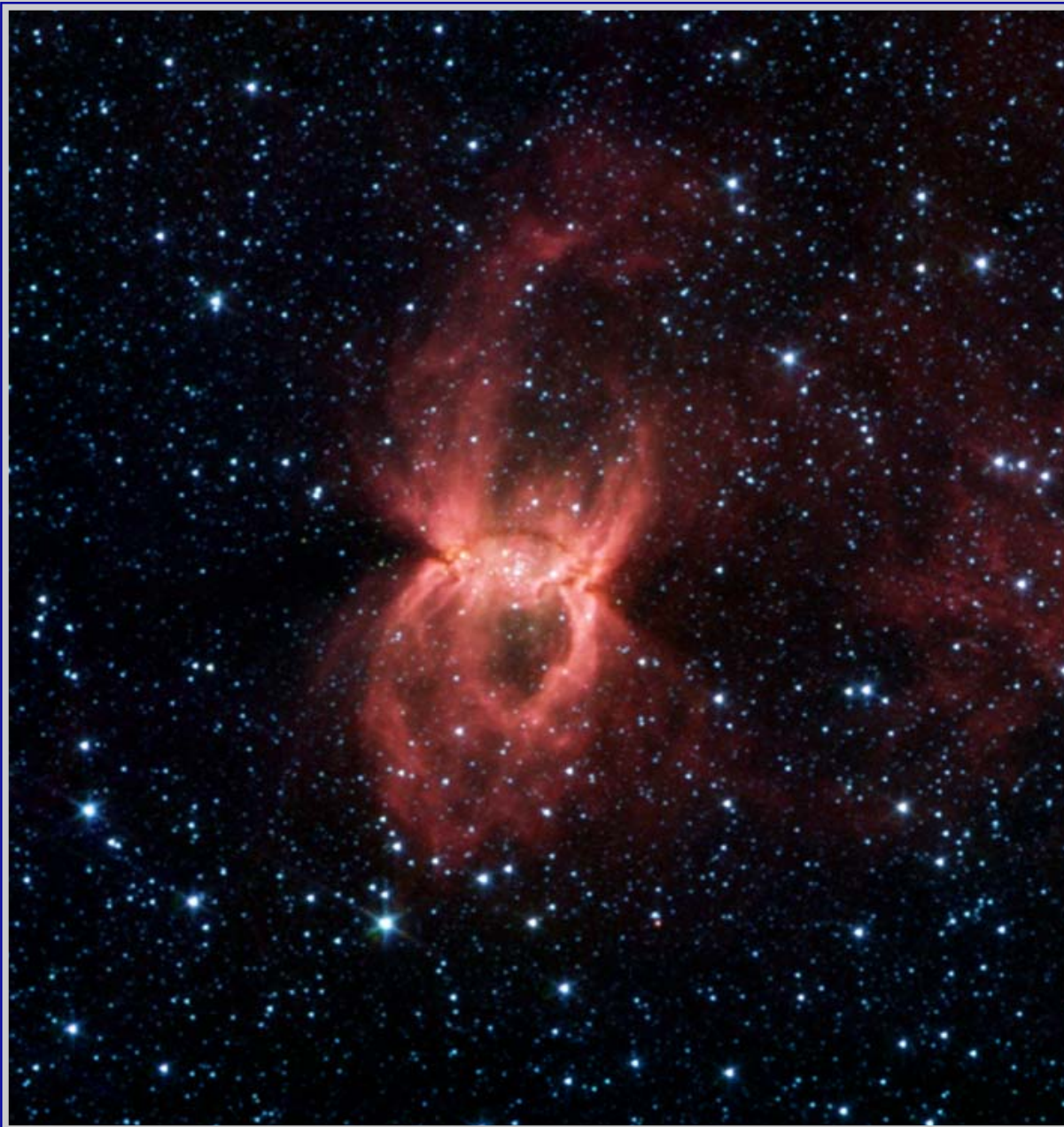


STARSCAN

*Johnson Space Center
Astronomical Society*

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December 2005



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Winter Solstice Special Edition

Ken Lester

The staff at the Starscan is pleased to present the *Winter Solstice Edition* to brighten your holiday season. This edition is composed of 3D images from around the solar system and beyond. Blue/red glasses are required. A condensed version of this edition will be presented at the Winter Solstice Meeting on December 9th. We will be handing out 3D glasses at the meeting for you to keep. Save them for viewing this special edition and other 3D images that occasionally appear in the Starscan.

Because this edition contains well over 40 images, the file size is quite large. It is suggested that it be saved onto your hard drive prior to viewing. A link to the special edition can be found on the Starscan

web page at: <http://www.riverofstars.net/JSCAS/Starscan/starscan.htm>. For computers running Windows, right mouse click on the link and choose "Save Target As" from the popup menu. Then select the hard drive location where you want to save the file. Downloading will probably take awhile, so be patient; it's worth the wait!

Letter from the Editor

Putting together the Starscan each month has been a rewarding experience for me. It is something I really enjoy doing and hopefully, you all have enjoyed the results. However, the Starscan is never a one man job. I would like to take this opportunity to thank some of the individuals who have made this wonderful newsletter a reality.

The newsletter would never happen without the individual contributions of our members. **Chris Randall** has done an excellent job of supplying us with monthly observing lists. **Paul Maley** has kept us informed about eclipse trips and behind the scenes looks at establishing astronomy related historical markers. **Triple Nickel** shared his views on the dedication of the plaque commemorating the Transit of Venus Expedition at Ft. Sam Houston. **Matt Hommel** keeps the link between JSCAS and the Lunar Planetary Institute alive with his monthly reports on Family Space Days. **Dennis Webb, Bob Taylor, Connie Haviland, and Lisa Lester** have entertained us with star party stories throughout the year. **Al Kelly** has kept us informed about his observatories and the new Observatory SIG as well as CCD imaging. We have enjoyed the articles by **Dick Miller, Becky Ramotowski, Kelley Knight, and David Haviland**.

Our newsletter would be rather plain if not for the tremendous astronomical images that we present each month. The quality of images keeps getting better. My thanks to **Randy Brewer, Becky Ramotowski, Al Kelly, Glenn Schaeffer, Chuck Shaw, Chris Wells, Scott Ewart, Matt Hommel, Charlie McLeod and Richard Nugent** for allowing us the use their great images.

Finally, I can't say enough about the tireless efforts of **Ken and Sheila Steele** for their hard work in proof reading and re-editing the newsletter each month. The quality of the newsletter just wouldn't be the same without their diligence.

I am looking forward to 2006 and hope that more members will step up and contribute images, essays, star party reports, book reviews, telescope building stories, astronomical research or other astronomy related input. My vision for the Starscan is to be the best astronomy club newsletter in the country, but I can't do it alone. I'll need your help!

