Snake River Skies

The Newsletter of the Magic Valley Astronomical Society

www.mvastro.org

Membership Meeting

Saturday, March 12th 2016
7:00pm at the
Herrett Center for Arts & Science
College of Southern Idaho.

Public Star Party Follows at the Centennial Observatory

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Magic Valley Astronomical Society is a member of the Astronomical League

M-51 imaged by
Rick Widmer &
Ken Thomason
Herrett Telescope
Shotwell Camera

President's Message

Colleagues,

Two items are on the agenda this month. First, MVAS has booked the lodge at Castle Rocks State Park for a MVAS-only star party on Friday, March 4th. As of this writing, there were still a couple of spots left open. We're just extending an invitation for a $15 donation to MVAS if you come. The weather looks decent for the lodge, but if nature changes its mind, there will be back-up activities planned. Just contact me at either 208-312-1203 or mayerrbrt@gmail.com to lock in your spot.

In case, you're wondering, Paul McClain is knocking out French Toast for breakfast…..

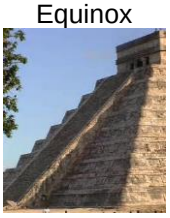
The following weekend, our regular MVAS meeting on Saturday, March 12, is our annual Show-And-Tell activity. If there's something you're working on or would like to discuss, drop me a line so I can create a lineup. Whether it's five minutes or 20 minutes, we look forward to hearing from you.

Lastly, Tim Frazier is doing an astronomical presentation at the Sawtooth Botanical Gardens up in Ketchum on Sunday, March 13, at 7:30 p.m. If that's too long of a drive for you, check in with Tim regarding possible accommodations. His e-mail address is fraztimo@gmail.com

Clear Views,
Robert Mayer

Calendars for March

Event Calendar

Sun	Mon	Tue	Wed	Thu	Fri	Sat
		1 Last Quarter 55% Visible 	2	3	4 MVAS Members Only Star Party at the Lodge at Castle Rocks State Park	5
6	7	8	9 New Moon Lunation 1153 	10	11	12 General Membership mtg. at the Herrett Center 7:00p Public Star Party at the Obsefrvatory
13 Daylight Saving Time 	14	15 First Quarter 48% Visible 	16	17 St. Patrick's Day 	18	19
20 Vernal Equinox 	21	22	23 Full Moon Crow Moon  Partial Eclipse	24	25	26 Earth Hour Telescope Viewing 
27 Easter 	28	29	30	31		

Snake River Skies is the Newsletter of the Magic Valley Astronomical Society and is published electronically once a month.

Celestial Events

All times, unless otherwise noted, are Universal Time Coordinate (subtract seven hours and, when appropriate, one calendar day for MST.)

3/2 Saturn is 3.6° south of the Moon at 7:00; the Curtiss Cross, an X-shaped Clair-obscure illumination effect located between the craters Parry and Gambart, is predicted to occur at 15:05
3/3 Asteroid 1 Ceres is in conjunction with the Sun at 22:00
3/4 A double Galilean shadow transit begins at 11:31
3/6 Saturn is at western quadrature at 6:00; asteroid 3 Juno is stationary at 16:00
3/7 Venus is 3.4 degrees south-southeast of the Moon at 9:00
3/8 A double Galilean shadow transit begins at 0:28; Mercury is 3.7 degrees south-southeast of the Moon at 3:00; Neptune is 1.9 degrees south-southeast of the Moon at 11:00; Jupiter is at opposition (apparent size 44.5", magnitude -2.5) at 11:00
3/9 The Moon is at the descending node at 6:29; a double Galilean shadow transit begins at 18:56
3/10 The Moon is at perigee, subtending 33' 14" from a distance of 359,510 kilometers (223,389 miles)
3/11 Uranus is 1.8° north-northwest of the Moon; a double Galilean shadow transit begins at 13:25
3/12 Mercury is at its greatest heliocentric latitude south today
3/13 The Moon is 9.0° south of the bright open cluster M45 (the Pleiades) in Taurus at 21:00
3/14 The Moon is 0.3° north-northeast of the first-magnitude star Aldebaran (Alpha Tauri
3/15 A double Galilean shadow transit begins at 2:22;
3/16 Asteroid 10 Hygiea (magnitude +9.4) is at opposition at 0:00; the Lunar X (the Purbach or Werner Cross), an X-shaped clair-obscure illumination effect involving various rims and ridges between the craters La Caille, Blanchinus, and Purbach, is predicted to occur at 1:38; a double Galilean shadow transit begins at 20:50. The Moon is 6.1° south of the bright open cluster M35 in Gemini at 5:00
3/17 Asteroid 6 Hebe (magnitude +9.8) is at opposition at 5:00
3/18 A double Galilean shadow transit begins at 15:18; the Moon is 5.0° south of the bright open cluster M44 (the Beehive Cluster or Praesepe) in Cancer at 23:00.
3/20 The vernal equinox occurs at 4:30; Venus is 0.49° south-southeast of Neptune at 17:00; Venus is at aphelion (0.728 astronomical units from the Sun) at 17:00; the Moon is 2.4 degrees south-southwest of the first-magnitude star Regulus (Alpha Leonis) at 18:00.
3/22 Jupiter is 2.0° north-northeast of the Moon at 3:00; a double Galilean shadow transit begins at 4:23; the Moon is at the ascending node at 13:02
3/23 Mercury is in superior conjunction at 20:00; a double Galilean shadow transit begins at 23:47
3/25 The Moon is 4.9° north-northeast of the first-magnitude star Spica (Alpha Virginis) at 5:00; Saturn is stationary in right ascension at 13:00; the Moon is at apogee, subtending 29' 25" from a distance of 406,125 kilometers (252,354 miles), at 14:00; a double Galilean shadow transit begins at 17:41
3/28 Mars is 4.1° north of the Moon at 20:00
3/29 A double Galilean shadow transit begins at 7:00; Saturn is 3.5° south of the Moon at 15:00
3/31 The Moon is at maximum libration (+9.88 degrees) for 2016 at 12:00; Mercury is 0.56 degree north-northwest of Uranus at 20:00

