas skies. The temperature was mild, the sky was clear and steady, and there was no wind. Buddy's visitors seemed to really enjoy the show.

Sunday night we returned to the observing field where I caught up on logging my Messiers.

Monday was partly cloudy and we needed to head out early Tuesday to return home, so we went ahead and packed up out telescopes.

All said, I felt guilty having such beautiful clear skies while East Texas and Louisiana got pounded. I was also relieved that the Houston area had, for the most part, dodged the bullet.

Moon Image by Lisa Lester

Solar Flare—Image by Ken Lester

Matt and Lisa Our Cooks—Image by Lisa Lester

Toasting With Matt's New Wine
Image by Lisa Lester

Taking a Tour Of The Sky—Image by Lisa Lester

# Member Recognition


The Astronomical League and the Association of Lunar and Planetary Observers met in Kansas City on August 12-13, 2005 for ALConExpo 2005. JSCAS planetary imager, **Ed Grafton**, was there to receive the Astronomical League's Leslie C. Peltier award. The award was for the amateur astronomer that has contributed lasting scientific observations to the science of Astronomy.

The award is named after Leslie C. Peltier, the Delphos, Ohio, amateur astronomer who Harlow Shapley, one of the League's founders, referred to as "the world's greatest nonprofessional astronomer". Born January 2, 1900, he discovered twelve new comets and four novae. But his real contribution was the over 132,000 variable star observations he made in his sixty-two year observing career. He also wrote many articles on astronomy and penned four books. To ease his observing, he built an enclosed "merry-go-round" observatory. He died in 1980.

It is in his memory, and to celebrate his life-long love of the heavens, that the Astronomical League annually presents the Leslie C. Peltier Award.

Congratulations to Ed for his outstanding work. Others who have won this award are Walter Haas (1982), Walter Scott Houston (1984), David H. Levy (1988), Janet Mattei (1993), Dennis di Cicco (1997) and Roger Sinnott (1998). When this list of distinguished award winners was pointed out to Ed, he replied "...I cannot claim to be in the same circle as the aforementioned, but I do feel comfortable in the company of Daffy Duck, Li'l Abner and on a good day Wile Coyote."

**Becky Ramotowski's** image of a high altitude research balloon taken through her telescope was featured in an article on the National Weather Service Weather Forecast Office web site. She took the image as the balloon drifted westward high over Albuquerque. The article can be found at: http://www.srh.noaa.gov/abq/feature/NASAballoon.htm.

**Scott Ewart** won first place at Stellafane for both telescope craftsmanship and mechanical design. His scope is a 12.4" f/5.5 Newtonian on a split-ring mount. The mirror is BVC glass. That's Black Vitrified Ceramic. Scott did all the grinding, polishing and figuring. The mirror "box" is a quarter keg. It, and the entire tube assembly, rotates within a section of 18" stainless steel pipe from a scrap yard. Many other stainless and aluminum parts came from that same scrap yard as well. Scott had the help of his neighbor and his CNC mill for fabricating some parts, but most parts he made himself at home, or at the homes of friends with lathes.

He ended up getting his own lathe, a 9" South Bend, so he could finish the rest of the parts at home. He had to have the tubes for the split ring bent, but he did all the cutting and welding himself. There is a small battery inside the keg that powers the secon-

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dary dew heater and cooling fans, and the wires are well hidden. Sorry Chuck, not many LEDs.

Most of the rest of the details can be seen in the photos. If anyone has any questions, they can send Scott an e-mail. Altogether, it took about 4½ years to build. He finished it just 3 weeks before Stellafane, where he won first-place awards for both craftsmanship and mechanical design.

Scott really wanted to win the optical award as well, but it wasn't to be. If he had, he would have made Stellafane history. Scott says “not to worry, the mirror is really very good”.

Images courtesy of Scott Ewart

# Star Party News

Lisa Lester

Three new star parties have been added to our fall line-up.

The Bay Area Charter Elementary school in Seabrook has requested a star party on Friday, **October 14th**. This is a small school and they requested about 3 telescopes. So far we have three volunteers but more scopes means more eyepiece time for the students and their families and more of a variety of scopes to expose them to!