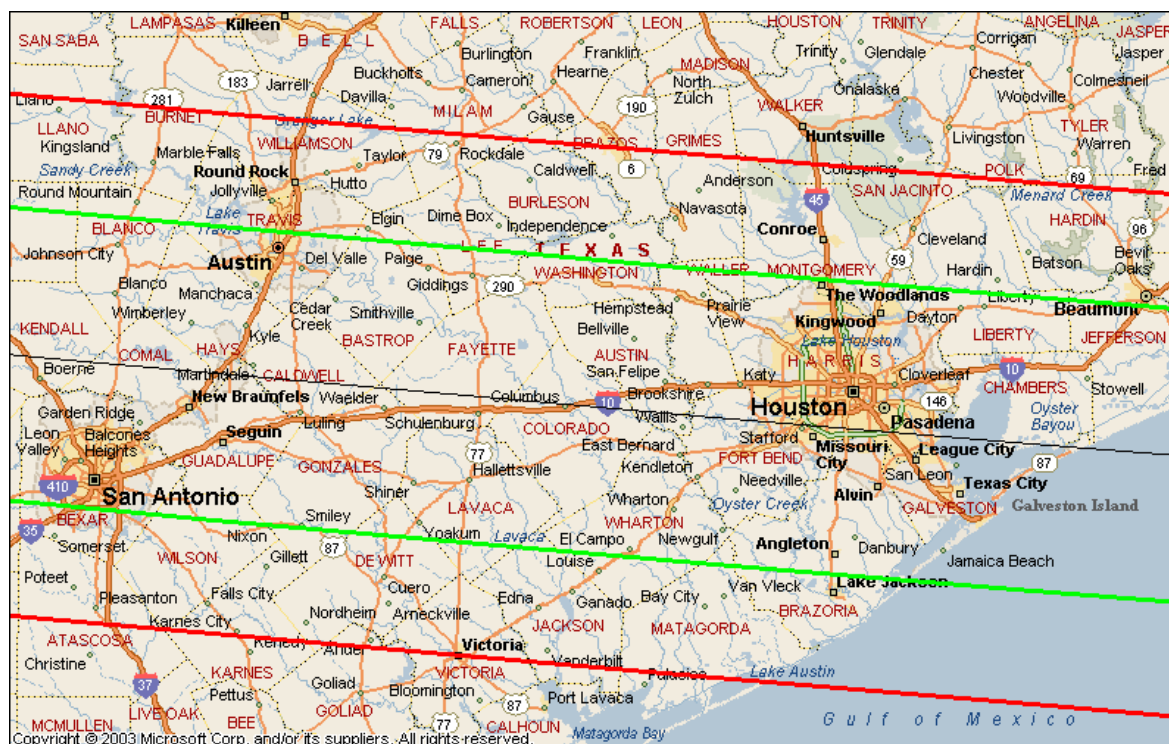
Ken Lester

Important Asteroid Occultation To Pass Over Houston January 5th

Paul Maley

We need your help to observe an important eclipse of a 9.2 magnitude star by a 13th magnitude asteroid on Thursday morning January 5, 2006. By comparison, this is one of the brighter stars to be occulted during the year. You do not necessarily need to go anywhere to make this observation, simply observe from home if you can. But if you are mobile and can drive, this would be even better. The objective is to obtain an accurate timing of the moment of disappearance and reappearance of the star in order to help define a shape for this minor planet. It is not necessary to see the asteroid. If you are interested please contact me at pdmaley@yahoo.com or during the day at 281-244-0208. Equipment required: telescope that can see a 9.2 magnitude star, tape recorder, source of time signals such as WWV on 5, 10 or 15MHz.

The current path is shown in the figure below within the zone covered by the green lines. The red lines show the error in the prediction as of mid-November. The asteroid shadow is expected to cover a 67 mile wide swath and take place at 4:17am. It could last as long as 8 seconds during which time the 9.2 magnitude star will drop to magnitude 13. The moon should not interfere. You will be looking 50 degrees above the western sky. Star charts will be posted beginning December 10 at <http://www.eclipsetours.com/events> where this and other events are listed.



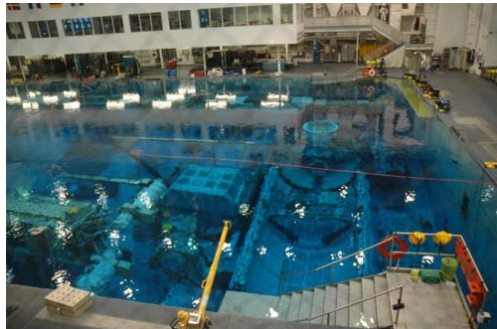
This is one of several very good events to cross the Houston area that we know about in 2006. Please make every effort to try for this one if the weather is good.

JSCAS Tours JSC

Ken Lester

At our August JSCAS meeting, General Howell, the Center Director for JSC, invited the entire club to come out and tour the Space Center as his guests. On November 18th, a large contingent of members, some 70 people strong, met at the Gilruth Center to start what was to be a very busy day. We boarded 3 buses and headed off site to the Neutral Buoyancy Lab at the Sonny Carter Training Facility.

The NBL features the world's largest indoor pool, measuring 202' long by 102' wide by 40' deep. It is large enough to hold mockups of the shuttle and ISS. This facility provides the astronauts with the closest thing to



NBL

microgravity on Earth short of the parabolic loops flown by the Vomit Comet.

After the tour of the NBL, we were driven back on site to the cafeteria where we relaxed and had our pre-paid box lunches of a sandwich, drink, chips and cookie.



IIS Module Mockup

From the cafeteria, it was off to Mission Control where we toured one of the Apollo era control centers, the Shuttle Control Center and the ISS Control Center. The controllers at the ISS center were hard at work, while the Shuttle center was undergoing testing after some remodeling.

During the Apollo control center briefing, JSCAS member Don Halter explained where he had worked and relived some memories of those early days in the space program.

Next stop was the huge vacuum chambers where machines and equipment are tested before being flown in space. The current plan is to bring the James Web Space Telescope to JSC for testing in the vacuum chamber.

The tour ended back where we started, at the Gilruth Center for a group shot and the handing out of an information packet. It was a great tour and we thank the General for his hospitality.



Shuttle Control Center — Undergoing Testing



Eldorado Star Party

Text and images by Al Kelly

The 2005 Eldorado Star Party was held at the X-Bar ranch about 15 miles north-west of Sonora and about 40 miles west of Ft McKavett. Jack Petersen, Jeff Rowe and I stayed at the Day's Inn in Sonora and commuted to the ranch. We set our up scopes together on the observing field along with the other 125-150 attendees. The skies were nice and the star party very pleasant. There were lots of big, dandy scopes for visual folks and "wowee" imaging systems for CCDers. Meteors were the best I have **ever** seen. From the radiants, many seemed to be Taurids with a few Orionids. Blazing, lingering smoke-trail bolides were not infrequent! Applause broke out several times.

Jack had his 10" f8 Newt and binos, Jeff his 16" Newt and bino chair, and I had the bino chair and C8 for imaging. Seeing was marginal much of the time, but transparency was good. We had some nice views of Mars and a great time in general. I imaged NGC246, M79, M30, and a galaxy field centered on NGC 521 and NGC 533.

Robert Reeves gave a fine talk on digital camera and webcam astro-imaging. The X-Bar evening meals were not quite up to "Prude Food" standards, but were acceptable fare. The imaging field is well arranged with plenty of power. A light fence works quite well to keep the lights from local road traffic off of the observing field. Nice folks were there from all over, but mostly Texans with an emphasis on Dallas/Austin/San Antonio folks. X-Bar accommodations are "very" limited (and rustic) and the tent camping was shade-less. Staying at a motel in Sonora was convenient and comfortable.



Impromptu Star Party

Randy Brewer

One evening in November, I decided to view the Moon through the 14.5" RC visually since it was still configured to f/15 vs. the normal F/9. I have not changed it since I've been shooting Mars lately at F/15 with the webcam.

Anyway, this is Wednesday and I normally cook on Wednesday since Dolly works late that day. I put a "Beer Can Chicken" on the grill, took a bottle of Haak wine out to the deck, and opened up the dome. After turning everything on and pointing the beast at the Moon, I was immediately awestruck by the great seeing at 5:30 PM. It was still daylight!

While I was enjoying the views (and the wine), my neighbor's son was playing football with a friend next door and saw that I had the scope / dome open and asked if he and his friend could have a look. Slate has looked through each of my previous scopes at the Moon and Planets before, but has never viewed through the RC. He is 17 -18 years old as was his friend.

They were simply astounded! I had lost complete control of my scope once I showed them how to move the mount and change the eyepieces. Slate's girl friend called him on his cell phone and he told her what he was doing. She was here in about 3 ½ minutes. Another of Slate's friends came to his house and Slate called him over too.

Ok, only one girl was there (and was mostly hogging the eyepiece) so far, so the other two guys called their girlfriends who showed up less than five minutes later. We had a Star Party going!

They were great. They were very courteous with the equipment. They asked really great questions about what they were seeing on the Moon and other things that you might see through the scope. I told them about Heavens-Above website that predicted the Shuttle, ISS, Hubble, and other satellites that they might see visually without a scope. They began to ask some really great cosmology questions that were beginning to press my knowledge (so I adlibbed where necessary).

I topped off the evening by showing them Venus at about 50% phase then on to Mars (that had just cleared the tree tops). The light vs. dark areas were apparent to them but I think that they expected to see much more.

About now, the Beer Can Chicken was smelling really good and they decided that they would all go out to get something to eat. It was good timing since I had just run out of wine and Dolly was just coming home.



Randy's dome and scope setup.

