January 1999

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Table of Contents

Departments

- Events
  - Calendar of Events for January 1999
  - Calendar of Events for February 1999
- Lead Story: The Stars Are Out Again
- Presidents Update
- The Board Meeting
- Observatory Committee
- Last Month's General Meeting Recap: The December Meeting
- Next General Meeting: January Meeting
- Observer's Page
- What's Up for January
- Ask the Experts--Sidereal Time vrs Mean Solar Time
- The Kids' Corner
- TAAS Star People
- ATM Corner
- Star Myths
- UNM Campus Observatory Report
- Education Outreach
Please note: TAAS offers a Safety Escort Service to those attending monthly meetings on the UNM campus. Please contact the President or any board member during social hour after the meeting if you wish assistance, and a club member will happily accompany you to your car.

Events

- January 1999 calendar (GIF) of events
- January 1999 calendar (PDF) of events
- February 1999 calendar (GIF) of events
- February 1999 calendar (PDF) of events
- February 1999 Solar Almanac
- February 1999 Lunar Almanac

GIF images are low-res and are ~15K bytes
PDF images are hi-res and are ~100K bytes and require a PDF viewer
Almanacs are 144 DPI bitmap GIF files and are ~50K bytes

Go to Adobe to get Acrobat Reader (supports Macintosh and PC running Netscape and Internet Explorer).

January 1999

1 Fri New Years Day
   Full Moon (7:50 pm)
   1801 - Ceres discovered (by Giuseppe Piazzi)
2 Sat 1920 - Isaac Asimov born
3 Sun Earth at perihelon (closest to Sun) .98327 AU @ 7am
4 Mon
5 Tue Venus 1.7 deg. south of Neptune
   Regulus 0.2 deg. south of Moon
   Latest Sunrise
6 Wed
Thu 1610 - Galileo discovers Callisto, Europa, and Io
Fri Mars 4 deg. south of Spica
Sat * TAAS General Meeting (Elections)
    Mars 3 deg. south of Moon
Sun 1946 - Army bounces RADAR off Moon
Mon Moon at apogee (5 am)
       Ceres stationary
Tue * Jackson Middle School
Wed Venus 0.9 deg. south of Uranus
       1610 - Galileo discovers Ganymede
Thu * Board Meeting
Fri
Sat * GNTO
Sun New Moon (8:47 am)
Mon MLK Jr. day
Tue Sun enters Capricornus
Wed * ATM Class
    Venus 2 deg. south of Moon
Thu * GNTO Meeting
    Jupiter 1.8 deg north of Moon
Fri * UNM Call hotline to confirm
    Neptune in conjunction with Sun (on far side, not visible)
Sat
Sun First quarter Moon (12:16 pm)
       Saturn 2 deg. north of Moon
Mon
Tue Moon at perigee (4 pm)
       Moon occults Aldebaran tonight (actually the 27th) just after
       midnight
Wed * ATM Class
    Moon occults Aldebaran early this morning just after midnight
Thu
Fri * UNM Call hotline to confirm
Sat
Sun Full Moon (Blue Moon) (9:07 am)

Sunrise / Sunset (MST)
For Latitude 35.08, Longitude 106.65 (Albuquerque, NM)
Sunrise = upper limb on horizon
Sunset = upper limb on horizon

    01/01/99  7:15 / 17:06
    01/15/99  7:14 / 17:18
    01/31/99  7:06 / 17:34

Planet Rise (01/15/1999, MST)

    Mercury  6:35
    Venus     8:25
    Mars      0:25
    Jupiter   10:15
    Saturn    11:45
    Uranus    8:15
    Neptune   7:40
    Pluto     3:35
February 1999

