



GuideStar

February, 2009

At the February 6 meeting...

Weather and the Stars

How the Weather Can Affect Your Stargazing

Meteorologists

Mark Strzepek and Jason Cali

Jason will be focusing on how various weather variables, such as wind, temperature and dew point can affect visibility and could create odd atmospheric phenomena.

Mark will be discussing different websites and places to find weather data in an easy to use format that can help predict whether or not you will have a good night for watching the stars/planets. Cloud cover, atmospheric aerosols, visibility and the like will be discussed.



Highlights:

Allen Gilchrist - Astroimager.....	6
Severe Space Weather	9
Xi Ursae Majoris.....	11

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.

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.

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

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

See last page for a map and more information.

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: Bill Leach.....H: 281-893-4057
 Vice Pres: Ken MillerH: 936-931-2724
 Secretary: Open
 Treasurer: Bill FlanaganH:713-699-8819
 Past President: Steve Sartor

Additional Board Members

Steve Goldberg.....713-721-5077
 Don Pearce.....713-432-0734
 Doug McCormick.....
 Alan Grissom.....
 John Missavage.....

Committee Chairpersons

AuditTom Blocker.....
 Education.....Richard Nugent.....
 Field Tr./Obsg.....Mike Edstrom.....281-347-7267
 Novice.....Justin McCollum.....
 Observatory.....Bob Rogers.....281-460-1573
 Program.....Brian Cudnik.....
 Publicity.....John Missavage.....
 Telescope.....Bram Weisman.....
 Welcoming.....Susan Bruneni.....

Ad-Hoc Committee Chairpersons

HistorianLeland Dolan.....713-688-0981
 Librarian.....Peggy Gilchrist.....281-443-8773
 Logo Mds Sales.....Judy Dye.....281-498-1703
 Long Range Plan.....Bill Leach.....281-893-4057
 Parliamentarian.....Kirk Kendrick.....281-633-8819
 Publ. Star Party.....Richard Nugent.....713-524-1993
 Rice U. Coord.....Matt Delevoryas.....713-666-9428
 Schedule Obs'v't'y.....Steve Goldberg.....713-721-5077
 Texas Star Pty.....Steve Goldberg.....713-721-5077

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.
 Dr. Lawrence Armendarez, U. of St. Thomas

Dues and Membership Information

Annual Dues:Regular\$36.00
 Associate\$6.00
 Sustaining\$50.00
 Student\$12.00
 HonoraryNone

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* and *Astronomy* magazines are available to members at a discount.

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.

Table of Contents

3.....January/February Calendar
 3.....February/March Calendar
 Web site
 4.....Observations of the Editor
 5.....Observatory Corner
 6.....Allen Gilchrist - Astroimager
 9.....Severe Space Weather
 10.....Want-Ads
 Astronomical League
 11.....Shallow Sky Object - Xi Ursae Majoris

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

Other Meetings...

Fort Bend Astronomy Club meets the third Friday of the month at 8:00 p.m. at the First Colony conference Center. Novice meeting begins at 7:00, regular meeting begins at 8:00. Web site: <http://www.fbac.org>

Johnson Space Center Astronomical Society meets in the the Lunar and Planetary Institute on the 2nd Friday of each month. Web site: www.jscas.net

North Houston Astronomy Club meets at 7:30 p.m. on the 4th Friday of each month in the Teaching Theatre of the Student Center at Kingwood College. Call 281-312-1650 or E-mail bill.leach@nhmccd.edu. Web site: www.astronomyclub.org

February/March Calendar:



Photo by Scott Mitchell

Check the web site:
www.astronomyhouston.org
Webmaster: Kay McCallum
kaym@mcclibrary.net

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

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 kaym@mcclibrary.net.