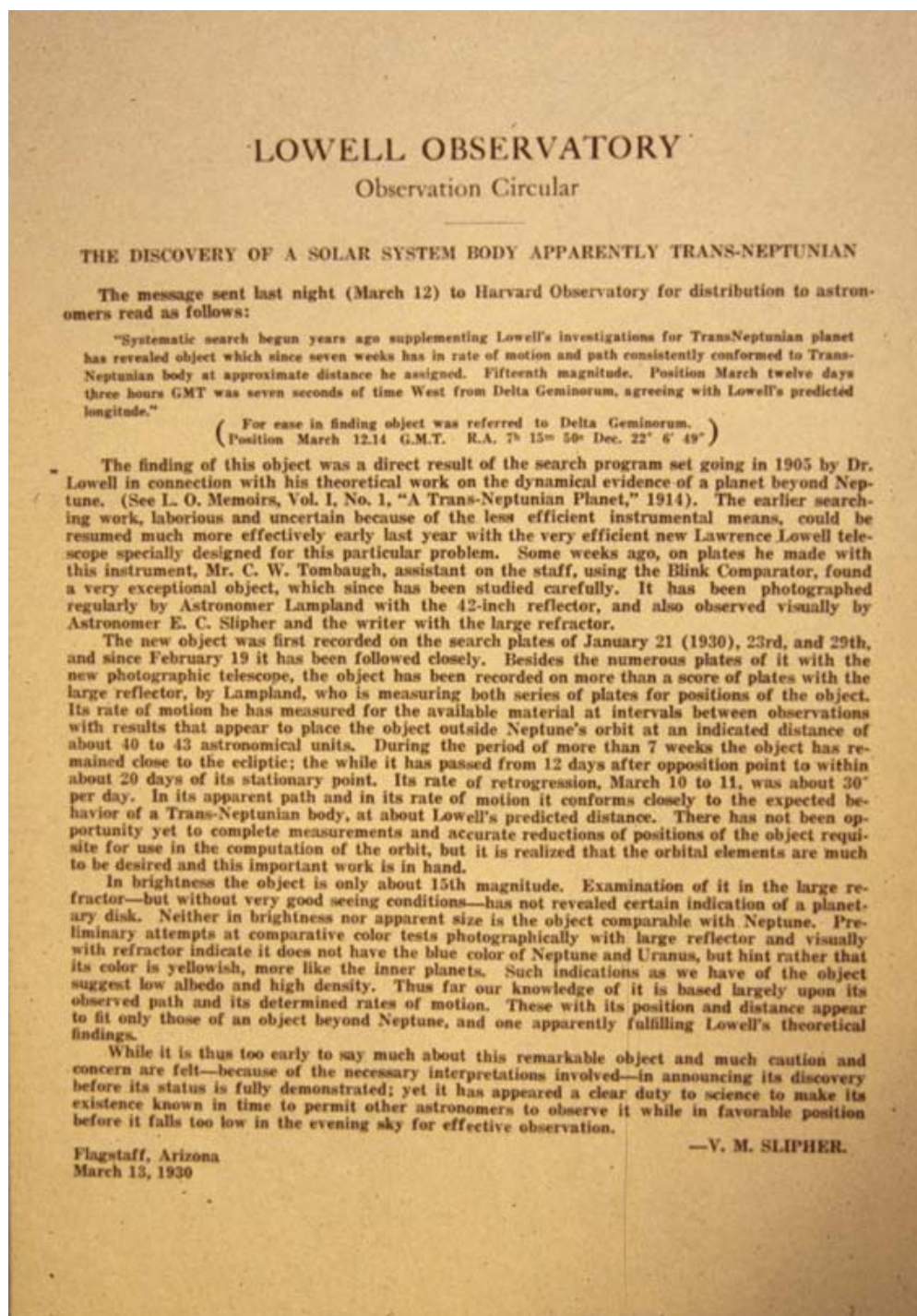
I shut the scope down, closed and locked up the dome thinking what a great evening I had already had sharing our hobby with the next generation.

Moral of this story: Get your scope out and invite your neighbors and their kids over every chance that you get. You will enjoy it as much as they will!

The Discovery of a Trans-Neptunian Object

Ken Lester

In October a team of scientists announced the discovery of two new moons orbiting Pluto. That discovery and the discovery of a "tenth planet" has renewed the debate on the definition of a planet. When Clyde Tombaugh discovered Pluto 75 years ago it was announced as a *Trans-Neptunian Object*, not a planet. The announcement is shown below and is courtesy of Barbara Wilson.



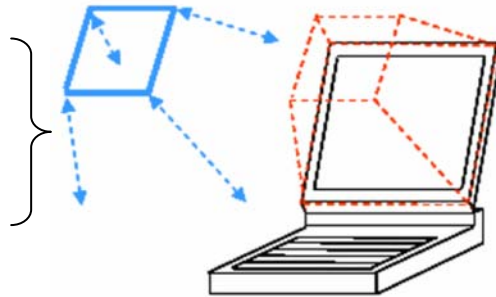
Laptop Light Shield

Chuck Shaw

I make my light shields from black plastic corrugated material (looks like black plastic corrugated cardboard) purchased from the Texas Art Supply at Baybrook Mall. The pieces are taped together with aluminum (metal) duct tape available at Home Depot or Lowe's.

Make a red screen which will cover the laptop's screen. The red screen is made from a frame of the black plastic corrugated material with red plastic film taped to the underside of the frame. The red film is also available at the Texas Art Supply. Make Velcro straps which will go around the laptop screen to hold the frame onto the laptop. One strap will have the piles, the other will have the loops.

Use a wire frame (made from a coat hanger) to determine size and a comfortable position of viewing opening with respect to the screen. Then measure distances from the corners of the wire frame to the corners of the screen to find the lengths of the "legs" to make top and sides

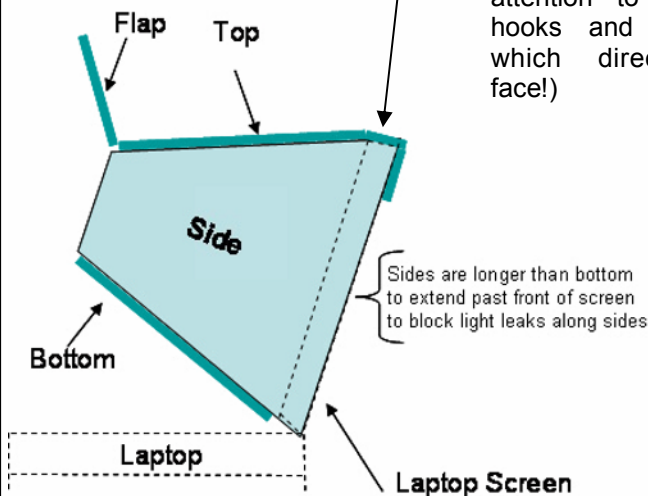
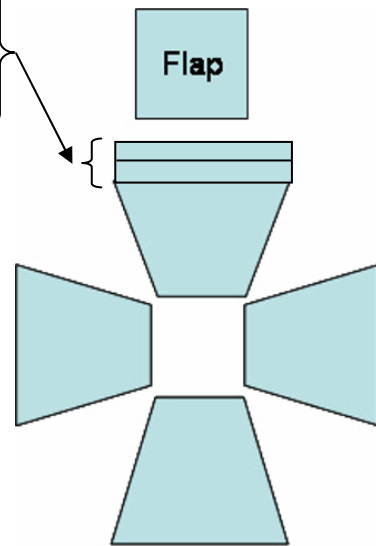


Top is longer than bottom to extend over the upper edge of laptop screen.

Secure to screen by either:
•Extending top further and slightly down behind to "hook" light shield over the screen

Or

•Attach two Velcro straps that stick to the red screen Velcro straps (pay attention to which are hooks and piles, and which direction they face!)



Lengths of the "bases" of the top, bottom and sides match the screen dimensions.

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Laptop, Red Screen, Light Shield



Red Screen attached to laptop



Velcro straps on light shield stick to
Velcro red screen straps



Velcro straps attach red Screen
Attach Velcro to Black Plastic with Hot Glue



Attach flap with Velcro or tape to light shield
Keep flap closed when not looking at screen



Side View with flap opened

OPTION: Attach Red LEDs to underside of light shield to illuminate keyboard (Bob Taylor's idea). Gotta LUV those LED's!

Star Party News

Ken Lester

The **Haak Winery Star Party**, was held on Saturday, November 5th. The day started out with clouds and isolated showers, but the Clear Sky Clock for Moody Gardens and Space Center Houston and, we assumed, for places in between, looked very hopeful. Unfortunately, the cloud cover was fairly heavy until around 7 pm. Early on we were able to show a thin crescent Moon and Crescent Venus when they poked out of the clouds. Later as some of the clouds dissipated, we were able to show the Ring Nebula, the double cluster, ET, and Uranus. The featured guest was Mars, which managed to show some features the higher it rose.

Despite the clouds, we had a very good turnout of scopes, from Bob Hammond's 22" Dob to Drell's Little Giant Killer refractor. Bob Taylor and Triple Nickel brought their home made 8" Dobs and were able to talk to the crowd and other members about building your own telescopes and grinding mirrors. There was an assortment of Schmidt-Cassegrains brought by Charlie McLeod, Ed Malewitz, and Chris Randall. Randy and Dolly Brewer brought a small refractor and Karen Nickel and Drell Setzer brought binoculars. Dan Beaver brought his 8" and Lisa Lester brought her 16".

The event brought in a nice crowd of viewers, despite the clouds. Some had traveled as far as the Woodlands and far West Houston to attend. Everyone who viewed through my scope were very interested in astronomy. They asked some very good questions and waited patiently for breaks in the cloud cover. I talked to several people who seemed ready to join the club. One lady who brought her 2 boys must have been working very hard at educating her children in Astronomy. The boys seemed exceptionally well versed and they asked some really good questions. I was very impressed.

The **Moody Gardens Star Party** scheduled for November 12th was cancelled when heavy late afternoon rain drenched the observing site creating a mud pit. Although the clouds dissipated around 7 pm, Moody Gardens' Johanna Goforth, after examining the field, agreed it was the correct call. She also stated that a few members didn't get the word about the cancellation and showed up anyway.

Star Party cancellations are posted on the list server and on the Star Party web page. For any specific star party, If you want to be called about a cancellation we can do so. Just let us know the week of the star party. Thanks to those who came out to Moody.

