



January 2006 Newsletter of the Omaha Astronomical Society Issue 217

## Star Trails at Mauna Kea



[Peter Michaud](#) ([Gemini Observatory](#)), [AURA](#), [NSF](#)

General Meeting of the  
Omaha Astronomical Society  
Friday, January 6th at 7:30 PM  
Durham Science Center, Room 169  
UNO Campus

Program: See Page 3

## Events

### **January Club Star Party**

**28 January 2006**

**OAS Club Site, Weeping Water**

### **Mahoney Public Star Parties**

Will Start in May 2006

Visit the club web site at: **[www.OmahaAstro.com](http://www.OmahaAstro.com)**

Save the club money... and get your newsletter in full color by signing up for the email edition of the Stella. Signing up is easy... just go to:

**[Http://www.omahaastro.com/DigitalStella](http://www.omahaastro.com/DigitalStella)**

STELLA is a publication of The Omaha Astronomical Society. Please send related correspondence to: STELLA, c/o Omaha Astronomical Society, P O Box 540424, Omaha, NE 68154



## **BULLETINS**

### **January Meeting Presentation**

First in a series on Beginner's Observing .

**“Observing with What You Have Been  
Given - Your Eyes.”**

### **Good January Dates to Observe at the OAS Club Site or at any other good location**

Friday 20 Jan, last quarter moon  
Saturday 21 Jan, last quarter moon  
Friday 28 Jan, new moon  
Saturday 29 Jan, new moon

### **Upcoming Events**

Stardust returns 15 Jan 2006

Watch for Saturn near M44 the Beehive  
Cluster during the 1st quarter of 2006

## January Astronomy Quiz

### Do you know about Uranus?

1. Who discovered Uranus and when?
2. What are the three main ingredients of Uranus's atmosphere?
3. How long is Uranus's day?
4. What gives Uranus its blue-green color?
5. What is special about the tilt of Uranus's axis?
6. Who discovered Miranda and what is it?

### Other Questions?

7. What are the two major elements in earth's atmosphere?
8. What does SALT have to do with astronomy?
9. What is significant about Jan 4, 2006, at 10 AM.
10. What does Swift look for?
11. How long were the Mars rovers supposed to last?
12. What is "Giova A"?
13. What is the largest topographic feature on the moon?
14. What is special about September 2005? (Hint aurora)
15. What star is known as the "Pup"?
16. What constellation is sometimes know as the Net?
17. Betelgeuse comes from the Arabic for \_\_\_\_\_?
18. How long has Spirit been on its 90 day mission as of 29 December 2005?
19. Where else to we find an "E-ring" other than the Pentagon?
20. Who defined the boundaries of the 88 constellations?
21. What is a more well known name for "Canyon Diablo".
22. What satellite passed thru Giacobini-Zinner's plasma tail?
23. When did it pass thru the comets tail, and when will it be in the vicinity of earth again?
24. Where does the SOHO spacecraft orbit?
25. True or False, GPS satellites are geo-stationary satellites?
26. What is Deep Space 1 (DS1)?
27. What is the lightest solid on earth, and how much does a cubic inch weigh?
28. What object did the LBT focus on for First Light?
29. What is LBT?
30. Where is LBT located?

## January Sky Calendar

3rd Quadrantid Meteor Shower Peak  
6th First Quarter Moon  
14th Full Moon  
22nd Last Quarter Moon  
29th New Moon

