

Valley Skies

The Monthly Newsletter of the Stockton Astronomical Society
and the San Joaquin Delta College Clever Planetarium

Volume No. 60

February 2010

Issue No. 2

Stockton Astronomical Society: founded November 1950 by Clarence P. Custer, M.D., 1906-1998

(Meetings of the Stockton Astronomical Society are held on the second Thursday of each month, and are open to the public.)

IN THIS ISSUE:

Stockton Astronomical Society:

Editor's Corner

Annual Dinner	2
Newsletter Archive	2
In Memoriam	2

Stars R Us

February, March Star Parties	3
High Altitude Challenge	3
Directions to SAS Star Party Sites	3
Looking for a Telescope?	3
Next ATM	3
Scope City	3

Giant Ribbon at the Edge of the Solar System: Mystery Solved?	4-5
---	-----

NASA's Space Place

Building a Case Against Ozone	6
-------------------------------------	---

Public Astronomy	7
------------------------	---

Twos a Dark and Lonely Night	7
------------------------------------	---

Next Sky Tours	7
----------------------	---

WOW! It's Saturday Night!	7
---------------------------------	---

School Star Parties	7
---------------------------	---

Clever Planetarium Public Shows	8
---------------------------------------	---

Jeff Baldwin Presents Clarence P. Custer	
--	--

Award to Doug Christensen	8
---------------------------------	---

February Sky Calendar	9
-----------------------------	---

Stockton Evening Sky	10
----------------------------	----

Membership Application	11
------------------------------	----

Newsletter Delivery	11
---------------------------	----

Critical Action Required	11
--------------------------------	----

Thanks for the Cookies	11
------------------------------	----



General Meeting:

Clever Planetarium

San Joaquin Delta College

Thursday, February 11, 2010 – 7:30 p.m.

Stockton Astronomical Society

presents

Winter/Spring Skies Workshop

One of the primary aids to deep sky observing is familiarity with the major constellations. That is what our seasonal skies workshops are all about—helping you to learn your way around the night sky. The stars are like old friends, once you can recognize their patterns.

With its long crystal-clear nights, winter is a most rewarding time to get out under the stars. Winter evenings bring us the brilliant stars of the “Winter Six” constellations, providing familiar guideposts to many of the evening’s deep sky objects.

Spring is the season of the Lion and the Virgin. The workshop will be a refresher on the stars, constellations and deep-sky objects in the evening skies of the approaching season of growth and regeneration.

...Marshal Merriam, Program Director

Visit the SAS Web Site at: www.stocktonastro.org

STOCKTON ASTRONOMICAL SOCIETY
P.O. Box 243, Stockton, CA 95201

OFFICERS for 2010:

President

Jeff Baldwin594-1894, baldjeff@comcast.net

Vice President & Program Director

Marshal Merriam 334-4776, mfmerriam@yahoo.com

Secretary

Jim Bock477-8607, jbock@sjcoe.net

Treasurer

Gerald Hyatt.....474-0159, jerry.hyatt@sbcglobal.net

Newsletter Editor

Trevor Atkinson 478-4380, tatkinsn@comcast.net

Members-at-Large

Doug Christensen..... 462-0798, american.sign@att.net

Dave Jacobi..... 823-0328, dave.jacobi@comcast.net

APPOINTED OFFICERS:

Equipment Manager

Jeff Baldwin594-1894, baldjeff@comcast.net

Star Party Coordinator:

Hi-Altitude:

Miguel Ortiz 823-0723, miguelortiz@comcast.net

Hwy 4:

Jim Schuknecht..... 209-549-1815,
stargazer@worldnet.att.net

Observing Program Chairman:

Jeff Baldwin594-1894, baldjeff@comcast.net

ATM Workshops

Jeff Baldwin594-1894, baldjeff@comcast.net

SAS Rep to A.A.N.C.

Dennis LeClerk477-4756

Web Site Administrator

Ray Lukaszewski 916-683-2186
Lukaszewski@prodigy.net

SAS Web Site:

www.stocktonastro.org

Public Outreach Coordinators:

School Star Parties:

Doug Christensen..... 462-0798, american.sign@att.net

Sky Tours:

Doug Christensen..... 462-0798, american.sign@att.net

(All area code 209 except as noted)

Valley Skies is published monthly. Except where noted, it is not copyrighted and may be freely copied and distributed, with appropriate credits. Articles of interest, letters, news items or announcements are welcome. Please send them to the Society address shown above. Non-commercial advertising of astronomy-related products or services will be printed free of charge for members, for up to three months if necessary. Submission deadline is the 15th of each month.

Unless identified by a byline or other credit, all text is by the editor, and does not necessarily reflect the opinions of the Stockton Astronomical Society.

Editor's Corner....

Best attended annual dinner



Our seventeenth annual dinner at China Palace on January 14 had the best turnout (50) in many years. As always the restaurant staff took good care of us and the food was plentiful and delicious.

As the featured speaker, I presented a once-over-lightly review of who and what brought the SAS through the almost sixty years of the club's existence. As far as I could tell, members and guests found it interesting and it was well received.

High point of the evening was the presentation of the Clarence P. Custer Award to Doug Christensen, a well-deserved recognition of the many ways in which Doug has consistently given of his time, talents and enthusiasm to further the objectives of the Stockton Astronomical Society. Congratulations Doug!

(Read Jeff Baldwin's presentation comments on page 8)

Can you help complete the archived set of newsletters?