The **Space Center Houston Solar Observing** event was a tremendous success. JSCAS provided 5 scopes on Wednesday and 8 scopes on Thursday. JSCAS participants were Bob Taylor, Triple Nickel, Ken Lester, Steve



Space Center Houston — Solar Observing
(L to R) Dick Miller, Ed Malewitz, Bob Taylor, Triple Nickel,
Bob Hammond, Steve Yeathermon, Ken Lester. Not pictured: Walt Gardiner

Yeathermon, Walt Gardiner, Ed Malewitz, Bob Hammond and Dick Miller. We lucked out with clear skies, cool temperatures and there was a good group of sunspots. The kids came from all over the greater Houston area, even as far away as Diboll. We had 330 kids on Wednesday and over 800 on Thursday. The event was nicely organized with the teachers directing kids to our scopes in batches of 5 or 6.

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Thursday, November 18th saw another successful evening under the stars and Moon at **Seabrook Intermediate School**. When Lisa and I first arrived, the Moon had not yet risen above the horizon. I was amazed at the number of stars that I could see with the parking lot lights on. We were soon joined by Dick Miller, fresh from his heroic duties showing sunspots to 800 kids at



Space Center Houston — Solar Observing

Space Center Houston that morning. We set up our scopes on the tennis courts with a promise that the one major light source would go off at 7:15. Despite 8 calls by the school principal to the school district office and their lighting contractors, the light stayed on. However, the district planned to send the contractor to the school the next day to determine why the lights didn't go out. When they get the lighting issue resolved, this will indeed be a great observing location. They would like us to return in the spring on a date where there would be little Moon interference. We suggested a Friday night so more club members could participate.

In addition to Lisa's 16" and Dick's 9 1/4", one of the students brought out his little ETX and put it on the Moon. In no time we had lines at least 25 to 30 deep at the 3 scopes. The Jim Morrisons showed up later and set up a 4th scope, much to the delight of those standing in the lines.

We showed the ET cluster, M31, Mars, Venus, and the Moon. After the bulk of the crowd left, we put the 16" with the 35 Panoptic on the Moon. The Moon looked 3D, one of the best visual images I've ever seen for a near full Moon.

This school is a science Magnet campus. Over 300 kids apply for the 6th grade program and about 100 are accepted. All the kids and their parents were well informed and excited to be looking through our scopes. This was one of the best star party experiences I've had, even with that pesky light.

Event	Date	Sun Set	Moon			Jupiter		Saturn		Mars		Venus	
			Illum.	Rise	Set	Rise	Set	Rise	Set	Rise	Set	Rise	Set
2006													
Moody Gardens	Mar 4	18:20	27%	9:37	23:50	23:15	10:03	15:12	04:53	10:53	00:54	04:10	14:57
Fort McKavett	Mar 30 - Apr 2	18:56	2%	07:11	20:42	21:49	08:34	13:41	03:29	10:23	00:40	04:17	15:19
Haak Winery	Apr 22	19:50	34%	03:32	14:28	20:46	07:39	12:56	02:38	10:36	00:45	04:45	16:23
Texas Star Party	Apr 23 - 30	20:27	23%	04:46	16:12	21:19	08:09	13:25	03:11	11:06	01:22	05:20	16:59
Moody Gardens	Aug26	19:47	7%	09:17	21:18	12:13	23:12	05:40	19:03	08:20	20:45	05:37	19:02
Haak Winery	Sep 23	19:13	1%	08:05	19:48	10:44	21:37	04:05	17:20	07:53	19:45	06:28	18:52
Fort McKavett	Oct 19 - 22	19:02	6%	05:28	17:47	09:48	20:28	02:52	16:08	07:51	19:09	07:35	19:03
Moody Gardens	Oct28	18:35	36%	13:31	23:46	08:59	19:42	02:02	15:12	07:22	18:30	07:30	18:38
Haak Winery	Nov11	17:25	61%	23:17	12:33	07:18	17:54	00:11	13:20	06:12	17:04	06:58	17:38

Family Space Days

Images by Matt Hommel

Each month, the Lunar and Planetary Institute hosts the Family Space Days. This event provides hands-on activities and demonstrations which allow the children and their families to explore the theme of the day. Children read stories, color pictures, and get messy with theme-based crafts!

Here are pictures taken during the October and November events. There will be no Family Space Day in December. The next event will be held January 21st: *Tour stop 3 – Mars*.



OCTOBER — Tour Stop #1, Mercury



November — Tour Stop #2, Venus and It's Volcanoes

The kids were making baking soda volcanoes and pudding landscapes to simulate the surface of Venus. Surprisingly, no Glitter was used in November.

Upcoming Events

Houston Astronomical Society 50th Anniversary Picnic January 21, 2006

If you are planning to attend, please RSVP to Bob Taylor

50 years ago, in September, 1955, the Houston Astronomical Society was formed. The Society has done many new things over the years. One of the major accomplishments since the founding of the Society was the building of our Columbus Observatory. The land surveying started in 1979, and in 1982 the current observatory building was dedicated. Three years later a time capsule was placed in the ground on the south side of the building.

On Saturday, January 21, 2006 (with a rain date of January 28th), we will have our annual picnic (the Fall Picnic was postponed due to Hurricane Rita). At the picnic we will unearth and open the capsule. To help celebrate our 50th anniversary we are inviting all the area clubs to attend our picnic. As usual, the HAS will supply the food for the picnic, hot chili with onions, cheese, Fritos, and sides. You bring the drinks. We will also have the observatory open for our visitors, a constellation tour at twilight, and the usual observing session when it gets dark. Bring your own telescope to test our night skies. There will be a "light window" around midnight that if you would like to leave you may, or you can spend the night at the site if you wish.

Here is the planned schedule of activities:

Gates open 10 AM on Saturday

Unearthing of time capsule at 2 PM

Dinner served at 4 PM

Observing when it gets dark: Sunset 05:57 PM, Twilight ends 07:18 PM

Gates close Noon on Sunday

We will need an **RSVP by January 16th** if you are planning to attend. Please let your club contact know how many adults and children will be coming.

RV Information. You may bring your RV / trailer / 5th wheel to the site. However, we do not have enough utilities for power, water and dump to support everyone. So if you plan to come to the site be prepared to dry camp (we do have a dump station if you want to dump before leaving). As an alternative, there is an RV park on I-10 at Hatterman Lane, which is the exit to get to the site. From there it is about a 15 minute drive to our site. If you are interested in staying at the RV park, here is their contact info: <http://www.motorcoachrvpark.com>, Motorcoach RV Park, 2965 Hwy 90, Weimar, TX 78962, 979-732-9494.

Motel Information: There are several motels in Columbus if you want to spend the night or part of the next day before going back home. There are 2 hotels in Columbus.



Steve Goldberg
Event Chairman

Plaque for the time capsule (l).
Time capsule (r)
Images courtesy of HAS



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Deep South Texas Stargaze 2006

The Kingsville Astronomical Society is hosting the 4th annual Deep South Texas Stargaze on February 22-26, 2006 at Escondido Ranch, in southwest McMullen County, near Freer, TX. It is a very dark site (7.1+ magnitude skies) at 28 degrees N, which we believe is farther south than any star party gathering held in the continental US (other than the Winter Star Party in FL - but it's the same week, and why travel so far?). We have bunks in a heated/air conditioned lodge; cooking facilities for you to prepare your food (plus refrigerators in each room); RV sites; and primitive camping. There are nice shower facilities. We will have power on the field. Add to four great nights of winter observing at such a dark sky site: interesting speakers, door prizes and t-shirts/hooded sweatshirts, and it promises to be a great time.

Note: at this time, Escondido Ranch is having trouble with the water system, so the water on site will be suitable for bathing, etc., but not for drinking. So attendees will need to plan to bring drinking water for themselves.

For more information visit their web site: <http://raychamp1.tripod.com/DSTS2006/dsts2006.html>.

Texas Star Party Registration

Registration for the 2006 Texas Star Party has begun. Visit <http://www.texasstarparty.org/> to register on-line.

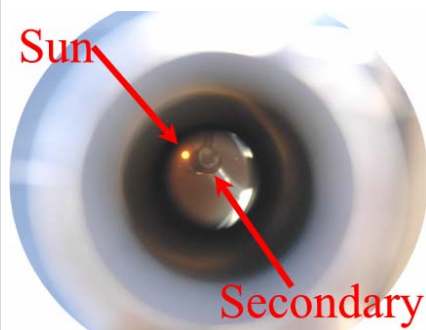
Dick Miller will be coordinating bunkhouse reservations again this year. The following is a quote from the TSP web site:

"(If you) want to be in the same bunkhouse with other members of your group... each member of the group may submit a form, but all forms must have the same information for (a) number of people, (b) dates, and (c) the other members names listed in the "Other Info" area."

Dick requests: "... if all of you who think you might want to stay in a bunkhouse will send me your names and dates, I'll put out a list you can copy into your registration form to meet this requirement. Meanwhile, I'll do some more checking on the date part, because the quote above makes it sound like all members must sign up for the same dates. I know some of you usually have to arrive late or leave early. But don't worry about that yet -- just tell me when you would like to be there."

