

SkyWatcher

The Newsletter of the Boise Astronomical Society

November 2017

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Member of the Astronomical League



www.boiseastro.org

President's Message

David Olsen

Our November board meeting is scheduled for Wednesday night, the 1st at Anser Charter School located at 202 E. 42nd St. Garden City. The board is still planning events for next year for a smooth transition into 2018. We have already scheduled most of the major star parties and will continue to work on getting more scheduled and of course we always appreciate your feedback.

Our next BAS membership meeting will be held on Friday night, November 10th, 7:00 pm, at the Anser Charter School located at 202 E. 42nd St. Garden City. This month's guest speaker will be Karan Davis, presenting on Gravity Waves.

As November brings colder weather our overall plans must, of course, center on observing. It is still fall and the sky is offering the opportunity to transition from summer to winter in a single evening without wearing your heaviest parka. The summer Milky Way is still high at sunset and by late night the winter constellations are rising. The outer planets of Uranus and Neptune are visible well before midnight and Mars is an early morning target.

We have two star parties scheduled for the month, the first falls the night following our club meeting on the 11th of November at Dedication Point. The second will be the following weekend on the 18th. I also understand there was a successful impromptu star party held in October, so if anyone wishes for one in November (weather permitting) please post on our Yahoo group BAS1.

As we approach the end of 2017, it's time to start looking at who will lead BAS into the coming year and beyond. Volunteers are what has made BAS a success for many years. All of our elected officers and appointed board members are volunteers who enjoy the hobby and sharing it with others. Yes, it does take some time and effort but I feel that every minute I've spent working for BAS has been time well spent. With the annual club elections coming up at the December 2017 meeting. If you would like to run for office or be elected into a position please let a current board member know.

Until next month, clear skies.

Calendars

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	2	3	4 Full Moon Beaver Moon  100% Visible
5 Daylight Saving Time Ends 	6	7	8	9	10 Last Quarter Visible 55% ↓ 	11 Veterans Day Remembrance Day 
12	13	14	15	16	17	18 New Moon Lunation 1172 1% Visible ↓ 
19	20	21	22	23 Thanksgiving Day 	24	25
26 First Quarter 49% Visible ↑ 	27	28	29	30		

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Be Safe – Get Out There – Explore Your Universe

Celestial Calendar

All times, unless otherwise noted, are UT (subtract seven hours after DST ends and, when appropriate, one calendar day)