1 Mon  Moon 0.3 deg N of Regulus
Uranus in conjunction with Sun

2 Tue  Groundhog Day (half way between Winter solstice and Spring equinox)

* Marie Hughes Elementary School

3 Wed  * ATM Class

4 Thu  Mercury in superior conjunction
Vesta at opposition

5 Fri  * UNM Call hotline to confirm

6 Sat  Mars 3 deg S of Moon

7 Sun  Astronomical Society of the Pacific founded in 1889

8 Mon  Last quarter 4:59 am
Moon at apogee—63.4 earth-radii

9 Tue  Guy Ottewell: Pluto becomes farther from Sun than Neptune

10 Wed  Jean Meeus: Pluto becomes farther from Sun than Neptune
1610 - Galileo discovers Ganymede

11 Thu  Equation of time at minimum for year (-14.28 minutes) @ 11am

12 Fri  * UNM Call hotline to confirm

13 Sat  * GNTO

14 Sun  Neptune 1.5 deg S of Moon
Valentine's Day

15 Mon  New Moon (11:40 pm)
Presidents' Day
1564 - Galileo born

16 Tue  1948 - Kuiper discovers Miranda

17 Wed  * ATM Class
* Rio Grande Elem. School

Ash Wednesday

18 Thu  * GNTO Mtg.
1930 - Tombaugh discovers Pluto
Venus 1.8 deg N of Moon, Jupiter 2 deg N of Moon

19 Fri  * UNM Call hotline to confirm
1473 - Copernicus born

20 Sat  Moon at perigee—57.8 earth-radii (8 am)
Saturn 3 deg N of Moon
1962 - Glenn orbits Earth

21 Sun

22 Mon  First quarter (7:44 pm)

23 Tue  Venus 0.1 deg N of Jupiter—closest planet-planet conjunction of the year.

24 Wed  * ATM Class
1968 - Discovery of first pulsar announced

25 Thu  * Board Meeting 7 pm, PandA

26 Fri  * UNM Call hotline to confirm
Neptune in conjunction (on far side) with Sun

27 Sat  * TAAS General Meeting

28 Sun  Mercury @ perihelion—0.3075 a.u.

Sunrise / Sunset  (MST)
For Latitude 35.08, Longitude 106.65 (Albuquerque, NM)
Sunrise = upper limb on horizon
Sunset = upper limb on horizon

02/01/99   7:06 / 17:35
02/14/99   6:54 / 17:48
02/28/99   6:38 / 18:01

Planet Rise (02/14/1999, MST)

Mercury   7:25
Venus     8:10
Mars      23:20
Jupiter   8:30
Saturn    9:50
Uranus    6:20
Neptune   5:45
Pluto     1:35

NOTES:
* = official TAAS Event
GNTO=General Nathan Twining Observatory. Call Gordon Pegue @ 332-2591 to confirm.
UNM=UNM Observatory observing nights. Call the TAAS Hot Line to confirm @ 296-0549
ATM=Amateur Telescope Making. Call Michael Pendley for information @ 296-0549.

The Stars Are Out Again
by Robert Williams

As all of you may have read in past newsletters, TAAS received a grant from Motorola
Foundation for the purchase of a new Starlab portable planetarium. We have been waiting
patiently since about August for the arrival of the new equipment. The wait ended on December
4th, when I signed for three boxes from Learning Technology Inc. Those of you who attended
the December Potluck got a first look at the new Starlab (or as Barry Gordon put it—
experienced "first dark").
We set the Starlab up and I gave two shows for those who wanted to see what the new planetarium would do. The new projector is a big improvement over the old Apollo planetarium. The new dome and fan also work much better and require much less set-up time. I must say that I was very impressed with the new equipment and I am looking forward to the next school star party so we can show it off.

The new projector uses cylinders to project stars and other objects onto the dome. We were entitled to two cylinders with the kit we ordered. We chose the standard star field cylinder that will project around 2000 stars of different magnitudes and colors, and the Greek myths cylinder which projects figures of Greek myths over the stars. All those who saw the Greek myth cylinder seemed to be very excited with it.

Now we are looking for docents to help with shows so Lisa and I can have some time off every now and then. Now that we have a new Starlab, and one that is somewhat simpler to operate, we are hoping we can get some new volunteers to help with the shows. If you would like to help please call Lisa Wood or me and let us know (our telephone numbers are under Society Staff). We are also going to be recording some shows on tape for those who would like to help but are not comfortable talking to groups or just do not know what to say. It will take a few months to get them together so keep asking. If you interested but just not sure—come to one of the school star parties and sit in on some of the shows to see how they are done.

I doubt if there is anyone in TAAS as excited about this as I am.

Come out and come into the new portable planetarium and see the stars again.

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**Presidents Update**

*by Mike Pendley*

This will be my last presidents update. The last three years have been very rewarding to me—I have learned a lot and I hope I have become a better person. I thought it would be fun to review some of the highlights of the past three years. Dates are somewhat fuzzy—some are actual and some are from the newsletter edition the information was reported in.

**1996**

**January:** I took office on the 6th. Dr. Jack Drummond from Starfire was the speaker at the general meeting. I don't remember a word he said because I was too terrified of what I was going to say when George handed me the gavel. Membership stood at 216. Funds on deposit ~$6500.
March: I had to report that long time TAAS member Leo Broline died at the early age of 44.

April: I reported that Steve Williams was retiring as newsletter editor after assembling 81 editions.

May: Michael Wade Douglas give The Sidereal Times a new look. We announced the availability of TAAS coffee mugs.

June: We reported on a very successful Astronomy Day and ran the first edition of The Kids Corner by Lindsay Wood.

August: The first "Robbinian".

September: The Jumpin Jupiter cloud party drew 3500 people and GNTO is broken into—again.

November: I take over as the interim editor of The Sidereal Times.

December: The Browline Award is formally established.

1997

January: Lisa becomes a Sky Bum and membership stands at 287.

February: TAAS holds its first auction and GNTO goes back on-line.

March: TAAS hosts the world's largest star party: Be-Bop with Hale-Bopp. 13,500 attend the one night event.

April: Deep Sky Waldo debuts, we begin using the printing technology currently in use, and we announced the acquisition of the Apollo portable planetarium.