Preparation for the talk about the club's history involved scanning through almost 60 years of newsletters. We are indebted to Dr. Custer for collecting an almost complete set from November 1950 through December 1985. I also have copies from October 1991 to the present.

I'm hoping there is a long time member, who has kept back copies, who would be willing to donate their copies of the missing years to the SAS archive – specifically for 1986 through 1991. Pretty Please. ☺

...Trevor Atkinson

In Memoriam

Dr. O. Boyd Mathias and Dr. Anne Funkhouser

I was remiss in not reporting earlier the death of a long time member and officer, Dr. O. Boyd Mathias. Boyd was a Professor at UOP and shared his knowledge and talents through active involvement in the SAS, including presenting numerous meeting programs. He was President three times, Program Director for two years and Newsletter Editor in 1976. For several years in the '80s he presented public shows at the Clever Planetarium.

He was a great loss to the SAS when he and his wife Anne retired from UOP and moved to Willits, CA in the early '90s. We last saw Boyd in January 2001, when he was our dinner speaker for the retrospective on Dr. Clarence Custer.

Boyd died at a retirement home in Fairfield on September 28, 2009. We recently received word that Anne also passed away on January 4, 2010. Anne was a biology professor at UOP for 40 years. She and Boyd met and married while teaching at UOP.

Stars R Us...

SAS Star Party News

February:

New Moon: Sat., Feb. 13, 6:53 p.m. PST

Saturday, Feb 6 Hwy 4

Sunset: 5:34 p.m. PST

Moonrise (Sunday): 2:33 a.m. PST

Saturday, Feb 13 Hi-Alt

Sunset: 5:42 p.m. PST

Moonset (New): 5:40 p.m. PST

March:

New Moon: Mon., Mar. 15, 2:03 p.m. PDT

Saturday, Mar 6 Hwy 4

Sunset: 6:04 p.m. PST

Moonrise (Sunday): 1:21 a.m. PST

Saturday, Mar 13 Hi-Alt

Sunset: 6:11 p.m. PST

Moonset: 4:31 p.m. PST

High Altitude Challenge

It's a foregone conclusion that Peddler Hill will not be accessible for several months due to snow accumulation, which is probably considerable from the recent storms. The helicopter pad at 4,000 ft is usually available to the high-altitude enthusiasts...but maybe not this month! The late January storms have brought several days of snow down to 2000 ft, so it all depends on the weather between now and mid-February.

But whether you are at the Hwy 4 site or the heliport, if the weather is clear the winter skies are a spectacular sight. Come to the February 11 meeting to check out the winter constellations in comfort, then bundle up and enjoy the real thing! Just remember—you're driving, not back-packing—so overprocure on extra layers, and take along plenty of snacks and hot drinks, and you'll have a fabulous time with a group of like-minded friends.

Directions to SAS Star Party Sites

Highway 4/Shirley Road:

Drive 30 miles east on Hwy 4 from Hwy 99. At the sign for Shirley Road/Telegraph Road, turn right off Hwy 4, then **left at the stop sign**. You will be heading east, parallel to Hwy 4. Drive to the setup area at the end of the road.

4000' Heliport on Highway 88:

Drive 21.8 miles east from Jackson on Hwy 88 till you pass the "Elevation 4,000 ft." sign, (0.4 miles past Amador Station). Turn left at the "Emergency Heliport" sign and double back parallel to the road about 400 feet to the helipad. Set up on the north side.

Please park on N side of road only at both the Hwy 4 and 4000 ft. site.



Looking for a Telescope?

There will be four Scopes of the Month on display at the February meeting: two 13" Coulters, the 10" Cave Astrola, and the 8" Dynascope. To see photos of these scopes go to:

www.bald.freewebsitehosting.com/scopes.htm

If you fancy trying out one of the scheduled club star parties and would like to borrow a telescope to take up with you, call Jeff Baldwin at 594-1894 and we'll get you fixed up with a suitable instrument.

These are club-owned telescopes, and while we are looking to reduce our inventory by finding good homes for some of them – through sales to members or other interested buyers – they might as well be put to good use.

So, come on...take advantage of the opportunity to try out different telescopes and experience first hand the pleasures of observational astronomy. On a clear night the winter stars are awesome! Come join the fun.

Next ATM

We'll meet for Telescope Making and Repairs on **Saturdays, January 30 and February 27.**

We'd love to see more people making optics. If you have an itch to see how it's done or start a project, please show up. We meet at 684 Pioneer Ave. in Lathrop, from 10AM to 3PM. Call Jeff at 594-1894 for details or last minute cancellations.

SAS MEMBER DISCOUNTS

Scope City at 350 Bay Street, San Francisco, offers a huge selection of telescopes, accessories and more. Manager Sam Sweiss is offering discounted prices and free shipping to all SAS members and, for new members, an additional \$25 merchandise discount. (Obtain a receipt from Jerry Hyatt, SAS Treasurer, showing you have paid the \$20 SAS membership dues.)

To arrange for your merchandise discount, contact Sam personally at 415/421-8800 or at <http://www.scopecity.com>

The Science Directorate at NASA's Marshall Space Flight Center sponsors the Science@NASA web sites. The mission of Science@NASA is to help the public understand how exciting NASA research is and to help NASA scientists fulfill their outreach responsibilities.