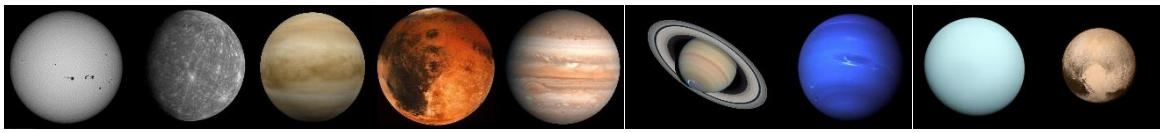
John Herschel (1792-1871), Percival Lowell (1855-1916), Albert Einstein (1879-1955), and Walter Baade (1893-1960) were born this month.

Titan, Saturn's largest satellite, was discovered on March 25, 1655 by the Dutch astronomer Christiaan Huygens. Sir William Herschel discovered Uranus on March 13, 1781. The first photograph of the Moon was taken on March 23, 1840. The rings of Uranus were discovered on March 10, 1977. During the fourth week of the month, the Zodiacal light should be visible in the western sky after sunset from dark locations.

NASA Astronaut Scott Kelly & Roscosmos Cosmonaut Mikhail Kornienko will return to Earth after having spent 340 days in space aboard the ISS. They will be accompanied by fellow Cosmonaut Sergei Volkov on their return to Earth in the Russian Soyuz TMA-18M.

If you ever wanted to be an Astronaut you'll need to get in line. NASA received a record 18,300 applications for the 2017 Astronaut class. This was likely due to the exposure of a Mars mission as featured in the movie, the Martian.

The Sun, the Moon, & the Planets



The Moon is 21.4 days old, is illuminated 59.5%, subtends 29.4', and is located in the constellation of Libra at 0:00 UT on March 1st. It's at its greatest northern declination of +18.2 degrees on March 16th and its greatest southern declination of -18.1 degrees on March 4th and -18.2 degrees on March 31st. Longitudinal libration is at a maximum of +6.8 degrees on March 17th and a minimum of -7.2 degrees on March 4th. Latitudinal libration is at a maximum of +6.8 degrees on March 15th and a minimum of -6.8 degrees on March 3rd and -6.8 degrees on March 30th.

A weak penumbral lunar eclipse visible from the Magic Valley starts at 3:39am; maximum at 5:47am; and ends at 7:54am visit http://www.timeanddate.com/eclipse/lunar/2016-march-23 for more information.

The Sun is in Aquarius on March 1st at 0:00 UT. The north pole of the Sun is most inclined away from the Earth on March 6th.

In the evening, Mercury and Uranus can be seen in the west and Jupiter in the east. Jupiter is located in the south at midnight. Venus and Neptune are in the east, Mars and Saturn are in the south, and Jupiter is in the west in the morning sky.

At midmonth, Venus rises at 6:00 a.m., Mars rises at 1:00 a.m. and transits the meridian at 6:00 a.m., Jupiter is visible for the entire night, and Saturn rises at 2:00 a.m. and transits the meridian at 6:00 a.m. local daylight time for observers at latitude 40 degrees north.

Mercury is visible in the morning sky for the first two weeks of the month. Southern hemisphere observers are favored. The speediest planet is at its greatest heliocentric latitude south on March 12th and is in superior conjunction on March 23rd.

Venus shrinks in apparent size to 10.2 arc seconds this month but increases in illumination to 95%. The brilliant planet is one half degree north of Neptune on March 20th, the same day that it is at aphelion.

Mars is located in eastern Libra as March begins. On March 8th, it is one astronomical unit distant from the Earth. The Red Planet enters Scorpius on March 13th. It passes just nine arc minutes north of the third-magnitude binary star Graffias (Beta Scorpii) on the morning of March 16th. The gap between Mars and Saturn decreases to nine degrees by month's end. Mars increases in brightness by almost a magnitude and grows three arc seconds in apparent size this month, shining at a magnitude of -0.5 and subtending 11.7 arc seconds by the end of March.

