



September, 2003

At the **September 5** meeting...

Peter Nolan

former H.A.S President

***Mesozoic Mass Massacre
Mysteries***

Houston Astronomical Society

GuideStar

HAS Web Page: <http://www.AstronomyHouston.org>

See the *GuideStar's* Monthly Calendar of Events to confirm dates and times of all events for the month, and check the Web Page for any last minute changes.

★★★★★ **The Houston Astronomical Society** ★★★★★

The Houston Astronomical Society is a non-profit corporation organized under section 501 (C) 3 of the Internal Revenue Code. The Society was formed for education and scientific purposes. All contributions and gifts are deductible for federal income tax purposes. General membership meetings are open to the public and attendance is encouraged.

★★★★★★★★★ **Officers & Past President** ★★★★★★★★★

President: Kirk Kendrick H: 281-633-8819 Treasurer: Debbie Moran H: 713-666-9428
 Vice Pres: Bill Leach H: 281-893-4057 Past President: Don Pearce H: 713-432-0734
 Secretary: Brian Cudnik H: 832- 912-1244

★★★★★★★★★ **Additional Board Members** ★★★★★★★★★

	Liaison responsibility
Bill Flanagan 713-699-8819	Telescope Loaner Program
Don Pearce 713-432-0734	
JayLevy 281-557-4920	Field Trip and Observing, Program
Christopher Mendell 281-488-8906	
Steve Sartor 281-370-3544	

★★★★★★★★★ **Committee Chairpersons** ★★★★★★★★★

Audit Matt Delevoryas 713-666-9428	Program John Blubaugh
Education Richard Nugent 713-524-1993	Publicity Joe Khalaf 713-660-8219
Field Tr./Obsg. Kenneth Miller	Telescope Clayton Jeter 281-383-1337
Novice George Stradley 281-376-5787	Welcoming Marg Nunez 713-529-2549
Observatory Michael Dye 281-498-1703 Hannah Lange 832-715-7833

★★★★★★★★★ **Ad-Hoc Committee Chairpersons** ★★★★★★★★★

Historian Leland Dolan 713-688-0981	Publ. Star Party Marg Nunez 713-529-2549
Librarian Peggy Gilchrist 281-443-8773	Rice U. Coord. Matt Delevoryas 713-666-9428
Logo Mds Sales Judy Dye 281-498-1703	Schedule Obs'v'ty Steve Goldberg 713-721-5077
Long Range Plan Bill Leach 281-893-4057	Texas Star Pty Steve Goldberg 713-721-5077
Parliamentarian Kirk Kendrick 281-391-3834	

★★★★★★ **Special Interest Groups & Help Committees** ★★★★★★★

These are now listed on the inside of *GuideStar* (not every month). See the Table of Contents

★★★★★★★★★ **Advisors** ★★★★★★★★★

Dr. Reginald DuFour, Rice Univ. Dr. Lawrence Pinsky, U. of H.

★★★★★★★★★ **Dues and Membership Information** ★★★★★★★★★

Annual Dues: Regular ... \$33.00	Student \$5.00
Associate \$5.00	Honorary None
Sustaining . \$50.00	

All members have the right to participate in Society functions and to use the Observatory Site. Regular and Student Members receive a subscription to *The Reflector*. Regular, Student, and Honorary Members receive *The GuideStar*. Associate Members, immediate family members of a Regular Member, have all membership rights, but do not receive publications. Sustaining members have the same rights as regular members with the additional dues treated as a donation to the Society. *Sky & Telescope* mag \$29.95/year, *Astronomy* mag \$29/year -- see club treasurer.

Membership Application: Send funds to address shown on outside cover of *Guidestar*. Attention - Treasurer, along with the following information: Name, Address, Phone Number, Special Interests in Astronomy, Do you own a Telescope? (If so, what kind?), and where you first heard of H.A.S.

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Check the web site:

<http://www.astronomyhouston.org>

Welcome to New Members!

