

The Denver

OBSERVER

Newsletter of the Denver Astronomical Society
One Mile Nearer the Stars



Image copyright 2007 Philip Good

Hot Spots!

The Crescent Nebula's (NGC 6888) central star is shedding its outer envelope in a strong stellar wind, ejecting the equivalent of our Sun's mass every 10,000 years. Near the end of its stellar life, this star should ultimately go out with a bang in a spectacular supernova explosion—Philip Good. Check his website for photo details: <http://infiniti-eng.com/astrophotos/>.

S M O K I N ' N I G H T S

A U G U S T S K I E S

Inside The Observer

As the classical radio station plays Liszt's *Les Preludes*, I am reminded of Flash Gordon flying Dr. Zarkov's spaceship to Mongo whilst listening to the same music. Alas, Mongo can only be found in movie serials of the late 1930s. Sorry

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about that—it was pretty neat, too!

Another place inhabited by men in fiction can be seen lined up with Jupiter in the evening southern sky—one of its four “Galilean” moons, Ganymede. It had been terraformed by humans in Robert Heinlein’s book, *Farmer in the Sky*. Other inhabited planets in Heinlein stories include Mars (*Red Planet*) and Venus (*Between Planets*, *Space Cadet* and not withstanding the title, *Podkayne of Mars*.) And, of course, the Moon (*The Moon is an Iron Mistress* and *The Menace from Earth*.) The asteroid belt was featured in *The Rolling Stone*. An imaginative story about a different sort of Venus is C.S. Lewis’ *Perelandra*. Just as Mars lost its canals in the space

5 Last quarter moon
 12 New moon
 12-13 Perseid meteor shower peaks
 20 First quarter moon
 28 Full moon, Lunar eclipse

age, Venus lost its mystery and attractiveness when revealed by spacecraft to be a hellish world shaped by a runaway greenhouse effect, with high temperatures, carbon dioxide atmosphere and sulphuric acid rain. Remember Venus the next time it's 100° in Denver.

Speaking of planets, we say goodbye to Saturn even as we greet mighty Jupiter. Like Venus in the west, Jupiter appears bright, like an airplane. Included in its retinue of attractions are a huge oval storm, called the Great Red Spot (not very red right now), a Red Spot Junior, bands of clouds and four large primary moons, including the aforementioned Ganymede. Just haul out the old scope, point it south and invite the neighbors over.

While Winter can boast of Orion, Summer has the twin powerhouses, Scorpius and Sagittarius. Like Orion, these two lie south of the ecliptic, but closer to the horizon than Orion. One must wait

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August General Meeting Speaker and VP Notes

by Keith Pool

Dr. Dick McCray is our scheduled guest speaker for the August 3rd General meeting. Dr. McCray is a member of the National Academy of Sciences and has closely followed Supernova 1987a since it was first discovered. Dr. McCray last spoke to the DAS at the February 2004 general meeting about Supernova 1987a. His current topic will be "Supernova 1987a, 20 years later."

DAS General meetings begin at 7:30 P.M. at Olin Hall on the DU campus. We meet in the lecture hall (room 105), and there is ample parking both in the parking lot outside and on nearby city streets. The parking lot adjacent to the building was closed for repairs during the July meeting, but hopefully they will be completed for our meeting in August. Be sure to join us at the observatory immediately following the general meeting for refreshments and viewing through the 20-inch refractor.



For those of you were unable to attend Dr. Mark Bottorff's lectures that he presented to the DAS this year, they will soon be available as a Powerpoint pre-

sentations on CD, available for checkout through the club's library. Included also is his lecture that was presented at Rocky Mountain Star Stare this past June on Cataclysmic Variables.

Summer open houses at Chamberlin are both a lot of fun and a great way of showing our hobby off to the general public. The June and July open houses were very well attended, with about 50 members with scopes in attendance. The July open house coincided with the summer picnic. For those of you with telescopes that are sitting in a corner gathering dust (as mine sometimes does), the August open house on the 19th is a great opportunity to get out of the house and enjoy the night sky without too much fear that weather will try to make life difficult. Although Denver skies make observations of many nighttime objects difficult, if not impossible, Jupiter and the Moon, as well as bright globulars and planetary nebulae will be well placed for observation. To those who have never viewed through a telescope, their memories may very well last them a lifetime. It's also a great way of making the general public aware of just what careless lighting has done to our views of the night sky.

Society Directory

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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.

DAS Schedule

AUGUST

- 3 General Membership Meeting at D.U.'s Olin Hall (Begins at 7:30 P.M.)
- 9-11 WUTS: Fox Park, WY.
- 11-12 EGK Dark Site Weekend
- 18 Open House at Chamberlin Observatory (Begins at 7:30 P.M.)
- 24 E-Board meeting at Chamberlin Observatory (Begins at 7:30 P.M.)

SEPTEMBER

- 3 Labor Day
- 8-9 EGK Dark Site Weekend
- 15 Colorado Astronomy Day (Solar observing at DMNS [11 A.M.-3 P.M.] —Open House at Chamberlin Observatory (Begins at 6:00 P.M.)
- 28 E-Board meeting at Chamberlin Observatory (Begins at 7:30 P.M.)

