

OBSERVER

A 'Sine' for Valentine



PGC 20348, THE ~INTEGRAL SINE GALAXY~ IN CAMELOPARDALIS

This interesting spiral galaxy has a warped disk. Joe used his SBIG ST-2000XM CCD camera on an 18-inch f/4.5 Newtonian telescope. While at the EGK site on December 13, 2009, he shot 40 minutes each of LRGB exposures in five-minute increments. The round galaxy in the lower left is PGC 20398.

Image copyright 2009 Joe Gafford

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Calendar	
5.....	Last quarter moon
13.....	New moon
14.....	Valentine's Day
21.....	First quarter moon
28.....	Full moon

FEBRUARY SKIES *by Dennis Cochran*

It's 2010! The sky will be completely different this year! All the stars will. . . wait. No. They'll be pretty much the same this year. Oh well.

What did we talk about in February 2009? The re-appearance of Saturn. Guess what? Saturn is re-re-appearing again this February; up at 10 P.M. at the beginning of the month, 8 P.M. at month's end. Should be good for March's Open House—and the rings are back!

Jupiter has dropped out by now but Venus reclaims her place as the big shiner of the early evening in the latter half of the month; keep this in mind in the early hours of the Open House on Saturday the 20th. Then turn to the east to find Mars. He is showing strongly, too, having just been passed by the Earth on her inside track around the

Sun. This one-two planetary punch, plus the good old moon, should provide us with a nice set of easy thrillers for the public.

In January, we mentioned Mars passing Praesepe early in February, so throw the Beehive Cluster, M44, into the mix for the public; it's just south of Mars. Don't forget to tell them that this bunch of sibling stars, 520 light-years away, has three names, just as the Pleiades has four. In fact, don't forget the Pleiades—the Seven Sisters—Subaru—M45, way to the west, as a public object, especially if you have binoculars.

Continued on Page 3

PRESIDENT'S CORNER

We are pleased to welcome our newest members, listed in this edition of the *Observer*, and are happy to have you join us!

I have two vivid memories of when I was a new member of the Denver Astronomical Society. The first was attending the E-Board meeting, I believe in late 1999, to hear a debate regarding future plans for Chamberlin Observatory. That was quite the discussion, led by Ed Kline, after whom the Edmund G. Kline Dark Site (EGKDS) is named. At the time, Ed was Vice President, and Larry Brooks was President. The discussion was quite lively—Larry, Ed and other E-Board members made arguments, proposals and counter-proposals about new equipment. Conflicting views were expressed passionately. What really made an impression on me that night was the ability of the E-Board members to strongly disagree with each other, yet be able to adjourn afterward to the local restaurant for a late-night breakfast and camaraderie; it was obvious they had mutual respect for each other.

The second event was the pouring of six concrete pads at the EGKDS in the spring of 2000. As Larry Brooks stated in the February 2001 *Observer*, “Ted Cox agreed to ramrod the construction and Greg Marino supplied major support to develop the site as we see it today.” The pouring and leveling of the concrete was the easy part when compared to

all the permits and preparation that went into acquiring the site. Ted is a hard worker. With years of “flying a desk,” my physical preparedness for Ted’s concrete pouring demands was taxed. Today, the EGKDS has gone from six pads, to 14 – 10’ x 10’ pads with separate AC power.

These two events made a lasting impression for this “new member.” It was obvious to me that the Denver Astronomical Society was active and looking forward to newer and ever better things. In the spirit of continued improvements to the observatory, a small group of members started formulating a plan to give the century-old historical landmark a major overhaul. The stellar performance and hard work of this group resulted in the major renovation of Chamberlin Observatory.