Date Time Event

February

2	5:13 p.m.	Moon at first quarter
6	7:00 p.m.	HAS Novice Meeting, U of H
	8:00 p.m.	HAS General Meeting, U of H
9	8:49 a.m.	Full Moon
13	3:00 p.m.	Mercury at greatest elongation west
16	3:37 p.m.	Moon at last quarter
21		Prime Night, Columbus Observing Site
23	10:00 p.m.	Mercury 0.62 deg S of Jupiter
24	7:35 p.m.	New Moon

March

1	6:00 p.m.	Mercury 0.59 deg SSE of Mars
4	1:45 a.m.	Moon at first quarter
6	7:00 p.m.	HAS Novice Meeting, U of H
	8:00 p.m.	HAS General Meeting, U of H
8	2:00 a.m.	Daylight Savings Time begins set clocks forward 1 hr.
	3:00 p.m.	Saturn at opposition
10	9:37 p.m.	Full Moon
18	12:49 p.m.	Moon at last quarter
20	5:45 a.m.	Vernal equinox
21		Prime Night, Columbus Observing Site
26	11:07 a.m.	New Moon
28		All Clubs Star Party & BBQ Columbus Observing Site

Send calendar events to Doug McCormick
 - skygazer10@sbcglobal.net

Columbus Field Trips 2009

Mike Edstrom
 Field trip/Observing committee chair

The schedule is as follows:

- January 24 – HAS Observing
- March 28 - All clubs BBQ
- May 23 - All clubs BBQ
- September 19 - Annual picnic / all clubs/BBQ
- October 17 - All clubs BBQ
- December 19 – HAS Observing

★ ★ ★ ★ ★

GuideStar deadline

for the March

issue

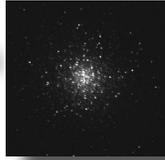
is February 15

★ ★ ★ ★ ★



Observations... of the editor

by Bill Pellerin, GuideStar Editor



Texas Star Party - April

I know... it's only February, but the Texas Star Party begins April 19 and it's time to start getting ready. One rule that I have is "don't bring any equipment to the Texas Star Party that I don't know how to use or haven't completely tested under the stars". One time, I came to the TSP with a new eyepiece and, guess what, stars wouldn't come into focus without an extension tube for the eyepiece. I was able to borrow one at the TSP, but it would have been better to have worked this out in advance.

Think about it. If you are anticipating getting some new equipment before the TSP you're going to need time to purchase the equipment, figure it out and test it before you pack it for a week in West Texas. Get it now and you'll not only be ready for the TSP, you'll be helping the economy, which sorely needs the help.

The Astronomy Economy

It's common knowledge that the economy is in poor shape. Just watching the news can put you into a funk. Today, I got the March *Sky and Telescope* magazine, and while I was looking at the ads for shiny new equipment I was asking myself, "Who's going to buy this stuff?" I may be making some small purchases in advance of the Texas Star Party, but I won't be making any major purchases for a while.

Even for those of us who have been able to hold on to our jobs the uncertainty makes us less likely to commit to a big expense. I worry about the folks who make and sell this stuff. Are they going to be around and in business next year? Will new, innovative products be on the market, or will the suppliers decide that this isn't the right time to introduce new products to the marketplace. What about the TSP? Last year, some of us didn't make the trip because of the price of gasoline. This year, will some not make it because they can't afford it?

From the consumer's point of view (you and me) there are lower cost, high quality products coming on the market, so the price of getting into amateur astronomy is going down.

Another thing... our enjoyment of the night sky is not necessarily proportional to the amount of money we've spent.

Free stuff

Some of the best things in life are, in fact, free. The Houston Public Library offers free access to books (of course), but also

DVD movies and CDs. All you have to do is to get a free library card to get access to all this free stuff. The downtown Houston library branch has been remodeled and looks very nice. You can find enough astronomy literature here to keep you busy for quite a while.

Another free thing -- Rice University offers open-to-the-public lectures as part of its Scientia series. On January 13, I attended a lecture by Neal Lane called "Scientists Speaking Out". The lecture talked about how government policy influences science and how science influences government policy.

Dr. Lane was a science advisor during the Clinton administration, and the lecture was excellent. More lectures are scheduled. You can get on the Rice Space Institute email list at this URL:

<http://rsi.rice.edu/maillinglist-outside.cfm>

Banquet 2009

I have it on good authority that there's an announcement coming about this year's banquet speaker. Last year, we had an overflow crowd for Steven Weinberg, Nobel prize winning physicist from the University of Texas. I don't know who it'll be this year, but I'm eager to find out!

Until next time...

clear skies and new moons!

