

Gemini

a publication of the Minnesota Astronomical Society



<http://www.mnastro.org>

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2001 Onan Observatory Schedule

Compiled by Mike Kibat

The 2001 schedule of events for the Onan Observatory is set. Based on last year's experience, we will have no public events when MAS star parties are scheduled at Baylor. This should reduce the inconveniences MAS members experienced when larger-than-normal numbers of non-members attended events scheduled on star party nights. During Baylor star parties, the observatory will be open for member use. This year also sets aside several evenings for training, in anticipation of making the observatory available for member use sometime this year. If you have questions regarding the observatory schedule, email OnanTeam@MNAstro.org, or leave a message on the MAS answering service (651.649.4861).

UPCOMING EVENTS AT THE ONAN OBSERVATORY

Observatory Training (MAS members only)	March 17th, 4:00 p.m.
Observatory Training (MAS members only)	April 14th, 4:00 p.m.
Friends of the Onan Observatory Appreciation Night and Star Party	April 20, 7:00 p.m.
Friends of the Onan Observatory Star Party (Alternate)	April 21, 7:00 p.m.
Astronomy Day (Public Event)	April 28, 6:00-10:00pm

Date	Day	Event	Start Time	Sun Set	Moon	Moon Phase
April 28th	Sat.	Astronomy Day	6:00 p.m.	8:15	Sets 12:53 a.m. 4/29	1st Qtr
May 25th	Fri.	Public Night	7:00 p.m.	8:46	Sets 11:46 p.m.	New / 1st Qtr
May 26th	Sat.	Public Night	7:00 p.m.	8:47	Sets 12:40 a.m. 5/27	New / 1st Qtr
June 22nd	Fri.	Public Night	7:00 p.m.	9:04	Sets 10:32 p.m.	New
June 23rd	Sat.	Public Night	7:00 p.m.	9:04	Sets 11:22 p.m.	New
July 27th	Fri.	Public Night	7:00 p.m.	8:45	Sets 12:54 a.m. 7/27	1st Qtr
July 28th	Sat.	Public Night	7:00 p.m.	8:44	Sets 1:23 a.m. 7/29	1st Qtr
August 24th	Fri.	Public Night	7:00 p.m.	8:04	Set 11:24 p.m.	1st Qtr
August 25th	Sat.	Public Night	7:00 p.m.	8:02	Sets 11:57 p.m.	1st Qtr
September 14th	Fri.	Public Night	7:00 p.m.	7:26	Rises 4:12 a.m. 9/15	New
September 15th	Sat.	Public Night	7:00 p.m.	7:24	Rises 5:33 a.m. 9/16	New
September 21st	Fri.	Public Night	7:00 p.m.	7:12	Sets 9:54 p.m.	1st Qtr
September 22nd	Sat.	Public Night	7:00 p.m.	7:10	Sets 10:31 p.m.	1st Qtr
October 19th	Fri.	Public Night	7:00 p.m.	6:21	Sets 8:24 p.m.	New / 1st Qtr
October 20th	Sat.	Public Night	7:00 p.m.	6:19	Sets 9:04 p.m.	New / 1st Qtr
Nov 16th (tent.)	Fri.	Public Night(tent.)	7:00 p.m.	4:43	Sets 5:55 p.m.	New
November 17th	Sat.	Leonid Meteor Party	7:00 p.m.	4:42	Sets 6:40 p.m.	New

The 2001 public event season at the Onan Observatory kicks off in April, with our first-ever Astronomy Day Open House at the observatory. Volunteers are needed for this and all the other 2001 public events. If you'd like to volunteer, send an email to OnanTeam@MNAstro.org, or leave a message on the MAS answering service (651.649.4861).

Save this Issue!

As the first issue in a new volume of Gemini, you will find volumes of information inside that will be useful for the whole year. The MAS member roster is included, the star party and observatory schedules, and the list of officers. Contact any of them to find out how you can be involved and participate in the numerous activities of the Minnesota Astronomical Society.