June: Another great Astronomy Day and Kevin starts his TAAS 200 section in the Observer's Page.

July: TAAS helps Lodestar with the Grants 4th of July parade and the TAAS President is abducted by a space alien.

August: GNTO gets a major face lift.

November: Sam Lockwood tells us how to test a mirror, TAAS Star People makes its debut and our first 18 page newsletter is printed.

December: We report Kevin McKeown is writing the Sky Watch section the Albuquerque Journal.

1998
January: Deep Sky Waldo ends and the first Astro 101 class is held. Membership at 394.

February: Ask the Experts makes its debut.

March: The TAAS web page is selected "Site of the Week" by the Albuquerque Journal.

April: The TAAS web page gets a new name: www.taas.org and the TAAS BBS shuts down after 5 years of operation when Steve Snider leaves the area.

May: Gordon retires as Observatory Director after 4+ years, the infamous Egg story is printed, another great Astronomy Day is reported on, and the Chaco Observatory is dedicated.

June: Astro-Blast is held, we announced Ellie is moving, and many of us meet our first astronaut.

July: We announced a revamped telescope loaner program, Star Myths debuts, we learn of a photon's miracle, and Ellie gets her Ph.D.. The TAAS president is NOT abducted by a space alien this year.

August: Theodore completes his Eagle Project at GNTO, TAAS gets a new mailing address, and GNTO hosts a wedding.

November: Lindsay retires and Barry takes over The Kid's Corner. We announced that TAAS was awarded $10,000 by the Motorola Foundation to purchase a new Starlab. Theodore makes Eagle.

December: We announce TAAS will receive a $14,000 grant from PNM to install power at GNTO.

1999

January: Membership stands at 423. Funds on deposit are ~$8500 (not counting the $10,000 Motorola grant)

Along the way, a few amendments to the TAAS bylaws were developed, board meetings went from 2.5 hours to less than one, and every once and a while, we got to do some observing.

So were the last three years a success? I don't know. I do know the stuff we can measure would indicate yes. Membership is just under twice what it was when I took office and the treasury is in fine shape. I did not make a careful count but I believe over 50,000 noses attended TAAS events over the last three years.

While I would like to take credit for all our accomplishments—I can't. This was a team effort. The Board of Directors and general membership support are mostly responsible for the wonderful growth TAAS has experienced over the last three years. I thank you all very much.
I leave office with few regrets and look forward to seeing what direction the new administration takes TAAS. I ask all of you to support them as well as you supported me.

Move over Lisa. Make room for another Sky Bum.

**Random Acts of Kindness:**

Many thanks from the library for an anonymous donation of HA Rey’s book, *The Stars*.

Thank you to Board Member David Blair for his improvements to the Solar System Match Game that docents will be taking to our school star parties.

Many thanks to Robert Ortega for the wonderful job he did of designing, arranging, and supervising work done in building a TAAS member’s concrete telescope pad and pier. Refusing to take personal compensation, it was agreed that his fee would be donated to the GNTO fund instead.

Thanks to Kevin McKeown for donating a number of prizes for the Potluck trivia contest.

**New Members:**

No report this month.

Total membership is now 423, down 6 from last month :-(.

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**Board Meeting**

*by Kevin McKeown*

The December 3, 1998 Executive Board meeting was called to order by President Mike Pendley at 7:00 pm. In attendance were Dave Blair, Carl Frisch, Alan Green, Bruce Levin, Gordon Pegue, Ruth Pendley, Robert Ortega, Dave Sukow, Robert Williams, and Kevin McKeown. Lisa Wood was making arrangements for the potluck and did not attend. Todd Durdullis of UNM PandA was an observer.

**Previous Minutes:** The minutes of the November 5, 1998 Board meeting were read by Kevin McKeown. It was noted that under Old Business, Placitas Homeowners Assn. should be "Los Placitas Assn.".

**Treasury Report:** Robert Williams updated the Treasury. Total funds on deposit were $18,857.87, an increase of $261.75 from November 1998. Education funds on deposit were $12,238.62—an increase of $141.50. Observatory funds on deposit were $6,183.49—an increase of $365.00. General funds on deposit were $435.76—a decrease of $244.75. Robert also reported
that a $2,000 Certificate of Deposit, at 4% interest/year, was opened. Sums of $1,000 were taken from both the CCD and the Broline Memorial Fund, and combined for the principle.

**GNTO Committee:** Robert Ortega gave the GNTO Committee report. The new rings for the Isengard scope are due shortly, and the worm and winch has been delivered the new shutter drive. A short work party is scheduled for December 19th. Robert met with Cary Lane of Energia, Ltd., regarding design changes to GNTO for the PNM solar panels. Mike met with PNM officials, but had nothing noteworthy to report.

**Starlab:** Robert Williams reports that the new Starlab is due in any day and he expects to meet with Judy Mercer shortly. The new Starlab might be ready for the Dec. 5th Potluck.