Solar Observing Tip — Finding The Sun

Ken Lester



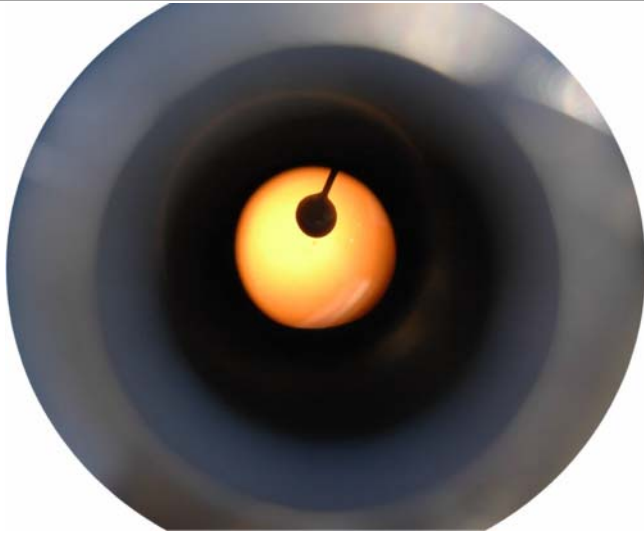
For those of you who do solar observing here is a quick way to find the Sun that should work well with any Newtonian. This technique goes beyond the traditional method of minimizing the shadow cast by your telescope on the ground.

Be sure you have a proper solar filter fitted in front of the telescope optics. The first step is to do a quick minimization of the scope's shadow. Next, take your eye piece out of the

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focuser and look down the focuser barrel. You will see a reflection of the secondary in the primary mirror. If you are close to being aligned then you should also see a small image of the Sun. If you don't see the Sun, then slowly move the scope around in a circle until you can see it. Next, move the scope so the small Sun is positioned behind the reflection of the secondary. When you are close to being centered, the Sun will suddenly get very large. Put the eyepiece back in the focuser tube and you should be on target or very close to it.



Keeping Your Eyes Wide Open

Ken Lester

While processing his image of NGC7635 in early November, Chris Wells did a color comparison of his image and an image that Al Kelly took back in 1997. Chris noticed that there's a very large difference in magnitude of one of the stars between the two images. Chris noted that "Although probably quite common, it looks like Al Kelly captured a peaking variable back in 1997 close to the bubble nebula".

While this variable star wasn't an unknown there are discoveries waiting to be made by imagers simply by taking the time to compare new images with old. Amateur Jay McNeil confirmed his discovery of McNeil nebula by comparing his image of the M78 region with older images.



NGC 7635: Chris Wells' image left, Al Kelly's image right. Arrows point out the variable star

Naming the International Space Station

Matt Hommel



Unity Module attached to the IIS Credit NASA

I was working at Lockheed Martin in the late 90's as an IT Guy. I received a notice via email that said, if I remember correctly, there was a "Name the Space Station" contest going on.

The contest had two "Categories" so to speak. You could either name the whole space station and some of the larger pieces such as the habitation module. Or you could name the smaller pieces such as the truss and connection pieces. The prize was a \$100 savings bond and a tour of the space station trainer by Ken Rightler who was a former shuttle pilot and current VP with Lockheed Martin.

Figuring I had nothing to lose and that there would be less competition naming the smaller pieces of the station I opted for that category. The names had to have a theme and the pieces could not be named after people etc... The Space Station symbolized teamwork

more than anything else in my opinion so I came up with a "team theme" name for each of about 6 or so pieces in my category, names like cooperation, alliance, and of course UNITY.

When the company news letter came out the next month I found out that I had won the contest and got my savings bond as well as a very thorough tour of the training mockup. I was told that my ideas for the names would be thrown on the pile with the other ideas being batted around and that was the last I thought of it.

Latter when I heard that one of the pieces was actually flying with the name I had given it I assumed that it was either a coincidence or that I had misunderstood. Again the whole thing drifted from my mind as I was on to other things.

During the JSCAS tour of the Space Center, when I saw the UNITY nameplate on the connector module, I decided to ask our tour guide Jeannie if she knew the story behind how the module got it's name. She verified that it was the result of the contest I had won.

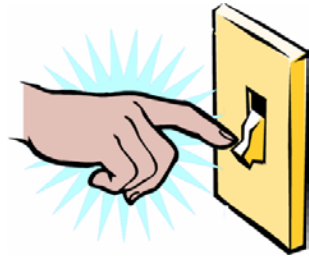
So it's good to know that a JSCAS member got to name a piece of the International Space Station.



Matt Hommel in front of the Unity Module mock up at JSC Image by Chris Randall

Protecting The Night Skies

According to a message which appeared on the Texas IDA forum, a McDonalds restaurant near DFW has begun advertising with a rotating searchlight. The owner of this McDonalds offered to turn off the beam for one evening so a local amateur astronomer, Matt Reade, could image Mars. According to the owner, he has had several phone calls from other local businesses about setting up their own search lights. Furthermore, it is Matt's understanding that multiple McDonalds are setting these up across the state.



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

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."

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

Happy Holidays !!

Young Stars Sculpt Gas with Powerful Outflows

Credit: NASA, ESA, and A. Nota (STScI/ESA)
STScI-PRC2005-35a

This is a Hubble Space Telescope view of one of the most dynamic and intricately detailed star-forming regions in space, located 210,000 light-years away in the Small Magellanic Cloud (SMC), a satellite galaxy of our Milky Way. At the center of the region is a brilliant star cluster called NGC 346. A dramatic structure of arched, ragged filaments with a distinct ridge surrounds the cluster.

A torrent of radiation from the cluster's hot stars eats into denser areas creating a fantasy sculpture of dust and gas. The dark, intricately beaded edge of the ridge, seen in silhouette by Hubble, is particularly dramatic. It contains several small dust globules that point back towards the central cluster, like windsocks caught in a gale.

Energetic outflows and radiation from hot young stars are eroding the dense outer portions of the star-forming region, formally known as N66, exposing new stellar nurseries. The diffuse fringes of the nebula prevent the energetic outflows from streaming directly away from the cluster, leaving instead a trail of filaments marking the swirling path of the outflows.

The NGC 346 cluster, at the center of this Hubble image, is resolved into at least three sub-clusters and collectively contains dozens of hot, blue, high-mass stars, more than half of the known high-mass stars in the entire SMC galaxy. A myriad of smaller, compact clusters is also visible throughout the region.

Some of these mini-clusters appear to be embedded in dust and nebulosity, and are sites of recent or ongoing star formation. Much of the starlight from these clusters is reddened by local dust concentrations that are the remnants of the original molecular cloud that collapsed to form N66.

An international team of astronomers, led by Dr. Antonella Nota of the Space Telescope Science Institute/European Space Agency in Baltimore, has been studying the Hubble data. In an upcoming issue of *Astrophysical Journal Letters* the team reports the discovery of a rich population of infant stars scattered around the young cluster NGC 346. These stars are likely to have formed 3 to 5 million years ago, together with the other stars in the NGC 346 cluster. These infant stars are particularly interesting as they have not yet contracted to the point where their interiors are hot enough to convert hydrogen to helium.

The Small and Large Magellanic Clouds are diffuse irregular galaxies visible to the naked eye in the southern hemisphere. They are two smallish satellite galaxies that orbit our own Milky Way Galaxy on a long slow journey inwards towards a future union with the Milky Way. Hubble has resolved



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many star formation regions in both of these neighboring galaxies that provide astronomers with laboratories other than our own Milky Way Galaxy to study how young stars interact with and shape their environments. The two satellites are named after the Portuguese seafarer Ferdinand Magellan (1480-1521) who sailed from Europe to Asia and is best known as the first person to lead an expedition to circumnavigate the globe.

This image of NGC 346 and its surrounding star formation region was taken with Hubble's Advanced Camera for Surveys in July 2004. Two broadband filters that contribute starlight from visible and near-infrared wavelengths (shown in blue and green, respectively) have been combined with light from the nebosity that has passed through a narrow-band hydrogen-alpha filter (shown in red).

Chaotic Star Birth

Spitzer Space Telescope Press Release
November 15, 2005

Located 1,000 light-years from Earth in the constellation Perseus, a reflection nebula called NGC 1333 epitomizes the beautiful chaos of a dense group of stars being born. Most of the visible light from the young stars in this region is obscured by the dense, dusty cloud in which they formed. With NASA's Spitzer Space Telescope, scientists can detect the infrared light from these objects. This allows a look through the dust to gain a more detailed understanding of how stars like our sun begin their lives.



Credit: NASA/JPL-Caltech/R. A. Gutermuth (Harvard-Smithsonian CfA)

The young stars in NGC 1333 do not form a single cluster, but are split between two subgroups. One group is to the north near the nebula shown as red in the image. The other group is south, where the features shown in yellow and green abound in the densest part of the natal gas cloud. With the sharp infrared eyes of Spitzer, scientists can detect and characterize the warm and dusty disks of material that surround forming stars. By looking for differences in the disk properties between the two subgroups, they hope to find hints of the star- and planet-formation history of this region.