What’s next for the Society? I would like to propose we focus on “doing science.” Ten years ago, a small group of us signed up for Dr. Bob’s variable star observation program. That went well and we learned a great deal. Our members have some of the best CCD cameras available. Their telescopes remind me of the joke about Colorado being the only place in the nation where a \$10,000 mountain bike is transported on a car worth \$1,000. The scopes owned by our members are state of the art and exceed the “mountain bike” example mentioned. The DAS needs to consider a basic photometry program measuring variable stars, as well as monitoring significant events, such as Epsilon Aurigae. This goal is easily attainable. All it needs are several members who use the EGK dark site and a program coordinator to organize and bring the data together. More importantly, we need to keep to the basics first, that is, avoid overly complicated or complex deviations from the primary mission. Within the next three years, DAS members could be making major contributions in astronomy toward ProAm collaboration.

Clear skies,—Ron Mickle



**DAS PRESIDENT,
RON MICKLE**

Photo courtesy Ron Mickle

Society Directory

President:	
Ron Mickle	(303) 229-6868 <i>president@denverastro.org</i>
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Ron Pearson	(303) 670-1299
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Jack Eastman	David Shouldice
Joe Gafford	Tim Pimentel
Frank Mancini	Steve Solon
Norm Rosling	Dan Wray
Wayne Green, Past President	President Emeritus, Larry Brooks

Committees

Van Nattan-Hansen Scholarship Fund:

Ron Pearson (Chair)
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EGK Dark Site Committee:

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IDA Representative:

Dr. Robert Stencil
Email: *coloida@hotmail.com*

Public Outreach Committee:

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Student Astronomy Chair:

Naomi Pequette (Chair)

Finance Committee:

Frank Mancini (303) 663-5263

Volunteers or Appointed Representatives

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The Observer is available in color PDF format from the DAS website.

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DAS Information Line: (303) 871-5172

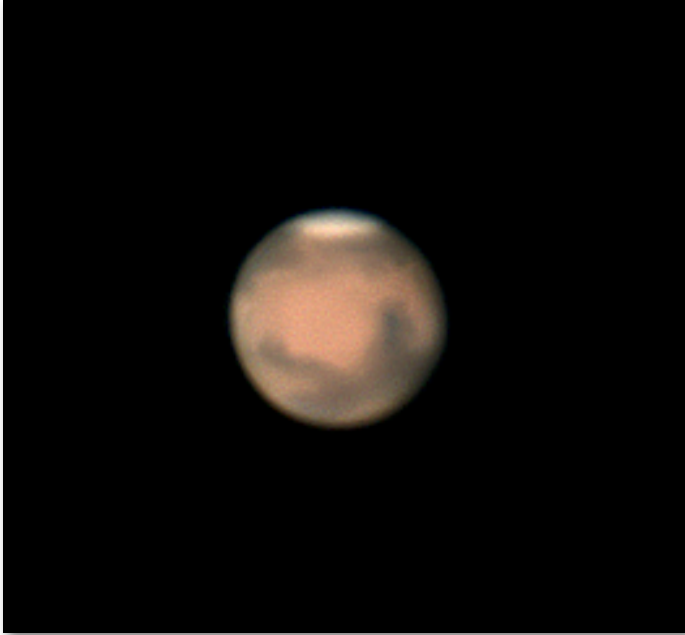
DAS Correspondence:

Denver Astronomical Society
Chamberlin Observatory c/o Ron Mickle
2930 East Warren Avenue
Denver, Colorado 80210

The Executive Board conducts the business of the DAS at 7:30 p.m. at Chamberlin Observatory. Please see the Schedule of Events for meeting dates. All members are welcome.

www.denverastro.org

FEBRUARY SKIES (CONTINUED FROM PAGE 1)



MARS

One of Earth's "next-door neighbors," Mars is the fourth planet from the sun, and like Earth, it's about 4.6 billion years old. David imaged this with a DFK21AF-04 imager on a Celestron NexStar 11 GPS / 2-inch Televue 4X PowerMate on January 11, 2010.