The Houston Astronomical Society encourages you to join our group of active amateur astronomers and take advantage of the benefits of membership. As a member you'll have access to the club observing site near Columbus, Texas. (You're required to participate in a site orientation meeting before you get the gate lock combination.) The site has concrete pads for setting up your telescope, restroom and bunkhouse facilities, and areas set aside for camping. You'll get monthly issues of the *GuideStar* newsletter, you'll get to vote and to serve the organization as an officer, and you will be supporting the local amateur astronomy community.

Special Interest Group Listing

Any member who wants specific information on a SIG listed below may call the listed individual. Also, see the "Ad Hoc Committee Chairpersons" on the inside front cover and the "Special Help Volunteers" listing (not in every issue).

Advanced	Bill Leach	281-893-4057
Comets	Don Pearce	713-432-0734
Lunar & Planetary	John Blubaugh	713-921-4275
Occultations & Grazes ...	Wayne Hutchison	713-827-0828
Advanced	Bill Leach	281-893-4057

Observations... of the editor

by Bill Pellerin, GuideStar Editor

I'm excited about a new observing 'toy' that I've acquired. I now own a pair of Canon 10x30 Image Stabilization binoculars. My decision to get these was based on the experience I had using a pair of the 15x50 IS binoculars recently. A 10x30 binocular is not what you usually think of for astronomical use. The small aperture limits the light grasp, so you might not think that they'd be good for astronomy.

In fact, though, the Image Stabilization feature goes a long way to make up for the smaller aperture. The result is quite amazing. You bring these binoculars up to your eye and find the field of interest in the sky. Looks good, huh? Then, you press the 'stabilization' button and shortly the whole view settles down. The amount of extra detail is remarkable. The 10x30 binoculars have a short delay (about 2 seconds) between the time that you push the button and the time the image stabilizes. The larger ones don't have this delay. In practice, this isn't a significant drawback.

The smaller size of the 10x30's is nice for portability and for hand-held viewing (that's the point, after all... no tripod needed), but, of course, larger binoculars will show you more. I read a recent *Sky and Telescope* review of this family of binoculars, and the reviewer suggested that a figure-of-merit for binoculars is equal to the power * aperture. Using this, the 10x30's have a f.o.m. of 300, and the 15x50's have a f.o.m. of 750. Whichever pair is right for you, I highly recommend the product.

By the way, you can subscribe to the *Sky & Telescope* on-line article archive (if you're already a subscriber) for less than \$10/year. This is a great deal if you want to look up reviews on products, or refer to an article from an issue that you no longer have on your magazine pile. Check this out. The articles are in Acrobat format (.PDF), which is the same format as the *GuideStar* on the H.A.S. web site.

Last month I told you that I had not been able to get a good look at Mars. This month, I can tell you that I have had a good look. Last Saturday (August 16) night I was able to see Mars in all its glory. This was, by far, the best look at Mars I've ever had. The southern ice-cap was glowing a bright white, and the pale orange color of the planet was broken up by darker surface features. I stared at it for quite some time, and even

Continued on page 12....

Houston Astronomical Society

***Meeting Notice
For Friday, September 5, 2003***

Peter Nolan

former H.A.S president

Mesozoic Mass Massacre Mysteries

Travel back in time 4.5 billion years to experience the remarkable changes of the Earth and its life forms. We'll explore astronomical, terrestrial, ecological, biological and other influences that may have caused the series of events that resulted in the five major mysterious mass extinctions. Theories abound (over one hundred on what did the dinosaurs in) and proponents have far from been courteous in conflict resolution. Asteroids, cosmic radiation, volcanoes, sea level changes, too hot, too cold, flowers, viruses, or alien big game hunters – well explore them all and see what emerges, both from what has happened and what could be our future.

Schedule of meeting activities:

All meetings are at the University of Houston Science and Research building. See the inside back cover for a map to the location.