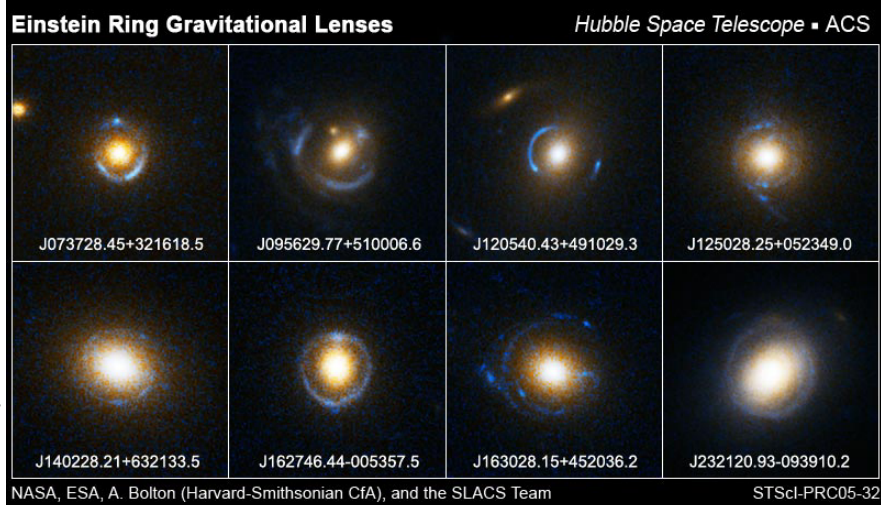
The knotty yellow-green features located in the lower portion of the image are glowing shock fronts where jets of material, spewed from extremely young embryonic stars, are plowing into the cold, dense gas nearby. The sheer number of separate jets that appear in this region is unprecedented. This leads scientists to believe that by stirring up the cold gas, the jets may contribute to the eventual dispersal of the gas cloud, preventing more stars from forming in NGC 1333.

In contrast, the upper portion of the image is dominated by the infrared light from warm dust, shown as red.

Hubble, Sloan Quadruple Number of Known Optical Einstein Rings

Press Release.: STScI-PR05-32

Astronomers have combined two powerful astronomical assets, the Sloan Digital Sky Survey (SDSS) and NASA's Hubble Space Telescope, to identify 19 new "gravitationally lensed" galaxies. Among these 19, they have found eight new so-called "Einstein rings", which are perhaps the most elegant manifestation of the lensing phenomenon. Only three such rings had previously been seen in visible light.



In gravitational lensing, light from distant galaxies is deflected on its way to Earth by the gravitational field of any massive object that lies in the way. Because of this light bending, the galaxy is distorted into an arc or multiple separate images. When both galaxies are exactly lined up, the light forms a bull's-eye pattern, called an Einstein ring, around the foreground galaxy.

Besides producing odd shapes, gravitational lensing gives astronomers the most direct probe of the distribution of dark matter in elliptical galaxies. Dark matter is an invisible and exotic form of matter that has not yet been directly observed. By searching for dark matter in galaxies, astronomers hope to gain insight into galaxy formation, which must have started around lumpy concentrations of dark matter in the early universe.

The newly discovered lenses come from an ongoing project called the Sloan Lens Survey (SLACS). A team of astronomers, led by Adam Bolton of the Harvard-Smithsonian Center for Astrophysics in Cambridge, Mass., and Leon Koopmans of the Kapteyn Astronomical Institute in the Netherlands, selected the candidate lenses from among several hundred thousand optical spectra of elliptical galaxies in the Sloan Digital Sky Survey.

The team was looking for clear evidence of emission from galaxies twice as far from Earth and directly behind the closer galaxies. They used Hubble's Advanced Camera for Surveys to snap images of 28 of these candidate lensing galaxies. By studying the arcs and rings produced by 19 of these candidates, the astronomers precisely measured the mass of the foreground galaxies. These new discoveries add significantly to the approximately 100 gravitational lenses previously known.

"Being able to study these and other gravitational lenses as far back in time as several billion years allows us to see directly whether the distribution of invisible and visible mass changes with cosmic time," says Koopmans. "With this information, we can test the commonly held idea that galaxies form from collision and mergers of smaller galaxies."

The initial findings of the survey will appear in the February 2006 issue of the *Astrophysical Journal*.

Pedestal Craters

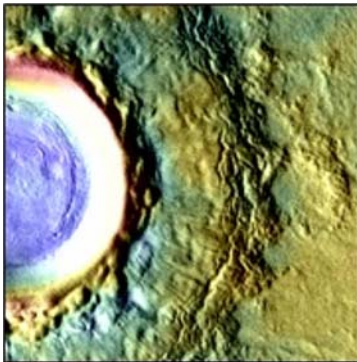
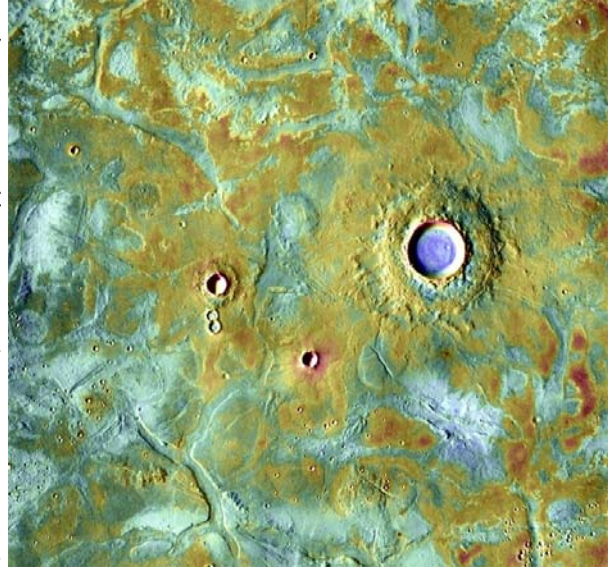
Mars Odyssey Thermal Emission Imaging System (THEMIS)

Credit: NASA/JPL/Arizona State University

The northern plains of Mars include some of the flattest and smoothest real estate in the solar system. According to planetary scientists, the plains also have a lot of water locked up in the form of ice at shallow depths in the ground. This false-color THEMIS (Thermal Emission Imaging System) mosaic, which focuses on a small part of the northern plains in Utopia, captures both aspects.

The mosaic combines visible-wavelength images with ones taken at night using heat-sensitive infrared light. Nighttime temperatures are shown by color — bluer is cooler, redder is warmer — giving scientists clues about the surface's physical properties.

Ground temperature differences arise because at night, a dusty surface gives up daytime heat faster than rocks do. (In the same way, bare dirt feels cooler underfoot late at night than pavement does.) Thus cool temperatures spotted by THEMIS point to patches with thicker coatings of dust and fine-grain material, while warmer temperatures mark where the ground is harder and rockier.



On A Pedestal — Impact craters in the Martian high latitudes often show differences from those nearer the equator — and this nameless crater is no exception. About 4.2 kilometers (2.6 miles) wide and about 200 meters (660 feet) deep, the crater has a flat, relatively featureless floor covered by dust. In places, reddish tints around the rim show where rocky debris pokes into view.

Yet what sets this crater apart is the raised platform, or pedestal, surrounding the rim crest. It stands 60 to 70 meters (200 to 300 feet) above the surrounding plains.

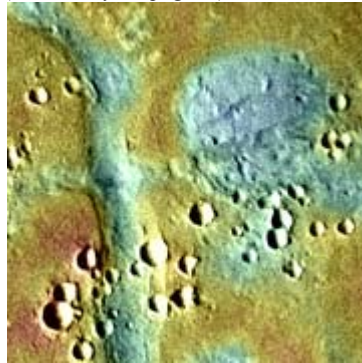
Scientists think the pedestal was born when the force of impact threw an apron of ejecta around the new crater. Textures on the pedestal's surface, plus its saw tooth outline reflect turbulence in the surging debris during the moments after impact.

When the debris came to rest, it contained mostly rock, mixed perhaps with some water from the subsurface. Extending outward to about one crater-radius, the apron armored the ground against erosion.

As years passed, scientists argue, the topmost layers of the plains eroded due to winds or climate change or other factors. This lowered the ground around the crater, except where the ejecta covered it. Perhaps in response, crevasses developed on the pedestal's outer edge, where the protected zone drops to meet the plains. In this model, smaller craters may lack pedestals because they formed after the plains had already eroded.

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Secondary Bombardment — The impact of a large meteorite blasts a crater and sends debris flying far and wide. Away from the crater, this debris slams down, usually with enough force to make secondary craters on its own.

This crater cluster, the largest of which is about 460 meters (1,500 feet) wide, is probably a group of secondary impacts. Their shape, spacing, and graduated sizes suggest the primary, or source, crater lies to the southwest of the group, out of the field of view.