Image copyright 2009 David Wolf

Coming down from Mars to see M44, you're just northwest of the δ (delta) star of Cancer, the one in the middle of Cancer's sloppy Y shape, where the three arms meet. Down at the end of the southeast arm, west of the alpha star, is the cluster M67. Back at the δ (delta) star, trace the northern arm up to ι (iota) Cancrī at the end and keep going half the Delta-Iota distance farther to find NGC 2683, which is actually in Lynx, west of its reddish α (alpha) star. NGC 2683 is a nearly edge-on spiral galaxy. If you then go east to α (alpha) Lynx and a very short ways farther, you'll find a barred spiral, NGC 2859. Another spiral, NGC 2903, to the right of the top of Leo's mane, could be found by dropping from α (alpha) Lynx down nearly to the level of M44 and drifting west a bit.

Moonstuff, all gleaned from the February 2010 issue of *Astronomy*, Page 53, says to turn on a white light behind you to keep your eyes from night-adapting. This is an at-home lunar filter, if you will. Later you can turn the light off, sit down and sip from your water bottle as your eyes dark-adapt, and then go deep. But first look for the two well-defined same-size craters mention on Page 45, Atlas and Hercules, placed next to each other so that they can forever contest who is the strongest.

Number Two of "Bad Things That Can Happen to You While Observing:" Snakes. There are three kinds in Colorado: poisonous, venomous and non-the other two. If you feel something coiling around your ankle in the dark it's probably a snake (or an ankle-biting weasel). They're all hard to see at night as they stalk you. When (I mean, if) you are bitten by a snake, calmly put your tele-

scope back in the car and go to an ER or after-hours clinic. Or leave it behind and let a friend drive you to the doctor, allowing another friend to fetch the scope for you.

If you survive the snakes on the 20th or whenever you are observing out in the Night-Hell of Nature, you can go to the DAS General Meeting on Friday the 26th. You may even get your fifteen minutes of fame as they announce your snake adventure!

DAS 2010 SPRING BANQUET

This year's banquet will be held on Saturday evening, March 27 from 6 to 9 P.M. at the Columbine Unitarian-Universalist Church, 6724 S. Webster St., Littleton. The buffet-style banquet dinner will feature Italian and Mexican food catered by Angie's Family Restaurant in Littleton. Cost per person is estimated to be less than \$30—this is not a final quote.

In order to provide our members the best possible menu selection, I'm asking each member who is planning to attend, to respond to stargeezer9@msn.com AND slingwing@comcast.net with your preferred choice from the menu. We will list, in the final menu selection for the March *Observer*, four selections to choose from. One will be vegetarian.

The choices to respond to are (choose ONLY one per person): *Fettuccini Alfredo*, *Angie's Baked Lasagna*, *Spaghetti & Meatballs*, *Chicken Alfredo*, *Baked Penne Pasta w/meatballs*, *Baked Manicotti*, *Enchiladas (chicken)* and *Chili Rellenos*.

The March *Observer* will contain information for your final menu selection, as well as costs, guest speaker and driving directions.

NASA'S SPACE PLACE

SUNGLASSES FOR A SOLAR OBSERVATORY*A Space Place Partner Article by Patrick Barry*

In December 2006, an enormous solar flare erupted on the Sun's surface. The blast hurled a billion-ton cloud of gas (a coronal mass ejection, or CME) toward Earth and sparked days of intense geomagnetic activity with Northern Lights appearing across much of the United States.

While sky watchers enjoyed the show from Earth's surface, something ironic was happening in Earth orbit.

At the onset of the storm, the solar flare unleashed an intense pulse of X-rays. The flash blinded the Solar X-Ray Imager (SXI) on NOAA's GOES-13 satellite, damaging several rows of pixels. SXI was designed to monitor solar flares, but it must also be able to protect itself in extreme cases.