Space Center Houston, as part of their education department's Focus on the Sun program, want to have Solar Observing party. Volunteers are needed from **11-2pm Wednesday, November 16th and Thursday, November 17th**. We will set up on the hill or near the classrooms at the back of Space Center Houston. The students (so far elementary aged) will be in groups of 10 with a sponsor and will have scheduled times to look through the solar scopes or scopes with solar filters and talk to the volunteers about sun spots.

There will be a star party at Seabrook Intermediate, **Thursday, November 17th**. We'll do a quick introduction about the club and then their 6th - 8th grade students and their families will look through the scopes.

Isn't it great that there is so much interest! I also have a Christian school in the area asking for a speaker during the day to talk to students in two Earth Science classes about amateur astronomy and Astronomy Day. That request came in recently and I've emailed some questions to the teacher. So far I haven't heard back from her. More on that later!

Our next regularly scheduled star party is **November 5th** at the Haak Winery. This will be followed by Moody Gardens on **November 12th**. Both these events should be well advertised with lots of public in attendance.

Don't forget about Astronomy Day at the George on Saturday, **October 22, 2005** from 3:00 to 11:00 pm at the George Observatory at Brazos Bend State Park. All events are open to the public. Event details can be found on http://www.astronomyday.org as soon as they are available.

Astronomy Day 2004 Image by Ken Lester

| Event | Date | Sun Set | Moon | | | Jupiter | | Saturn | | Mars | | Venus | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Illum. | Rise | Set | Rise | Set | Rise | Set | Rise | Set | Rise | Set |
| **2005** | | | | | | | | | | | | | |
| Bay Area Charter Elm | Oct 14 | 19:09 | 92 | 17:43 | 04:29 | 08:14 | 19:34 | 02:11 | 15:47 | 20:46 | 10:14 | 11:31 | 21:31 |
| Haak Winery | Nov 5 | 19:18 | 7 | 09:41 | 20:33 | 08:37 | 20:01 | 02:41 | 16:16 | 21:25 | 10:51 | 11:14 | 21:30 |
| Moody Gardens | Nov 12 | 17:48 | 89 | 15:19 | 02:56 | 04:48 | 16:47 | 23:29 | 11:53 | 17:14 | 05:40 | 09:33 | 21:05 |
| SCH—Solar | Nov 16 | | | | | | | | | | | | |
| Seabrook Intermediate | Nov 17 | 17:40 | 95 | 18:53 | 08:56 | 05:35 | 16:38 | 23:03 | 12:38 | 16:48 | 06:13 | 10:55 | 20:42 |

# Upcoming Events

The 22nd annual **Okie-Tex Star Party** will be held at Camp Billy Joe from October 1st - October 9th. Camp Billy Joe is located in the Oklahoma Panhandle near the town of Kenton. For more information visit http://www.okie-tex.com/index.htm.

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**Astronomy Day 2005** will kick off with the 5th Annual Houston/Beaumont Regional Astronomy Meeting on Friday, October 21, 2005 from 8:00 to 10:30 pm at the Houston Community College. This will be followed by Astronomy Day, Saturday, October 22, 2005 from 3:00 to 11:00 pm at the George Observatory at Brazos Bend State Park. All events are open to the public. Event details can be found on http://www.astronomyday.org as soon as they are available.

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The American Institute of Aeronautics and Astronautics - Houston Section presents a free **glider workshop** for 100 students, grades K - 8 on Saturday, October 22 from 9 an to noon. The students will hear pilots talk, then build their own balsa wood glider. The event will be held at the Gilruth Center at JSC. The workshop is free but students must pre-register at http://www.aiaa-houston.org. Anyone interested in volunteering can e-mail precollege@aiaa-houston.org. Pilots and general volunteers needed.

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The 3rd annual **Eldorado Star Party** will be held November 2nd — 5th at the X-bar Ranch near Eldorado Texas. The ranch is located 46 miles west of Fort McKavett and 8 miles north of I-10. For more information visit their web site at: http://www.eldoradostarparty.org.

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Following his presentation at our August meeting, General Howell, the Center Director for JSC, invited JSCAS members to participate in a **group tour of the Johnson Space Center**.

Jeannie Aquino, from JSC Community and Government Relations, has confirmed our tour date and time. Right now we're planning on the 18th of November. Everyone who plans to join us needs to be onsite at 9:30 a.m. at Bldg 110 (first building on your right as you enter JSC). Here we will get everyone badged and loaded into buses.