Jupiter is at its best for the year this month. It reaches opposition in Leo at 11:00 UT (6:00 a.m. EST) on March 8th and will be visible for the entire night. On that date, the king of the planets shines at magnitude -2.5, spans 44.5 arc seconds at its equator, and is 36 light minutes or 4.4 astronomical units from the Earth. It is the second most distant opposition of Jupiter's twelve-year orbital period. Tips for observing Jupiter can be found on pages 48 and 49 of the March issue of Sky & Telescope. Double Galilean shadow transits take place on March 4th, 8th, 9th, 11th, 15th, 16th, 18th, 22nd, 23rd, 25th, and 29th. Data on these and other Galilean satellite events is available online at http://www.shallowsky.com/jupiter/.

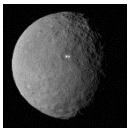
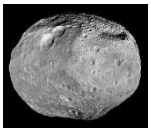
Saturn rises at approximately 1:00 a.m. local time on March 1st. The planet's disc spans 17 arc seconds at the equator. Saturn's rings measure 38 arc seconds in diameter and are tilted by 26 degrees this month. On March 25th, Saturn is stationary and commences retrograde (westward) motion thereafter through southern Ophiuchus. Click on http://www.curtrenz.com/saturn for a wealth of information on Saturn. Eight-magnitude Titan is positioned due north of Saturn on the nights of March 2nd and March 18th and due south of the planet on March 10th and March 26th.

Uranus is situated two degrees from the fourth-magnitude star Epsilon Piscium this month. It lies two degrees north of a thin crescent Moon on the night of March 10th. Uranus disappears from view by mid-March.

Neptune reappears low in the morning sky in late March for observers in the southern hemisphere.

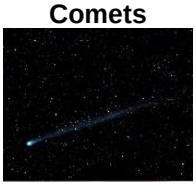
Pluto is not a viable target this month.

Asteroids

During March, asteroid 5 Astraea decreases in brightness from magnitude +9.3 to magnitude +10.1 as it heads northwestward through western Leo. The main-belt asteroid passes just to the south of an eighth-magnitude binary star on March 2nd and 0.1 degree north of the sixth-magnitude star 8 Leonis on March 10th. Astraea lies within 1.5 degrees of 8 Leonis for the entire month. Asteroid 10 Hygiea (magnitude +9.4) reaches opposition at 8:00 p.m. EDT on March 15th. Asteroid 6 Hebe (magnitude +9.8) reaches opposition two days later at 1:00 a.m. EDT on March 17th. Other fairly bright asteroids coming to opposition this month include 28 Bellona (magnitude +10.1) on March 7th and 37 Fides (magnitude +10.6) on March 9th. See http://britastro.org...s_asteroid.html for finder charts. Click on http://asteroidoccul.../2016_03_si.htm for information on asteroid occultations taking place this month.

Comets



Comet C/2013 US10 (Catalina) glides southeastward through Camelopardalis and into Perseus this month. Comet Catalina passes just to the east of the open cluster NGC 1528 on March 22nd and even closer to the east of the open cluster NGC 1545 on March 28th and March 29th. The periodic comet P/2010 V1 (Ikeya-Murakami) travels southwestward near Leo's sickle. This fragmented comet may pass within 15 arc minutes of the bright spiral galaxy NGC 2903 on March 25th. Both comets may shine as bright as eighth magnitude during March. Visit http://cometchasing.skyhound.com/ and http://www.aerith.ne...t/future-n.html for additional information on comets visible this month.

Meteors

No significant Meteor shower for the month of March.

Carbon Star

Notable carbon star for March: T Cancri (Cancer) Right Ascension: $08^h\ 56^m\ 40^s$ Declination: +19° 50' 56"

The Deep Sky

The famous eclipsing variable star Algol (Beta Persei) is at a minimum, decreasing in magnitude from 2.1 to 3.4, on March 1st, 4th, 7th, 10th, 13th, 15th, 18th, 21st, 24th, 27th, and 30th. Consult http://www.skyandtel...watching-tools/ For more on Algol, see http://stars.astro.i.../sow/Algol.html.

Sirius B (the Pup) currently lies 10.6 arc seconds east-northeast of Sirius A (the Dog Star). With an apparent magnitude of +8.4, the famous white-dwarf companion of Sirius (magnitude -1.5) is almost 10,000 times fainter. Using fairly high magnification and a blue color filter on a night with excellent seeing may make spotting Sirius B somewhat easier.

It is possible to observe all 109 (or 110) Messier objects during a single night around the time of the vernal equinox, if the Moon phase and local latitude permits. Information pertaining to observing some of the more prominent Messier galaxies can be found at http://www.cloudynig...ur-astronomers/

Top ten binocular deep-sky objects for March: M44, M48, M67, M81, M82, NGC 2571, NGC 2683, NGC 2841, NGC 2903, NGC 2976

Top ten deep-sky objects for March: M44, M48, M67, M81, M82, NGC 2654, NGC 2683, NGC 2835, NGC 2841, NGC 2903

Challenge deep-sky object for March: Abell 30 (Cancer) Right Ascension: $08^h\ 46^m\ 54.4^s$ Declination: +17° 52' 33"

The objects listed above are located between 8:00 and 10:00 hours of right ascension.