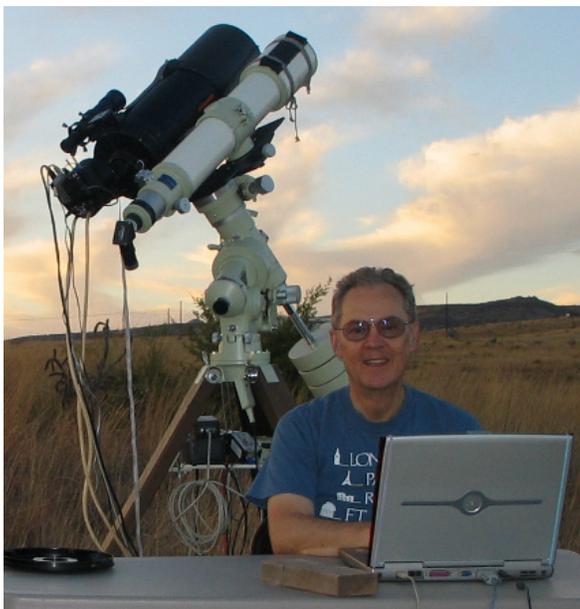
..Bill





Allen Gilchrist - Astroimager

In the past year or so as a column writer here in the *GuideStar*, I have learned to enjoy what makes amateur astronomers tick as I interview them. What I've really taken pleasure in is interviewing past HAS club presidents. This month I have the great pleasure in chatting with Allen Gilchrist about his astronomy. My best memory of Allen, is watching him tinkering with our observatory's Celestron C-14. He slowly was turning this



Allen Gilchrist

SCT into a fine goto scope. He has the knack to make things work.

If you don't know Allen yet, or just thought you did... now's the time. Meet Allen...

The Allen Gilchrist bio...

Allen and Peggy Gilchrist joined the Houston Astronomical Society in 1987 in the aftermath of the Comet Halley craze.

Allen had just rekindled a long-standing interest in astronomy that began in the 60's when he was in graduate school. He had taught astronomy lab sessions as part of his teaching assistantship. Soon after joining the HAS, Allen became active on the Board, serving as secretary, treasurer, vice-president, and then president. After serving two terms as President, he has occasionally returned to the Board as a director at large, and he continues to serve on the Observatory committee.

Allen's involvement with astronomy has not been limited to the HAS. He and Peggy were members of the Fort Bend Astronomy Club for several years before moving to their present home near the George Bush Intercontinental Airport. Allen was an adjunct lecturer in astronomy at the University of Houston Downtown for twelve years, and he and Peggy served as building managers at the George Observatory for twelve years, where they still volunteer occasionally.

Allen enjoys astro-imaging, and he and Peggy enjoy doing public

star parties. The Gilchrist's are completing a "retirement" home in Fort Davis.

The Allen Gilchrist interview...

Clayton: It's a real pleasure Allen to ask you a few questions here about our club and amateur astronomy in particular. I see you joined HAS in 1987 during comet Halley's aftermath. Was it this object that sparked your interest in astronomy?

Allen: My interest in astronomy goes all the way back to my days as a graduate student at Sam Houston State University. One of my assignments as a Teaching Assistant was to teach a 6-week astronomy laboratory section. In a planetarium, I taught students to identify the brightest stars and constellations, and I conducted evening observing sessions on the roof of the science building. My interest went on the "back burner" when I graduated and went into the military. When I returned to graduate school at Texas A&M, I did a little observing from an observatory on the roof of the Physics building. I even ground and polished an 8-inch f/8 mirror, but I could not afford to build a mount. In 1987, in the aftermath of Comet Halley's return, I found a 4.5-inch Newtonian reflector at a closeout price at a Heathkit store. I had a lot of fun with that little scope, actually earning my first Messier certificate with it. Soon I graduated to a C-8, and the rest is history.

Clayton: I always thought that you were a fine HAS president during your 2-term hitch (1996-1997). I liked your style. Looking back on your reign as club president, what one accomplishment are you most proud of?

Allen: I think the most important thing that happened while I was president was

Continued ...

Just Looking... from previous page

that the Fondren Foundation sold the land surrounding the Columbus observatory site, and the Oak Ridge Ranch development began. With the help of Scott Mitchell, we contacted the developers and many of the early property owners. Although we were not successful in getting outdoor lighting limitations included in the deed restrictions (they had already been drafted, and several plots had already been sold), we were successful in getting our message before the property owners association. The result has been that there has been a relatively mild impact of the development on the site.