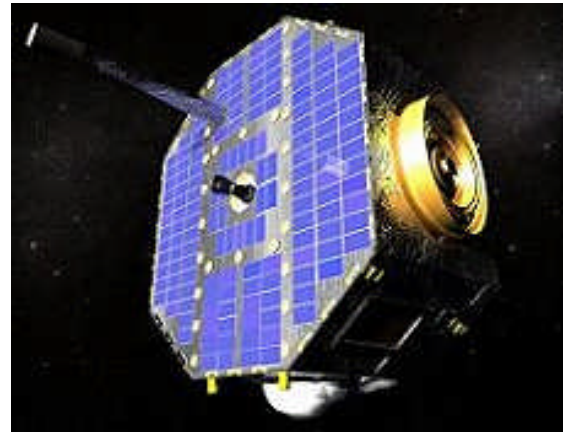
Giant Ribbon at the Edge of the Solar System: Mystery Solved?

January 15, 2010: Last year, when NASA's IBEX (Interstellar Boundary Explorer) spacecraft discovered a giant ribbon at the edge of the solar system, researchers were mystified. They called it a "shocking result" and puzzled over its origin. Now the mystery may have been solved.

"We believe the ribbon is a reflection," says Jacob Heerikhuisen, a NASA Heliophysics Guest Investigator from the University of Alabama in Huntsville. "It is where solar wind particles heading out into interstellar space are reflected back into the solar system by a galactic magnetic field."

Heerikhuisen is the lead author of a paper reporting the results in the Jan. 10th edition of the *Astrophysical Journal Letters*.

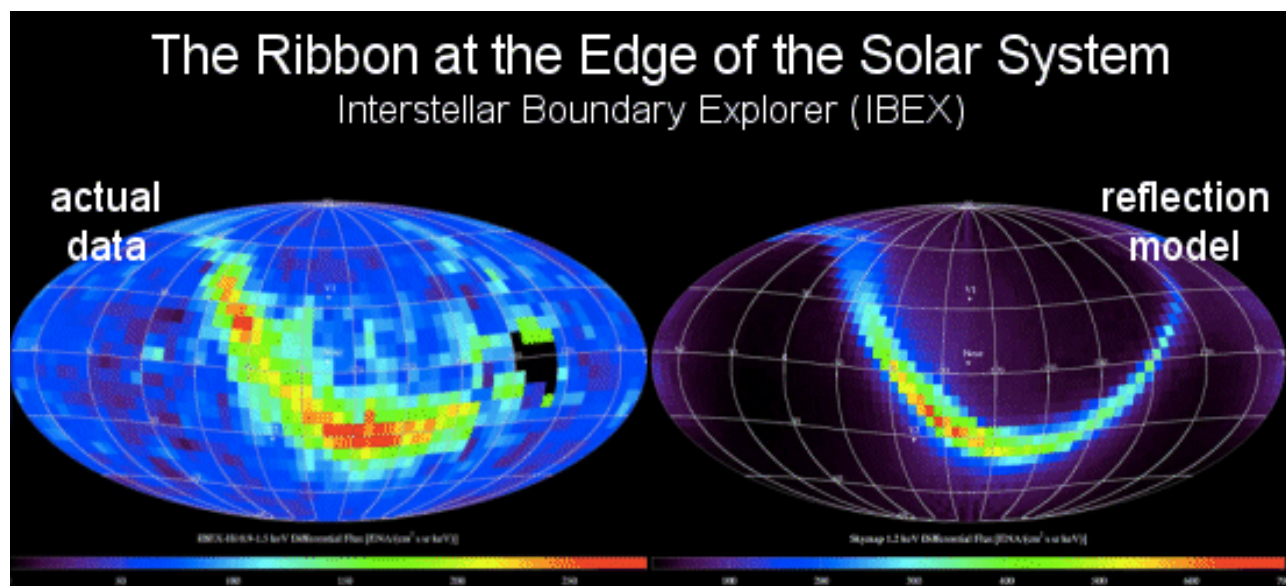
An artist's concept of the Interstellar Boundary Explorer (IBEX).



"This is an important finding," says Arik Posner, IBEX program scientist at NASA Headquarters. "Interstellar space just beyond the edge of the solar system is mostly unexplored territory. Now we know, there could be a strong, well-organized magnetic field sitting right on our doorstep."

The IBEX data fit in nicely with recent results from Voyager. Voyager 1 and 2 are near the edge of the solar system and they also have sensed strong* magnetism nearby. Voyager measurements are relatively local to the spacecraft, however. IBEX is filling in the "big picture." The ribbon it sees is vast and stretches almost all the way across the sky, suggesting that the magnetic field behind it must be equally vast.

Although maps of the ribbon (see below) seem to show a luminous body, the ribbon emits no light. Instead, it makes itself known via particles called "energetic neutral atoms" (ENAs)--mainly garden-variety hydrogen atoms. The ribbon emits these particles, which are picked up by IBEX in Earth orbit.



Above: A comparison of IBEX observations (left) with a 3D magnetic reflection model (right).