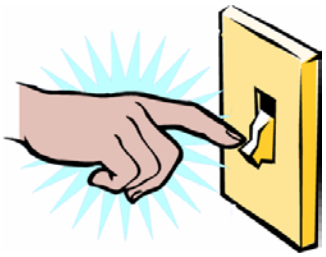
Our first stop will be the Neutral Buoyancy Lab to watch a bit of underwater training. When we return to JSC we will have lunch in one of the cafeterias, with a little time to cruise the gift shop.

Our next stops will include Bldg 9 where the shuttle and station mockups are housed. Lots of neat stuff to see here. Mission control is next in Bldg 30. I've arranged for us to also see the vacuum chambers in bldg 32 where the Webb telescope "was" going be tested.

I will need a head count prior to the tour, so if you plan to attend you need to let me know within the next two weeks or so. We need to make sure we have enough transportation to get us to the NBL.

We should wrap up about 3:00 p.m. or so. If you have any questions contact Bob Taylor.

## Help turn off the lights...



Join the
**International Dark-Sky Association (IDA)**
http://www.darksky.org
"To preserve and protect the nighttime environment and our heritage of dark skies through quality outdoor lighting."

Visit the homepage of the Texas IDA affiliate of the International Dark-Sky Association. Their web site is at: http://www.texasida.org/.

## Houston Area Astronomy Clubs

Brazosport Astronomy Club
Meets the Third Tuesday of the month, 7:45 p.m.
At the Planetarium
400 College Drive
Clute, Texas
For more information, contact Judi James at the Planetarium
979-265-3376

Fort Bend Astronomy Club http://www.fbac.org/
Meets the third Friday of the month, 7:00 p.m.
First Colony Conference Center
3232 Austin Pkwy
Sugar Land, Texas

Houston Astronomical Society http://spacibm.rice.edu/~has/
Meets the first Friday of the month, 8:00 p.m.
University of Houston, University Park
Science and Research Building, room 117

North Houston Astronomy Club http://www.astronomyclub.org/
Meets the fourth Friday of the month, 7:30 p.m.
In the Teaching Theater at Kingwood College
20000 Kingwood Drive
Kingwood, Texas

## Sky & Telescope and now Astronomy Magazine Subscriptions – Don't Forget about the Club Discount!

Sky & Telescope offers a "Club Discount" on subscriptions. You can subscribe to Sky and Telescope for $10 off the normal price ($32.95 with the club discount). Astronomy magazine is also offering a club discount. JSCAS members can subscribe to Astronomy for $29 a year. We need to have a minimum of five subscribers to take advantage of the discount. I need **four** more people to sign up. If you are a current subscriber, *please* contact me so I can put you on the list for the club discount when your subscription is due for renewal!

Contact me by the email listed on the JSCAS web site, catch me at a meeting, or send your check and renewal form to my home address: 2407 Elkton Ct., Pearland, TX, 77584. I'll put your renewal in the mail within 48 hours after I receive it.

David Haviland
Vice-president and Secretary

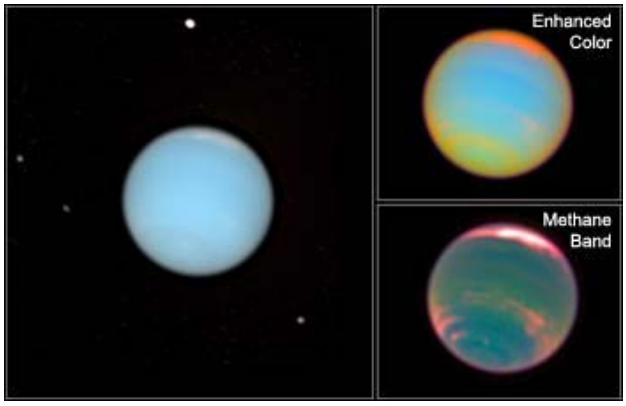
# Hubble Makes Movie Of Neptune's Dynamic Atmosphere

FOR RELEASE: September 1, 2005 PHOTO NO.: STScI-PRC05-22

New NASA Hubble Space Telescope images of the distant planet Neptune show a dynamic atmosphere and capture the fleeting orbits of its satellites. The images have been assembled into a time-lapse movie revealing the orbital motion of the satellites.