**T-Shirts:** Ruth Pendley had no updates from the T-Shirt Committee.

**Lodestar:** There was no Lodestar report.

**Education Report:** There was no Education Committee report but Lisa relayed the message that Onate Elementary has not yet confirmed and may be canceled.

**Calendar:** Carl updated the Calendar and first pointed out that the Rio Grande Elementary School star party is on Wednesday night, February 17th, 1999 and would conflict with the Telescope Making Class. Rita Logan at UNM Valencia Campus suggested a star party for April 23rd. Discussion was tabled until the January Board meeting. For the proposed ’99 calendar, Carl noted that the June 12th, and September 4th Chaco star parties conflict with other TAAS activities. No action was taken. Carl next noted that the blue (2nd) moon of January provided for two Board, and two Regular meetings. After discussion, a motion was made that there should be one January Regular meeting on the 9th, followed by one January Board meeting on the 14th, and the proposed Board meeting of January 28th, and the proposed Regular meeting of January 30th be canceled. The motion passed with no dissent. The scheduled GNTO Observatory Committee meeting is intact.

**Past Events:** Past events were reviewed by all. Grant Middle School, Central Elementary School, and Los Lunas Elementary School were all very successful. Dave Sukow reported that UNM Campus night on November 13th went well. The November Auction was successful, and the Society made a little over $400. Many TAAS members gathered at GNTO Nov. 17th for the Leonids, and they were rewarded with a fine display!

**Future Events:** For Future events, final plans for the Dec. 5th Potluck at Cumberland Hts. Presbyterian Church were made. Lisa Wood will begin the setup at 4 pm, and the Potluck begins at 6 pm. Dave Blair has offered to read a poem, and Kevin McKeown will conduct the Trivia contest. A gratuity for the Church was suggested. After discussion, $100 was agreed upon. A motion to spend this sum was made, and passed without dissent. For the January 9th Regular meeting, it was suggested that John Spargo or Dave Finley might be available to speak. Alan Green will contact Starfire Optical Range regarding another tour.
Old Business: For Old Business, Mike Pendley reports that Radio Shack sells a wireless sound system. Carl motioned that Mike should be given the go ahead to test, and purchase, if satisfactory, this system. The motion passed without dissent. Mike Pendley reported that the 2nd ATM class on December 2nd went well.

New Business: For New Business, Carl Frisch said that TAAS, in conjunction with Chaco, can submit grants to the Park Service for equipment and operation of the Chaco Culture NHP Observatory. Mike Pendley presented the Board with an amended version of the Inventory and Donation Bylaw Amendments first presented at the November Board meeting. Several minor suggestions were made. It was agreed that the Mike would make the revisions, print a final version, and bring it to the potluck for final review and signing.

Lastly, Mike, as outgoing President, said he enjoyed the last three years and thanked the Board for its efforts.

Newsletter assignments were made and the meeting adjourned at 8 pm.

Observatory Committee
by Robert Ortega

No report this month

All observatory committee meetings are open to the general membership. Call Robert Ortega for location information if you are interested in attending—ed

December Meeting Recap

No report this month

January Meeting Preview
by Michael Pendley

We had a little trouble arranging for a speaker this month. After a couple of good leads fell through I contacted Mark Boslough (he talked to TAAS on October 7th, 1995 on the SL9 impact with Jupiter) who in turn connected me with Kim Johnson—a member of New Mexicans for Science and Reason. You may recall that Dave Thomas of NMSR talked to TAAS in July 1997 on Roswell.

Kim is preparing a talk on creationists and their views of the universe. He will open by providing background on just what the creationists views on the age and nature of the universe are and then
contrast those views with beliefs held by more mainstream scientists. He will provide references to New Mexico connections in the creationists movement.

As always, the meeting starts at 7 pm at Regener Hall. This is a very important meeting—we will be electing new Society officers. Please make every effort to attend and vote.

**The Slate**

An speaking of elections . . . the nominating committee, which consisted of Mike Pendley (chair), Robert Ortega, Ruth Pendley, and Allen Green have selected a great slate of officers for the 1999 administration. The candidates are:

- President: David Blair
- Vice President: George Pellegrino
- Secretary: Sam Lockwood
- Treasurer: Robert Williams

Again, please make every effort to attend the January meeting and cast your vote.

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**Observer's Page**

*by Kevin McKeown*

Kevin is on vacation this month.

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**What's Up for January 1999**

*by Kevin McKeown*

January 1, 1999 sees the first of two full moons in the month. Full moon #1 pretty much ruins the remarkable Quadrantid meteor shower as seen before dawn on the mornings of January 3rd, and 4th. However, there is a curious consolation prize this year that can allow you to see the Quads in another way. That is, the radiant is actually high enough up in the northwest at sunset to be able to afford some Quadrantids to be seen then, IF the Earth happens to be passing through the stream at the time. And as luck would have it, the sharply peaked Quadrantid stream reaches maximum at around 6 pm MST on January 3rd! So, before moonrise, why not try to catch a brilliant Quadrantid fireball or two as the sky darkens on the 3rd? It can be done! These Quads will graze the upper atmosphere, and strangely appear to pop up out of the horizon! Quad fireballs are long, yellow, and the structure in their coma is remarkable: you can actually see the bow shock ahead of, and to the sides of the meteor as it plows through the upper atmosphere!