Editor

Thor Olson

Circulation

John Treadwell

Gemini is published six times annually—in February, April, June, August, October, and December—by the Minnesota Astronomical Society. Electronic submissions for Gemini may be sent to:

thor.olson@mn.efi.com

Hardcopy items should be sent to:

MAS Gemini
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Minneapolis, MN 55458-3011

Send all MAS membership dues, change of address cards, subscriptions, and renewals to the current MAS treasurer.

Subscriptions alone cost \$4.50 annually for members of astronomy clubs or \$9.00 for other persons. Materials for Gemini are due on the 10th of the month preceding the month of publication.

Minneapolis Planetarium: 612-630-6150

Cost for most shows: \$4.50 for adults, \$3.00 for kids 12 and under.

January 13 - April 19, 2001:

JOURNEY TO THE STARS

Sat & Sun at 2:15pm

Thurs at 7:00pm

SUPER STARS

Sat & Sun at 1:00pm

STARLIGHT, STARBRIGHT

Plays the following Saturdays at 11am:

February 24, March 10 & 24, April 7 & 21, 2001

Eisenhower Observatory: 952-988-4077

Come view the night sky through a powerful telescope on top of the Eisenhower Community Center in Hopkins, MN. Viewing time varies throughout the month and is open to the general public. There is no charge, although a \$2.00 donation is requested. Space is limited, so call Diane for reservations: 612-988-4077.

University of Minnesota:

Observing from the telescope on top of the Physics building, East Bank. Open to the general public. Fridays during the school year: **612-626-0034** for more info.

MAS Star Parties:

The Minnesota Astronomical Society hosts star parties, open to the general public. Come on out, get a look through a telescope, enjoy the view. Call **651-649-4861** for more info or log-on to the web at <http://www.mnastro.org>.

Patron Members

MAS offers a patron membership to anyone who wants to help support our activities by paying a slightly higher annual membership fee (\$40 instead of the regular \$16). We would like to thank the following patron members who helped support MAS this year:

Gregory J. Baril
James A. Bowditch
Herman A. Bradley
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Minutes of the December 5, 2000 regular meeting of the Minnesota Astronomical Society.

The meeting was called to order by President Ben Huset at 7:05 PM in the Auditorium of the Science Museum of Minnesota.

Board members present were: President Ben Huset, Vice President Dave Olmstead, Treasurer Chuck Jorgensen, Board Members at Large John Treadwell and John Connery, and Secretary Bob Schmidt.

Ben opened the meeting with space news, reporting on events at the ISS (International Space Station).

Next activity was the introduction by Nominations Chairperson Bob Schmidt of the candidates for election to the offices of President, Secretary, and Board Member at Large, to take office at the January meeting and to serve for the next two years. The candidates are Ben Huset and Michael Koppleman running for President, Sam Hunt for Secretary, and John Treadwell and Gale Jallen for Board Member at Large. Unfortunately Paul Baude, candidate for Secretary, was unable to attend the meeting. After the introductions ballots were distributed to the members in attendance which they then filled out during the next event of the evening.

At this time our guest speaker, DR. Mike Duvernois was introduced and he gave a talk on the history of the study of Gamma rays and described the current activities taking place in Argentina. The Gamma ray observatory is called Project Auget (aw zhay) in honor of Pierre Auget, noted physicist who studied Gamma rays. (Ed. Note. See two related articles in the January 2001 Astronomy Magazine)

Following the talk, the votes were collected by election tellers who then left the room to count the ballots. Dr. Duvernois then answered questions from the floor.

An announcement was made that

there will be a Solstice meeting on December 21, 2000 at the Minneapolis Planetarium. MAS members are invited to come from 5:00 to 8:00 PM to participate.

A person from Eau Claire Wisconsin is offering a 10-inch DOB telescope with several eyepieces for about \$495.00. See VP Dave Olmstead for more information.

A pen which is red led lighted was shown and suggested as an observers night vision saver. Target, less than \$5.00. Someone also suggested that Walmart stores have aluminum cases similar to Orion cases and for much less \$\$\$.