For the full story, please visit:
http://hubblesite.org/news/2005/22

Science Credit: NASA, ESA, E. Karkoschka (University of Arizona), and H.B. Hammel (Space Science Institute, Boulder, Colorado)



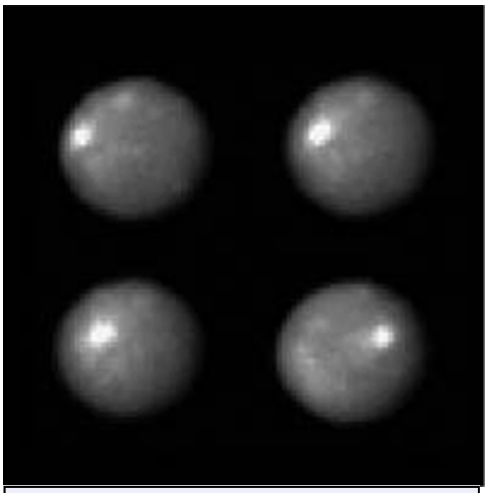

# Largest Asteroid May Be 'Mini Planet' With Water Ice

September 7, 2005 Release #: STScI-2005-27

Dolores Beasley, NASA Headquarters
Susan Hendrix, Goddard Space Flight Center
Donna Weaver, Space Telescope Science Institute

Observations of 1 Ceres, the largest known asteroid, have revealed that the object may be a "mini planet," and may contain large amounts of pure water ice beneath its surface.

The observations by NASA's Hubble Space Telescope also show that Ceres shares characteristics of the rocky, terrestrial planets like Earth. Ceres' shape is almost round like Earth's, suggesting that the asteroid may have a "differentiated interior," with a rocky inner core and a thin, dusty outer crust.



These four Hubble images of Ceres were taken over a 2-hour and 20-minute span, the time it takes the Texas-sized object to complete one quarter of a rotation.

"Ceres is an embryonic planet," said Lucy A. McFadden of the Department of Astronomy at the University of Maryland, College Park and a member of the team that made the observations. "Gravitational perturbations from Jupiter billions of years ago prevented Ceres from accreting more material to become a full-fledged planet."

The finding will appear Sept. 8 in a letter to the journal Nature. The paper is led by Peter C. Thomas of the Center for Radiophysics and Space Research at Cornell University in Ithaca, N.Y., and also includes project leader Joel William Parker of the Department of Space Studies at Southwest Research Institute in Boulder, Colo.

Ceres is approximately 580 miles (930 kilometers) across, about the size of Texas. It resides with tens of thousands of other asteroids in the main asteroid belt. Located between Mars and Jupiter, the asteroid belt probably represents primitive pieces of the solar system that never

*(Continued on page 17)*

*(Continued from page 16)*
managed to accumulate into a genuine planet. Ceres comprises 25 percent of the asteroid belt's total mass. However, Pluto, our solar system's smallest planet, is 14 times more massive than Ceres.

The astronomers used Hubble's Advanced Camera for Surveys to study Ceres for nine hours, the time it takes the asteroid to complete a rotation. Hubble snapped 267 images of Ceres. From those snapshots, the astronomers determined that the asteroid has a nearly round body. The diameter at its equator is wider than at its poles. Computer models show that a nearly round object like Ceres has a differentiated interior, with denser material at the core and lighter minerals near the surface. All terrestrial planets have differentiated interiors. Asteroids much smaller than Ceres have not been found to have such interiors.

The astronomers suspect that water ice may be buried under the asteroid's crust because the density of Ceres is less than that of the Earth's crust, and because the surface bears spectral evidence of water-bearing minerals. They estimate that if Ceres were composed of 25 percent water, it may have more water than all the fresh water on Earth. Ceres' water, unlike Earth's, would be in the form of water ice and located in the mantle, which wraps around the asteroid's solid core.

Besides being the largest asteroid, Ceres also was the first asteroid to be discovered. Sicilian astronomer Father Giuseppe Piazzi spotted the object in 1801. Piazzi was looking for suspected planets in a large gap between the orbits of Mars and Jupiter. As more such objects were found in the same region, they became known as "asteroids" or "minor planets."