**Novice meeting: 7:00 p.m.
Richard Nugent "Occultations"**

**Site orientation meeting: 7:00 p.m.
Classroom 121**

**General meeting: 8:00 p.m.
Room 117**

**See the inside back cover for a map
and more information.**

September/October Calendar:



Photo by Scott Mitchell

<i>Date</i>	<i>Time</i>	<i>Event</i>
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September 2003

3	7:34 a.m.	First Quarter Moon
5	7:00 p.m.	Novice Presentation - U of H.
	8:00 p.m.	General membership meeting U of H. Peter Nolan, former HAS President and longtime member: "Mesozoic Mass Massacre Mysteries."
10	11:36 a.m.	Full Moon
18	2:03 p.m.	Last Quarter Moon
20		HAS Annual Picnic - Columbus Members Observatory Night - Columbus
23	5:47 a.m.	Autumnal equinox-Fall begins as sun enters southern celestial hemisphere
25	10:09 p.m.	New Moon
27		Prime Night-Columbus

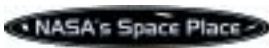
October 2003

2	2:09 p.m.	First Quarter Moon
3	7:00 p.m.	Novice Presentation - U of H.
	8:00 p.m.	General membership meeting U of H. Scott Mitchell: "Ends of the Earth: Southern Skies Star Party + Top of the World Astronomy" (tentative).
4	3:00 p.m.	Astronomy Day—George Observatory
10	2:28 a.m.	Full Moon
18	7:31 a.m.	Last Quarter Moon
		Members Observatory Night - Columbus
25	7:50 a.m.	New Moon
		Prime Night-Columbus
26	3:00 a.m.	Daylight Saving Time ends and Standard Time begins. Set clocks back 1 hour.
31	10:25 p.m.	Full Moon

*Send calendar events to JBlubaugh@aol.com
or call 713-921-4275.*

Careful Planning and Quick Improvisation Succeed in Space Biz

By Tony Phillips



On December 18, 2001, ground controllers at JPL commanded NASA's Deep Space 1 (DS1) spacecraft to go to sleep. "It was a bittersweet moment," recalls Marc Rayman, the DS1 project manager. Everyone was exhausted, including Deep Space 1, which for three years had taken Rayman and his team on the ride of their lives.

DS1 blasted off atop a Delta rocket in 1998. Most spacecraft are built from tried-and-true technology—otherwise mission controllers won't let them off the ground. But Deep Space 1 was different. Its mission was to test 12 advanced technologies. Among them: an experimental ion engine, a solar array that focused sunlight for extra power, and an autopilot with artificial intelligence. "There was a good chance DS1 wouldn't work at all; there were so many untried systems," recalls Rayman.

Nevertheless, all 12 technologies worked; the mission was a big success.

Indeed, DS1 worked so well that in 1999 NASA approved an extended mission, which Rayman and colleagues had dreamed up long before DS1 left Earth—a visit to a comet. "We were thrilled," says Rayman.



This was the final image of the nucleus of comet Borrelly, taken just 160 seconds before Deep Space 1's closest approach to it. This image shows the 8-km (5-mile) long nucleus from about 3417 kilometers (over 2,000 miles) away.

Space Place... from previous page

And that's when disaster struck. DS1's orientation system failed. The spacecraft couldn't navigate!

What do you do when a spacecraft breaks and it is 200 million miles away? "Improvise," says Rayman.

Ironically, the device that broke, the 'Star Tracker,' was old technology. The DS1 team decided to use one of the 12 experimental devices—a miniature camera called MICAS—as a substitute. With Comet Borrelly receding fast, they reprogrammed the spacecraft and taught it to use MICAS for navigation, finishing barely in time to catch the comet. "It was a very close shave."

In September 2001, DS1 swooped past the furiously evaporating nucleus of Comet Borrelly. "We thought the spacecraft might be pulverized," Rayman recalls, but once again DS1 defied the odds. It captured the best-ever view of a comet's heart and emerged intact.

By that time, DS1 had been operating three times longer than planned, and it had nearly exhausted its supply of thruster-gas used to keep solar arrays pointed toward the Sun. Controllers had no choice but to deactivate the spacecraft, which remains in orbit between Earth and Mars.