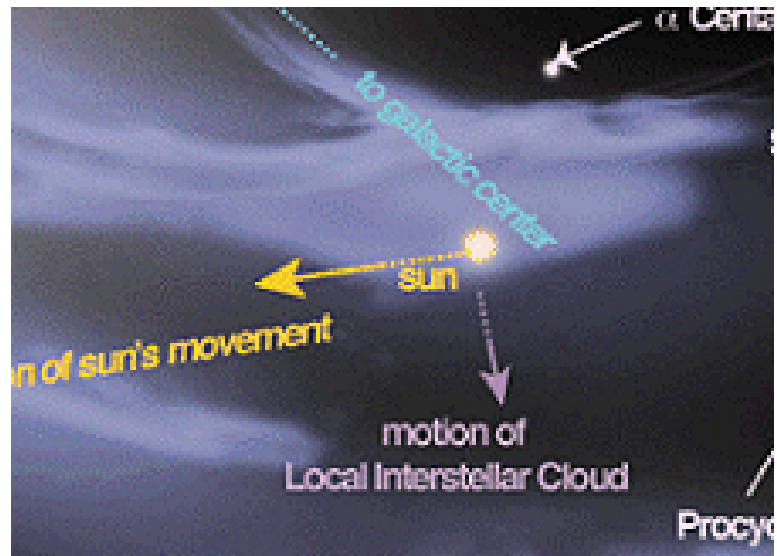
The reflection process posited by Heerikhuisen *et al.* is a bit complicated, involving multiple "charge exchange" reactions between protons and hydrogen atoms. The upshot, however, is simple. Particles from the solar wind that escape the solar system are met ~100 astronomical units (~15 billion kilometers) away by an interstellar magnetic field. Magnetic forces intercept the escaping particles and sling them right back where they came from.

"If this mechanism is correct--and not everyone agrees--then the shape of the ribbon is telling us a lot about the orientation of the magnetic field in our corner of the Milky Way galaxy," notes Heerikhuisen.

And upon this field, the future may hinge.

The solar system is passing through a region of the Milky Way filled with cosmic rays and interstellar clouds. The magnetic field of our own sun, inflated by the solar wind into a bubble called the "heliosphere," substantially protects us from these things. However, the bubble itself is vulnerable to external fields. A strong magnetic field just outside the solar system could press against the heliosphere and interact with it in unknown ways. Will this strengthen our natural shielding—or weaken it? No one can say.

Right: An artist's concept of interstellar clouds in the galactic neighborhood of the sun



"IBEX will monitor the ribbon closely in the months and years ahead," says Posner. "We could see the shape of the ribbon change—and that would show us how we are interacting with the galaxy beyond."

It seems we can learn a lot by looking in the mirror. Stay tuned to Science@NASA for updates.

Author: Dr. Tony Phillips | Credit: [Science@NASA](#)

Footnote: * The strong interstellar fields mentioned in this story measure about ~5 microgauss. A microgauss is one millionth of a gauss, a unit of magnetic field strength popular among astronomers and geophysicists. Earth's magnetic field is about 0.5 gauss or 500,000 microgauss. Magnetic fields pervading interstellar space tend to be much less intense than planetary magnetic fields.

Credits: The IBEX spacecraft was launched in October 2008. Its science objective was to discover the nature of the interactions between the solar wind and the interstellar medium at the edge of our solar system. The Southwest Research Institute developed and leads the mission with a team of national and international partners. The spacecraft is the latest in NASA's series of low-cost, rapidly developed Small Explorers Program. NASA's Goddard Space Flight Center manages the program for the agency's Science Mission Directorate at NASA Headquarters in Washington.

NOTE: The above is a follow up to the October 15 article printed in the November 2009 issue of Valley Skies about the discovery of the "bright, winding ribbon of unknown origin."



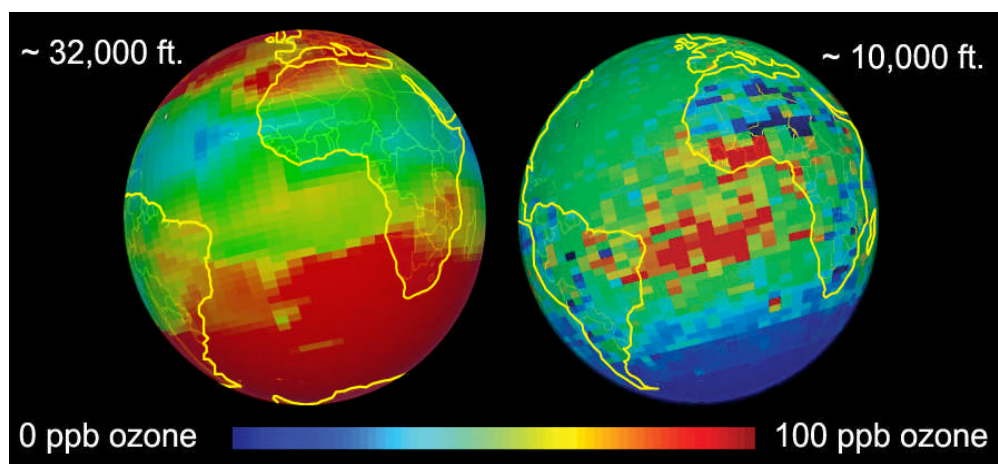
Building a Case Against Ozone

By Patrick Barry

When it comes to notorious greenhouse gases, carbon dioxide is like Al Capone—always in the headlines. Meanwhile, ozone is more like Carlo Gambino—not as famous or as powerful, but still a big player.

After tracking this lesser-known climate culprit for years, NASA's Tropospheric Emission Spectrometer (TES) has found that ozone is indeed a shifty character. Data from TES show that the amount of ozone—and thus its contribution to the greenhouse effect—varies greatly from place to place and over time.

These images are TES ozone plots viewed with Google Earth. Colors map to tropospheric ozone concentrations. The image on the left shows ozone concentrations at an altitude of approximately 32,000 feet, while the one on the right shows ozone at approximately 10,000 feet. The measurements are monthly averages over each grid segment for December 2004.