Public nights are held 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. at Chamberlin Observatory
Costs to non-members are: \$3.00 adults, \$2.00 children.
Please make reservations via our website or call (303) 871-5172 for reservations.

thedas.org

Omit Needless Bytes!

by Patrick Barry and Tony Phillips

Now is an exciting time for space enthusiasts. In the history of the Space Age, there have never been so many missions “out there” at once. NASA has, for example, robots on Mars, satellites orbiting Mars, a spacecraft circling Saturn, probes en route to Pluto and Mercury—and four spacecraft, the two Voyagers and the two Pioneers, are exiting the solar system altogether.

It’s wonderful, but it is also creating a challenge.

The Deep Space Network that NASA uses to communicate with distant probes is becoming over-taxed. Status reports and data transmissions are coming in from all over the solar system—and there’s only so much time to listen. Expanding the network would be expensive, so it would be nice if these probes could learn to communicate with greater brevity. But how?

Solving problems like this is why NASA created the New Millennium Program (NMP). The goal of NMP is to flight-test experimental hardware and software for future space missions. In 1998, for in-

stance, NMP launched an experimental spacecraft called Deep Space 1 that carried a suite of new technologies, including a new kind of communication system known as Beacon Monitor.

The system leverages the fact that for most of a probe’s long voyage to a distant planet or asteroid or comet, it’s not doing very much. There’s little to report. During that time, mission scientists usually only need to know whether the spacecraft is in good health.

“If you don’t need to transmit a full data stream, if you only need some basic state information, then you can use a much simpler transmission system,” notes Henry Hotz, an engineer at NASA’s Jet Propulsion Laboratory who worked on Beacon Monitor for Deep Space 1. So instead of beaming back complete data about the spacecraft’s operation, Beacon Monitor uses sophisticated software in the probe’s onboard computer to boil that data down to a single “diagnosis.” It then uses a low-power an-

tenna to transmit that diagnosis as one of four simple radio tones, signifying “all clear,” “need some attention whenever you can,” “need attention soon,” or “I’m in big trouble—need attention right now!”

“These simple tones are much easier to detect from Earth than complex data streams, so the mission needs far less of the network’s valuable time and bandwidth,” says Hotz. After being tested on Deep Space 1, Beacon Monitor was approved for the New Horizons mission, currently on its way to Pluto, beaming back a simple beacon as it goes.

Discover more about Beacon Monitor technology, as well as other technologies, on the **NMP Technology Validation Reports page**, <http://nmp-techval-reports.jpl.nasa.gov>.

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

This artist’s (Dan Durda) concept shows the New Horizons spacecraft during its planned encounter with Pluto and its moon, Charon. The spacecraft is currently using the Beacon Monitor system on its way to Pluto. Credit: Johns Hopkins University Applied Physics Laboratory/Southwest Research Institute (JHUAPL/SwRI).



August Skies (continued)

Continued from page 1

until late in the evening to get a good look at them but their rising comes earlier as the summer progresses. To find Scorpius, just look directly south of Jupiter. That will get you to the head and heart of the constellation, with the rest dipping down to the horizon like the letter “J.” To find Sagittarius, skim left under Jupiter to come to the famous “teapot” asterism. Last month we talked of Sagittarius’ many deep-sky objects, to which we should add the open

clusters M6 & M7 in the area between the teapot’s spout and the tail of the scorpion. Besides M22 to the left of the teapot’s lid, four more bright globular clusters can be found in the teapot: M28 above the lid star, and M54, 69 & 70 across the bottom of the teapot.

The Perseids will be whizzing across the sky around the New Moon. They peak on the night of Sunday-Monday, August 12-13 and may be good as

well on the Saturday night before that. The later you stay up, the more of them you’ll see. Don’t wait for Perseus to rise, since meteors are not best towards their radiant; the best views are overhead. Use a lounge chair. Count ‘em if you like. Let the kids stay up late and lay on sleeping bags. They’ll get bored and go to sleep. We also have a lunar eclipse on the 28th, but it arrives very early in the morning, as the sky begins brightening and the Moon dives toward the west.—Dennis Cochran



About the Denver Astronomical Society

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 a 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.

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



APPLICATION FOR MEMBERSHIP TO THE DENVER ASTRONOMICAL SOCIETY

New Renewal

Name: _____

Address: _____

City, State, Zip: _____

Phone numbers: Home () Work ()

E-mail Address: _____

Occupation: _____

Other Interests: _____

(Students Only) School: _____ Grade: _____

Do you want to download the newsletter in PDF format from our website instead of by postal mail?

Yes No

Do you want the above information excluded from the yearly roster?