- 11/2 Venus is 3.5 degrees north-northeast of the first-magnitude star Spica (Alpha Virginis) at 18:00
- 11/3 The equation of time is at a maximum (16.48 minutes) for 2017 at 3:00; Uranus is 4.0 degrees north-northwest of the Moon at 3:00; asteroid 44 Nysa (magnitude +9.6) is at opposition at 6:00
- 11/5 The Moon is 9.0 degrees south-southeast of the bright open cluster M45 (the Pleiades) in Taurus. 11/6 The Moon is at perigee subtending 33' 04" from a distance of 361,438 kilometers (224,587 miles), at 0:10; the Moon is 0.8 degree north of the first-magnitude star Aldebaran (Alpha Tauri).
- 11/7 The Moon is 4.6 degrees south of the bright open cluster M35 in Gemini at 15:00
- 11/9 The Moon is 8.9 degrees south of the first-magnitude star Pollux (Beta Geminorum) at 3:00
- 11/10 The Moon is 2.4 degrees south of the bright open cluster M44 (the Beehive Cluster or Praesepe) in Cancer at 2:00; the Moon is at the ascending node (longitude 139.8 degrees) at 22:40
- 11/11 The Moon is 0.44 degree north-northeast of the first-magnitude star Regulus (Alpha Leonis),
- 11/12 The Curtiss Cross, an X-shaped illumination effect located between the craters Parry and Gambart, is predicted to be at a midpoint at 11:43; the peak of the Northern Taurid meteor shower (5 to 10 per hour) is predicted to occur at 11:00; Mercury is 2.2 degrees north of the first-magnitude star Antares (Alpha Scorpii) at 22:00
- 11/13 Venus is 0.26 degree north-northeast of Jupiter at 8:00
- 11/15 Mars is 3.0 degrees south of the Moon at 1:00
- 11/16 Asteroid 4 Vesta is 0.41 degree north-northeast of the Moon, Comet 24P/Schaumasse is at perihelion (1.2063 astronomical units from the Sun) at 19:00; Jupiter is 4.0 degrees south of the Moon. 11/17 The Moon, Venus, and Jupiter lie within a circle with a diameter of 4.9 degrees at 4:00; Venus is 4.0 degrees south of the Moon at 6:00; the peak of the Leonid meteor shower (15 to 20 per hour) is predicted to occur at 18:00
- 11/18 Asteroid 7 Iris is at perihelion (1.8334 astronomical units from the Sun) at 9:00; New Moon (lunation 1174) occurs at 11:42; Mercury is at its greatest latitude south of the ecliptic plane (-7.0 degrees) at 18:00
- 11/20 The Martian northern hemisphere summer solstice occurs at 2:00; Mercury is 6.8 degrees south of the Moon.
- 11/21 Saturn is 3.0 degrees south of the Moon at 0:00; the Moon is at apogee, subtending 29' 25" from a distance of 406,131 kilometers (252,358 miles) at 18:53
- 11/22 Neptune is stationary in right ascension at 21:00
- 11/23 The Sun enters Scorpius (longitude 241.12 degrees on the ecliptic) at 6:00
- 11/24 Mercury is at greatest eastern elongation (22.0 degrees) at 0:00; Mercury is at its greatest declination south (-25.8 degrees) at 1:00
- 11/25 The Moon is at the descending node (longitude 318.0 degrees) at 8:25
- 11/26 The Lunar X (Purbach or Werner Cross), an X-shaped illumination effect involving various rims and ridges between the craters La Caille, Blanchinus, and Purbach, is predicted to occur at 00:46;
- 11/27 Neptune is 1.2 degrees north of the Moon, with an occultation occurring in western and central Antarctica, at 5:00
- 11/28 Mercury is 3.4 degrees south of Saturn at 9:00
- 11/30 The Sun enters the constellation of Ophiuchus (longitude 248.02 degrees on the ecliptic) at 1:00; Uranus is 4.1 degrees north-northwest of the Moon at 12:00

Edmund Halley, William Herschel, Harlow Shapley, and Edwin Hubble were born this month.

Wolfgang Schuler discovers Tycho's Supernova on November 6, 1572. Cornelius Gemma independently discovers Tycho's Supernova on November 9, 1572. Tycho Brahe observes Tycho's Supernova on November 11, 1572. Nicolas-Claude Fabri de Peiresc makes the first telescopic observations of M42 (the Orion Nebula) on November 26, 1610. Jan Munck discovers Comet C/1743 X1 (the Great Comet of 1744) on November 29, 1743. Captain James Cook observes a transit of Mercury from New Zealand on November 9, 1769. The first photograph of a meteor was taken on November 26, 1885. The minor planet/comet 2060 Chiron or 95P/Chiron was discovered by Charles Kowal on November 1, 1977.

The historic, 100-Inch Hooker Reflector Telescope, at Mount Wilson Observatory in Los Angeles County, California, marks 100 years of discoveries on November 3. It was the night / early morning of 1917 November 2 to 3 that First Light shone through the Hooker Telescope.

The Sun, the Moon, & the Planets



The **Moon** is 12.2 days old, is 86.9% illuminated, subtends 31.8 arc minutes, and resides in Aquarius on November 1st at 0:00 UT. Large tides will take place following Full Moon on November 4th. New Moon occurs on November 18th. The Moon reaches its greatest northern declination on November 8th (+19.5 degrees) and its greatest southern declination on November 22nd (-19.6 degrees). Longitudinal libration is at a maximum of +6.7 degrees on November 13th and a minimum of -7.6 degrees on November 29th. Latitudinal libration is at a maximum of +6.5 degrees on November 5th and a minimum of -6.6 degrees on November 18th. The Moon occults Aldebaran (magnitude +0.9) from most of North America on the night of November 5th and Regulus (magnitude +1.4) from southwestern North America during the day on November 11th (see <http://www.lunar-occ...bstar/bstar.htm> and page 51 of the November 2017 issue of Sky & Telescope).