The election tellers then returned to announce the winners of the election.

President, Ben Huset.
Secretary, Sam Hunt.
Board member at Large, John Treadwell.

The tellers were Jim Fox, Paul Walker, and Obrey Lojovich.

Meeting adjourned at 9:25 PM.

Minutes of the December 19, 2000 meeting of the Board Of the Minnesota Astronomical Society

Board members in attendance: President Ben Huset, Vice President Dave Olmstead, Secretary Bob Schmidt, and Board Members at Large John Treadwell and John Connery. Also present was Secretary Elect Sam Hunt.

President Ben Huset called the meeting to order at 7:25 PM.

The minutes of the November 21, 2000 Board Meeting were approved as read.

Treasurer Chuck Jorgensen reported that the last CD has been cashed in and that the money is now in a check which will be deposited in the Money Market Fund as soon as possible.

Gemini report: Thor Olson has been serving as Acting Editor. He is to be asked if he will serve as Permanent Editor.

Web Master report: Ben will consult with Dave Runkle about some updating that is needed, i.e. Star party dates etc. Dave Olmstead will check with the Carver Park staff to clear the Baylor Park dates.

Library report: Ron Schmit has suggested we store the MAS Library at the Eisenhower facility in Hopkins. The books would be in a much better climate-controlled situation. The boxes discussed at the November Board meeting have not yet been purchased. The purchase has been put on hold pending a tour by Ben Huset and Ron Schmit of the Hopkins site.

Meetings programs: January; Todd Giencke on CCD astronomy, February; Annual Business Meeting, March Dr. Chick Woodward with topic to be determined.

Outreach: Winter Solstice will be observed at the Minneapolis Planetarium on December 21, 2000. Members are asked to attend.

Loaner Scopes: 6-inch Dob loaned to Tom Youngblood, 10-inch Meade SC is at Radio City for maintenance, 8-inch Equatorial (check with John Treadwell).

Onan report: Dave Olmstead distributed plans, made by Ralph Nelson, of the proposed furnishings for the unit of the Onan Observatory called Baby Bear.

Cherry Grove: None.

Metcalf: None.

Marion Scope: None.

Flyers not on hand yet.

The next planning session for the 2002 NCRAL Convention will be January 23, 2001 at the Earle Brown Center St. Paul Campus of the U of M.

A reminder was made of the need of staffing for the Astronomical Society of the Pacific meeting next July (2001).

An Iranian teacher of astronomy has requested help for supplies for his school. Following a brief discussion touching on international relations etc. Ben Huset offered to check on this and report to the next Board Meeting.

Bob Schmidt reported that the Guy Ottwell Calendars, Observers Handbooks, and the new books, Beginners Observing Guide, are now on hand. Prices: Calendars \$21.00, Handbooks \$19.00, and Guide \$15.00.

Ben Huset presented to each Board member an illuminated observer's pen. Thanks very much Ben.

Adjournment was at 9:29 PM.

Bob Schmidt, Secretary

Progress continued at the Onan Observatory as the 2000 season drew to a close. Volunteer crews installed plastic arches, filling the gap between the rolling and stationary components of the observatory roof. (The next step is to install a brush material to each, effectively weather-sealing the area.)

Outside the building, major progress took place regarding the path that leads up to and surrounds the observatory building. Lots of manual labor supplemented with a Bobcat for the heavier work was needed to improve overall drainage and to prepare the path for gravel that was subsequently put down. It is hoped the combination of improved drainage and gravel will minimize problems with mud and water as the frost goes out next spring, allowing an earlier start for the 2001 observatory schedule.

The telescope improvements reached a point at which the Larson scope could legitimately be considered "operational".

Accomplishments included:

- Electric JMI focuser installed
- Secondary mirror holder coated flat black
- Rigel QuickFinder (similar to a TelRad finder) installed
- Orion ShortTube 80mm telescope attached with Losmandy dovetail plate and rings (serves both as finder and wide-field auxiliary telescope)
- 2" star diagonal installed
- Cases purchased and all accessories safely stored within
- Collimation procedures determined and telescope optics adjusted
- Drive electronics installed and tested (only minor adjustments remain before 100% operational)

The telescope accomplishments are far from insignificant, as they place the Larson Telescope back into public use after a 20 year hiatus!