# NASA's Spitzer and Deep Impact Build Recipe for Comet Soup

Whitney Clavin, Jet Propulsion Laboratory

September 7, 2005 Release 2005-144

When Deep Impact smashed into comet Tempel 1 on July 4, 2005, it released the ingredients of our solar system's primordial "soup." Now, astronomers using data from NASA's Spitzer Space Telescope and Deep Impact have analyzed that soup and begun to come up with a recipe for what makes planets, comets and other bodies in our solar system.

"The Deep Impact experiment worked," said Dr. Carey Lisse of Johns Hopkins University's Applied Physics Laboratory, Laurel, Md. "We are assembling a list of comet ingredients that will be used by other scientists for years to come." Lisse is the team leader for Spitzer's observations of Tempel 1. He presented his findings this week at the 37th annual meeting of the Division of Planetary Sciences in Cambridge, England.

Spitzer watched the Deep Impact encounter from its lofty perch in space. It trained its infrared spectrograph on comet Tempel 1, observing closely the cloud of material that was ejected when Deep Impact's probe plunged below the comet's surface. Astronomers are still studying the Spitzer data, but so far they have spotted the signatures of a handful of ingredients, essentially the meat of comet soup.

These solid ingredients include many standard comet components, such as silicates, or sand. And like any good recipe, there are also surprise ingredients, such as clay and chemicals in seashells called carbonates. These compounds were unexpected because they are thought to require liquid water to form.

*(Continued on page 18)*

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"How did clay and carbonates form in frozen comets?" asked Lisse. "We don't know, but their presence may imply that the primordial solar system was thoroughly mixed together, allowing material formed near the Sun where water is liquid, and frozen material from out by Uranus and Neptune, to be included in the same body."

Also found were chemicals never seen before in comets, such as iron-bearing compounds and aromatic hydrocarbons, found in barbecue pits and automobile exhaust on Earth.

The silicates spotted by Spitzer are crystallized grains even smaller than sand, like crushed gems. One of these silicates is a mineral called olivine, found on the glimmering shores of Hawaii's Green Sands Beach.

Planets, comets and asteroids were all born out of a thick soup of chemicals that surrounded our young Sun about 4.5 billion years ago. Because comets formed in the outer, chilly regions of our solar system, some of this early planetary material is still frozen inside them.

Having this new grocery list of comet ingredients means theoreticians can begin testing their models of planet formation. By plugging the chemicals into their formulas, they can assess what kinds of planets come out the other end.

"Now, we can stop guessing at what's inside comets," said Dr. Mike A'Hearn, principal investigator for the Deep Impact mission, University of Maryland, College Park. "This information is invaluable for piecing together how our own planets as well as other distant worlds may have formed."

NASA's Jet Propulsion Laboratory, Pasadena, Calif., manages the Spitzer Space Telescope mission for NASA's Science Mission Directorate, Washington. Science operations are conducted at the Spitzer Science Center at Caltech. The University of Maryland, College Park, conducted the overall mission management for Deep Impact, and JPL handled project management for the mission for NASA's Science Mission Directorate.

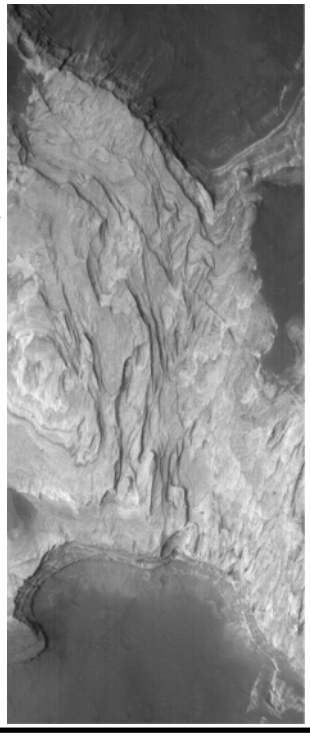
## Sediments of Terby

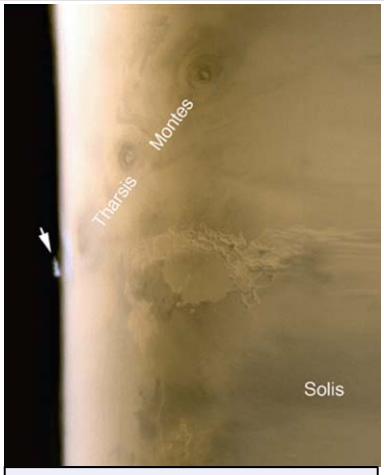
NASA/JPL/Malin Space Science Systems

September 4, 2004 Release #: MOC2-1204

This Mars Global Surveyor (MGS) Mars Orbiter Camera (MOC) image shows light-toned, layered, sedimentary rocks exposed by erosion in Terby Crater, located on the north rim of the Hellas Basin. Sedimentary rocks are common on Mars; the light tone of the rocks here suggests that they might bear some similarity to the sedimentary rocks of Meridiani Planum, explored by the Mars Exploration Rover, Opportunity. Water was likely involved in the alteration of the rocks, and perhaps in their deposition as sediments, long ago.