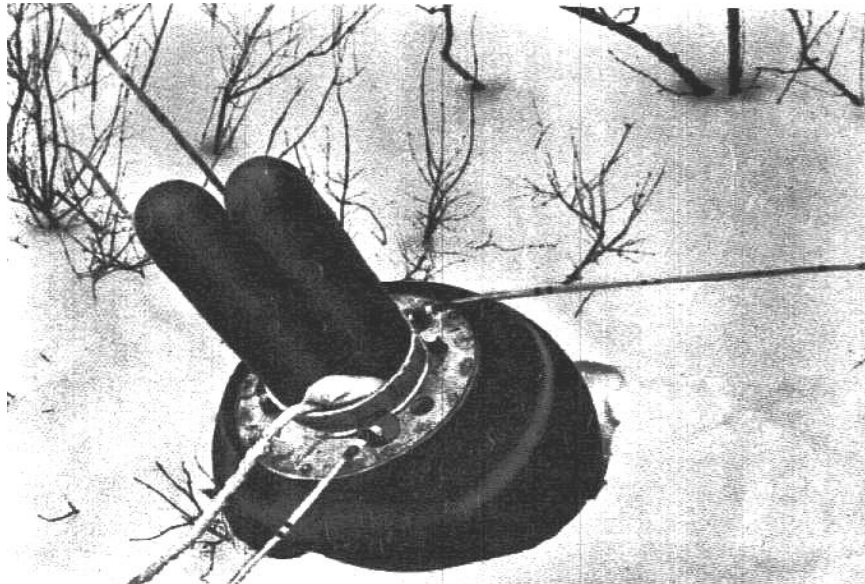
### Recent Observing Awards

None

### New Members

Ed Sikorski of Omaha  
Jeffrey Todd of Plattsmouth

What is shown below?  
For the answer see or e-mail Mark Weiss.



Omaha Astronomical Society  
December Meeting Minutes  
**December 2<sup>nd</sup>, 2005**

**Meeting called to order** tonight at 7:35 PM.

- No rooftop observing, 8 (?) visitors

**Secretary's Report:** Secretary Kim Moss-Allen was not present so Al Dorn gave a short synopsis of November meeting minutes and suggested reading the minutes in the Stella. Motion made to accept by George Allen, 2nd by Karl Niehaus, and passed by membership

**Treasurer's Report:** Bill Bond gave a brief report, with income in November of \$454.90, expenses of \$249.15 and an overall balance of \$4575.75. He also had 2006 calendars, ready to be paid for and picked up.

**Old Business**

**Observing Committee:** Clark Cheney members about the Geminid Meteor shower this month.

**Awards:** Deb Cheney said that all awards were still pending.

**Outreach:** John Johnson absent. No December outreach events. Wayne & Andrea Boeck had star-partied about 75-80 kids at Sandoz Elementary during November and they shared their "thank yous" with OAS membership. All club **scopes** are loaned out to members. Vice President Mark Weiss apologized for absence of **electronic Stella** again this month, will contact Webmaster Jeff Huston and sort this problem out. Also, Program Chair Eric Balcom briefly discussed Nebraska Star Party (NSP.)

**New Astro League Clubs:** Al Dorn announced 3 new Astro League clubs went active on Dec 1st: Open Clusters, Planetary

Nebulae, and Lunar II.

**Observing Calendars** Al Dorn announced that he would take deposits for observing calendars, settling next month when calendars are available.

**New Business**

**Special Speaker in Lincoln**: An invitation was received from Prairie Astronomy Club to attend a special presentation about the Thirty (30) Meter Telescope (guest speaker: Larry Stepp) on Monday, Dec. 26, in Lincoln.

**Lighting Code** Al Dorn mentioned that Omaha City Council is considering a change to the lighting code that loosens glare restrictions and extends the "grandfather" clause for existing non-compliant lighting; public discussion set for Tuesday, Dec 6th, 2 pm at city hall bldg.

**Photo**: George Allen suggested OAS assemble for a group photo at a future meeting; the suggestion was tabled until January.

**Phil Heflin** mentioned a resolution problem with printed/mailed Stella this month; Marc Weiss took it as an action item.

**Next General Meeting**: Friday, Jan 6th, 7:30 PM

**Motion to Adjourn** business meeting made by Mike Gallagher, 2nd by Gary Grimes, and passed by membership; meeting adjourned at 7:55 PM

**December Program**: No formal astronomy program tonight; annual Social with Refreshments & Door Prizes.

## New Moons and Rings Found at Uranus

With the help of NASA's Hubble Space Telescope astronomers have discovered new rings and small moons around Uranus. Hubble photographed a pair of previously unknown rings, the largest of which is twice the diameter of the planet's previously known rings. These new rings are so far from the planet that they are being called a "second ring system."

Two small satellites were also discovered, one shares its orbit with one of the newly discovered rings. One of the most surprising discoveries, from the new Hubble photos was that the orbits of planets inner moons have changed significantly in the last decade.

"The new discoveries dramatically demonstrate that Uranus has a youthful and dynamic system of rings and moons," says Mark Showalter of the SETI Institute. "Until now nobody had a clue the rings were there, we had no right to expect them."