As for planets, in early January, Mercury wanes as a morning star, and we are again acquainted with the planet Venus as an evening star. Jupiter wanes, Saturn remains well placed after sunset,
and Mars, well seen after midnight, builds towards an April opposition. The moon has close approaches with Venus on the 18th, Jupiter (wow!) on the 21st, and Saturn on the 23rd.

A very fine, nearly grazing occultation of Aldebaran by the moon occurs just after midnight on January 27th. The graze line is located just north of New Mexico (Denver to Salt Lake City area)! Refer to the January, 1999 Sky and Tel, page 117. A short trip up north might be well worth the sight!

Lastly, the blue moon occurs on the 31st.

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**Ask the Experts**

_by Bruce Levin_

**What Is The Difference Between Sidereal Time And Mean Solar Time?**

Sidereal time is based on the time it takes the earth to make one complete rotation about its axis, or 360 degrees. This would be a period of 1 sidereal day. Stated in a simplified manner, solar time is based on the time it takes the earth to rotate about its axis where the rotation is measured by the instant the sun crosses a given meridian between two successive days. The local meridian of a given place on earth is the imaginary line that stretches overhead from true north to true south. The angle of rotation in one solar day is almost 361 degrees.

![Figure 1. Kepler's First Law](https://example.com/keplers-first-law.png)

Exaggerated picture of elliptical orbit of a planet with the Sun at one focus. Click figure for a [larger view](https://example.com/keplers-first-law-larger-view.png).
As the earth makes its journey through space, it travels or revolves around the sun in a slightly elliptical or oval orbit, close to being circular in shape. Johannes Kepler came to this conclusion in the early 1600's based on the large body of empirical observations and precise coordinate data of planetary motions taken by Tycho Brahe. Kepler's first law states that the orbit of each planet is an ellipse with the sun located at one focus (see figure 1). His second law states that the line drawn from the planet to the sun sweeps out equal areas in equal times (see figure 2). When the earth is closer to the sun, it is traveling around the sun faster than when it is further from the sun. Also, the actual solar day is slightly longer when the earth is closer to the sun than when further from the sun. This is why the actual duration of different solar days throughout the year are not the same, however the mean or average solar period for each day was divided into the same 24 equal time parts or hours regardless of the season.

Webster's New World Dictionary defines sidereal as: of or pertaining to the stars or constellations; stellar; astral. Guy Ottewell, in his Astronomical Calendar (year edition), defines sidereal period as the period of something with reference to space in general. Webster's Dictionary defines sidereal day as the time elapsed between two successive passages of the vernal equinox over the upper meridian: it measures one rotation of the earth: its length is 23 hours, 56 minutes, 4.091 seconds of mean solar time. The Cambridge Encyclopedia of Astronomy states that the sidereal day is the time for the stars to move once around the sky and return to the same positions in the sky relative to the earth. The encyclopedia further defines the solar day as the corresponding time measured using the sun rather than the stars (time for the sun to move once around the sky and return to the same position in the sky relative to the earth). Figure 3 shows the difference between a sidereal day and a solar day.

Figure 2. Kepler's Second Law. Orbital speed of a planet going around the Sun over equal periods of time. Click figure for a larger view.

Figure 3. Earth rotating about its axis showing the occurrence of a sidereal and solar day periods when...
One complete revolution around the sun is defined as one sidereal year. Webster's dictionary defines sidereal year as the period spent by the sun in its apparent passage from a fixed star and back to the same position again: it is the true period of the earth's revolution. The period of one sidereal year is close to 365.25636 mean solar days (365 days, 6 hours, 9 minutes, and 9.54 seconds). Given this information, the duration of the sidereal day can be calculated. The number of degrees that the earth rotates about its axis in one year is the number of mean solar days in a year multiplied by the number of degrees for the earth to rotate once about its axis plus close to one degree extra for each day of the year (or adding a full 360 degrees for the year) as shown below:

\[
\left( \frac{365.25636 \text{ days}}{\text{yr}} \times \frac{360^\circ}{\text{day}} \right) + \frac{360^\circ}{\text{yr}} = \frac{131852.29^\circ}{\text{yr}}
\]

The number of degrees of rotation for a mean solar day would then be the total of the rotation degrees per year divided by the number of mean solar days per year shown below as:

\[
\frac{131852.29^\circ}{\text{yr}} \div \frac{365.25636 \text{ days}}{\text{yr}} = \frac{368.98561^\circ}{\text{day}}
\]

The number of mean solar hours in a sidereal day would be the ratio of sidereal degrees in a day divided by mean solar degrees in a day multiplied by the number of hours in a mean solar day, or:
When used for observing the night sky, equatorially driven telescopes will track stars and other distant objects precisely when the telescope clock drive is driving the right ascension or polar axis at the sidereal rate of rotation. This rotation is equal in rate and opposite in direction to the earth's rotation. The right ascension positions of the stars are also based on sidereal time or 15 degrees per sidereal hour of time.