Location near: 27.9°S, 285.6°W
Image width: ~3 km (~1.9 mi)
Illumination from: upper left
Season: Southern Spring





NASA/JPL/Malin Space Science Systems

# Tharsis Limb Cloud

September 7, 2005 Release #:. MOC2-1207

This composite of red and blue Mars Global Surveyor (MGS) Mars Orbiter Camera (MOC) daily global images acquired on 6 July 2005 shows an isolated water ice cloud extending more than 30 kilometers (more than 18 miles) above the Martian surface. Clouds such as this are common in late spring over the terrain located southwest of the Arsia Mons volcano. Arsia Mons is the dark, oval feature near the limb, just to the left of the "T" in the "Tharsis Montes" label. The dark, nearly circular feature above the "S" in "Tharsis" is the volcano, Pavonis Mons, and the other dark circular feature, above and to the right of "s" in "Montes," is Ascraeus Mons. Illumination is from the left/lower left.

# Mars: Repeated Weather Events

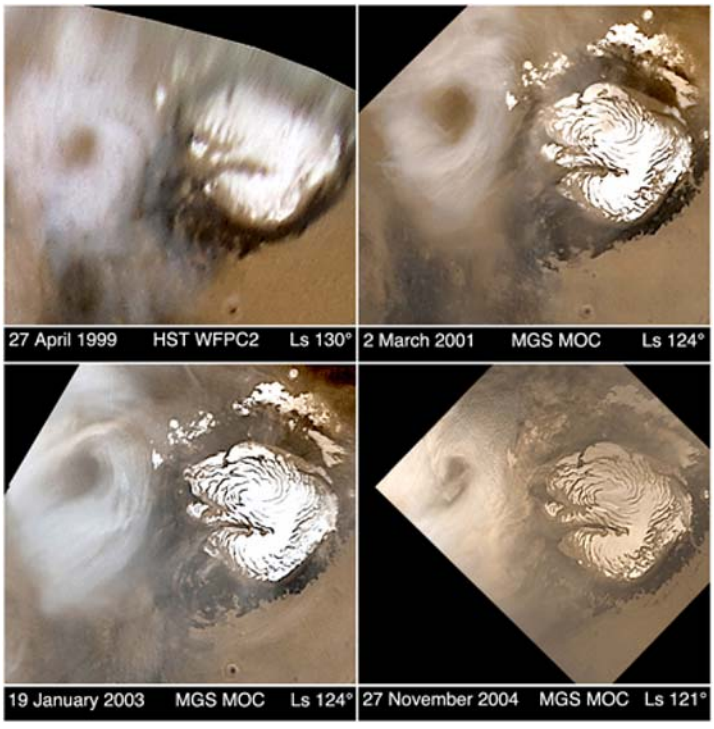
MGS MOC Release No. MOC2-1212, 12 September 2005

Mars Global Surveyor (MGS) entered Mars orbit on 12 September 1997. September 12th, 2005 celebrated the MGS's 8th anniversary!

The 8 Earth years that MGS has been in orbit span portions of 5 martian years. One of the critical science activities that the Mars Orbiter Camera (MOC) has been engaged in for the past 8 years has been to document daily changes in the martian weather. Each day that MOC is operating, the red and blue wide angle cameras are used to build up a daily global map. These maps provide a record of the planet's changing meteorological conditions.

One of the most exciting observations that the MOC wide angle cameras have made during these 8 years is that the red planet has very repeatable weather patterns. In light of weather-related problems and disruptions that occur every year on Earth, one can only imagine how nice it would be if our planet followed a similar, repeated pattern.