ISS

Information on Iridium flares and passes of the ISS, the Tiangong-1, the X-37B, the HST, and other satellites can be found at http://www.heavens-above.com/ Receive ISS Pass alerts via e-mail http://www.calsky.com/ or receive texts and e-mails direct from NASA http://spotthestation.nasa.gov/

Star Maps for March downloads: http://www.skymaps.com/downloads.html / http://www.telescope...thly-Star-Chart

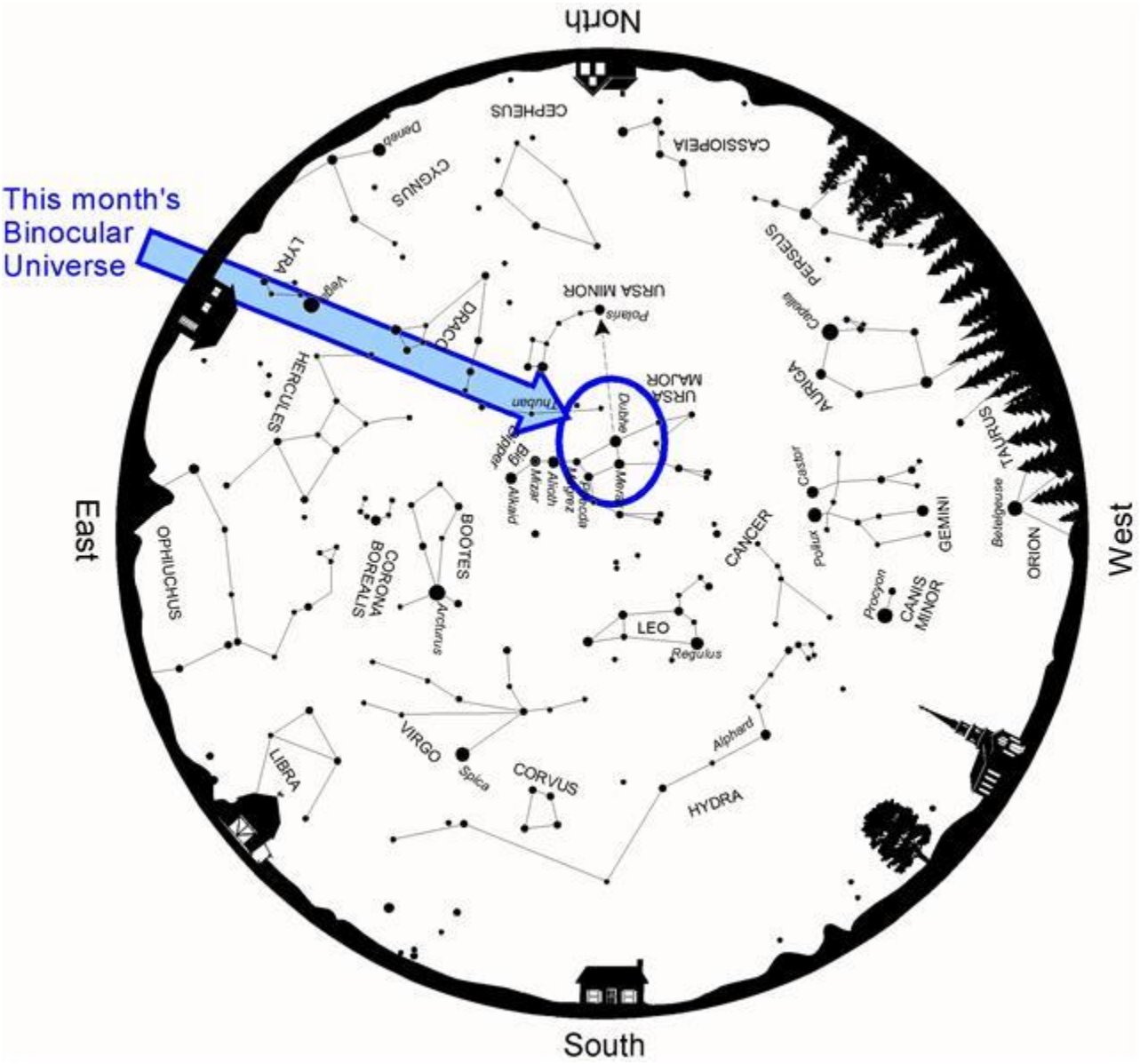
Messier 40 in Ursa Major also known as Winnecke 4