"Ozone tends to be localized near cities where ozone precursors, such as car exhaust and power plant exhaust, are emitted," says Kevin Bowman, a senior member of the TES technical staff at the Jet Propulsion Laboratory. But the ozone doesn't necessarily stay in one place. Winds can stretch the ozone into long plumes. "Looking out over the ocean we can see ozone being transported long distances over open water."

Unlike CO₂, ozone is highly reactive. It survives in the atmosphere for only a few hours or a few days before it degrades and effectively disappears. So ozone doesn't have time to spread out evenly in the atmosphere the way that CO₂ does. The amount of ozone in one place depends on where ozone-creating chemicals, such as the nitrogen oxides in car exhaust, are being released and which way the wind blows.

This short lifespan also means that ozone could be easier than CO₂ to knock off.

"If you reduce emissions of things that generate ozone, then you can have a quicker climate effect than you would with CO₂," Bowman says. "From a policy standpoint, there's been a lot of conversation lately about regulating short-lived species like ozone."

To be clear, Bowman isn't talking about the famous "ozone layer." Ozone in this high-altitude layer shields us from harmful ultraviolet light, so protecting that layer is crucial. Bowman is talking about ozone closer to the ground, so-called tropospheric ozone. This "other" ozone at lower altitudes poses health risks for people and acts as a potent greenhouse gas.

TES is helping scientists track the creation and movement of low-altitude ozone over the whole planet each day. "We can see it clearly in our data," Bowman says. Countries will need this kind of data if they decide to go after the heat-trapping gas.

Ozone has been caught red-handed, and TES is giving authorities the hard evidence they need to prosecute the case.

Learn more about TES and its atmospheric science mission at tes.jpl.nasa.gov. The Space Place has a fun "Gummy Greenhouse Gases" activity for kids that will introduce them to the idea of atoms and molecules. Check it out at

spaceplace.nasa.gov/en/kids/tes/gumdrops.

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

Public Astronomy

'Twas a Dark and Lonely Night

Friday January 22: All week the weather had been CLOUDS and RAIN. I was sure that Sky Tours was going to be rained out.



I had several people call me during the week about the Sky Tours article (paragraph to be precise) that was in the RECORD and I had told them what I tell everyone "If you see the Moon just after sunset then we (SAS) will be there" (Shima 2 parking lot).

I was running late on Friday and on my way home, when there it was The First Quarter Moon...so I rushed home, grabbed my equipment and hurried to the campus. I arrived just before 7 pm and within a minute the lights of the parking lot went out. I was all alone.

I unload the truck and, while setting up my new-fangled computerized scope, I discover that it doesn't want to work. If I had a simple Dob I wouldn't have this problem. As I look up, there is the Moon just clear as can be. I push the scope manually (not recommended) and take a look... Selene* is as stunning as ever, Orion and the Nebula clear as can be; the Pleiades I can count 5 or 6 with my naked eye (and I need glasses) and Mars is shining bright orange 30° above the eastern horizon.

7:30 comes, then 8:00, and I'm still alone. 8:30 - still nobody, so I packed up my stuff and went home.

It was a bit of a shame. Because it had rained, the skies had been washed clean, no particles to reflect the lights of the city back into your eyes therefore the skies were blacker than usual and I was the only one enjoying it. All in all not a bad night to be cold and alone.

...Doug

* *SELENE was the Titan Goddess of the moon. She was depicted as a woman either riding side saddle on a horse or in a chariot drawn by a pair of winged steeds. Her lunar sphere or crescent was represented as either a crown set upon her head or as the fold of a raised, shining cloak. Sometimes she was said to drive a team of oxen and her lunar crescent was likened to the horns of a bull. Selene's great love was the shepherd prince Endymion. The beautiful boy was granted eternal youth and immortality by Zeus and placed in a state of eternal slumber in a cave near the peak of*



Lydian Mount Latmos. There his heavenly bride descended to consort with him in the night.

Next Sky Tours:

Friday, February 19, 7:00-9:00 pm
Shima 2 parking lot at Delta College

WOW!!!! It's Saturday Night!!

Saturday, January 23: At the December SAS meeting Jamie Henderson, from The World Of Wonders Science Museum in Lodi (WOW), invited our members to bring telescopes for a "rooftop" Star Party at the museum. We were to set up scopes on the top floor of the parking structure that makes up the back of the museum building.

After a week of rain we were supposed to have a break in the weather on Saturday and sure enough blue skies greeted us on that morning. By 3 o'clock it was raining again, but it was looking like Mother Nature was going to give us clear skies for the evening. Jamie had taken "reservations" from the public for our Star Party and was concerned about what to do: cancel or give it a try? I called Jeff and told him I saw clear on the Doppler radar after the band of rain clouds went through the area. He checked the Clear Sky website and it also had it clear from 6pm to 10pm, so we were off to Lodi. Fortunately so were Jerry Hyatt, Dave Jacobi, Larry Seiler, and Frank & Darlene Wheeler (who have got to be our hardest working Star Party couple).

I parked on the top floor and joined Dave and Janice Jacobi in going downstairs to talk to Jamie and see the Museum for a few minutes, where we met fellow members Jim & Jackie Bridges. Jamie Henderson informed me that around noon that day Neil Lark had given a brilliant demonstration of the Phases of the Moon that had the patrons talking long after Neil left. Jerry Hyatt joined us and we all decided that it was clear enough to set up our scopes, so up to the roof we went...where we found Larry. We set up, the public started showing up, and Jeff joined us.