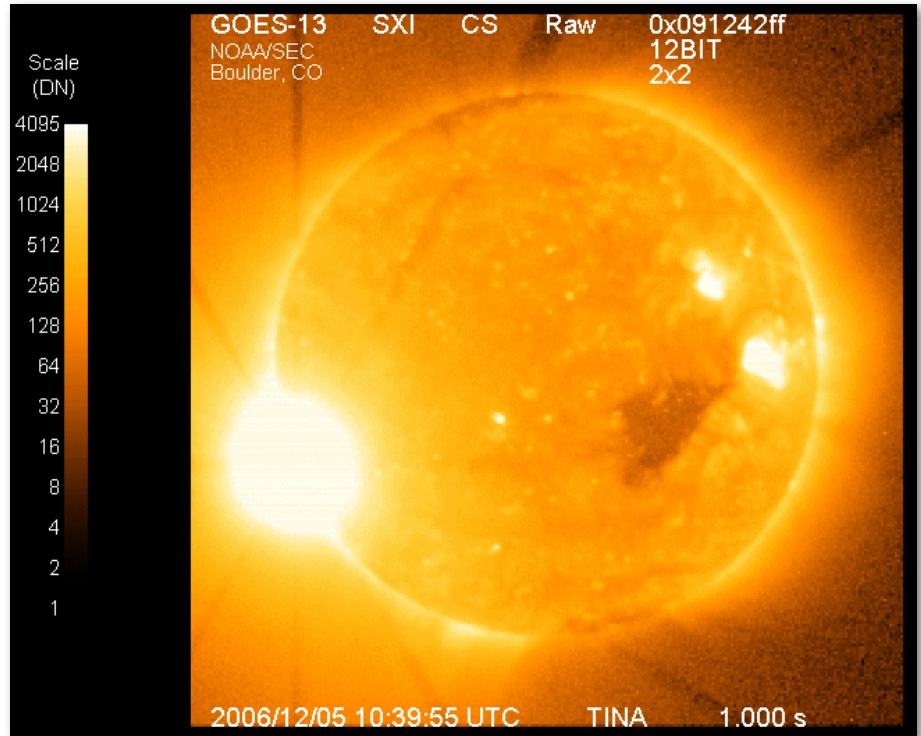
That's why NASA engineers gave the newest Geostationary Operational Environmental Satellite a new set of sophisticated "sunglasses." The new GOES-14 launched June 27 and reached geosynchronous orbit July 8.

Its "sunglasses" are a new flight-software package that will enable the SXI sensor to observe even intense solar flares safely. Radiation from these largest flares can endanger military and civilian communications satellites, threaten astronauts in orbit, and even knock out cities' power grids. SXI serves as an early warning system for these flares and helps scientists better understand what causes them.

"We wanted to protect the sensor from overexposure, but we didn't want to shield it so much that it couldn't gather data when a flare is occurring," says Cynthia Tanner, SXI instrument systems manager for the GOES-NOP series at NASA's Goddard Space Flight Center in Greenbelt, Maryland. (GOES-14 was called GOES-O before achieving orbit).

Shielding the sensor from X-rays also reduces the amount of data it can gather about the flare. It's like stargazing with dark sunglasses on. So NASA engineers must strike a balance between protecting the sensor and gathering useful data.

When a dangerous flare occurs, the new SXI sensor can protect itself with five levels of gradually "darker" sunglasses. Each level is a combination of filters and exposure times carefully calibrated to control the

**GOES-13 GETS "SUNGLASSES."**

X-9 class solar flare December 6, 2006, as seen by GOES-13's Solar X-ray Imager. It was one of the strongest flares in the past 30 years.

sensor's exposure to harmful high-energy X-rays.

As the blast of X-rays from a major solar flare swells, GOES-14 can step up the protection for SXI through these five levels. The damaged sensor on GOES-13 had only two levels of protection—low and high. Rather than gradually increasing the amount of protection, the older sensor would remain at the low level of protection, switching to the high level only when the X-ray dose was very high.

"You can collect more science while you're going up through the levels of protection," Tanner says. "We've really fine-tuned it."

Forecasters anticipate a new solar maximum in 2012-2013, with plenty of sunspots and even more solar flares. "GOES-14 is ready," says Tanner.