The **Sun** is located in Libra on November 1 at 0:00 UT. It moves into Scorpius on November 23rd and Ophiuchus on November 30th.

Mercury is well positioned in the evening sky in November. It departs Libra and enters Scorpius on November 5th and subsequently enters Sagittarius on November 27th. The smallest planet lies 2.2 degrees north of Antares on November 12th and is at its greatest heliocentric latitude south on November 18th. Mercury is 6.8 degrees south of the Moon on November 20th and is at greatest eastern elongation on November 24th. It passes three degrees south of Saturn on November 27th.

Venus rises approximately 90 minutes before sunrise and is situated about four degrees north of Spica on November 1st. Venus lies 16 degrees from the Sun on that date. By November 30th, its elongation is only 10 degrees. The brilliant planet lies four degrees south of a very thin waning crescent Moon on November 17th.

On November 1st, **Mars** rises almost three hours before the Sun. The planet's eastward motion carries it 1.8 degrees south of the binary star Porrima or Gamma Virginis (magnitude +2.8) on November 9th and 3.3 degrees north of Spica (magnitude +1.0) on November 28th. The Martian northern hemisphere summer begins on November 30th. Mars increases in angular size from 3.9 to 4.2 arc seconds this month.

Jupiter rises some two hours before the Sun by the end of November. It shines at its minimum brightness of magnitude -1.7 and subtends just 31 arc seconds this month. Jupiter lies four degrees south of the waning crescent Moon on November 16th.

Saturn sinks into evening twilight as November progresses. It lies just 15 degrees above the horizon in the southwest an hour after the Sun sets on November 1st. M8 (the Lagoon Nebula) and M20 (the Trifid nebula) are about six degrees east of Saturn in early November. The Ringed Planet departs Ophiuchus and enters Sagittarius on November 19th. It is three degrees south of the waxing crescent Moon on the evening of November 20th.

Uranus continues to retrograde through Pisces this month. The ice giant planet lies 4.1 degrees north-northwest of the Moon on November 30th. Uranus can be found 2.3 degrees west of the fourth-magnitude star Omicron Piscium on November 1st and 3.2 degrees west of that star on November 30th. Browse <http://bluewaterastr...-chart-2017.png> for a finder chart.

Neptune is stationary in right ascension and resumes direct (eastward) motion on November 22nd. The eighth planet is occulted by the waxing gibbous Moon from parts of Antarctica on November 27th. Neptune is positioned 0.6 degree south of the fourth-magnitude star Lambda Aquarii this month. A finder chart is posted at <http://bluewaterastr...hart-2017.png>

Pluto lies too close to the horizon to be observed this month.

For more on the planets and how to locate them, see <http://www.nakedeyeplanets.com/>

Current information on solar system celestial bodies is posted at <http://www.curtrenz.com/astronomy.html> and <http://nineplanets.org/>

The zodiacal light may be visible in the pre-dawn eastern sky from a dark site after October 15th. Articles on the zodiacal light appear at <http://www.atoptics.co.uk/highsky/zod1.htm> and <http://earthsky.org/astronomy-essentials/everything-you-need-to-know-zodiacal-light-or-false-dawn>

Asteroids



Asteroid 7 Iris shines at seventh magnitude as it travels southward through Aries this month. Iris lies two degrees east of Beta Arietis (magnitude +2.7) in early November, 0.4 degree east of the excellent binary star Gamma Arietis (magnitude +3.9) on November 12th, and 0.5 degree east of 4 Arietis (magnitude +5.9) on November 29th. Asteroid 44Nysa (magnitude +9.6) is at opposition on November 3rd. Other moderately bright asteroids reaching opposition this month include 532 Herculina (magnitude +10.4) on November 2nd, 48 Doris (magnitude +10.9) on November 8th, and 42 Isis (magnitude +10.4) on November 17th. For information on this year's bright asteroids and upcoming asteroid occultation events respectively, consult <http://www.curtrenz.com/asteroids> and <http://asteroidoccultation.com/>