Rayman has moved on to a new project—Dawn, an ion-propelled spacecraft that will visit two enormous asteroids, Ceres and Vesta, in 2010 and 2014. "Dawn is based on technologies that DS1 pioneered," he says.

Even asleep, DS1 continues to amaze.

Find out more about DS1 at <http://nmp.jpl.nasa.gov/ds1>. For kids, go to <http://spaceplace.nasa.gov/ds1dots.htm> to do an interactive dot-to-dot drawing of Deep Space 1.

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

The Many Motions and Apparent Motions of the Moon

By Don Pearce

One day in July Bill Flanagan and I were returning to Houston from central Texas and decided to stop and watch the moonrise from along the highway. After all, we had watched the moonrise the previous night from near Sonora, about 200 miles west of our current location near Austin. It had been a beautiful sight, the 3rd quarter Moon rising over a barren ridge as viewed in 10 x 70 binoculars. A quick check with the GPS indicated that the *local* moonrise would be at 1:32 a.m. and it was now about 1:00 a.m. That seemed reasonable since moonrise the previous night had occurred at 12:50 a.m. (albeit from a location about 15 minutes later in rise/set times). Can you imagine the shock we experienced about 10 minutes later when we spotted the now barely waning crescent rising about 30 minutes early. (Either GPS or user error - we never absolutely concluded). A quick check with software indicated that the Moon rose *locally* at 1:03 a.m. and would have risen at 1:17 a.m. even if we had stayed in Sonora, a mere 28 minutes later than the previous night. Now the point of this seemingly mundane discussion is that if you find this interesting, you can, perhaps, appreciate a fuller understanding of the title of this article.



It is said that Sir Isaac Newton proclaimed that the Moon's motions might drive him insane. After researching this problem, I can appreciate Newton's dilemma. Let us first consider the Moon's trip around the Earth. Of course we notice that the Moon is traveling eastward through the stars at an average rate of about 13 degrees per day, but because the orbital speed varies in accordance with the Moon's distance, which varies by almost 14%, that apparent eastward motion can be slightly more than 15 degrees near perigee and slightly less than 12 degrees at apogee. This, of course, affects the rising and setting times of the Moon, which on average

Continued....

The Motions of the Moon... from previous page

are about 54 minutes apart, but which are also affected by the angle of the ecliptic to the horizon. When the Moon rises and is near the vernal equinox (in the northern hemisphere) the angle to the ecliptic is very shallow, and consequently, the Moon rises successively sooner than the average each day. (This same effect occurs with the autumnal equinox from the southern hemisphere).

This describes the so-called “harvest moon” effect (which describes this effect on the full Moon, but pertains to any moon near the vernal equinox). When this situation is combined with the Moon also being near apogee you have close to what Bill and I experienced. A check with July rise/set times indicates that the 28 minutes between July 20th and 21st was the minimum period between rise times for the entire month. Apogee was July 22nd and the Moon crossed the vernal equinox on July 18th. The longest gap in rise times was 1 hour and 10 minutes which occurred on July 9-10th.

If you ever have watched a simulation of the Moon’s path on a computer you would have noticed that it seems to wobble, dipping up and down in its daily motion. This is from its diurnal parallax, a phenomenon caused by the Moon’s parallax from any given location from the roughly 10000 mile trip (at our latitude) the observer makes from moonrise to moonset, including alternately moving 4000 miles closer and then receding.

Now, let us consider the Moon’s orbit around the Earth *and Sun*. The Moon (and Earth) are revolving around a common center of gravity known as the *barycenter* of the Earth/Moon system (which is always buried within the Earth) However, if you plot the Moon’s orbit relative to the Sun you would find that it orbits in an *almost* perfect ellipse around the Sun, everywhere the Moon’s orbit is concave to the Sun, and nowhere does it even manifest convexity. This can best be demonstrated on a real scale plot with the size of the Moon reduced to, say, a point at a millimeter distance from the Earth, and the Sun about 39 centimeters away. (In this case the Earth’s orbit would be a little over 245 centimeters or about 2.5 meters long)

The Moon’s orbit is tilted 5° 9’ to the plane of the ecliptic, which from an observational perspective constrains its path to a broad ecliptical band, but from a physics perspective, results in a solar gravitational tug in an effort to bring the Moon in line with the ecliptic. However, as in precession, the

Continued....