Clayton: I see your wife Peggy with you at most HAS meetings and astronomy star parties... is she an observer too?

Allen: **Peggy enjoys visual observing of bright objects, the Sun, Moon, planets, and brighter deep sky objects. She's not into "averted vision". This probably stems from the many years that we worked as building managers at the George Observatory. We found that the bright, more obvious, objects are the best targets for public observing or star parties.**

Clayton: Tell us about a typical nightly observing session.

Where are most of your observing/astrophotography done?

Allen: During recent years, I have not had time to do as much observing as I would like to. When I do find time, I like to schedule the C-14 at the HAS site for a Friday night. I try to get to the site before dark and set up my CCD imaging equipment and computer. My favorite objects are spiral galaxies, but targets for a specific observing session depend on what's up on a given night.

Clayton: How about telling us about this retirement home that you're all excited about. Will you have a personal observatory there in Fort Davis?

Allen: Peggy and I are trying to complete our retirement home in Limpia Crossing near Fort Davis. Our property is near Loyd and Patty Overcash's place. The house and shop buildings were essentially completed last March. The foundation and pier for the observatory building are done, and the dome has been ordered. We hope to be able to complete the building in 2009.

Clayton: I'm not sure what telescope design that you use regularly. Tell us all about your scope and equipment.

Allen: I own three scopes, a Celestron C-8, a C-11, and a Takahashi FS-102 refractor. When I'm not using the HAS C-14, I use one of these. I have an old Celestron (Vixen) Super Polaris mount that I use for public star parties. For imaging, I use a Takahashi NJP-160 mount, and I have purchased an Astro-Physics AP-1200 mount for the observatory. My imaging setup includes a JMI focuser and an SBIG ST-10 CCD camera.

Clayton: I know that you're on the observatory committee (and doing a fine job indeed)... how do you envision our observa-

tory site in 20 years?

Allen: The Columbus site has been noticeably compromised by increasing light pollution from the greater Houston light dome over the last 20 years. I think this situation will only get worse. If the Society continues to operate the site, I think the focus will have to change more to education instead of dark sky observing. In this sense, the Columbus site might take on a role like that of the George Observatory. Alternatively, the HAS might want to find a more remote, and unfortunately more distant, dark-sky location and relocate to a new site.

Clayton: Tough question... but do you work real-science in this hobby?

Allen: To date, my interest has been recreational rather than any attempt to do real science. I enjoy trying to make pretty pictures. Although I can't claim to be on a par with some of the more accomplished astro-imagers, I have enjoyed some success. That focus may change when I retire and have more time for observing. I think I would enjoy getting into cluster photometry, perhaps providing "live" data for astronomy laboratory classes. Regardless of what I decide to do, the skills required for "pretty pictures" will also be needed for "real science".

Clayton: Have you a favorite star party that you attend regularly? Are there others?

Allen: **Peggy and I always enjoy the Texas Star Party. We've been to almost every one since our first, in 1988. Our participation has evolved over the years. We started out staying in one of the rooms on the Ranch, and then started staying in our travel trailer on the ranch. In recent years, we've stayed in our travel trailer at our place in Limpia Crossing, and in 2008, we stayed in our new retirement home. We enjoy the afternoon and evening programs, seeing friends from other areas, making new friends, and observing. We also attended the Oki-Tex Star Party on**

Continued ...

Just Looking... from previous page

several occasions when it was held at the Lake Murray location. We will probably try some other star parties when we retire.

Clayton: Because of the graying (hair that is) in astronomy societies across the country, do you have any suggestions of how we could get more folks interested in astronomy, particularly children?

Allen: The most important thing we can do is to expand our outreach through public star parties. There is nothing quite like the impact of that first glimpse of the Moon, Saturn, Jupiter, or another bright object in a telescope. Interested participants should be given links to the local club web sites, and should be encouraged to visit a meeting. We should emphasize the loaner-scope programs and club libraries. A combination of public star parties, inviting web sites, interesting club meetings, loaner-scope programs, and club libraries represent our best chance to reach new, younger, members.

Clayton: Do you have any helpful advice to pass on to observers just starting out in astronomy?

Allen: There is a tendency for new amateur astronomers to focus too much on equipment. I highly recommend that new observers get involved in a local club, and concentrate on learning before buying. After many years, I find that the equipment used by my astronomy friends varies widely, but we all have one thing in common. We all share an appreciation of the wonder and beauty of the starry sky.