For a great kid-level explanation of solar "indigestion" and space weather, check out spaceplace.nasa.gov/en/kids/goes/spaceweather.

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

WELCOME January New Members

Len Koppl
Thomas Shaull
Scott Swick,

GOODBYE TO A BELOVED FRIEND

As of this deadline, the DAS has lost its beloved President Emeritus, Larry Brooks, who passed away on Sunday, January 10th at 8 P.M. The March issue will feature our dear friend and astronomer with stories and testimonials of why we'll miss him so very much. Thanks to Steve Solon for sharing this photo.



AT THE TRAPEZUIM'S HEAD

As part of the enormous HII region that feeds the Great Nebula complex, M43 (NGC 1982) is a self-contained star factory, complete with proplyds buried deep in the "bird's head." Discovered in 1731 by Jean-Jacques Mairan, Messier's 43rd tops off the winter sky's most popular celestial showpiece.

LRGB image comprised of five hours through an SBIG ST-8e CCD camera on a 12.5-inch f/10 reflector.

Image copyright 2009 Steve Solon

GENERAL ELECTIONS

The Denver Astronomical Society will hold general elections Friday, February 26 at the University of Denver's Olin Hall. There are four officers and eight Executive Board positions. The DAS Bylaws also stipulate the past President serves on the Board. This body of elected members determines the course of the Soci-

ety. Serving as an officer or E-Board member is a privilege. If you are interested, you can submit your name to one of the nominating committee members, Ivan Geisler – Chair, Wayne Kaaz and Dennis Cochran – members.

NEWS FROM THE EASTERN PLAINS

By Craig Betzina

Here is the latest from Strasburg Observatory. As you can see in the photos, things have come along out here at the Strasburg, Colorado public outreach facility. The 10-inch Meade LX200 SCT that belongs to the DAS is ready to be mounted in the 8-foot observatory. The electronics have been repaired and the scope works as advertised. The only issue is the need for an Autostar II handbox. The scope did not come with one, and now that the LX200R-14 SCT is mounted and running, I no longer can use the 14's handbox for the 10-inch.

In the photos, you can see that the second observatory housing the 14-inch is now usable with the Warm/Control room about to take shape. This control room will be used for not only the 14-inch, but the 10-inch as well. It is also designed to support

several more domes and also robotic interests. I will be completing a regular bathroom this spring, which will provide better creature comforts for observers and guests. My hope for this facility is to have several public and private observatories located here that are close enough to front range cities while having dark skies and security for equipment. Currently a third dome is planned for late spring—an 8-foot dome and building. An 11.5-foot dome and building will be put onsite as soon as the vendor starts producing them, late in 2010. This is a labor of love and the facilities will be available for all to use. Visitors are welcome to come and look over the facilities for possible ideas on your own domed observatory. I can provide information on designs, construction, and things to avoid. Clear skies to



all, and feel free to contact me anytime at 303-408-1612.



LOAN ME A SCOPE

The DAS is making one of its 8-inch Dobs available to loan to members. This is an ideal way to test or hone your skills if you're new to art of observing, or to check out a fine instrument if you're in the buying market. A \$100.00 refundable deposit is required for the one-month loan period and you must be a DAS member in good standing for at least 3 months.

Please contact the DAS Equipment Quartermaster, Bill Ormsby, at: scopeloan@denverastro.org.

DR. JENNIFER HOFFMAN AT THE FEBRUARY GENERAL MEETING

By Keith Pool

Dr. Jennifer Hoffman is scheduled to speak at the DAS General Meeting on February 26th. She comes to us from the University of Denver (DU) where she is currently an Assistant Professor and Astronomer.

Jennifer L. Hoffman received her Ph.D. in astronomy from the University of Wisconsin at Madison in 2002 and joined the DU faculty in 2007. Her research involves using polarized light and computer simulations to obtain geometric information about astronomical objects too far away to image. She is particularly interested in deciphering the complex shapes of the gaseous clouds that surround massive stars and supernova explosions. Dr. Hoffman also works to encourage and support women and minorities in physical science careers.