The four pictures shown here provide an example of one of the weather phenomena that repeat each martian year. Each picture shows the north polar region of Mars during the northern summer season. Each picture is a composite of several images acquired at different visible wavelengths to give a color view of the planet. Each picture was taken about 1 Mars year apart, and each shows an annular (circular) cloud located over the same terrain each summer.



The first picture, acquired in April 1999, is actually not from the MGS MOC instrument. It was obtained by the Hubble Space Telescope (HST) Wide Field Planetary Camera 2 (WFPC2) and was originally released by the Space Telescope Science Institute on 19 May 1999. The reason there is no MOC image for April 1999 is a product of the MGS spacecraft's 8-year history at Mars. MGS was certainly in orbit at the time, and it was taking data during the month of April. However, the camera did not obtain any images between 17 and 28 April because the spacecraft encountered, and then had to be recovered from, a problem. It was at this time that the spacecraft team realized that there is something obstructing the full movement of MGS's high gain antenna. A work-around was created and the mission has continued, ever since, but the down-side was that MOC did not have the opportunity in 1999 to provide detailed observations of the north polar, summertime, annular cloud.

The remaining three pictures show MGS MOC views of the cloud feature, as it appeared in the subsequent 3 Mars years. Each year, the cloud appeared at about the same time or slightly earlier than in the previous year. Despite its superficial resemblance to a hurricane or cyclone on Earth, the northern summer annular cloud does not rotate. The cloud forms as different currents of air merge in the morning hours in the polar region; by afternoon, the annular cloud typically dissipates or breaks up into smaller clouds.

MGS MOC has observed other repeated phenomena over the course of its 8-year mission orbiting Mars. These include dust storms that repeat, year after year, in the same location within a week or two of the time it occurred in the previous year. They also include dust devils in northern Amazonis, which start up shortly after the first day of spring, and keep occurring nearly every afternoon until a few days into the autumn season. MOC is continuing its mission to monitor the planet -- in 2006, MOC's weather observations will be used to provide guidance for the aerobraking maneuvers of the Mars Reconnaissance Orbiter (MRO). MOC images will show whether dust storms are occurring, and whether the dust suspended by these storms will impact the density of the atmosphere at the altitudes that MRO is passing through to slow the spacecraft and change its orbit to the one desired for the MRO primary mission.

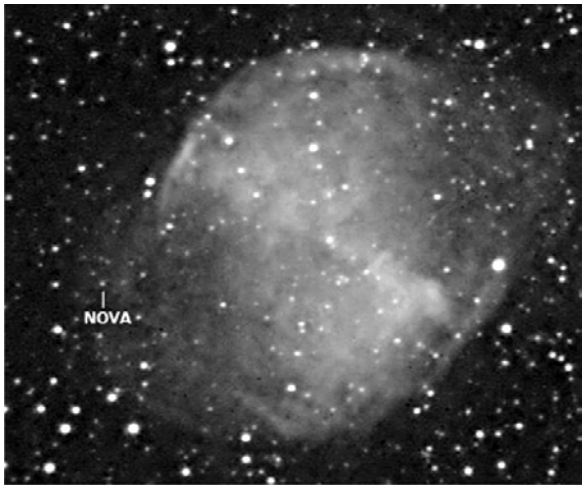
# Hubble Catches Scattered Light from the Boomerang Nebula

PHOTO NO.: STScI-PRC05-25
FOR RELEASE: September 13, 2005

NASA's Hubble Space Telescope caught the Boomerang Nebula in images taken with the Advanced Camera for Surveys in early 2005. This reflecting cloud of dust and gas has two nearly symmetric lobes of matter that are being ejected from a central star. Each lobe of the nebula is nearly one light-year in length, making the total length of the nebula half as long as the distance from our Sun to our nearest neighbors- the Alpha Centauri stellar system, located roughly 4 light-years away. The Boomerang Nebula resides 5,000 light-years from Earth. Hubble's sharp view is able to resolve patterns and ripples in the nebula very close to the central star that are not visible from the ground.