Be Safe - Go Outside - Explore Your Universe

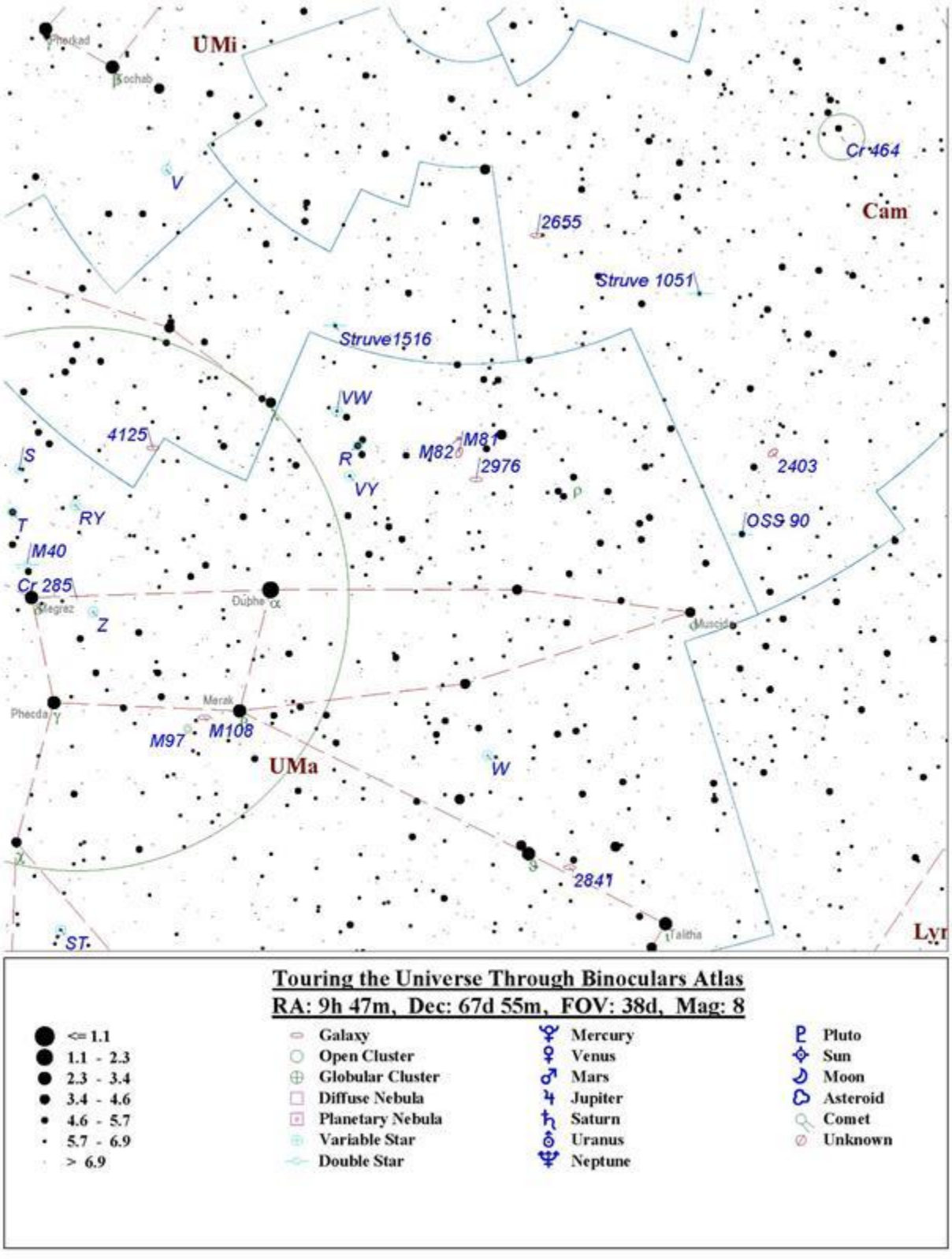
North for the Spring

March 2016

There's light at the end of the tunnel. The moment we've all been waiting for is almost here. Spring. SPRING! As we begin to say farewell to Orion, Taurus, Canis Major, and the rest of the winter enclave for another year, we welcome the stars of Leo, Ursa Major, and the rest of the spring collection. While not as bright as the winter stars, the spring sky carries with it many exciting targets to which we can raise our binoculars.



Above: Spring star map from Star Watch *by Phil Harrington. Click the chart to open a printable PDF version in a new window.*



Above: Finder chart for this month's Binocular Universe. Chart adapted from **Touring the Universe through Binoculars Atlas** *(TUBA) Click the chart to open a printable PDF version in a new window.*

We begin with two of my favorite galaxies, **M81** and **M82**. Nowhere else in the binocular sky do we see two such diverse galaxies set so close to each other. You may also know M81 as Bode's Galaxy for its discoverer, German astronomer Johann Bode, who found it in 1774. Five years later, Pierre Méchain rediscovered the galaxy, with his colleague Charles Messier adding it to his growing list of cometary imposters shortly thereafter.

Studies conclude that M81 spans about 90,000 light years and lies 12 million light years away. As seen from Earth, it shines at magnitude 6.9 and measures 10'x21' in size. That brings it well within range of binoculars, even with moderately light-polluted suburban skies. In fact, under ideal conditions, some eagle-eyed observers have reported seeing it without any optical aid at all! But for us mere mortals, M81 appears through binoculars as an oval smudge of grayish light surrounding a brighter stellar core.