Clayton: Is there an email address that you have that a Houston Astronomical Society member could contact you for an additional question or two?

Allen: Peggy or I can be reached at gilchris@swbell.net.

Clayton: Thanks Allen for taking the time to share your interest and thoughts with us for our monthly HAS newsletter. Thanks too, for all the hard work that you and Peggy have contributed in the past years within our society. Clear skies, always.

Remember --

All HAS memberships are due for renewal in January. It's time to pay your 2009 dues!! Our membership year corresponds to the calendar year.

If you've missed a dues payment in the past, there's no extra cost for late payment, and the organization appreciates your support.

Mail your dues to the address on the last page of this *GuideStar* or bring your payment to the meeting.

Publicity Suggestion Box

I welcome any suggestions that *any* member has to offer. It doesn't matter how trivial you think your idea may be. All input will be reviewed and welcomed.

Let's grow.

Please drop me a note at the following address.

itjdm0@yahoo.com

John Missavage- HAS Publicity

Severe Space Weather

by Dr. Tony Phillips

Did you know a solar flare can make your toilet stop working?

That's the surprising conclusion of a NASA-funded study by the National Academy of Sciences entitled *Severe Space Weather Events—Understanding Societal and Economic Impacts*. In the 132-page report, experts detailed what might happen to our modern, high-tech society in the event of a “super solar flare” followed by an extreme geomagnetic storm. They found that almost nothing is immune from space weather—not even the water in your bathroom.

The problem begins with the electric power grid. Ground currents induced during an extreme geomagnetic storm can melt the copper windings of huge, multi-ton transformers at the heart of power distribution systems. Because modern power grids are interconnected, a cascade of failures could sweep across the country, rapidly cutting power to tens or even hundreds of millions of people. According to the report, this loss of electricity would have a ripple effect with “water distribution affected within several hours; perishable foods and medications lost in 12-24 hours; loss of heating/air conditioning, sewage disposal, phone service, fuel re-supply and so on.”

“The concept of interdependency,” the report notes, “is evident in the unavailability of water due to long-term outage of electric power—and the inability to restart an electric generator without water on site.”

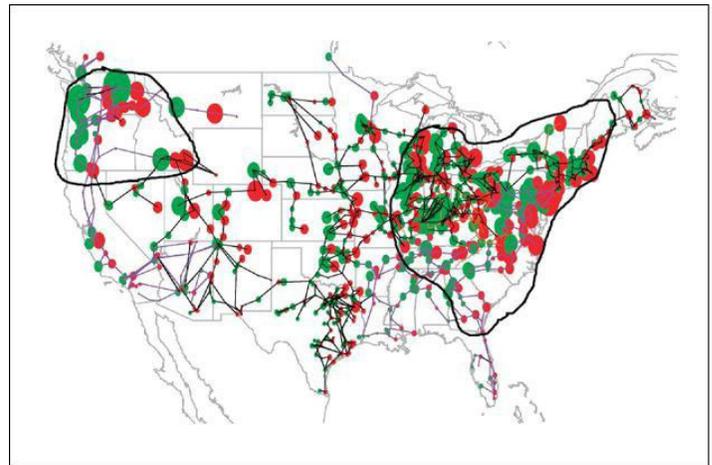
It takes a very strong geomagnetic storm to cause problems on this scale—the type of storm that comes along only every century or so. A point of reference is the “Carrington Event” of August-September 1859, named after British amateur astronomer Richard Carrington who witnessed the instigating solar flare with his unaided eye while he was projecting an image of the Sun on a white screen. Geomagnetic storms triggered by the flare electrified telegraph lines, shocking technicians and setting their telegraph papers on fire; Northern Lights spread as far south as Cuba and Hawaii; auroras over the Rocky Mountains were so bright, the glow woke campers who began preparing breakfast because they thought it was morning!

“A contemporary repetition of the Carrington Event would cause ... extensive social and economic disruptions,” the report warns. Widespread failures could include telecommunications, GPS navigation, banking and finance, and transportation. The total economic impact in the first year alone could reach \$2 trillion (some 20 times greater than the costs of Hurricane Katrina).