Observatory programs continued into October, serving a couple scout groups, the general public and the members of the Minnesota Astronomical Society.

With the onset of winter, things slowed considerably starting in late November — work continued on storage / warming room's interior design and some preliminary planning took place for addressing light pollution issues in the area — but for the most part, progress for the year 2000 came to a close.

Astronomer Discovers Failed Stars and Failed Science Educations

by Patrick Thibault

originally printed in the West Central Tribune, June 2000 Astronomy Column

On any clear dark night, the sky sparkles with stars that formed in immense clouds of gas and dust, like the Orion Nebula. If you had some type of special vision and could look inside the Orion Nebula, besides seeing the light of stars, you might see an oddity of sorts--brown dwarfs. Brown dwarfs, actually red in color, are failed stars.

Professor Gibor Basri, an astronomer at the University of California, Berkeley, started hunting for brown dwarfs in 1993 using the special vision of Keck observatory's 10-meter telescope in Hawaii. But, it wasn't until 1995 that astronomers first detected and confirmed the existence of brown dwarfs. In the April "Scientific American" Professor Basri discussed his work on brown dwarfs.

Tiny and faint, finding a brown dwarf is like finding a needle in a haystack. The size of a brown dwarf falls somewhere between the smallest stars and the largest planets. In this case, the needle's mass is somewhere between 20 to 50 times Jupiter's mass.

Besides being tiny, brown dwarfs feebly glow in the infrared, the same invisible light given off from the heat of humans. Over time, the dim light of its birth fades into the darkness of the cosmic haystack making it impossible to see visually.

Initially, astronomers attempted to locate these elusive would-be stars in double star systems. Double stars orbit each other like the Earth-moon system, with each body mutually attracted to the other by gravity. Astronomers knew that a brown dwarf would exert a tug on its companion, just like the moon on

the Earth; however, astronomers netted only empty space.

Not to be deterred, astronomers realized that failed stars are unable to achieve nuclear fusion. Nuclear fusion results when atoms are smashed together under high pressures and high temperatures yielding energy; this process powers stars and makes them shine.

Using this basic fact, astronomers realized that lithium, a light metal, is consumed quickly by stars through the process of nuclear fusion, but in the cores of brown dwarfs, no larger than 60 Jupiter-masses, lithium should remain untouched due to the lack of nuclear fusion.

In 1992, theory was put into practice: using spectral analysis, which breaks starlight into its individual components, like the colors of the rainbow, astronomers began to detect brown dwarfs by its lithium signature.

And in 1995, a brown dwarf was located in the Pleiades star cluster in the constellation Taurus, the Bull, best viewed in the winter sky. Basri along with Marcy and Graham from Berkeley conducted the lithium test on a star called PPl 15 (referring to the 15th candidate in the Palomar Pleiades survey). "At last, we were successful: for the first time we detected lithium in an object for which its presence implied a substellar mass." The needle was found.

Professor Basri's hunt for brown dwarfs parallels his efforts in science education; he has discovered many failed science educations, especially for underrepresented students or minorities. "The main problem is that science is not thought of as a career alternative for many people, and many are academically underprepared. Counselors almost never promote

careers in science," Basri said.

"The main barrier seems to be math, especially algebra. Students often ran behind, aren't offered or encouraged to take "gateway" courses, and by the time they hit high school, a career in science has already become very difficult."

An additional problem is that science teachers are often not too familiar with real science, so they can't impart the excitement of doing it, Basri said. He suggests that schools can do more to bring in scientists to talk to both students and teachers.

Undaunted, Professor Basri has attempted to turn the tide. "Probably the most effect I've had is on individuals who I worked with, and they were already along the road." He, also, has been involved with many programs including academic tutoring, peer counseling, and role modeling which seem to be the best so far. Ultimately, Gibor Basri would like underrepresented students to discover a successful science education, not a failed one.