In summary, a sidereal day is almost 4 minutes (3 min, 55.9 sec) shorter than a mean solar day since a sidereal day is the time it takes for 1 complete revolution of the earth about its axis and a solar day is slightly more than one complete revolution of the earth in order for the sun to cross the same meridian between two successive days.

References:


Guy Ottewell, *Astronomical Calendar (yearly edition)*, Universal Workshop in the Department of Physics, Furman University, Greenville, SC. Glossary


I Eat Green Cheese

There are 16 moons going around Jupiter. We can see 4 of the 16 moons with our telescope. We can see Io, Europa, Ganymede and Callisto. You can remember the names by saying: I Eat Green Cheese. The first letter of each word stands for a moon.

Every month in Sky and Telescope magazine there is a chart showing where Jupiter's moons lie for every day. You can watch the moons move by making a paper Moon Scanner. You get a piece of paper and you fold it in half. In the folded edge, cut away a sliver as narrow as you can, about 2 1/2 inches long, but not reaching either side. When you unfold the paper, put the slit sideways on the chart and move it slowly down the page. Watch one moon at a time. Have fun!

Thanks to David Blair for the idea for making this Moon Scanner.

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No report this month.

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No report this month.

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No report this month.
It was a most unusual evening as the Sun unexplainedly set two hours early. While astronomers worldwide revised the laws of gravity, more practical TAAS members took advantage of the extra darkness to observe at UNM. Although the seeing was only average, we were all amazed to see Betelgeuse flare up several magnitudes brighter than normal, only to return to normal mere seconds later. This behavior repeated itself several times, and eventually we noticed that the flares were occurring in groups that corresponded to prime numbers. Why this was happening to Betelgeuse rather than Vega remains a mystery.

Thanksgiving break.

Clouded out

It was a clear, cold night, with average seeing. The temperatures kept attendance low, with only fifteen or twenty people visiting (several of whom were UNM astro students finishing their labs). Saturn and Jupiter were lovely as always. The highlight of the evening, however, was the appearance of Santa Claus! (I question the November 20 report but this is true! – ed) Santa distributed Tootsie Pops to the visitors and docents, and spent much of the evening looking for Rudolph through his Dobsonian.

Since this is my last report as campus observatory coordinator, I would like to once again thank all the docents who have helped make UNM viewing fun and successful in 1998. As always, this list is in no particular order: Kevin McKeown; Carl Frisch; Brock Parker; Jay Harden; Mike, Jon, Steve, and Ruth Pendley; Sam and Coral Norris; Gordon Pegue; Jay Rowse; Robbin Pimbley; Andy Smith; John Hockemeier; Alejandra Valderrama; Robert Williams; Dennis Mitchell; Bill Tondreau; Lisa Wood; Charlie and Mitzi Lewis; Robert Ortega; Dave Blair; Bruce Levin; Pete Eschmann; and Alexandra Baskerville. We couldn't have done it without you!

The next Campus Observatory night is January 22, 1999

New UNM Campus Observatory Coordinator Needed

David Sukow has been a most excellent Campus Observatory Coordinator—but all good things must come to an end. David is close to finishing his postdoctoral research and will soon be leaving the area. This leaves a major hole in the TAAS infrastructure that must be filled as soon as possible.

The Campus Observatory Coordinator is responsible for insuring that docents know which nights the Campus Observatory will be open and writing the monthly recap. No equipment or special
knowledge is needed. If you have any interest in this position please contact me (or any other board member) so we can twist your arm.

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**Educational Outreach**  
by Lisa

**Found in Space**

The Gabaldon docent list that was lost in cyberspace last month has been rescued. A big thanks to our Gabaldon Docents: Ruth Pendley, Mike Pendley, Jon Pendley, David Blair, Dan Richey, Robert Williams, Robert Ortega, Carl Frisch, Lisa Wood.

**Grant was Grand!**

A record number of docents (14) showed up at Grant Middle School on November 10. We had cold clear skies and about 6 scopes set up. Robert Williams tirelessly presented planetarium shows, Jon Pendley, a student at Grant, gave 2 terrific comet-building demonstrations. Mike Pendley gave his ever popular slide shows. We also introduced a new indoor activity—a simulated alien radio message devised by a SETI scientist, that children decoded on grid paper.

Thanks to the following for helping out: Katherine Blankenburg, Jon, Ruth, Debbie, Steve, and Mike Pendley (they swelled our ranks considerably!) Dan Richey, Lisa Wood, Bill Tondreau, Jim Brockaway, Sam Lockwood, Shayna Lockwood, Nancy Dodge, and Charlie Dodge!