In her presentation, called "The Aspherical Universe," she will discuss the ways that stars interact with their environments throughout their lifetimes, and introduce some of the observational and computational tools astronomers use to probe these interactions.

Additionally, don't forget that the February general meeting is also the time that we elect the officers and E-Board members who will serve the Denver Astronomical Society for the upcoming year. The meeting will be held, as usual, in room 105 of Olin Hall on the DU campus, and starts at 7:30 P.M., followed by refreshments and telescope viewing (weather permitting, of course) at nearby Chamberlin Observatory.

Looking ahead, the March general meeting on March 27 is also our annual spring banquet, during which these newly appointed officers will be installed. See Page 5 of this *Observer* for more information.



NGC 3603

From Dr. Hoffman's web page: Various stages of the stellar life cycle in the galactic nebula NGC 3603.

HST image by Wolfgang Brandner (JPL/IPAC), Eva K. Grebel (Univ. Washington), You-Hua Chu (Univ. Illinois Urbana-Champaign), and NASA; courtesy STScI.

ABOUT THE DAS

Membership in the Denver Astronomical Society is open to anyone wishing to join. The DAS provides trained volunteers who host educational and public outreach events at the **University of Denver's**

Historic Chamberlin Observatory, which the DAS helped place on the National Register of Historic Places. First light at Chamberlin in 1894 was a public



night of viewing, a tradition the DAS has helped maintain since its founding in 1952.

The DAS is a long-time member in good standing of the **Astronomical League** and the **International Dark Sky Association**. The DAS' mission is to provide its members a forum for increasing and sharing their knowledge of astronomy, to promote astronomical education to the public, and to preserve Historic Chamberlin Observatory and its telescope in cooperation with the University of Denver.

The DAS is 501 (c)(3) tax-exempt corporation and has established three tax-deductible funds: the Van Nattan-Hansen Scholarship Fund, the Public Outreach Fund and the Edmund G. Kline Dark Site Fund. To contribute, please see the bottom of the membership form for details (found on the DAS website: thedas.org).

More information about the DAS, its activities and the special tax-deductible funds is available on the DAS website at www.denverastro.org.

S&S OPTIKA HAS MOVED TO:

6579 SO. BROADWAY
LITTLETON, CO. 80121
(~1 1/2 blocks NORTH of
Arapahoe Road on the
WEST side of South
Broadway)

(303) 789-1089
www.sandsoptika.com

DAS SCHEDULE

FEBRUARY

- 5 E-Board meeting at Chamberlin Observatory (Begins at 7:30 P.M.)
- 12-14 EGK Dark Sky weekend
- 20 Open House at Chamberlin Observatory (Begins at 6:00 P.M.)
- 26 General Meeting at D.U.'s Olin Hall and election of officers (Begins at 7:30 P.M.)

MARCH

- 5 E-Board meeting at Chamberlin Observatory (Begins at 7:30 P.M.)
- 12-14 EGK Dark Sky weekend (Messier Marathon!)
- 20 Open House at Chamberlin Observatory (Begins at 6:00 P.M.)
- 27 DAS Annual Spring Banquet and installation of officers (Begins at 6:00 P.M.)

Public nights are held at Chamberlin Observatory every Tuesday and Thursday evenings

beginning at the following times:

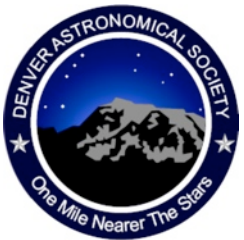
March 9 - April 14 at 8:00 p.m.

April 15 - September 1 at 8:30 p.m.

September 2 - March 8 at 7:00 p.m.

Costs to non-members are: \$3.00 adults, \$2.00 children.

Please make reservations via our website (www.denverastro.org) or call (303) 871-5172.



The Denver Astronomical Society
c/o Chamberlin Observatory
2930 E. Warren Ave.
Denver, Colorado 80210