Information for above article from interview with Professor Gibor Basri through Internet e-mail; "The Discovery of Brown Dwarfs" Gibor Basri, "Scientific American" April 2000. July Sky 2000 from "Celestial Delights" Reddy and Walz-Chojnacki.

Patrick Thibault is a member of the Des Moines Astronomical Society and the Astronomical League. He can be reached at:

thibault@midstate.tds.net

The Visual Observer's SIG invites you to the 3rd Annual MAS Messier Marathon!

Has winter photon-deprivation got you down? Well, start the new millennium with a bang by dusting off the mirror or objective and joining us for a fun-filled night of observing! This year offers a great opportunity to observe 109 Messier objects (M30 is not possible for our latitude this time) on one spectacular night during the weekend of the new moon (however, this means no alternate weekend).

The Messier Marathon is open to all skill levels, with individuals setting their own goals. This year 3 astronomy related prizes (Two Astronomy Books and a Messier Poster) are being generously donated by Dan Fish from Radio City in Mounds View. This year the prizes will be awarded to Messier Marathon participants as follows: for most M objects observed by an individual (star hopping), most M objects observed by 13 yrs. or younger class (found on their own), and a random drawing of all participants.

The level of seriousness of this Marathon is strictly up to the observer/participant. This is a non-stressful "go at your own pace" event (you will not have to sign any legal disclaimers). However, it's a chance to view many of the heaven's most beautiful objects in just one night! For links to a wealth of additional info on preparing for the Marathon, check out the MAS Messier Marathon Web Page or the links to the SEDS Web Page at (www.seds.org/messier/xtra/marathon/marathon.html).

Star Hoppers and digital setting circles, as well as individual observers or observing teams are welcome (although they compete in different classes). No advanced registration is required, just sign in on the sheet in the Cherry Grove warming house early in the evening, and sign out with your total Messier Object count (observer's honor) in the morning. There will be copies of the "Messier Marathon Observer's Form" for logging in the warming house. Warm apple cider and cookies available.

Recommended: **telescope** and/or **binoculars** (etc.), **good charts**, **warm clothes**, and **de-dewing equipment** (will have 12V hair dryer on-site to loan out if needed). A certain amount of passion for the night sky, otherwise diagnosed as "Messier-Madness" won't hurt either.

Date: March 23, or 24 (alternate)
(Sunset: 6:31PM, Sunrise: 6:05AM, New Moon!)

Location: Cherry Grove

Check the MAS phone message @ 651-649-4861 for a go/no-go (updated by 5 PM; or call my home phone if it's not updated). Please contact me (Greg) if you have any questions: greg.haubrich@medtronic.com or my home phone 763-421-4736.

The MAS' Messier Marathon is getting more popular every year since its start. It's a blast! Everyone that did the first year was there for more the second year (Don the weekend before). But be careful to observe responsibly, the Surgeon General has shown "Messier-Madness" to be addicting!

The V.O. SIG looks forward to seeing you there!

Wanted/For Sale

For Sale:
10-inch f/4.5 Custom-made Dobsonian.
Four Televue eyepieces, other accessories, \$750.00.

Contact Cader Olive 715 832-3482.

2000 Star Parties

Star parties are held on Friday if weather permits, otherwise on Saturday. Call (651) 649-4861 after 6:00 PM on a star party date to hear whether it will be held.

Metcalf

Metcalf is the grassy parking lot of Metcalf Nature Center, about 20 miles east of St. Paul along highway 94. About 6 miles E of the 694/494 crossing is county road 15 (Manning Ave.). Turn right, then left onto the frontage road and continue east, crossing over county road 71. Turn right (south) onto Indian Trail; follow it 1.1 miles to an chicken-wire gate on the right, (marked by three blue reflectors), opening onto a dirt driveway, which is the entrance to Metcalf.