**We've Been Illuminated!**

I am glowing to report that we will soon have another demonstration to brighten our School Star Parties. Within a week or two we will have a set of spectrum gas tubes and a power supply to take to our schools. With this equipment we can help the children do some basic spectrum analysis, or just discuss the beautiful colors various gases produce when ionized, such as we see in parts of the Eagle Nebula. If you're interested in giving 15 minute demonstrations with this equipment, please contact Lisa Wood, Education Coordinator. (Back of newsletter)

**Thanks from Central**

On November 17, 1998, 7:00 pm approximately 400 students and family members converged on Central Elementary School in Belen, NM, for our second annual Star Party. Perfect weather conditions prevailed for a night of sky watching.

Favorite activities enjoyed by all included: telescope area, planetarium, campfire-storyteller, food court, comet demonstration, planet slide-show, book sale, and photo souvenir shop. Old and young alike absorbed comprehensive lessons on an array of topics from planets and comets to constellations. Many times, reactions of wonder and amazement were expressed at seeing the planets Saturn or Jupiter with its moons, through a telescope.
A huge thank you to The Albuquerque Astronomical Society for their excellent presentations. The event was well received by our school community and has become a highlight for us every year. We respectfully request you consider us again for next year as well.

John Padilla  
Principal  
Central Elementary School  
600 Picard Ave.  
Belen, NM 87002  
505 864-4041

An unknown family enjoying the TAAS star party at Central Elementary School—Belen. Photo provided by John Padilla.

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**Astronomy 101**  
*by Robert Williams*

No report this month

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**Astronomical Computing**  
*by Michael Pendley*

No report this month

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**Internet Info**  
*By Michael Pendley*

I get lots of e-mail—some serious and some with jokes, stories, and humorous facts. Here is one of the more amusing ones. The tie to astronomy is weak but the story is fun.

**Holmes & Watson Camping**

Sherlock Holmes and Dr. Watson went on a camping trip. After a good meal and a bottle of wine they retired for the night, and fell soundly asleep. Some hours later, Holmes was awakened by a nudge from his faithful friend. "Holmes, look up at the sky and tell me what you
see." Holmes replied, "I see millions and millions of stars." "What does that tell you?" inquired Watson

Holmes pondered for a minute, then intoned, "Astronomically, it tells me that there are millions of galaxies and potentially billions of planets. Astrologically, I observe that Saturn is in Leo, and the Moon is in Taurus. Theologically, I can see that God is all powerful and that we are small and very insignificant. Meteorologically, it appears that we will have a beautiful day tomorrow. And, logically I deduce that the time is approximately a quarter past three. What does it tell you my friend?"

Watson was silent for a minute, then spoke. "Holmes, you're a Moron. Some *%$#@ has stolen our tent."

**Miscellaneous Links**

**US Naval Observatory Astronomical Applications.** Follow Data Services for online applications to calculate rise and setting times, year long tables, Moon phases, eclipses, etc. [http://aa.usno.navy.mil/AA/](http://aa.usno.navy.mil/AA/)

**NASA Links:**


The last site has lots of cool images.

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**December Trivia Question**

No trivia this month

Answer [Answer](#)

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**Chocolate Chip Cookies**  
by [Michael Pendley](#)

Many of you have asked for the recipe Debbie uses for the chocolate chip cookies she makes for the general meetings. The following will make 3-4 dozen cookies.

2/3 cup shortening  
2/3 cup butter
1 cup granulated sugar
1 cup brown sugar (packed)
2 eggs
2 TSP vanilla
3.5 cups all-purpose flour
1 TSP soda
1 TSP salt
2 pkg Nestle semisweet
1 pkg chocolate chips (12 oz.)
TSP = teaspoon

Heat oven to 375 degrees. Mix thoroughly shortening, butter, sugars, eggs, and vanilla. Stir in remaining ingredients.

Drop dough by rounded heaping teaspoons 2 inches apart onto ungreased baking sheets. Bake 8 to 10 minutes or until light brown. Cool slightly before removing from baking sheet.

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**Warm Winter Observing at Chaco**

_by Carl Frisch_

That's what you'll find up at Chaco Canyon this winter. Awaiting use by TAAS members is a fully equipped observatory, including a real nice warm up room. Bring up your own scope or use any of the parks fine instruments. In the dome, you'll find a 25" f/4 Dob on a tracking platform. Outside, is a 13 and 17 inch Coulter and a remotely controlled C-14. If you wish to do some CCD work, we'll be happy to teach you the ropes (or cords). We have the SBIG ST-6, ST-7, color wheel, focal reducers, etc.