The report concluded with a call for infrastructure designed to better withstand geomagnetic disturbances and improvements in space weather forecasting. Indeed, no one knows when the next

super solar storm will erupt. It could be 100 years away or just 100 days. It's something to think about ... the next time you flush.

One of the jobs of the Geostationary Operational Environmental Satellites (GOES) and the Polar-orbiting Operational Environmental Satellites (POES) operated by NOAA is to keep an eye on space weather and provide early warning of solar events that could cause trouble for Earth.



On this power-grid map of the United States, the black-circled areas are regions especially vulnerable to collapse during an extreme geomagnetic storm.

You can keep an eye on space weather yourself at the National Weather Service's Space Weather Prediction Center, www.swpc.noaa.gov. And for young people, space weather is explained and illustrated simply and clearly at the SciJinks Weather Laboratory, scijinks.gov/weather/howwhy/spaceweather.

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

Want Ads

For Sale:

- **Orion 4.5" Starblast** telescope. Alt/az mount, two eyepieces, collimation tool, red-dot finder. Excellent starter telescope. Orig, \$180; sell for \$115

Contact Bill Pellerin -- billpellerin@sbcglobal.net
cell: 713-598-8543.

For Sale: Nexstar 5se

Nexstar 5se bought in June 07. Like new condition, barely used (bought a bigger scope): This is a great starter scope if you're new to the hobby!

Includes a Zhumell 1.25 Inch Eyepiece and Filter Kit and A/C power source. Still have all the original boxes. Asking \$550.00

Rick Hillier
Call 713-875-6463 (cell)
e-mail hillier_rick@yahoo.com

For Sale: 17.5" Newtonian

Perfect for imaging or visual star parties. 17.5" f4.5 Newtonian telescope with highly accurate microprocessor-controlled, step-based alt-az drive system with focal plane rotator. Designed and built by Andy Saulietis and the owner. Accepts ST4-compatible inputs for autoguiding. Mechanical and calibration work done by the owner to optimize system accuracy for autoguided CCD imaging. Original 1981 Coulter mirror refigured to smooth 1/8th-wave surface by Sky Optical in late 80's. Primary and secondary recoated with enhanced coatings group by PAP in early 90's. Optics in excellent condition. 80mm f5 finder. Breaks down to

numerous major pieces for transport. With modest effort, can be a traveling scope, but better as a semi-permanent observatory. See my website for many images made with this system over the last decade.

Price negotiable. For pickup/delivery, maybe can meet you half-way. Call 281-482-5190 or E-mail Al Kelly.

For Sale: Celestron Nexstar 8

Like New Condition...Celestron Nexstar 8, Used only 2 times in back yard. Some extras include Solar filter, 1 1/4" star diagonal, 40 mm multi-coated nexstar plossel, 8-24 mm Z00 eyepiece, variable polarizing filter, 2X multicoated Barlow. \$ 850.00 Jack DeNina, Willis, Texas 936-856-0704, jjack9485@cs.com

Email your ads to Kay McCallum, our Webmaster, at KayM@McCLibrary.net and to Bill Pellerin, GuideStar editor at billpellerin@sbcglobal.net

How can I learn more about the Astronomical League?

Amateur astronomers from across the country benefit from perusing the many pages of the Astronomical League's website, www.astroleague.org. Naturally, this is the place to go if you're looking for information about upcoming events and League news. But there is so much more...

Want to learn all about one of the great League observing programs? Go to www.astroleague.org/observing.html.

Do you know of a worthy candidate for one of the many League awards? Look at <http://www.astroleague.org/al/awards/awards.html>.

Are you interested in buying a particular book about our fascinating hobby? Then go to www.astroleague.org/al/bookserv/bookserv.html.

There is even something to help your club function better. Try www.astroleague.org/al/socaid/socaidid.html

Make the most of your Astronomical League membership! **To find out more about what the Astronomical League offers you, why not log on to www.astroleague.org today?**