Baylor Regional Park

Baylor Regional Park is roughly 25 miles W of the SW corner of 494. Head west on highway 5, through Waconia, to Young America. Turn right onto county road 33 and follow it about 2 miles to the park, a right turn. The observing site is through the gate and roughly 100 yards beyond. Card-carrying MAS members may observe at Baylor at any time; call the park keepers in advance at 448-6082.

When visiting Baylor Regional Park, MAS members are requested to NOT park on the grassy areas next to the observatory (or any other grassy areas for that matter). This is a matter of being considerate to the park, its caretakers, and other visitors, so PLEASE PARK in the PARKING AREA.

Cherry Grove

Cherry Grove is about 20 miles south of Cannon Falls. Head south on Hwy 52. Around 6 miles south of Cannon Falls, take a right onto Goodhue County 1 and follow it around 16 miles, where it ends in a T with Dodge County A. The observatory and warming house are at your right, nestled in the corner of the T.

Date	Location	Sunset
March 2 or 3	Metcalf	6:02pm
March 16 or 17	Baylor/Onan	6:20pm
March 23 or 24	Cherry Grove	6:29pm
March 30 or 31	Metcalf	6:38pm
April 13 or 14	Baylor/Onan	7:56pm*
April 20 or 21	Cherry Grove	8:06pm*
April 27 or 28	Metcalf	8:14pm*
May 18 or 19	Baylor/Onan	8:39pm*
May 25 or 26	Cherry Grove	8:46pm*
June 1 or 2	Metcalf	8:53am*
June 15 or 16	Baylor/Onan	9:02pm*
June 22 or 23	Cherry Grove	9:04pm*
June 29 or 30	Metcalf	9:04pm*
July 13 or 14th	Baylor/Onan	8:58pm*
July 20 or 21	Cherry Grove	8:53pm*
July 27 or 28	Metcalf	8:45pm*
August 10 or 11	Baylor/Onan	8:27pm*
August 17 or 18	Cherry Grove	8:16pm*
August 24 or 25	Metcalf	8:04pm*
September 7 or 8	Baylor/Onan	7:39pm*
September 14 or 15	Cherry Grove	7:26pm*
September 28 or 29	Metcalf	6:59pm*
October 12 or 13	Baylor/Onan	6:33pm*
October 19 or 20	Cherry Grove	6:21pm*
October 26 or 27	Metcalf	6:10pm*
November 9 or 10	Baylor/Onan	4:50pm
November 16 or 17	Cherry Grove	4:43pm
November 23 or 24	Metcalf	4:37pm
December 7 or 8	Baylor/Onan	4:32pm
December 14 or 15	Cherry Grove	4:32pm
December 21 or 22	Metcalf	4:34pm

* Central Daylight Time

how to pay your dues

Your MAS membership expires at the beginning of the month shown on your Gemini mailing label and your membership card. Send your payments to the MAS treasurer (Chuck Jorgensen) at 1615 E. River Rd. Minneapolis, MN 55414-3627. Make checks payable to MAS. The current annual membership dues and subscription fees are:

Regular membership	\$ 16.00
Patron membership	\$ 40.00
Student membership	\$ 10.00
Subscription to Gemini for members of other astronomy clubs	\$ 4.50
Subscription to Gemini for other persons	\$ 9.00

To Renew Your Sky and Telescope Subscription

If you get *Sky and Telescope* at the club's discounted rate, you must renew your subscription through the club. When you get a renewal notice from S&T, send the notice along with a check for the amount indicated on the notice (currently \$29.95) to the MAS Treasurer (Chuck Jorgensen) at 1615 E. River Rd. Minneapolis, MN 55414-3627.). Make checks payable to MAS. If desired, you may renew your MAS membership at the same time, and write one check to cover both payments.

GEMINI

MNASTRONOMICAL SOCIETY

P.O. Box 583011

Minneapolis, MN 55458-3011

ADDRESS SERVICE REQUESTED

To subscribe to the MAS e-mail list send e-mail to:
mas-request@mnaastro.org
with the single line
subscribe
in the body (not subject) of the message.

The list has about 40% of the membership on it.

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