Comets



Comet C/2016 R2 (PanSTARRS) may reach tenth magnitude in brightness as it passes northwestward through Orion during November. The rather dim Oort Cloud comet is located one degree north-northwest of the second-magnitude star Delta Orionis (Mintaka), the westernmost star in the Belt of Orion, on November 1st and one degree north of Rho Orionis (magnitude +4.5) on November 21st. For additional information on comets visible this month, browse <http://cometchasing.skyhound.com/> and <http://www.aerith.net/future-n.html>.

Meteors



The peaks of the Southern and Northern Taurid meteor showers take place on November 5th and November 12th respectively. These streams form part of the complex associated with Comet 2P/Encke. Moonlight compromises the peaks of these two minor meteor showers. The Leonid meteor shower occurs on the morning of November 17th. Leonid meteors are debris from the periodic comet 55P/Tempel-Tuttle. Due to their high speed (71 kilometers or 44 miles per second), the fastest of any shower, the Leonids produce more fireballs than most meteor showers.

Carbon Star



Notable carbon star for November: Z Piscium: Right Ascension: 01^h 16^m 05,03^s / Declination: +25° 46' 09 69"

ISS



Information on Iridium flares and passes of the ISS, the Tiangong-1, the USAF's X-37B, the HST, and other satellites can be found at <http://www.heavens-above.com/>

A wealth of information on the celestial bodies comprising the solar system is posted at <http://www.curtrenz.com/astronomy.html> and <http://nineplanets.org/>

Free star maps for November can be downloaded at <http://www.skymaps.com/downloads.html> and <http://www.telescope...thly-Star-Chart>

The Deep Sky



Two stars with exoplanetary systems, Upsilon Andromedae (magnitude +4.1) and 51 Andromedae (magnitude +5.5), can be seen this month without optical aid.

Information on current supernovae can be found at <http://www.rochester...y.org/snimages/>

Deep-sky object list generators can be found at <http://www.virtualcolony.com/sac/> & <http://tonightssky.com/MainPage.php>

Seventy deep-sky objects for November: M31, M32, M110, NGC 252, NGC 404, NGC 752 (Andromeda); NGC 680, NGC 691, NGC 697, NGC 772 (Aries); Cr 463, IC 1747, K14, M103, NGC 129, NGC 133, NGC 146, NGC 185, NGC 225, NGC 281, NGC 278, NGC 381, NGC 436, NGC 457, NGC 559, NGC 637, NGC 654, NGC 659, NGC 663, Tr 1 (Cassiopeia); NGC 40, NGC 188 (Cepheus); NGC 151, NGC 175, NGC 178, NGC 210, NGC 227, NGC 245, NGC 246, NGC 247, NGC 274, NGC 337, NGC 578, NGC 584, NGC 596, NGC 615, NGC 636, NGC 681, NGC 720, NGC 779 (Cetus); NGC 7814 (Pegasus); M76, St 4 (Perseus); M74, NGC 128, NGC 194, NGC 488, NGC 524 (Pisces); NGC 24, NGC 55, NGC 134, NGC 150, NGC 253, NGC 254, NGC 288, NGC 289, NGC 439, NGC 613 (Sculptor); M33, NGC 672 (Triangulum)