The skies were clear enough in the West for Jerry to get a clear shot at Jupiter for the first hour or so. The ISS gave us a fly-by right thru the clear part of the sky, thrilling the several dozen patrons that had joined us by that point. We showed them the Pleiades, the Orion Nebula and sundry asterisms and NGC objects. Frank and Darlene showcased Mars as it rose in the East, and Larry was able to zoom in on it with his computerized SCT.

If you have read both of these articles, I think you will understand that when we agree to do a Star party we had better show up even if the weather doesn't look like it is going to cooperate. Some times the skies clear at the last minute and the public shows up. If we do not show that would make for an embarrassing situation. Some times life is just about showing up.

Jamie Henderson and WOW, and the public that was there, have sent their thanks and would like to invite us to another "rooftop" Star Party, date TBA. I will send out the invites when I get the date — RSVP or just show up...Doug

School Star Parties

SAS volunteers are all invited to help out at a School Star Party on Thursday, February 18 at Art Freiler School at 2421 W. Lowell Ave., Tracy, CA.

I have four SAS members that have RSVPed, but since there could be as many as 400 students and family members wanting to look through our telescopes..... we need more scopes. If you can help please call or email me ASAP.

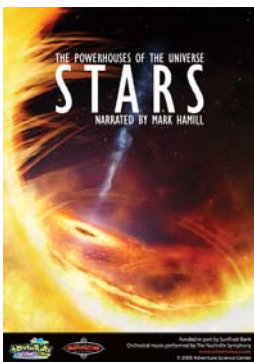
...Doug



See the new digital planetarium in action! Public Shows will be presented one weekend every month on Friday and Saturday. The shows will be approximately 1 hour long. All public shows will include a full dome video and a live presentation of the nighttime sky. The cost for public shows is \$8 for adults and \$6 for children, seniors, and students. Reserve your tickets at the Delta College box office or purchase them before the show at the planetarium.



Public Shows



Friday & Saturday, February 19 and 20 at 7:30 PM

"Stars"

Every star has a story. Some are as old as time, faint and almost forgotten. Others burn bright and end their lives in powerful explosions. New stars are created every day, born of vast clouds of gas and dust. Through every phase of their existence, stars release the energy that powers the Universe. Journey to the furthest reaches of our galaxy and experience both the awesome beauty and destructive power of STARS. Narrated by Mark Hamill.

California Skies

Each show will include a tour of the constellations and bright planets and deep sky objects in the current evening sky.

Field Trips

The planetarium is taking bookings for field trips. If you would like to bring your school group, scout group, youth group or would like to book the planetarium for any special event call the planetarium at **954-5313** or visit our website at www.deltacollege.edu/dept/planetarium.

Seventeenth Annual SAS Dinner

Jeff Baldwin Presents Clarence P. Custer Award to Doug Christensen:

"What can I say about Dougy?"

"If Dougy were a marine, he'd be in the mud at Iwo Jima. If he were an astronaut, Neil Armstrong would have seen Dougy's footprints already on the Moon. If Dougy were in Planet of the Apes, he'd be one of the yellow Orangs.

"Dougy performs so hard for our club that we others think that it's easy. It is easy, for us, since Dougy pulls it off for all of us. He leads our school star party coordination, which as I said earlier, is the hugest, most ginormous job in the club. He also deals with the public for us, from making things like signs and sandwich boards, to explaining to kids what a galaxy is. Have you ever heard Dougy telling people that the ISS is about to fly over, or that an Iridium Flare is about to happen. His enthusiasm



and excitement can convince anybody that astronomy is the funnest stuff in the world. He never takes credit for his endless efforts. He always seems to make it look like a group effort when basically it's him all the way.

"Last year Dougy presented the Clarence Custer Award to Becky Greider with words that could have easily been meant for himself. Dougy has the spirit of a kid with a new toy discovering things that are amazing and exciting, then