Secondary debris that lands close to the primary crater often arrives on low trajectories. Striking the ground at shallow angles and low speeds, it tends to make elongated craters and chevron patterns pointing back toward the primary crater. However, these secondaries look circular, suggesting the impactors fell at a steep angle and struck at high speed, typical for debris from a relatively distant source.

Likewise, the crater group's diagonal alignment suggests they arrived from the lower left or the upper right. The placement of the largest crater at the southwest end of the cluster offers a clue that this is the direction toward the source crater, since big debris often lands closer to the primary crater than smaller debris.

Planetary scientists use craters to date surfaces, at least in a relative sense: older surfaces have on average more craters. But the existence of secondaries complicates the matter, because where they masquerade as primary craters, they can make a surface appear older than it actually is.



Lines in Lava — Mars' northern plains are built from uncountable numbers of thin lava flows, such as those seen here.

Merging in a complex tangle of intersecting channels, faults, and low ridges, the flows have buried essentially all trace of any earlier surface. Laser altimeter measurements show that, aside from the craters, the plain typically varies in height from place to place by no more than 50 meters (160 feet), and often by less.

A hodgepodge pattern now dominates. Shallow grooves and broad hollows (seen in bluer tints) have collected dust and are separated by low, wind-swept rises. These are capped by tougher surfaces (greens and yellows) that expose more cohesive material. The scene is one of a wide, gently rolling landscape under an enormous sky.

Giant, Rare Meteorite Fragment, Found in Kansas

Associated Press

GREENSBURG, KAN. - A rare 1,400-pound meteorite was discovered seven feet underground by a collector, Steve Arnold of Kingston, Arkansas, in an area long known for producing prized space rocks. The meteorite is classified as an oriented pallasite, a type noted for a conical shape with crystals embedded in iron-nickel alloy.

Only two larger ones of that type are known to have been found: a 3,100-pounder in Australia and a 1,500-pounder in Argentina. Meteorites change shape as they enter Earth's atmosphere. An oriented meteorite, which is rare, maintains a stable flight rather than tumbling.

MEMBER'S GALLERY



Moon and Venus in the Daytime ▲

©Becky Ramotowski

Because of the windy conditions, this image was taken from indoors through a window. It was taken through 8 x 56 binoculars with a Nikon 5000 held up to one side of the ocular.



▲ NGC 521 & 533

©Al Kelly

L/RGB image of galaxies NGC 521 (right) and NGC 533 (left) in Cetus, made from images taken with a Starlight Express MX916 and an 8" SCT on 11/4/05 from the Eldorado Star Party near Sonora, Texas. Schuler RGcBc filters were used to generate eight 600-second unfiltered sub-exposures: four 600-second sub-exposures in red, three 600-second sub-exposures in green, and five 600-second sub-exposures in blue. All were self-guided in Astroart and processed in AIP4WIN and Photoshop.

▼ M 30

©Al Kelly

L/RGB image of globular cluster M30 in Capricornus, made from images taken with a Starlight Express MX916 and an 8" SCT on 11/4/05 from the Eldorado Star Party near Sonora, Texas. Schuler RGcBc filters were used to take eighteen 120-second unfiltered sub-exposures: five 120-second sub-exposures in red, four 120-second sub-exposures in green, and six 120-second sub-exposures in blue. All were self-guided in Astroart and processed in AIP4WIN and Photoshop.



Visual Observing December 2005






Chris Randall

★SSO: (Solar System Objects) Summary for the 15 December 05

Object	Const	Mag	% III	Rise Time	Transient	Set Time
Sun	Lib	-26.7	100	07:08	12:15	17:22
Moon	Tau	----	100	17:20	00:00	07:16
Mercury	Sco	-0.5	72	05:34	10:50	16:07
Venus	Cap	-4.7	20	09:41	14:52	20:07
Mars	Ari	-1.1	94	14:26	21:07	03:45
Jupiter	Lib	-1.8	100	06:47	09:17	14:46
Saturn	Cnc	0.5	100	20:53	03:37	10:22
Uranus	Aqr	5.9	100	11:39	17:18	23:02
Neptune	Cap	8.0	100	10:30	15:54	21:21
Pluto	Ser	14.0	99	06:54	12:19	17:43
TNO 2003 UB313	Per	???	99	14:09	21:51	05:28
Quaoar	Psc	19.0	99	12:29	18:35	00:38
90377 Sedna	Oph	29.4	99	---	---	---

Highlighted times denote daylight events.

Lunar phases for December 05

New 	First 	Full 	Third 	New 
1 st 09:01	8 th 03:36	15 th 10:15	23 rd 13:36	30 th 21:12

Central Standard time

★BSO: (Bright Sky Objects)

Mel 20 (Cr 39) – Open Cluster in Perseus, Magnitude 2.3, Size 184', Stars 50.

NGC 869/884 (Cr 24/mel13, cr25/mel14) – 2 Open Clusters in Perseus, Magnitude 5.3/6.1, Size 29/29', Stars 200/150.

Stock 2 - Open Cluster in Cassiopeia, Magnitude 4.4, Size 60', Stars 50.

Tr 2 (Cr 29) - Open Cluster in Perseus, Magnitude 5.9, Size 203', Stars 20.

★DSO: (Dark Sky Objects)

Mel 15 (Cr 26) – Open Cluster in Cassiopeia, Magnitude 6.5, Size 21', Stars 40. Look for nebulosity in region (IC1805).

IC 342 (C5) – Galaxy in Camelopardalis, Magnitude 9.1, Size 21.6' x 21.1'.

NGC 1232 (Arp 41) – Galaxy in Eridanus, Magnitude 10.5, Size 7.4' x 6.4'

NGC 891 (C 23) - Galaxy in Andromeda, Magnitude 10.8, Size 14.3' x 2.4'.