Finding M81 in the first place, however, can be a bit of a chore. Here's how I do it. The galaxy lies at the end of a long line extending to the northwest from Phecda through Dubhe, both in the bowl of the Big Dipper. The galaxy and Phecda are about equal distances from Dubhe, but set directly opposite one another. Looking through your binoculars, star hop (more like star bound) from Phecda to Dubhe, then on toward M81. You will pass a arc of faint stars along the way before coming to a small right triangle, with the star 24 Ursa Majoris marking the right angle. The triangle lies just to the northwest of M81.

M81 is thought to be smaller than our Milky Way, but it is still massive enough to serve as the central character in a group of some 34 galaxies known appropriately as the M81 Group. Of those, M82 is a real attention getter.

Lying half a degree to the north, neighboring M82 was also discovered by Bode in 1774 and added to Messier's list after Méchain rediscovered it in 1779. Nicknamed the Cigar Galaxy for its stogy-like shape, M82 is often cited in books as the quintessential example of an irregular galaxy. Turns out those books are wrong. All that changed when the discovery of two spiral arms was announced in a paper entitled The Discovery of Spiral Arms in the Starburst Galaxy M82, which appeared in the July 2005 issue of Astrophysical Journal. Examining images of M82 taken at near-infrared wavelengths, authors Y. D. Mayya, L.Carrasco, and A. Luna noted that we are seeing M82 nearly edge-on. Between that challenging orientation, "the high disk surface brightness and presence of a complex network of dusty filaments in the optical images are responsible for the lack of detection of the arms in previous studies."

Some people can see M82 easily through binoculars, while others miss it completely. Even two observers standing side-by-side may have two totally different experiences seeing M82. It seems that spotting M82 through binoculars depends as much on a binocular's exit pupil as it does on sky darkness. In fact, I will go out on a limb and say that the exit pupil is even more important than sky darkness when it comes to seeing M82.

To check out this theory for my book Cosmic Challenge, I conducted a simple test using three different pairs of 50-millimeter binoculars from my suburban backyard. Since all three had the same aperture, so their light-gathering areas were identical. Each was mounted on a tripod to minimize shaking. I also waited until both galaxies were high in the sky to eliminate as much sky glow as possible. First, I raised my old 7x50s (7.1-mm exit pupil) their way. M81 was clearly visible, but I could do no better than suspect M82's existence with averted vision. I next switched to my 10x50 binoculars (5-mm exit pupil). Sure enough, M81 was again clearly visible, as was M82 with averted vision. Finally, I tried a pair of 16x50 binoculars (3.1-mm exit pupil). The field background was noticeably darker, but sure enough, M82 was also more obvious.

The reason for the steady improvement is two-fold. First, by decreasing the exit pupil, the brightness of the background sky also decreased, improving image contrast. At the same time, the higher magnification increased image size, which also helps to bring out low-contrast targets. Give it a try yourself if you can and see if your results mirror mine. I'd love to hear what you find.

Moving southward into the Big Dipper's Bowl, test your skills by looking for the planetary nebula, **M97**. Nicknamed the Owl Nebula for a pair of "wide eyes" visible through larger telescopes and in photographs, M97 is actually very easy to locate, but paradoxically, hard to see because of its low contrast and surface brightness. But I have seen it through my 10x50s under dark skies, so don't be afraid to give it a go.

To spirit out the Owl, aim toward Merak, the southwestern star in the Bowl. There, take aim at a dim star that lies about a degree to the east-southeast. The Owl's small disk is just to its east. Through most binoculars, it will show as a faint, oval glow. Use all the tricks to help make it out, such as mounting your binoculars on a tripod or other support, and using averted vision. The Owl will eventually show itself to those who persevere.

Méchain discovered M97 in 1781, with Messier viewing it later that same year. Although it may look like a simple disk even in photographs, the Owl is actually a very complex object. Like more planetary nebulae, the Owl is believed to be shaped like a torus, or a donut. We are viewing it slightly off center, so the "eyes" of the Owl are actually the comparatively empty donut holes.

The Owl is perched less than one degree to the southeast of our next target, the galaxy **M108**. Both are in the same field of view, so once you find M97, don't move! Look for M108 about halfway between Merak and M97.

Here is a true challenge object for all but the biggest binoculars. While M108 is technically bright enough to be seen through 10x50s, it won't exactly "wow" you. Even peering through giant binoculars, all you will see is a pencil-thin smudge of grayish light. The long, thin shape is caused by M108's nearly edge on tilt from our earthly vantage point. Studies reveal that M108 is actually a broad-armed Sc spiral, even we can never see its spiral arms.

Historically, M108 was one of those add-ons to Messier's original catalog, which originally ended with M103. But there is no doubt that he did see it. In fact, Pierre Méchain discovered M108 in February 1781. It was not until 1953, however, that Harvard astronomer Owen Gingerich, researching Messier's own hand-written notes, found the reference and, nearly two centuries later, inserted it to the catalog.