The Motions of the Moon... from previous page

Moon's orbit does not become "flatter", but, instead, the line of nodes (ecliptic intersection points) regresses, (that is, moves *westward*) moving entirely around the ecliptic in 18.6 years or close to about 7 months longer than one Saros cycle, and while the lunar orbit retains the same shape, its orientation constantly changes during that cycle.

The tidal force of the Sun has yet another pronounced effect on the Moon's orbit, causing the lines of apsides (major axis of the Moon's orbit connecting the perigee-apogee points) to precess (move *eastward*) once every 8.85 years. The significance of these last 2 lunar motions (nodal regression and line of apsides precession becomes apparent in the paragraphs below.

The reason I mentioned the 18.6-year nodal revolution period and the Saros cycle, together, is that for well over a thousand years there has been some confusion as to the length of the Saros. Around 1000 A.D. a Greek translator erroneously assumed that they should be one and the same. Even today, in some modern texts, one can encounter the term "18.6 year Saros Cycle". Rest assured, the Saros is 18 years and 11 days (average) and about one-third day. And just what is this period? Simply stated, it is the time it takes for eclipses, (which occur on an average of about 4 a year during two {again on the average} eclipse "seasons" a year) to *recur*, that is, to approximately duplicate themselves. And why is this so? In order to have an eclipse at all it must be new moon (for solar eclipses) and the *synodic* month (new moon to new moon) is 29.53059 days. The Moon must also be crossing one of its nodes and the *draconic* month (node to node) is 27.21222 days. The distance must also align correctly and the *anomalistic* month (perigee to perigee) is 27.55455 days. How long does it take for all these differing periods to converge? Well, 223 *synodic* months equals 242 *draconic* months equals 239 *anomalistic* months which happens after the passage of 6,585 (and change) days, which you have now guessed is equal to 18 years 11 days (average) and about one-third day. And what about that one-third day? It means that when the Saros repeats itself it does so one-third of the Earth's revolution away (to the west), that is, the same Saros eclipse repeating itself from, say, Europe, will occur in North America the next time. I think this is a strong argument that it would be very difficult for ancient peoples to have accurately predicted eclipses, and many of the prediction success stories may have been apocryphal. Another interesting

Continued...

The Motions of the Moon... from previous page

aspect of the Saros period is that this does not only apply to eclipses, but the Moon returns to the approximately same position every 6585 days.

Earlier, we said that the Moon's orbit is tilted $5^{\circ} 9'$ to the ecliptic, but this is only an average. The Sun and the Earth's equatorial bulge cause the inclination of the Moon's orbit to the ecliptic to vary from $4^{\circ} 59'$ to $5^{\circ} 18'$. However, the spin *axis* of the Moon is nearly perpendicular to the plane of the ecliptic, with an inclination of only 1.5° from the vertical. As a result the moon does not have "seasons".

And of course we cannot omit the Moon's axial *rotation*, which, do to being in tidal lock from the Earth's gravitational forces, rotates on its axis in the same period that it revolves around the Earth, ever presenting its same face. Even here, there are slight variations, which produces a phenomenon known as *longitudinal librations*, in which sometimes we can see around one side and at other times the other side. There are also two other forms of librations, latitudinal and diurnal, but that is the subject of another article.

Observations... from page 4

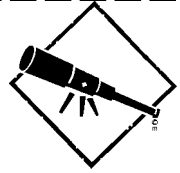
sketched it. If you want to learn to sketch, talk with our master sketcher, Scott Mitchell, but there is no doubt that sketching your observations sharpens your observing skills by causing you to look more critically at the object of interest. Try sketching Mars while it's close to us.