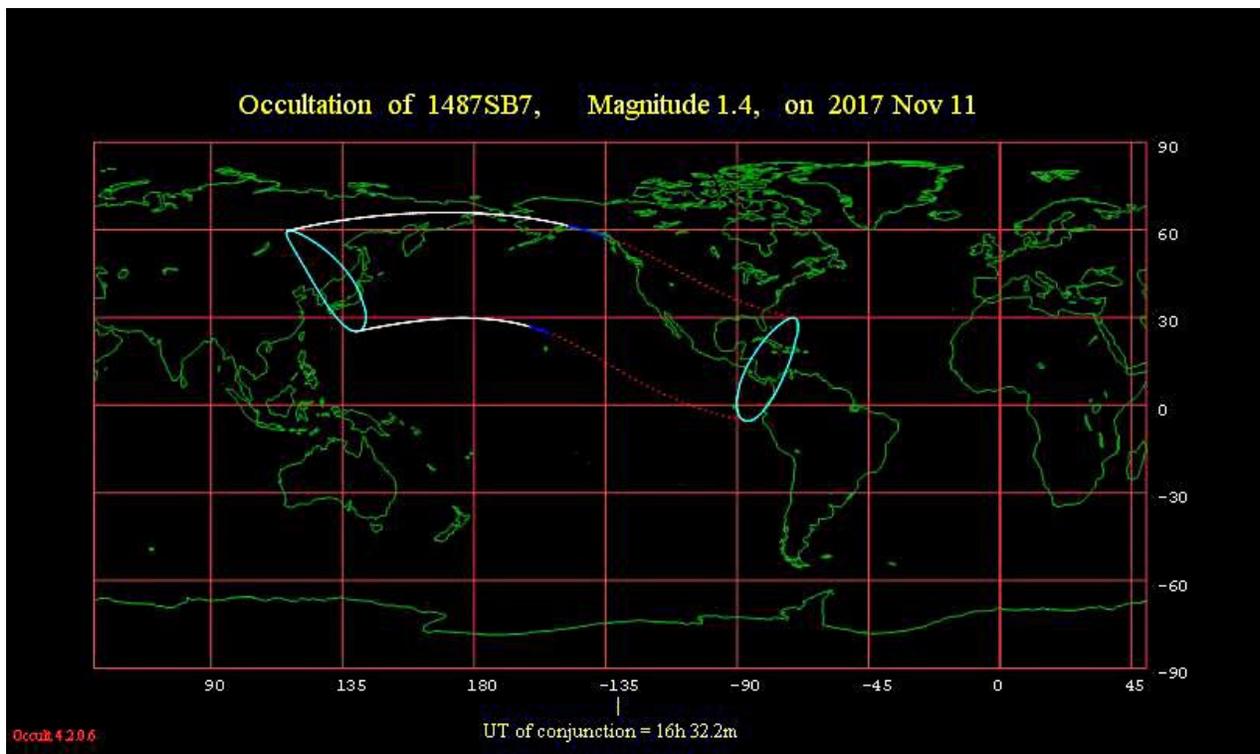
Top ten binocular deep-sky objects for November: M31, M33, M103, NGC 225, NGC 288, NGC 253, NGC 457, NGC 654, NGC 663, NGC 752

Top ten deep-sky objects for November: M31, M32, M33, M76, M103, M110, NGC 40, NGC 253, NGC 457, NGC 752

Challenge deep-sky object for November: IC 59 (Cassiopeia)

The objects listed above are located between 0:00 and 2:00 hours of right ascension.

The bright star Regulus lies conspicuously close to the waning Moon in the eastern sky in the early-morning hours of November 11th. It gets closer, too, and for many observers in the U.S. and southern British Columbia, the star will pass behind the Moon in daylight. This is the second lunar occultation of a bright star this month. Detailed timing for many locations are [at this link](#). Take a look if you get the chance! While the Moon is visible to the unaided eye, you will need a telescope to see Regulus in the glare of the daylight. The star will disappear behind the bright edge of the Moon and reappear from behind the darkened edge.



Observatories and Planetariums

Bruneau Dunes Observatory – Bruneau Dunes State Park, Bruneau, ID



The observatory is now **closed** for the remainder of the year as of October 14th. We managed to get our hours for the season and I would like to thank those who volunteered for their contribution to the observatory.