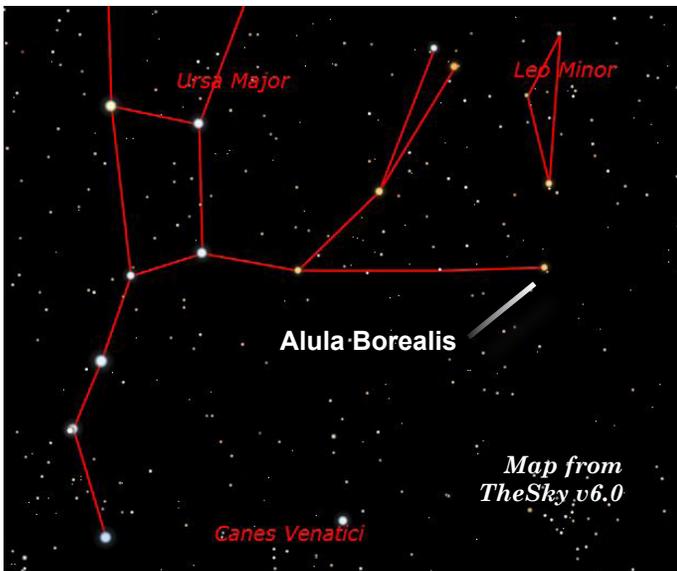
ξ (Xi) Ursae Majoris - A double star like no other

by Bill Pellerin, GuideStar Editor

Object: Xi Ursae Majoris (Xi Uma)
Class: Double Star
Magnitude: 3.8
R.A.: 11 h, 18 m, 11 s
Dec: 31 degrees, 31 minutes, 45 seconds
Distance: 26 ly
Constellation: Ursa Major
Size: 1.8 arc-seconds separation
Optics needed: 4" or larger telescope on a night with steady air; good optics

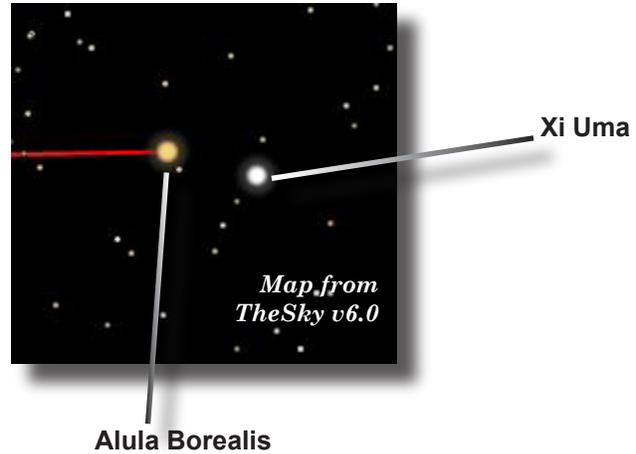
Why this object is interesting.

Xi Uma (ξ Uma) is the first double star for which the orbital parameters for the two components were determined, confirming that the two stars were gravitationally bound. Why is this important? It is important because if



you know the period of the orbit and the distance between the objects that orbit each other you can determine the mass of the system. As a practical matter, the distance between orbiting objects is almost always not a constant because orbits are elliptical, not circular. (Even the Earth's orbit around the Sun is elliptical.) Anyway, knowing the mass of the system is important in understanding stellar lifecycles.

The orbital period of the two components of Xi Uma (cleverly called Xi Uma A and Xi Uma B) is 59.84 years with a separation, on average, of 21.2 AU. Using a modification of Kepler's laws (total mass = a^3/p^2) yields 2.66 solar masses for the system. Where a =semi-major axis, p =period.



Observing this pair will be difficult. The separation is only 1.8 arc-seconds (the bad news), but the stars are of similar brightness (the good news). It makes sense that if humans are to be able to detect the motion of the stars relative to each other, that the stars must be close to each other and close to us -- and they are. At least one source says that you will need at least a 3" telescope to split this pair. My experience is that a small telescope with excellent optics can do an excellent job on close double stars. So the other assumption is that your telescope has excellent optics and is well collimated. You have to pump up the magnification as well. Go for 200x or higher magnification, wait for a night with good seeing, focus critically, and stare at the pair for a while until you're able to see the two stars. As of this writing I have not attempted an observation of this double star.

The main stars (A and B) are each about 1 solar mass, but since the system mass is about 2.66 solar masses it turns out that each of the components of this double star are spectroscopic binaries. So this is really a 4 star system. By the way, spectroscopic binaries are those that can only be identified with a spectroscope. Don't try to find the extra stars with your telescope; you won't.

By the way, the original discoverer, in 1780, of the double star was William Herschel, who, among other things was the discoverer of Uranus. The orbit wasn't calculated until 1828 by Félix Savary who was an astronomer at the Paris Observatory, the breakthrough being that this was the first orbit of a double star that was determined.