Scientists expect that dust in such an orbit would be depleted by spiraling away, however this is not the case. Showalter and collaborator Jack Lissauer of the NASA Ames Research Center propose that the outermost ring is replenished by a 12-mile-wide companion satellite, named Mab. Mab was first discovered in 2003 using Hubble. It is believed that meteoroid impacts continually blast dust off the surface of Mab, and the dust then spreads out into a ring around Uranus.

Scientists think that Mab's ring receives a fresh infusion of dust from each impact. In this way, nature keeps the ring supplied with new dust while older dust spirals away or bangs back into the moon, the thinking goes.

"This appears to be a random or chaotic process, where there is a continual exchange of energy and angular momentum between the moons," Lissauer said. "The changes in the last ten years are small, but the thing about chaos is that small changes build up exponentially with time. As a result, this suggests that the entire system is orbitally unstable."

It is believed that the most unstable moon of all is tiny Cupid, whose orbit brings it within 500 miles of the moon Belinda. Showalter and Lissauer propose that their discovery of a second ring, which orbits closer to the planet than the new outermost ring, provides further evidence for collisional evolution of the system. This ring orbits in the midst of the moons but has no visible body to re-supply it with dust.

"This ring may be the telltale sign of an unseen belt of bodies a few feet to a few miles in size," Showalter said. He proposes that the collisional disruption of a moon in Uranus's past could have produced the debris ring they now observe.

### **The Planets in 2006**

**MERCURY:** Mercury usually appears as a bright "star" with a yellowish or ochre hue. At its best evening apparitions, it can be found almost directly above where the Sun has set, being visible for up to 90 minutes after sunset. As viewed from the Northern Hemisphere, such an opportunity will come between Feb. 10 to March 3. It will also be positioned to the north of a razor-thin crescent Moon on the evening of February 28.

During its best morning apparitions, you'll find it positioned almost directly above where the Sun will rise up to 90 minutes prior to sunrise. Such an occasion will come between Nov. 18 to Dec. 9 and it will appear to ride well to the north a slender sliver of a crescent Moon on the morning of November 19. On Nov. 8, a transit of Mercury will take place, with the planet appearing in silhouette as a tiny black dot on the Sun's disk. This event will be visible from the Americas, the Pacific Ocean, Australia, New Zealand and eastern Asia.

**VENUS:** Always appears brilliant, and shines with a steady, silvery light. It starts 2006 very low in the west-southwestern evening sky at dusk for the first several days of January. It then passes roughly between the Sun and the Earth (inferior conjunction) on Jan. 13 and makes its transition into the morning sky.

You'll find it during the final week of January, low in the east-southeast sky at the first light of dawn and it will continue to be a prominent morning object right on through the end of August. It will then be hidden again by the bright solar glare almost through the balance of the year. Passing through superior conjunction on Oct. 27, it will then return to the evening sky, though not likely readily visible for most until the waning days of December. During late January and through much of February, it will resemble a beautiful crescent in steadily held binoculars and telescopes.

Venus will reach its greatest brilliancy in the morning sky on Feb. 17. Venus will appear to pass very close to Saturn on the morning of Aug. 27; the planets will appear low to the eastern horizon and separated by only about a half-degree (the apparent width of the Moon).

**MARS:** Shines like a star with a yellowish-orange hue. This will evolve into an "off year" for Mars, although it will be just coming off a splendid opposition during mid-autumn of 2005. It will appear brightest in 2006 on New Year's Day, still glowing brilliantly at magnitude  $-0.6$  in the constellation of Aries and outshining all the stars in the sky with the exception of Sirius and

Canopus. It will then be 72 million miles from Earth, but it will also be receding from us each night thereafter and hence will be getting progressively fainter.

By March 1, it will appear more than 3½ times dimmer and by May 9 it will have fallen into the ranks of a second magnitude object. Mars will pass just over one-half degree from Saturn in the evening sky of June 17. A month later, it is all but gone from view, becoming too deeply immersed in the solar glare to be seen. It will be in conjunction with the Sun on Oct. 23, becoming a morning object. Not until about the middle of December will it emerge from the bright morning twilight.

**JUPITER:** which appears as a brilliant "star" in the constellation of Libra, will by May and June be visible most of the night. It will continue to be a convenient evening object through the end of October. It will disappear into the Sun's glow in early November and will again become visible in the morning sky during early December.