Check Don Pearce's article in this issue on the motions of the Moon. Don is an avid early-moon observer and has studied this subject for some time. You'll find his analysis interesting and informative.

Until next time... clear skies and new moons!

..Bill

Observatory Corner



By Michael B. Dye Observatory Chairman



The first subject in this month's article is the Annual Picnic, which will be on September 20th, this year. I plugged the picnic back in the January 2003 *GuideStar*, in the July 2003 *GuideStar* and again last month. It is not like I haven't tried to get the word out that we will have a picnic on the 20th of September. We will use a modified format of the format that I started using in 2002. The modification comes as a result of the July Board of Director's meeting in which it was suggested

that instead of requesting all members bring something extra to eat, I will get selected volunteers to bring specific items for the picnic. This means unless you have talked to me and volunteered to bring specific items to the picnic, you just need to show up. Ed Szczepanski has volunteered to donate the meat (hamburgers and franks) and buns so we will not be collecting any money for food. At this point I have two volunteers to cook and one person volunteering to bring some deserts. I am still looking for some more volunteers to bring chips and dip, condiments (tomatoes, onions and such) and beans (no picnic is complete without beans). Mary Lockwood has volunteered to help with the children's games. Members who would like to volunteer to help or who would like to come to the picnic can E-mail me at mbdye@rice.edu or mbdye@aol.com.

The next topic is the August Members night at the Observatory Site. I would like to congratulate both Ken Miller and George Stradley for the marvelous turnout. The fact that the weather cooperated also didn't hurt either. Ken Miller indicated that he counted about 77 members and guests showing up at the Observatory Site to attend the picnic, and to view the sky. The sky cleared up in the early evening and the viewing was very clear. Mars came up about 10 that evening and the moon followed about 12:30 Sunday morning. The Observatory was open and all three scopes were manned. I believe everyone who attended had a good time.

Continued....

Observatory Corner... from previous page

A five man team (eventually seven) consisting of Ken Miller, Kevin Miller (Ken's son), Kirk Kendrick, Bob Rogers, and Danny Kennedy replace the east exit gate which had become nonfunctional. Clayton Jeter and John Missavage showed up in the early afternoon and helped with mounting of the new gate. This activity consisted of first removing the old gate, removing the old posts and then installing new posts and the new gate. The new gate is a stronger 'tube' frame gate instead of the cheaper gate that has been there for years. We have had to replace the old gate once before and I hope this gate will last longer. Unfortunately the job is not as complete as we wanted it to be. The mounting bolts that came with the gate were not long enough. This prevented us from leveling the gate swing. The correct bolts should be installed within the month.

The last item will be something rather unusual. Again I am looking for volunteers (this seems to be all I do) to help paint the Observatory. This time I have managed to find someone to supervise the "Paint the Observatory" group. This illustrious volunteer is one of our newest Observatory Key holders, Preston J Engebretson. Preston has not worked out a date for the painting activity but it will most likely be in September, October or November (when it should be cooler). The group will consist of about five people who will work over one weekend (early Saturday through Sunday). Please call or E-mail me if you would like to volunteer.

The Society continues to benefit from members who shop at Randalls and now Krogers. For this we (the Society) thanks you. Please link your Randalls card to the Houston Astronomical Society so that the society can benefit from the Randalls program. Our number is #6618. This is very easy to do, just go to the Courtesy Booth and tell the person there what you what to do. If you shop at Kroger, we now have a card available (at the General Meeting) that you present at the cash register when you check out. We can thank Joe Khalaf (Publicity Chairman) for his efforts in getting the cards.

Please fill out the appropriate log form when you use the site. Remember we use these forms as attendance records and to report Observatory Site problems such as broken toilets.