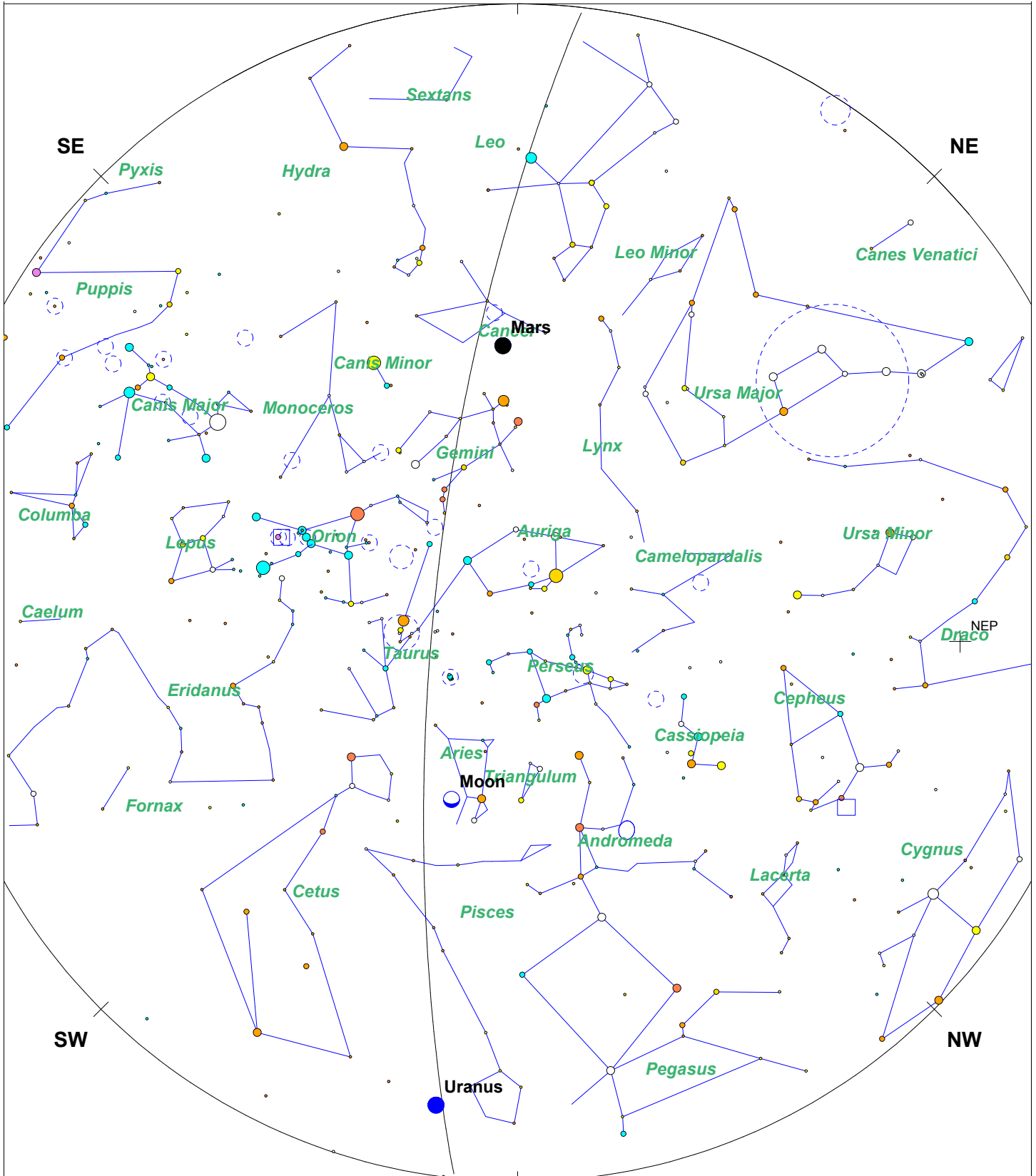
transferring that excitement to whoever is nearby. Luckily, the SAS owns Dougy. He could have been elsewhere, or had other interests, or have been talented elsewhere, which he probably is, but fortunately for us and all the people we interact with, WE have Dougy. We share him, but he's ours.

"For these reasons and many, many more, I'd like to present Dougy Christensen with the Stockton Astronomical Society's 2009 Clarence Custer Award. Dougy, come on up here."

February 2010 Sky Calendar

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	<p>1</p> <p><i>PM:</i> Saturn rises 9:30 pm.</p>	<p>2</p> <p><i>PM:</i> Saturn 8° N of Moon.</p>	<p>3</p> <p><i>Near midnight:</i> Gibbous Moon 4° LR of Spica.</p>	<p>4</p>	<p>5</p> <p><i>Last Quarter</i> 3:48 p.m. PST</p> 	<p>6</p> <p style="color: red;">SAS Hwy 4 Star Party</p>
<p>7</p> <p><i>Dawn:</i> Waxing crescent Moon UR of Antares.</p>	<p>8</p>	<p>9</p>	<p>10</p>	<p>11</p> <p style="color: red;">SAS Meeting 7:30 pm Clever Planetarium Delta College</p>	<p>12</p> <p>Moon at apogee</p> <p><i>Dawn:</i> Mercury 4° R of very thin crescent Moon. Use binocs.</p>	<p>13</p> <p><i>New Moon</i> 6:51 p.m. PST</p>  <p style="color: red;">SAS Hi-altitude Star Party</p>
<p>14</p> <p style="text-align: center;">VALENTINE'S DAY</p> <p><i>Dusk:</i> Very thin crescent Moon 5° R of Jupiter & Venus, very low after sunset. Use binocs.</p>	<p>15</p> <p style="text-align: center;">PRESIDENTS' DAY</p> <p><i>15 min. after sunset:</i> Ju-Ve less than 2° apart, just above WSW horizon.</p>	<p>16</p> <p><i>15 min. after sunset:</i> Ju-Ve less than 1/2° apart. Uranus 6° S of Moon.</p>	<p>17</p>	<p>18</p>	<p>19</p> <p style="color: red;">Sky Tours at Delta College 7:00 – 9:00 p.m.</p>	<p>20</p>
<p>21</p> <p><i>First Quarter</i> 4:42 pm. PST</p> 	<p>22</p>	<p>23</p>	<p>24</p>	<p>25</p> <p><i>PM:</i> Mars 5°-6° from gibbous Moon.</p>	<p>26</p> <p><i>PM:</i> Moon 5° S of Mars.</p>	<p>27</p> <p>Moon at perigee.</p>
<p>28</p> <p><i>Full Moon</i> 8:38 a.m. PST</p>  <p>Jupiter in conjunction with Sun.</p>	<p>1</p>	<p>2</p> <p><i>PM:</i> Saturn 8° N of Moon.</p>	<p>3</p>	<p>4</p>	<p>PLANETS AT DUSK Mars: Very bright, high in the sky all night. Jupiter: Disappearing in sunset glow early in month. However, watch for close encounter of Venus, Jupiter and thin crescent Moon at dusk on Feb. 14-16 Saturn: Rises around 9:30 pm on Feb. 1, 7:40 pm by month end. Rings are getting narrower.</p>	<p>PLANETS AT DAWN Saturn: Low in predawn sky, setting well after sunrise. Mercury & Venus: Both close to Sun, difficult to see this month.</p>

Stockton Evening Sky, 7:00 p.m., Friday, February 19, 2010 (Note: North is on right)



Local time: 02/19/2010 07:00:00 PM Universal time: 02/20/2010 03:00:00	Equatorial: 04h 58m 31s +38° 33' 45" Horizontal: 270° 00' 00" +90° 00' 00"	Julian date: 2455247.625000 Local sidereal time: 04h 58m 31s
---	---	---

Membership Application

Mark the selected category
and mail check
(payable to SAS)

to:
SAS
P.O. Box 243
Stockton, CA 95201
or bring to the
next meeting.