Yes No

Please Circle All That Apply:

Regular Membership: \$35 Students: \$12 (*Students under age 23*) \$ _____

Astronomy Magazine/\$34 and/or *Sky & Telescope Magazine*/\$32.95 \$ _____

Van Nattan Scholarship Fund \$ _____

Public Outreach Fund \$ _____

DAS Dark Site Fund \$ _____

Total Amount Paid \$ _____

Please send all checks to Brad Gilman, DAS treasurer, 7003 S. Cherry St., Centennial, CO 80122-1179. Please make donations to the DAS Dark Site with a separate check, payable to the "DAS Dark Site Fund." For DAS Membership and other funds, including new-member magazine subscriptions, please make amounts payable to the "Denver Astronomical Society." DAS RENEWALS ONLY: you may now send your Sky & Telescope subscription funds directly to the magazine's subscription service, using the renewal form sent to you.



Denver Astronomical Society

c/o Chamberlin Observatory
2930 East Warren Avenue
Denver, Colorado 80210

Please contact Bryan White at 303-346 4831 or nbryanwhite@netscape.net if you would be interested in bringing your telescope to Red Rocks for an event on 6/26/08 (Thursday night) for 3 hours. You will be compensated \$100-150. We are looking for 17 telescopes.

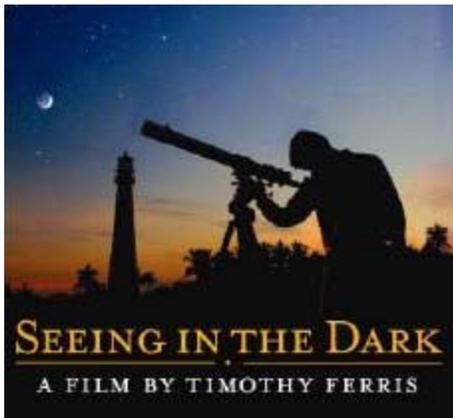
join us

2007 Astronomy Week Events for DAS Members

Dark Sky Weekend

DAS Edmund G. Kline Dark Site, Dusk to Dawn, September 7th-9th

If you haven't been to the DAS Dark Site east of Deer Trail, or just haven't been out in a while, this should be a great time to do it. There are fourteen 10 x 10 concrete observing pads waiting for you and (given good weather) those pristine Colorado dark skies above, featuring all of the late summer Milky Way wonders and the rising Fall constellations, filled with star clusters and galaxies. Detailed information, driving directions, and weather links are available on the DAS Web site at www.thedas.org/dss.html



Seeing in the Dark

DAS Pre-Screening at DU

Wednesday evening, September 12th

Across the country, most people will be seeing Timothy Ferris's inspiring new documentary on amateur astronomy on their local PBS station on Wednesday evening Sept. 19th.

Through a special arrangement with Timothy Ferris, Software-Bisque, and Dr. Bob Stencel at the University of Denver, DAS members and their guests will be treated to a **special ad-**

vanced showing at the University of Denver of an exciting program that Sky & Telescope magazine says "offers a demonstration of how astronomy fulfills people's lives."

The four Bisque brothers, who are featured in the TV program, will be on hand to answer questions about the film's production and their role in it. There will be refreshments.

See the Sept. Observer and watch the DAS Web site for specific time/location on the DU campus.

2007 Colorado Astronomy Day

Saturday, September 15th, 11 am—11 pm

This year's Colorado Astronomy Day combines with the Astronomical League's National Astronomy Day and will be celebrated in Denver, Boulder, and other places around the state. As usual, the theme is: "BRINGING ASTRONOMY TO THE PEOPLE."

We'll be starting at the Denver Museum of Nature and Science with the traditional daytime solar viewing from 11 am to 3 pm, and then moving over to DU's historic Chamberlin Observatory for nighttime observing. We'll have an attended information table at the museum as well as some great presentations on the Galaxy Stage. There will be presentations and exhibits in the evening at Chamberlin as well. This is an opportunity to demo your imaging set-up or special equipment.

If you'd like to participate and haven't signed up yet, contact Darrell Dodge at 303-932-1309 or e-mail secretary@thedas.org . **Help DAS bring astronomy to the people!**

Inventory's finished  & now, we're doing our (every X years)

"Spring Cleaning"... We've found a lot of "STUFF"!

Hence forth... We will be having a "Saturday's Specials" table,
this is where you'll find some of that "STUFF"

"STUFF" on the "Table" will change weekly. (& if you don't see it just ASK, we may have it!)

(You know through 35 years of business, you sure can accumulate a lot of "Stuff")



August 1st - 18th

Special Pricing on:

University Optics Ortho's, HD Ortho's, Planetary eyepieces &
Vixen LV eyepieces.



Debut Orion's NEW Star-Shoot camera.

August 21st-30th

Book SALE



Including Steven James O'Meara's new Book...

"Hidden Treasures" - 15% OFF



SAT., SEPT. 8TH



10 AM-4 PM

Judy Cunningham is joining us

She always brings such a wonderful assortment
of "Astronomical" Jewelry.



5174 So. Broadway Englewood, Co. 80113

(South East Corner of Broadway & Belleview
in the Brookridge Shopping Center)

303-789-1089

S & S OPTIKA