Okay, we have one more Messier object to go this month. Center your attention on Megrez, the star that joins the bowl of the Big Dipper with the handle. Without shifting your aim, look 1° to the northeast for 6th-magnitude 70 Ursae Majoris (unlabeled on the chart here). Got it? Now glance less than a third of a degree farther northeast for a lone 9th-magnitude star. That's **M40**.

What? M40 is just a star? In most 50mm and smaller binoculars, that's probably all you'll see. My 16x70s and 25x100s, however, resolve what Messier must have seen through his telescope: a pair of 9th-magnitude stars separated by about 50 arc-seconds.

Admittedly, that's not much better. That's because M40 was a cataloging mistake! The trouble began in 1660, when the German astronomer Johannes Hevelius recorded a "nebula above the back" of Ursa Major. Try as he might to duplicate the observation a century later, Messier could only find "two stars, very close together and of equal brightness, about 9th magnitude...it is presumed that Hevelius mistook these two stars for a nebula." Even though he recognized it as just two stars, Messier still included it as his catalog's 40th entry in 1764 for reasons unknown. In 1863, Hevelius's "nebula" was again rediscovered, this time by Friedrich August Theodor Winnecke at Pulkovo Observatory in St. Petersburg, Russia, who subsequently included it as the fourth listing in his double star inventory, entitled "Doppelsternmessungen" (Double Star Measurements). As a result, M40 is often cross-listed as Winnecke 4.

Much more recent investigations suggest that the two stars are not physically related at all. Therefore, despite the pair's similar appearance, M40 is merely an optical double rather than a true binary system. But no matter. If you're on your way to a Messier certificate, such as that offered by the Astronomical League, it's another notch in your belt toward your award.

As you can see from the list below, there are many more targets within this month's Binocular Universe also vying for your attention. See how many you can find and post your results in this article's discussion forum.

Object	Con	Type	R.A. (2000)	Dec	Mag	Size/Sep/ Period	Notes
Cr 464	Cam	OC	5 22	+73 0	4.2	120'	*TUB page 100*
Struve 1051	Cam	**	7 26.6	+73 5	7.1,7.8	31"	82°(1935);6028
2403	Cam	Gx	7 36.9	+65 36	8.4	17'x10'	*TUB page 100* Sc
OSS 90	Cam	**	8 2.5	+63 5	6.0,8.4	49"	82°(1924)
2655	Cam	Gx	8 55.6	+78 13	10.1	5'x4'	SBa
Struve1516	Dra	**	11 15.4	+73 28	7.6,8.1	36.2"	102°(1940);8100
4125	Dra	Gx	12 8.1	+65 11	9.8	5'x3'	E5p
2841	UMa	Gx	9 22	+50 58	9.3	8'x4'	Sb
W	UMa	Vr	9 43.8	+55 57	7.9-8.6	0.334 days	Eclipsing Binary
2976	UMa	Gx	9 47.3	+67 55	10.2	5'x3'	*TUB page 247* Scp
M81	UMa	Gx	9 55.6	+69 4	7.0	26'x14'	*TUB page 246-247* NGC 3031 Sb
M82	UMa	Gx	9 55.8	+69 41	8.4	11'x5'	*TUB page 246-247* NGC 3034 P
R	UMa	Vr	10 44.6	+68 47	6.7-13.4	301.68 days	Long Period Variable
VY	UMa	Vr	10 45.1	+67 25	5.9-6.5		Irregular
VW	UMa	Vr	10 59	+69 59	6.9-7.7	125 days	Semi-Regular
M108	UMa	Gx	11 11.5	+55 40	10.1	8'x3'	*TUB page 247* NGC 3556 Sc
ST	UMa	Vr	11 27.8	+45 11	7.7-9.5	81 days	Semi-Regular
Z	UMa	Vr	11 56.5	+57 52	7.9-10.8p	196 days	Semi-Regular
Cr 285	UMa	OC	12 3	+58 0	0.4	1400'	*TUB page 247-248* OC UMa Moving Cluster
RY	UMa	Vr	12 20.5	+61 19	6.7-8.5	311 days	Semi-Regular
M40	UMa	**	12 22.4	+58 5	9.0,9.3	50"	*TUB page 248-249* Winnecki 4
T	UMa	Vr	12 36.4	+59 29	6.6-13.4	256.24 days	Long Period Variable
S	UMa	Vr	12 43.9	+61 6	7.0-12.4	226.02 days	Long Period Variable
V	UMi	Vr	13 38.7	+74 19	8.8-9.9p	72 days	Semi-Regular

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The Closest New Stars to Earth

By Ethan Siegel

When you think about the new stars forming in the Milky Way, you probably think of the giant star-forming regions like the Orion Nebula, containing thousands of new stars with light so bright it's visible to the naked eye. At over 400 parsecs (1,300 light years) distant, it's one of the most spectacular sights in the night sky, and the vast majority of the light from galaxies originates from nebulae like this one. But its great luminosity and relative proximity makes it easy to overlook the fact that there are a slew of much closer star-forming regions than the Orion Nebula; they're just much, much fainter.