SAS Membership: Renewal New

Student Rate: \$10/yr (Full-time student, no age restrictions)

General/Family Rate: \$20/yr (Covers all members of immediate family)

Name(s) _____

Address _____

City/State/ZIP _____

Home Phone _____ Bus. Phone _____

Cell Phone _____

E-mail _____ *

(* Valley Skies newsletter will be delivered by E-mail in pdf format.)

√ Opt Out: I am not able to receive E-mail. Please deliver Valley Skies newsletter by mail.

- _____ I am willing to help with public outreach activities such as Sky Tours or school star parties.
- _____ I will help any way I can with Society activities.
- _____ I would be willing to serve as an appointed or elected officer of the club.



For new membership or renewal, complete the form above and bring it with your check to the next meeting or mail it to:
SAS, P.O. Box 243, Stockton, CA 95201

Newsletter Delivery

At the beginning of each month, **assuming your current email address is on file**, you will receive an email message with an attachment or a link to the current issue of Valley Skies in pdf format. Double click on the attachment or click on the link to open the file.

Critical Action Required:

All Members:

Renew your membership and include your current email address.

(If you really can't get along without receiving a paper copy in the mail, be sure to check the "Opt Out" box on your renewal form.)

THANKS FOR THE COOKIES



Cookies, punch and hot drinks are always welcome treats after each SAS meeting. Not only do they provide us a quick sweet fix but they always gives us a chance to socialize with one another. Now that Mary Lois and Syd Thompson are providing name tags, all of us can actually greet each other by name.

We have quite a few members who take the trouble to bring in either home-baked or bakery cookies. A thank-you for their generosity is well in order. Thank you.

...Rosemary Atkinson

January Dinner — Photos by Glenda Baldwin

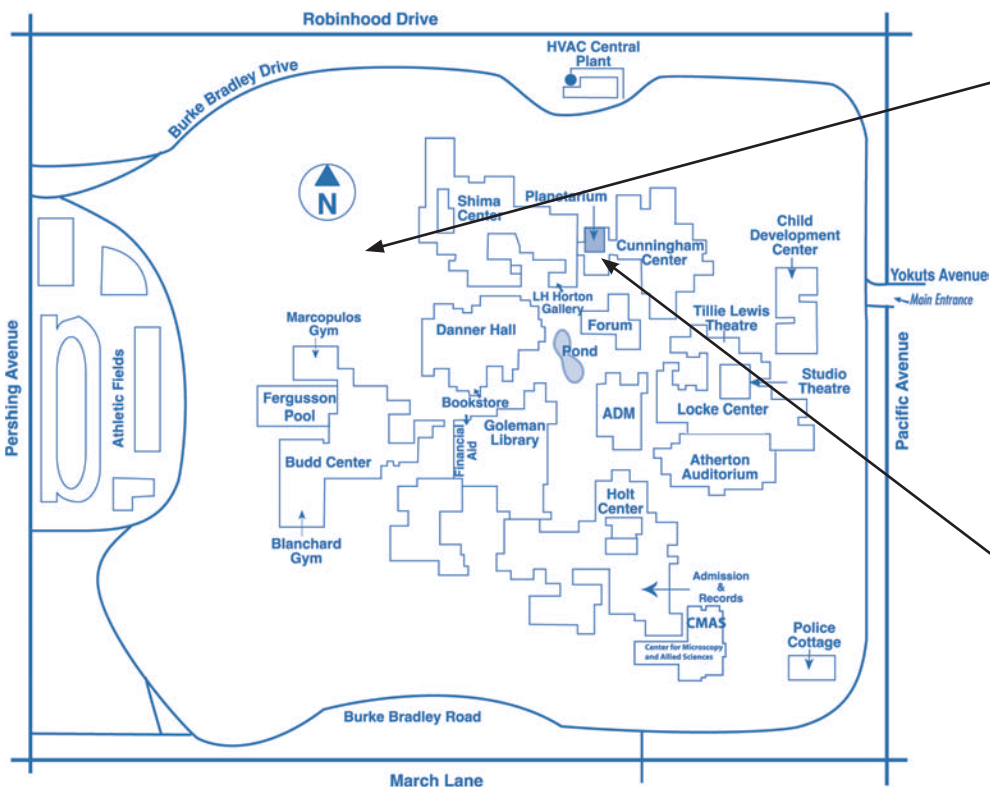


Stockton Astronomical Society
P.O. Box 243
Stockton, CA 95201



Date Sensitive Material
Please Deliver Promptly.

ACTION REQUIRED:
To continue receiving Valley Skies,
please read page 11 and respond accordingly.



Sky Tours on
February 19
will be in the
Shima 2
parking lot

The **February 11**
meeting of the
Stockton
Astronomical
Society will
be in the
Clever Planetarium
at Delta College