Astronomy Day 2003

Brazos Bend State Park
George Observatory
Saturday, October 4
3:00-10:00 PM

Indoor & outdoor presentations start at 4:00 PM

Observing:

Daylight: Sunspot and prominence viewing

Night: Moon, Mars, galaxies and nebulae

36-inch telescope viewing

Challenger Center flight simulations

Face painting, astronomy buttons and information

Dozens of telescopes to view from

State park entrance fee-\$3/person

For more information GO TO:
<http://users2.ev1.net/~earthlings/AstronomyDay2003.htm>

Or for questions E-mail Bill Leach at astrobil@flash.net

Sponsors:

Astronomical Society of Southeast Texas
Fort Bend Astronomy Club
George Observatory
Houston Astronomical Society
Houston Museum of Natural Science
Johnson Space Center Astronomical Society
Kingwood College
North Houston Astronomy Club

Volunteers needed for Astronomy Day

The Houston Astronomical Society needs its members to
volunteer for:

1. Answering questions from the public at the HAS table
2. Giving 15 minute presentations in the outdoor arena
3. Bringing telescopes for daylight and night viewing for the public

Volunteer Benefits:

- Free entrance fee
- Food and drink
- Door prizes
- Astronomy Day 2003 T-shirt (\$15, available at the Friday, Oct. 3 meeting, Astronomy Day 2001 Mars shirts - \$10)
- Official nametag

Your name must be on the official list to get these benefits.

To volunteer notify: George Stradley, Judy Dye or Bill Leach

3rd Annual Houston Regional Astronomy Meeting

Friday, October 3, 2003
8:00 PM

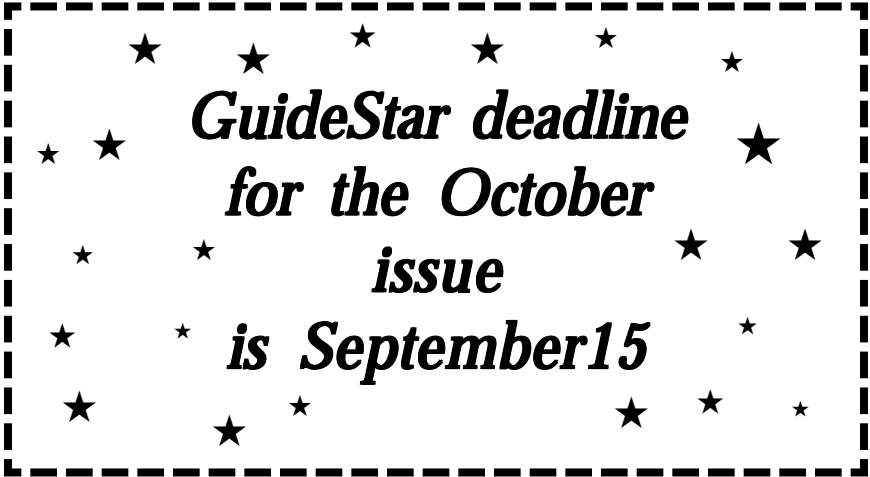
Host: Houston Astronomical Society
Details will be available later on the meeting.

HAS Web Page

The Houston Astronomical Society Web page has information on the society, its resources, and meeting information.

The address is: <http://www.astronomyhouston.org>

Want your astronomy work and name on the Internet for the whole world to see? Have some neat equipment? Pictures in film, CCD, hand drawings or video format are all welcome on the page. Do you have an idea to improve the page? I'm listening. Send me Email at goldberg@infohiwy.net. (You can click on my name on the HAS home page). Or, you can call Steve Goldberg (WebMaster), at 713-721-5077.