If you can help out at the public star parties, all fees to the park are waived. At the last few public nights only a half dozen or so folks have braved the cold and shown up; the upside of course is a more personalized presentation. Currently, public nights include Tuesdays, Fridays, and Saturdays, but will be open to TAAS members any clear night. We conduct a 30-minute tour and slide show at 4pm followed by a star party at 6 pm. Times and dates are seasonal but will probably hold through February. There may be limited cooking, shower, and sleeping facilities available but plenty of campsites are open for those brave of heart.
Some of John Sefick's and Carl Frisch's work at Chaco.

Trivia Answer

(a) Skylab

Letters to the Editor

I want to express my thanks to The Albuquerque Astronomical Society and to all of the members who were at GNTO on the night of November 16 - 17. Walter Wild and I came from Chicago specifically for the Leonids, and it was well worth it. The skies back home were mostly cloudy, not to mention the light pollution. Although we were visitors, you made us feel truly welcome.

It was quite a night, certainly the finest meteor display I have ever seen. Overall, I saw hundreds of meteors visually, including nearly a dozen that lit up the desert and cast shadows. I saw several meteor trains, one of which lasted tens of minutes. The number and frequency of fireballs was remarkable. We also got our picture in the newspaper on Tuesday. What more can you ask?

Special thanks to those who helped us when our power converter had problems. Fortunately, we were allowed to borrow a power converter from the observatory, and one of the members allowed us to connect it to his car (since the engine compartment on our rental car did not allow easy access to the battery). Because of your help, we were able to run the computer and the CCD camera all night.

Walter Wild is still reducing the CCD data (he obtained hundreds of images). While, he captured only a few meteors, he did get many consecutive images of a long-lasting meteor train. It will be interesting to see if they can be animated to create a movie of the train dissipating. I recorded several bright meteors photographically. If I include the dim meteors, I recorded a total of 47 on film, not bad for one night. I will send copies of the best images to you.
I regret that I have lost the names of those who helped us on Monday night. I invite those people to send me e-mail at rburton@recor.com, because I would like to keep in touch. Also, I would like to know the name and e-mail address of the newspaper photographer who was there that night. If anyone knows, please contact me.

Sincere thanks,
Rob Burton
11/22/98

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**Classified Ads**

**For Sale:** Cronus digital stopwatch. LED display preserves night vision. Powered by three AA batteries. $25. Richard Rast, 505-821-6759, rast@swcp.com.

**For Sale:** ASTRONOMY PARADISE: 13 miles east of Cloudcroft, New Mexico. Approx. 1500 sq. ft. home on mountain ridge, 7300 feet elevation. 6.5 acres, low 360 degree horizons and incredible views of the night sky. 2 br, 2 ba, sunroom, great room, wood stove, large covered deck and photographic darkroom. 16 X 16 two story observatory. Abundant wildlife and fossils. 4 comets were discovered at this site by owner, Howard Brewington. $110,000 Call Doug at Cloudcroft Sacramento Mountain Realty 1 - 800 - 685 - 1345

**For Sale:** Spacewalk stamp, denomination 5¢, 1 sheet of 50 $38.50, 4 sheets of 15 each $11.50 ea; Apollo 8 "In the beginning, God", denomination 6¢, 1 sheet of 50 $15.00; Skylab, denomination 10¢, 1 sheet of 50 $10.00; Earth, sun & Landing craft (double stamp) "A decade of achievement", denomination 8¢, 10 sheets of 50 $19.00 ea. Lynzie Flynn, 867-1100, lflynn@prefer.net

**For Sale:** Meade ETX. 1-Year-old X-Mass Gift. Prim condition Meade ETX Astro Maksutov-Gassegrain 90mm telescope. With the following extra's—Meade 4000 Plossl 26mm eye piece, Meade soft carrying case, Bogen heavy duty adjustable tripod, 1000 Oak solar filter & moon filter, 45 degree erecting prism eye piece holder, motofocus & declination drives, 90 degree finder conversion, 3 table top legs, instruction manual. $750 + shipping. Call Roger at 505-294-4535. ROGER_GEER@rocketmail.com

**For Sale:** Meade 2080 SCT (8" f10) on Meade GEM. A very nice Meade 8" f10 Schmidt-Cassegrain on a sturdy Meade German Equatorial Mount. Includes DC motor drives for RA and Dec movement, as well as slow-motion manual slewing knobs. Motor drives powered from a (6) D-Cell battery box & separate hand controller. Hand controller has control buttons for optional motorized focuser. The mount includes a bubble level & built-in polar alignment scope. Included are a Meade Series 4000 26mm Super Plossl eyepiece, a 8.4-21mm zoom eyepiece, 1.25" diagonal, Telrad base, Meade mounting rings for 8x50 finder, padded storage trunk, and matching blue Meade dew shield. New, this scope would cost over $1150.00.
$725.00 + shipping
$800.00 + shipping, including Meade 8x50 right angle finder scope.

eschman@unm.edu
(505) 277-5853

Non-commercial ads for astronomy related products listed at no charge for members. To place an ad, send a message to the editor at the society PO box or send a message to mycall@rt66.com.

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TAAS Telescope Loaner Program
by Dee Friesend and Jason Vargas