**SATURN:** Usually shines like a yellowish-white "star" of moderate brightness. It will be primarily a late-night/early morning object through much of January. By late January into February it will be visible most of the night and will continue to be a convenient evening object through the middle of July. It is at opposition to the Sun on Jan. 27 and will also have two close encounters with other naked-eye planets in 2006.

It will pass just over one-half degree from a much-dimmer Mars on the evening of June 17 and will lie a similar distance from the much-more dazzling Venus on the morning of Aug. 27. Saturn is located within the relatively dim stars of Cancer, the Crab. On February 2 and again on June 5, Saturn will be situated just below the beautiful cluster of stars popularly known as the "Beehive." The famous ring system is visible in telescopes magnifying over 30-power.

From mid-March until the beginning of May, the rings will be tilted at a 20° angle toward Earth. You should take full advantage of this circumstance, because, we won't see the rings tipped 20° or more to our line of sight again until the year 2014!

**URANUS:** can be spied with the unaided eye under a clear, dark sky. However, it is more easily seen in binoculars. At magnitude +5.7, it is located in Aquarius and is at opposition to the Sun on Sept. 5.

**NEPTUNE:** is an 8th magnitude object visible in binoculars and in 2006 resides in Capricornus, the Sea Goat. It arrives at opposition on August 11.

**PLUTO:** the smallest and most distant planet is, at magnitude 14 (about 900 times fainter than the faintest star visible to the unaided eye), the most difficult to observe. You'll need a very dark sky, at least an 8-inch telescope and a finder chart to locate it. In the constellation of Serpens, the Serpent, it's at opposition on June 16.

## Astronomy Quiz Answers

1. William Herschel in 1781.
2. Hydrogen 83%, Helium 15%, & methane 2%.
3. 17 hours 14 minutes.
4. Methane absorbs red color giving it the blue-green color.
5. It is tilted 97.86 degrees, it is tipped on its side.
6. G. Kuiper, and it is a moon of Uranus.
7. Nitrogen 77%, and Oxygen 21%.
8. Southern African Large Telescope (SALT) is the largest single optical telescope in the southern hemisphere
9. Earth will be at its closest to the sun, 91,405,952 miles.
10. Gamma Ray Bursts.
11. 90 days.
12. First satellite of the European version of our GPS.
13. South Pole-Aitken Basin.
14. Most active solar month since March 1991.
15. Sirius B.
16. Reticulum.
17. "House of the Twins."
18. 708 Earth days, 618 days past the warranty.
19. It is the outer ring around Saturn.
20. International Astronomical Union in 1930.
21. Meteor Crater.
22. ICE (Interplanetary Comet Explorer)
23. June 5, 1985 and will return in 2014.
24. Lagrangian point L1.
25. False.
26. Spacecraft design to test 12 advanced technologies.
27. Aerogel, and 0.00011 lbs per cubic inch.
28. NGC 891.
29. Large Binocular Telescope.
30. Mount Graham International Observatory.



**Club Officers .....**

**President:** Al Dorn 291-5595  
*al1@ditol.com*

**Vice President:** Mark Weiss 291-5322  
*mweiss4@cox.net*

**Treasurer:** Bill Bond 491-4135  
*bill.bond1@cox.net*

**Secretary:** Kim Moss-Allen 291-7887  
*dallen@novia.net*

**Program Chair:** Eric Balcom 491-3502  
*ecbalcom@msn.com*

**Outreach Coordinator:** John Johnson 333-5460  
*jwjohanson@opd.com*

**Stella Editor:** Mark Weiss 291-5322  
*mweiss4@cox.net*



**BENEFITS OF MEMBERSHIP**

- ◆ Members receive the STELLA, our monthly newsletter.
- ◆ Each member is automatically a member of the Astronomical League, the only nation-wide organization for amateur astronomers.
- ◆ Use of the observing site at Weeping Water, NE
- ◆ The opportunity to borrow one of several club-owned telescopes.
- ◆ Organized trips to local observatories, planetariums and museums.
- ◆ Significant savings on subscriptions to **Sky & Telescope** and **Astronomy** magazines.
- ◆ Savings on astronomy books and printed materials.

**ANNUAL MEMBERSHIP DUES**

Regular/Family  
\$25.00

Junior/Student  
\$10.00

Newsletter Only  
\$10.00

Send your check to:  
The OAS  
c/o Bill Bond  
12835 Aurora Plz,  
Lot 237  
Omaha, NE 68164