***GuideStar deadline
for the October
issue
is September 15***

Observatory Duty Roster

by Michael B. Dye, Observatory Chairman

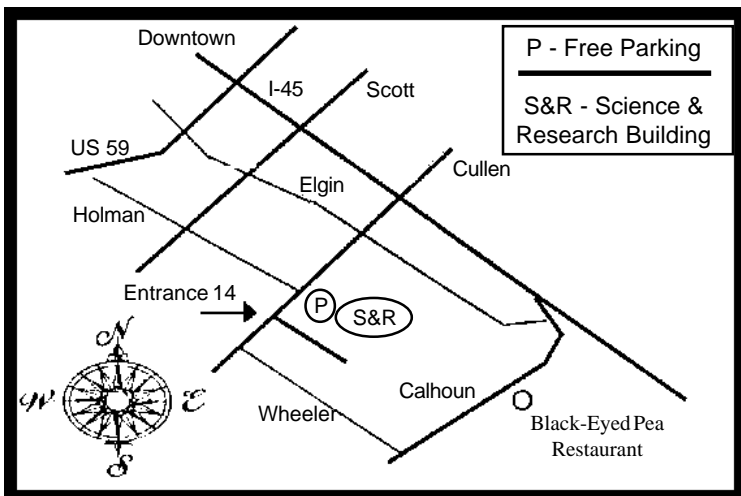
This is the duty list for September, October and November. If you are listed in this roster, please be sure to contact your supervisor for any information that you may need and the date and time to be at the site. You may change from site duty to open house or from open house to site duty by pre-arrangement with the Site Supervisor for that month. Changes between months require Observatory Chairman coordination.

September Supervisor Allen Gilchrist 281-443-8773
Arnie Kaestner Site
David Kahlich Site
Larry Karasevich Site
Robert Kuna Members Observatory Night 09-20-03
Jay Levy Site
Mary Lockwood Members Observatory Night 09-20-03
Christopher Mendell Site
Kenneth Miller Site
Larry Mitchell Members Observatory Night 09-20-03

October Supervisor Logan Rimes 713-681-5397
Debbie Moran Site
Ben Negy Members Observatory Night 10-18-03
Johnny Norris Site
Richard Nugent Members Observatory Night 10-18-03
Ralph Overturf Site
Don C. Pearce Members Observatory Night 10-18-03

November Supervisor Logan Rimes 713-681-5397
Margaret Nunez Site
Sim Picheloup Members Observatory Night 11-15-03
Scott Poteet Members Observatory Night 11-15-03
Leonard Raif Members Observatory Night 11-15-03
Henry Schneider Site
Larry Wadle Site

Please remember that Site work can be done anytime and does not have to be done just before Members Observatory Night. Contact your Site Supervisor for details. Names are selected for Site Duty using the current Alphabetical listing for Observatory Key Holders. If any member knows of a conflict please call me before your name is listed.



General Membership Meeting

The Houston Astronomical Society holds its regular monthly General Membership Meeting on the first Friday of each month, unless rescheduled due to a holiday. Meetings are in Room 117 of the Science and Research Building at the University of Houston. A Novice Presentation begins at 7:00 p.m.. The short business meeting and featured speaker are scheduled at 8:00 p.m. Also typically included are Committee Reports, Special Interest Group Reports, current activity announcements, hardware reviews, an astrophotography slide show by members and other items of interest.

Board of Directors Meeting

The Board of Directors Meeting is held on dates scheduled by the board at 7:00 p.m. in Room 106 of the Space Science Building at Rice University. Call StarLine for Board Meeting information. Information provided to GuideStar will be published. The meetings are open to all members of the Society in good standing. Attendance is encouraged.

GuideStar Information

The H.A.S. *GuideStar*s published monthly by the Houston Astronomical Society. All opinions expressed herein are those of the contributor and not necessarily of Houston Astronomical Society. The monthly Meeting Notice is included herein. *GuideStar*s sent via bulk rate mail to Regular, Student, and Honorary Members of H.A.S., selected individuals and recent visitors to the General Membership Meeting. Contributions to *GuideStar* by members are encouraged. Electronic submission is helpful. Submit the article in ASCII text, MS-Word (preferred), or WordPerfect format on an IBM format floppy or via AOL (BILLP10566). Mail copy to the address shown on the outside cover or to the editor at 256 East 5th Street, Houston, TX 77007. Copy must be received by the 15th of the month for inclusion in the issue to be mailed near the end of the same month. Or, bring copy to the General Membership Meeting and give it to the Editor, or phone to make special arrangements.

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