Credit: NASA, ESA and The Hubble Heritage Team (STScI/AURA) Acknowledgment: J. Biretta (STScI)

# MEMBER'S GALLERY



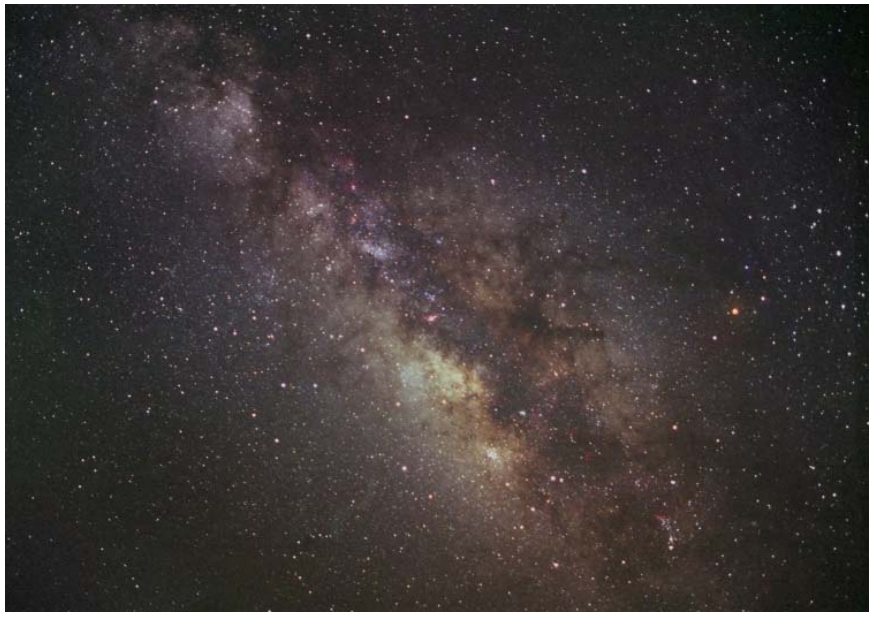

**Dwarf Nova in M 27 ▲**
**©Al Kelly**

L/RGB image of the Dumbbell Nebula (M27) in Cygnus, made from images taken with a Starlight Express MX916 and an 8" SCT on September 2nd near La Grange, Texas, using Schuler RGcBc filters. Six 600 second unfiltered exposures, five 300 second sub-exposures in red, four 300 second sub-exposures in green, and six 300 second sub-exposures in blue were self-guided in Astroart and processed in AIP4WIN and Photo-shop.

◄ Al's monochrome image shows the location of the dwarf nova.

**Omega Centauri at McDonald Observatory ▲**
**©Scott Ewart**

This image is a composite of two images. The image of Omega Centauri was taken with an Olympus OM1 camera through a 180mm lens at f/2.8 for 25 minutes. The McDonald domes foreground shot was also through the 180mm f/2.8 for 25 minutes. This approximates the view through binoculars. Both were piggybacked on a 4.5" Newtonian with an EQ3 mount. Kodak Royal Gold 400 film was used for both images. The images were taken from the back of the old visitor's center the day before the start of this year's Texas Star Party.



**◄**
**The Summer Milky Way**
**©Scott Ewart**

Taken at the 2005 Texas Star Party with an Olympus OM1 and a 28mm lens at f2.3. Exposure time was 20 minutes using Kodak Royal Gold 400 film.

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# October Meeting Agenda

There will be no JSCAS meeting in October. JSCAS will participate in the All Clubs Meeting on Friday, October 21, 2005 from 8:00 to 10:30 pm at the Houston Community College.


### Starscan Submission Procedures

Original articles of astronomical interest will be accepted up to 6 P.M. October 25th.

The most convenient way to submit articles or a Calendar of Events is by electronic mail, however computer diskettes or CDs will also be accepted. All articles should include author's name and phone number. Also include any picture credits. The recommended format is Microsoft Word. Text files will also be accepted.

Submitter bears all responsibility for the publishing of any e-mail addresses in the article on the World Wide Web.

Editor's electronic address is: lesteke@swbell.net. Be sure to include the word Starscan in the subject line for proper routing of your message.

### Starscan Staff

| | |
|---|---|
| Editor | Ken Lester |
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**Cover Image**
**M22**
**Credit: ©Chris Wells**

This beautiful globular cluster in Sagittarius contains as many as 70,000 stars.

The image was taken from Ft. Davis, Texas on August 8, 2005 with a Televue Genesis 101mm f5.4 on a PM1 equatorial mount. L/RGB processing was from 5 clear ,5 red, 5 green and 5 blue 30 second images. Image was processed in AIP4WIN and Photoshop.