ADVANTAGE

Telescope Repair



Now offer inexpensive refurbished “beginner” telescopes for all ages!

- + Complete telescope repair and upgrades
- + Local Pick-up or FedEx Ground
- + Mirror recoating by “Optical Wave Laboratories”

Call 713-569-7529 for complete service



Membership Renewals...

Your membership is renewable on January 1 of each year.

Total yearly dues are \$36.

Your payment for 2009 is due as of January 1, 2009.

Magazine subscriptions can be renewed at any time and the renewal does not need to be synchronized with your HAS dues.

Membership in the Houston Astronomical Society is one of the great bargains in Astronomy. For a regular membership of \$36 you get the opportunity to support an active and growing organization, you get the monthly **GuideStar** newsletter, and you get access to the outstanding H.A.S. **observing site** near Columbus, Texas. (You must attend an orientation, given regularly, to use the site.) And, after two months of membership you can borrow, at no charge, one of the Society's **loaner telescopes**. It's the best deal in town, we think. Please renew your membership when it expires.

Encourage other astronomy enthusiasts to join the organization as well. It's a great group.

Thanks!

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. Parking is NOW across from Entrance 14, by the stadium.

Board of Directors Meeting

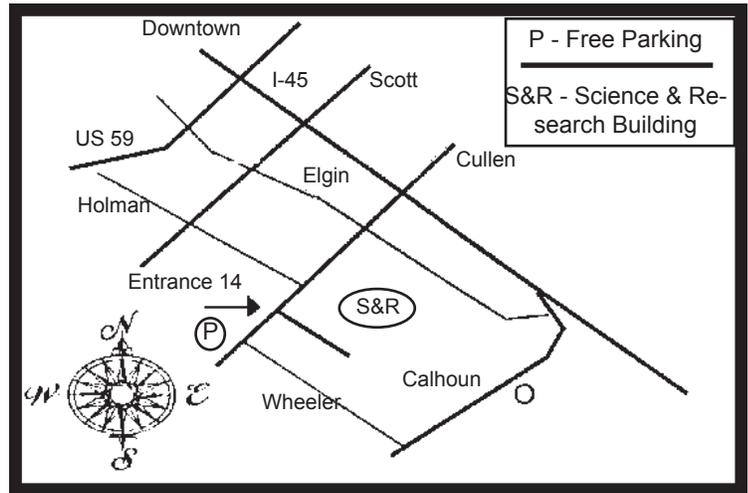
The Board of Directors Meeting is held on dates scheduled by the board at 7:00 p.m. at the Houston Chronicle office, downtown. Information provided to GuideStar will be published. The meetings are open to all members of the Society in good standing. Attendance is encouraged.

GuideStar Information

The H.A.S. *GuideStar* is 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* is available on the HAS web site to all members of H.A.S., and to persons interested in the organization's activities. Contributions to *GuideStar* by members are encouraged. Electronic submission is helpful. Submit the article in text, MS-Word format via email BillPellerin@sbcglobal.net. Copy must be received by the 15th of the month for inclusion in the issue to be available 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.

Editing & Production: Bill Pellerin, 713-880-8061; FAX: 713-880-8850;
Email: BillPellerin@sbcglobal.net

Advertising: Advertisers may inquire concerning ad rates and availability of space.



Houston Astronomical Society

Meeting on Friday, February 6

7:00 Novice & Site Orientation

8:00 General Meeting

University of Houston

Houston Astronomical Society

P.O. Box 20332 • Houston, TX 77225-0332



The Houston Astronomical Society welcomes you to our organization. The HAS is a group of dedicated amateur astronomers, most of whom are observers, but some are armchair astronomers. The benefits of membership are:

- Access to our 18 acre observing site west of Houston -- a great place to observe the universe!
- A telescope loaner program -- borrow a HAS telescope and try observing for yourself!
- A monthly novice meeting, site orientation meeting, and general meeting with speakers of interest.
- Opportunities to participate in programs that promote astronomy to the general public (such as Star Parties at schools)
- A yearly banquet with a special guest
- A yearly all-clubs meeting for Houston area organizations
- Meet other amateurs and share experiences, learn techniques, and swap stories

***You're invited to attend our next meeting.
You'll have a great time.***