If you get a collapsing molecular cloud many hundreds of thousands (or more) times the mass of our sun, you'll get a nebula like Orion. But if your cloud is only a few thousand times the sun's mass, it's going to be much fainter. In most instances, the clumps of matter within will grow slowly, the neutral matter will block more light than it reflects or emits, and only a tiny fraction of the stars that form—the most massive, brightest ones—will be visible at all. Between just 400 and 500 light years away are the closest such regions to Earth: the molecular clouds in the constellations of Chameleon and Corona Australis. Along with the Lupus molecular clouds (about 600 light years distant), these dark, light-blocking patches are virtually unknown to most sky watchers in the northern hemisphere, as they're all southern hemisphere objects.

In visible light, these clouds appear predominantly as dark patches, obscuring and reddening the light of background stars. In the infrared, though, the gas glows brilliantly as it forms new stars inside. Combined near-infrared and visible light observations, such as those taken by the Hubble Space Telescope, can reveal the structure of the clouds as well as the young stars inside. In the Chameleon cloud, for example, there are between 200 and 300 new stars, including over 100 X-ray sources (between the Chameleon I and II clouds), approximately 50 T-Tauri stars and just a couple of massive, B-class stars. There's a third dark, molecular cloud (Chameleon III) that has not yet formed any stars at all.

While the majority of new stars form in large molecular clouds, the closest new stars form in much smaller, more abundant ones. As we reach out to the most distant quasars and galaxies in the universe, remember that there are still star-forming mysteries to be solved right here in our own backyard.

Image credit: NASA and ESA Hubble Space Telescope. Acknowledgements: Kevin Luhman (Pennsylvania State University), and Judy Schmidt, of the Chameleon cloud and a newly-forming star within it—HH 909A—emitting narrow streams of gas from its poles.

Observatories and Planetariums

Bruneau Dunes Observatory – Bruneau, ID

The observatory is now officially closed for the winter.

CSI Centennial Observatory

Event	Place	Date	Time	Admission
Telescope Tuesday	Centennial Observatory	Tuesday, March 23rd, 2016	7:15 to 9:00 PM	$1.50 or free with Faulkner Planetarium admission
Monthly Free Star Party	Centennial Observatory	Saturday, March 12th, 2016	7:45 PM to 12:00 AM	FREE
"Earth Hour" Telescope Viewing	Centennial Observatory	Saturday, March 26th, 2016	8:30 to 9:30 PM	FREE

Faulkner Planetarium Show Times (through Memorial Day)	
Tuesdays	7:00 PM
Fridays	7:00 PM 8:00 PM
Saturdays	1:30 PM 2:30 PM 3:30 PM 4:30 PM 7:00 PM 8:00 PM

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About the Magic Valley Astronomical Society

Magic Valley Astronomical Society
P.O. Box 445
Kimberly, ID, USA 83341

The Magic Valley Astronomical Society (MVAS) was founded in 1976. The Society is a non-profit [501(c) 3] educational and scientific organization dedicated to bringing together people with an interest in astronomy.
In partnership with the Centennial Observatory, Herrett Center, College of Southern Idaho - Twin Falls; we hold regularly scheduled monthly meetings and observation sessions, at which we share information on current astronomical events, tools and techniques for observation, astrophotography, astronomical computer software, and other topics concerning general astronomy. Members enthusiastically share their telescopes and knowledge of the night sky with all who are interested. In addition to our monthly public star parties we hold members only star parties at various locations throughout the Magic Valley.

MVAS promotes the education of astronomy and the exploration of the night sky along with safe solar observing through our public outreach programs. We provide two types of outreach; public star parties and events open to anyone interested in astronomy, and outreach programs for individual groups and organizations (e.g. schools, churches, scout troops, company events, etc.), setting up at your location. All of our outreach programs are provided by MVAS volunteers at no cost. However, MVAS will gladly accept donations. Donations enable us to continue and improve our public outreach programs.

Membership is not just about personal benefits. Your membership dues support the work that the Magic Valley Astronomical Society does in the community to promote the enjoyment and science of astronomy.
Speakers, public star parties, classes and support for astronomy in schoolrooms, and outreach programs just to name a few of the programs that your membership dues support.

Annual Membership dues will be:
$20.00 for individuals, families, $10.00 for students.
Contact Treasurer Jim Tubbs for dues information via e-mail: jtubbs015@msn.com

Donations to our club are always welcome and are even tax deductible. Please contact a board member for details.

Membership Benefits:
Lending Telescopes: The society currently has three telescopes for loan and would gladly accept others please contact President Robert Mayer, for more information on these and other benefits.

Telescopes are an individual thing and not practical for public use. However, everyone should have the experience of a good look at the moon for at least 5 minutes in their life time. It is a dimension and feeling that is unexplainable. Pictures or TV can't give this feeling, awareness, or experience of true dimension. A person will not forget seeing our closest neighbor, the moon. Norman Herrett in a letter to Dr. J. L. Taylor, president of the College of Southern Idaho, Twin Falls, ID, USA circa 1980.