Whittenberger Planetarium – Caldwell, Idaho



Public Show Schedules

<http://www.collegeofidaho.edu/about/arts-culture/whittenberger-planetarium/public-show-schedule>

CSI Centennial Observatory / Faulkner Planetarium Herrett Center

Event	Place	Date	Time	Admission
Monthly Free Star Party	Centennial Observatory	Saturday, November 11 th , 2017	6:30 PM to midnight	FREE
Telescope Tuesday	Centennial Observatory	Tuesday, November 14 th , 2017	6:45 to 9:00 PM	\$1.50 or free with Faulkner Planetarium admission
Astronomy Talk : "Super Moons and Mars Hoaxes: Debunking Astronomical Baloney"	Faulkner Planetarium	Wednesday, November 15 th , 2017	6:30 to 7:30 PM	Adults: \$2.50 Children (7-17) & CSI students, faculty, and staff: \$1.50 Ages 0-6: FREE
Astronomy Talk Night Telescope Viewing	Centennial Observatory	Wednesday, November 15 th , 2017	7:30 to 9:30 PM	Free with Astronomy Talk admission
Telescope Tuesday	Centennial Observatory	Tuesday, November 28 th , 2017	6:15 to 9:00 PM	\$1.50 or free with Faulkner Planetarium admission

College of Southern Idaho Campus Twin Falls, ID Faulkner Planetarium / Show Times

<http://herrett.csi.edu/astronomy/planetarium/showtimes.asp>

[Now Showing](#)

Boise Astronomical Society

Join the Boise Astronomical Society Membership has its privileges

Hello and welcome to the club. We hope you have a good time, enjoy the hobby and bring good skies with you. We hold indoor meetings each month (see our website for the day) at the Anser Charter School in Garden City (for a map and directions please visit our website). There will always be a very interesting program, class or presentation at these meetings, as well as good fellowship. There is always something new to learn.

We typically have two star parties each month around New Moon, except on months that have special events going on (see Star Dates). The star parties are usually held at Dedication Point which is on Swan Falls Road, about 16 miles South of Kuna. During the summer months we move to a dark sky site at Granite Creek near Idaho City, Idaho. These events are free and you don't have to bring your own telescope. Everyone with a telescope is more than willing to let you look. This is one of the best ways to see what kinds of telescopes are available if you're thinking of getting one. Star Parties begin at dusk.

A star party is a gathering of amateur astronomers for the purpose of observing the sky

Observing the night sky is always an exciting journey, but having others to share the experience with makes it even better. Meet fellow astronomers by attending a local star party. Star parties June be planned around a specific celestial event or just on a clear night. Either way, observing together gives everyone an opportunity share knowledge, meet new people and gain experience in stargazing that otherwise June not have been possible.

How to Join the Boise Astronomical Society (BAS)

You June access and print an application for membership here: <http://boiseastro.org/application.pdf> Annual dues are \$25 per household and runs from January 1 to December 31. This includes all family members living at the same address:

Please make checks payable to:

**Boise Astronomical Society
PO Box 7002
Boise, Idaho 83707**

Membership entitles you to attend all club star parties, educational outreach programs and indoor membership/guest speaker meetings. Your literary contributions are welcomed and encouraged. Owning a telescope is NOT a requirement of joining the club. Membership in BAS also includes, but not limited to:

1. Membership in the Astronomical League.
2. Discounts on subscriptions to *Astronomy* and *Sky & Telescope* magazines.
3. Volunteer star party opportunities.
4. Camping and star party opportunities.
5. First opportunity at ISP campsite reservations.
6. Field trips to area planetariums.

Join BAS1 Yahoo Group

We suggest you join the Yahoo Group "BAS1" <https://groups.yahoo.com/neo/groups/BAS1/info>. This is how we communicate between monthly meetings. It's easy and it's free. All you need is a Yahoo ID, also free. The link for our group is on the front page of the newsletter. We recommend that you use the individual email setting so that you get the real-time "Go / No-Go" notices for club star parties. Please keep all postings on BAS related topics. No sales allowed. All conversations must follow civil discourse and be related to astronomy.

You may also join our [facebook](#) group. All are welcome and encouraged to join this page. Both BAS members and non-members alike. Please keep conversations and postings (including sales) to a civil discourse and be related to astronomy.