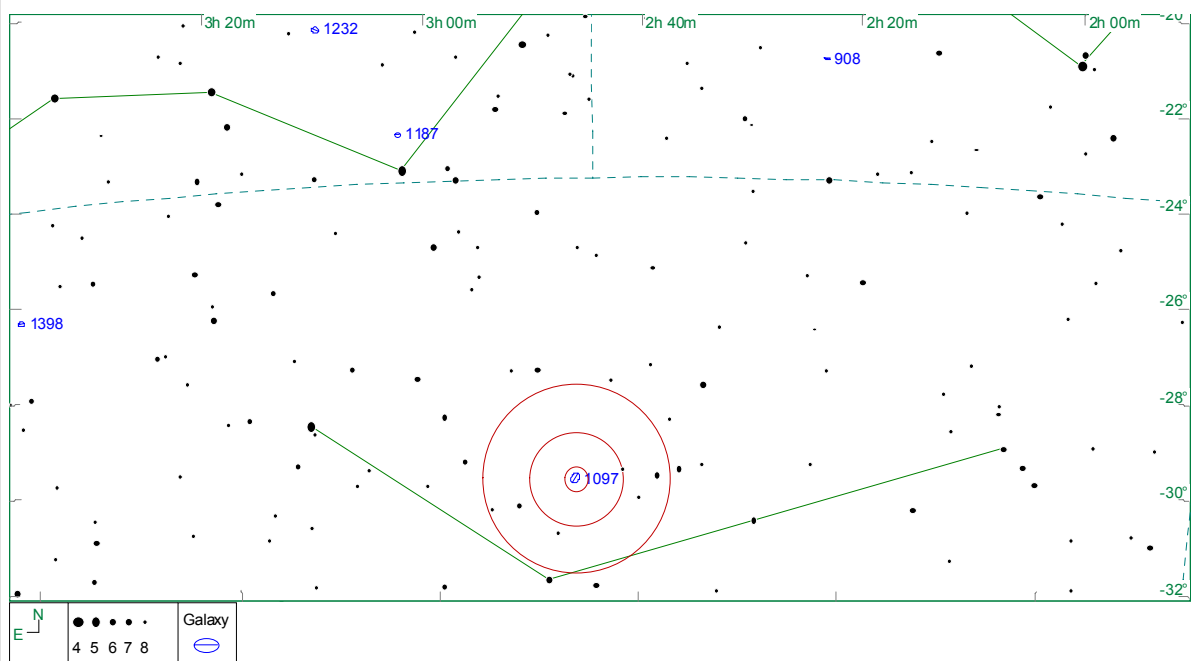
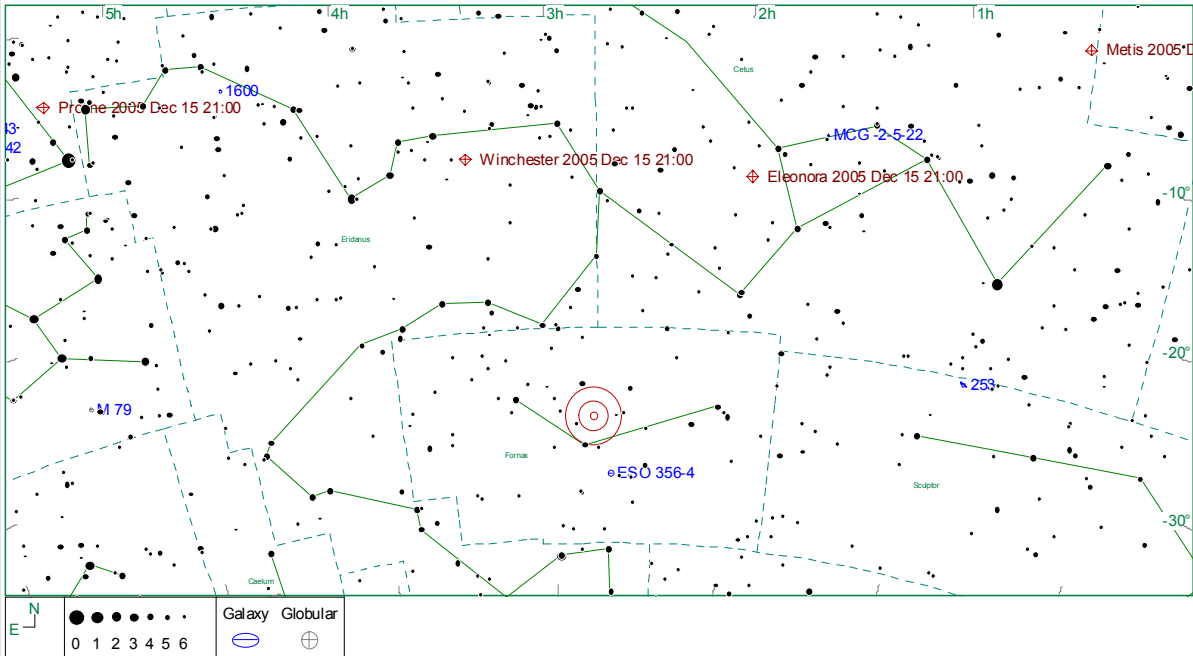
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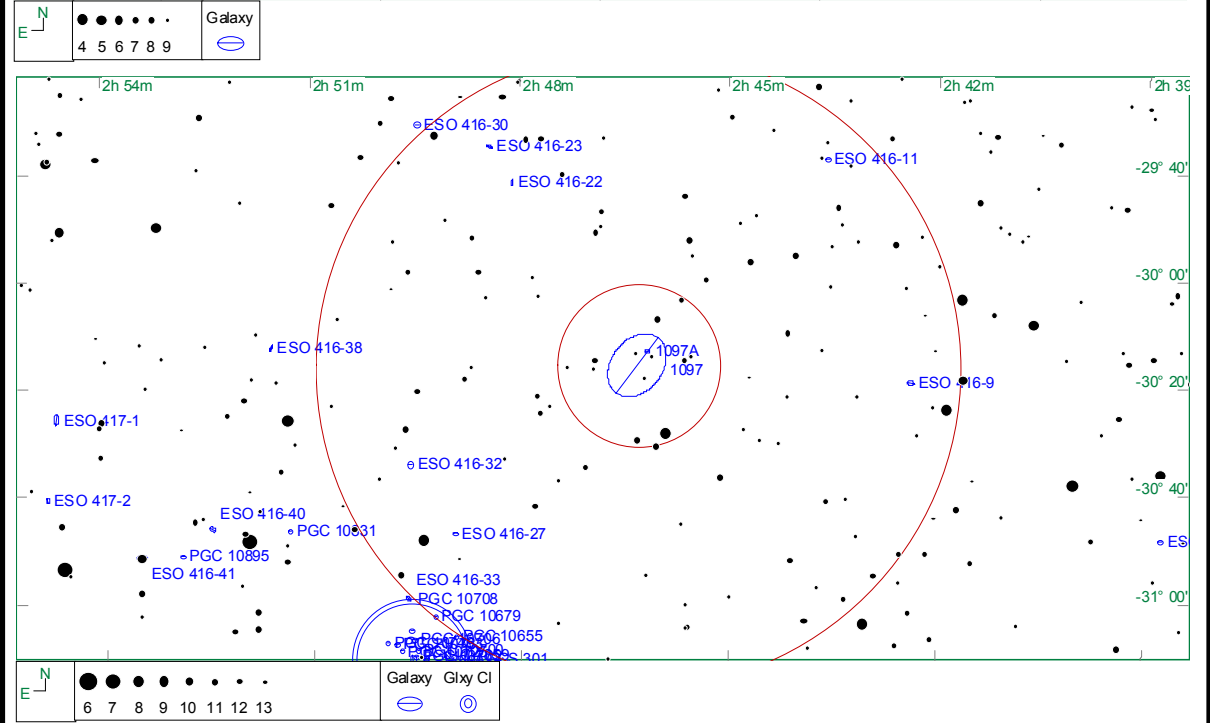
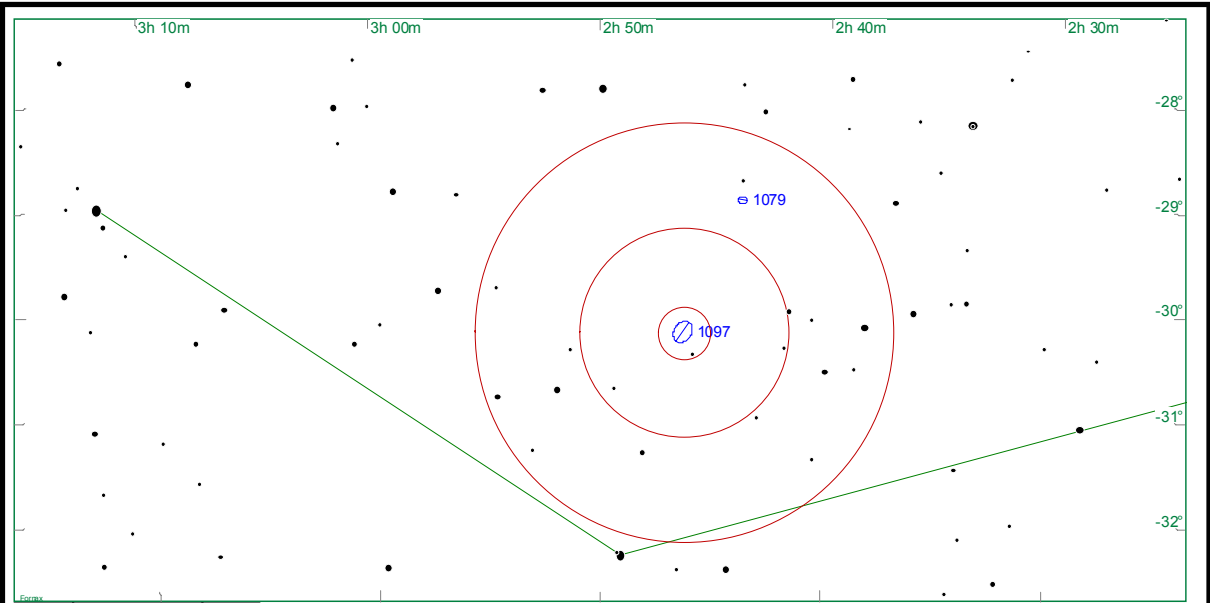
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★CDMP: (Chris' Don't Miss Pick)

NGC 1097 (Arp 77, C-67) – Galaxy in Fornax, Magnitude 10.2(B), Size 12.7' x 9.4'

NGC 1097 is a definite Spiral Seyfert-type galaxy. The irregular shape can be seen even in a 4 inch at low to medium powers. You will need a 10 inch to see 1097a, a near by interacting galaxy. This Galaxy has 4 Optical jets extending from it. Although not a visual feature, it would be a great CCD challenge. Even if you can't find jets, the pair is a great site.





Johnson Space Center Astronomical Society

An association of amateur astronomers dedicated to the study and enjoyment of astronomy. Membership is open to anyone wishing to learn about astronomy.

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December Meeting Agenda

December 9th, 7:30 p.m., Center for Advanced Space Studies/Lunar Planetary Institute, 3600 Bay Area Blvd. (at Middlebrook Drive).

Winter Solstice Party!



2004 Solstice Party—Image by David Haviland

Starscan Submission Procedures

Original articles of astronomical interest will be accepted up to **6 P.M. December 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
Associate Editors	Sheila Steele
	Ken Steele

Cover Image

Black Widow Nebula in Circinus

Credit: NASA/JPL-Caltech/E. Churchwell (U of Wisconsin-Madison)/GLIMPSE Team

In the constellation Circinus, where previous visible-light observations by the Digital Sky Survey saw only a faint hourglass-shaped patch of obscuring dust and gas, NASA's Spitzer Space Telescope's dust-piercing eyes see a big "Black Widow Nebula" teeming with clusters of massive young stars (right). In the Spitzer image, the two opposing bubbles are being formed in opposite directions by the powerful outflows from massive groups of forming stars. The baby stars can be seen as specks of yellow where the two bubbles overlap.