



Lorain County, Ohio

November 2018

Website: [blackriverastro.org](http://blackriverastro.org)

Newsletter submissions: [Editor](#)

\* \* \*\* \* \* \* \*

--Friday, November 2, 8-10 p.m.: Public Observing Nielsen Observatory (cloud backup Saturday, November 3)

--Wednesday, November 7, 7 p.m.: Regular meeting: Lowell Observatory off-site facilities (Mickey Hasbrook), and Daylight Comets (Denny Bodzash), Carlisle Visitors Center

--Friday, November 9, 8-10 p.m.: Public Observing, Nielsen Observatory (cloud backup Saturday, November 10)

--Thursday, November 15, 7 p.m.: Board meeting, Blue Sky Restaurant, Amherst, OH

\* \* \*

\*\* \*\* \*

Explore if you will the informative BRAS [website](#) and all its interesting, timely [links](#), and join the interactive members-only [BRAS Forum](#) to better keep in touch.

If you have any wanted/for sale announcements, astronomical photos you've taken, astronomy article links, equipment reviews, observing reports, essays, or anything that you think to which the local amateur astronomy community could relate, please send them to your [humble Guidescope editor](#) for inclusion in forthcoming issues.

## BOARD SUMMARY

October 11, 2018

The October meeting was called to order by the President at 7:07 p.m. with seven Directors present. The minutes of the September meeting were read and approved with no corrections or additions. There was no Treasurer's Report due to the absence of the Treasurer. Committee reports followed, with the *Guidescope* editor Bill Ruth reporting that the newsletter was status quo, with some member submissions, which are always gratefully received. There was no formal website report, but it was noted that the calendar lists our December General Meeting as being at Carlisle, which is wrong. Because of the Christmas Lights program held all month at Carlisle, no meetings can be held there, and our December meeting is at the Amherst Beaver Creek Reservation. Schauer will change the calendar. Under Instrumentation, Schauer reported that we have received the two zero power finders we ordered and that he has been reimbursed for their purchase. One is a Rigel red dot finder, the other is a Telrad, and the Telrad also has a 4" extender base so that the finder is raised off the telescope tube for easier viewing. One of these finders will be used for the Unitron refractor and the other is reserved for the 16" Newtonian reflector that we will have in operation in late spring or early summer, once the new storage building is constructed. The OTAA committee reported that dates for 2019 OTAA conventions were set and that two clubs already have dates for 2020.

2019

CVAS	June 29
MVAS	August 24
CAA	September 21
BRAS	September 28

2020

MVAS	August 15
BRAS	September 19

The Metro Parks Liaison asked to delay his report and include it under Old Business.

Programming is as follows:

November	Mickey Hasbrook/Denny Bodzash	Lowell Observatory Remote Sites/Bright Daylight Comets
December	Annual Christmas Party and Pot Luck Dinner at Amherst Braver Creek Reservation	
January	An astronomy video	
Feb.	OPEN	
March	OPEN	
April	Tim Kreja	Colonization of Mars
May-Nov.	OPEN	

Under Old Business, Schauer reported that the Fellow certificate was signed, framed and mailed to Swen Nielsen as an acknowledgment of his many contributions to the club and with our profound gratitude.

Schauer next reported on the progress of the new storage building to be constructed at the observatory. This building will house the several Dobsonian telescopes that are currently used at the Nielsen, the telescopes that the club owns that are currently stored off site (mostly at the John Reising Home for Wayward Telescopes), and will house the new 16” reflector that is too large to pass through the doors of the current observatory. Jennifer Bracken, Jim Ziemnik, and Paul Rhuby of the Lorain County Metro Parks met recently to continue the planning for the new building. Some LCMP funds will be allocated into the capital fund to partially fund the project and they are gathering prices for concrete pads, concrete block, etc. Ms. Bracken asked if the BRAS could add our promised contribution of \$2500 to the fund, to keep the project moving ahead, and Treasurer Dan Walker has mailed a check in that amount, as previous approved by the Board. The plan is to pour the concrete pad as soon as the weather permits in the spring, and once the concrete is cured adequately, to construct the building out of concrete block which will then be wood sided to match the observatory and other Parks buildings. The building will have a 5' overhead door so the 16” telescope can easily be rolled into and out of the building for use without going over a sill or needing a ramp.

Next, Bill Ruth reported that we have been submitting our observing dates to the *Elyria Chronicle Telegram* each month. So far, the Public Observing dates at Lagrange (Carlisle) have been reported in the Lagrange activities page, but our solar observing dates were not reported.

Greg Zmina reported that he has sent or hand-delivered thank-you notes to vendors who were kind enough to donate door prizes for our OTAA convention.

Next came New Business. The first item of business was to select solar observing dates for 2019, since public observing dates were previously selected. The dates are:

May	TBD as this is usually the Paddle and Pedal Festival at Lakeview Park and the LCMP has not released this date yet.	
June 30	1:00-4:00 p.m.	Sandy Ridge Reservation
July 28	1:00-4:00 p.m.	Sandy Ridge
August 25	1:00-4:00 p.m.	Sandy Ridge
September	TBD as this is usually the LCMP Adventure Fest. Note: this is sometimes held in August, so that date might change.	
Oct. 27	1:00-4:00 p.m.	Sandy Ridge

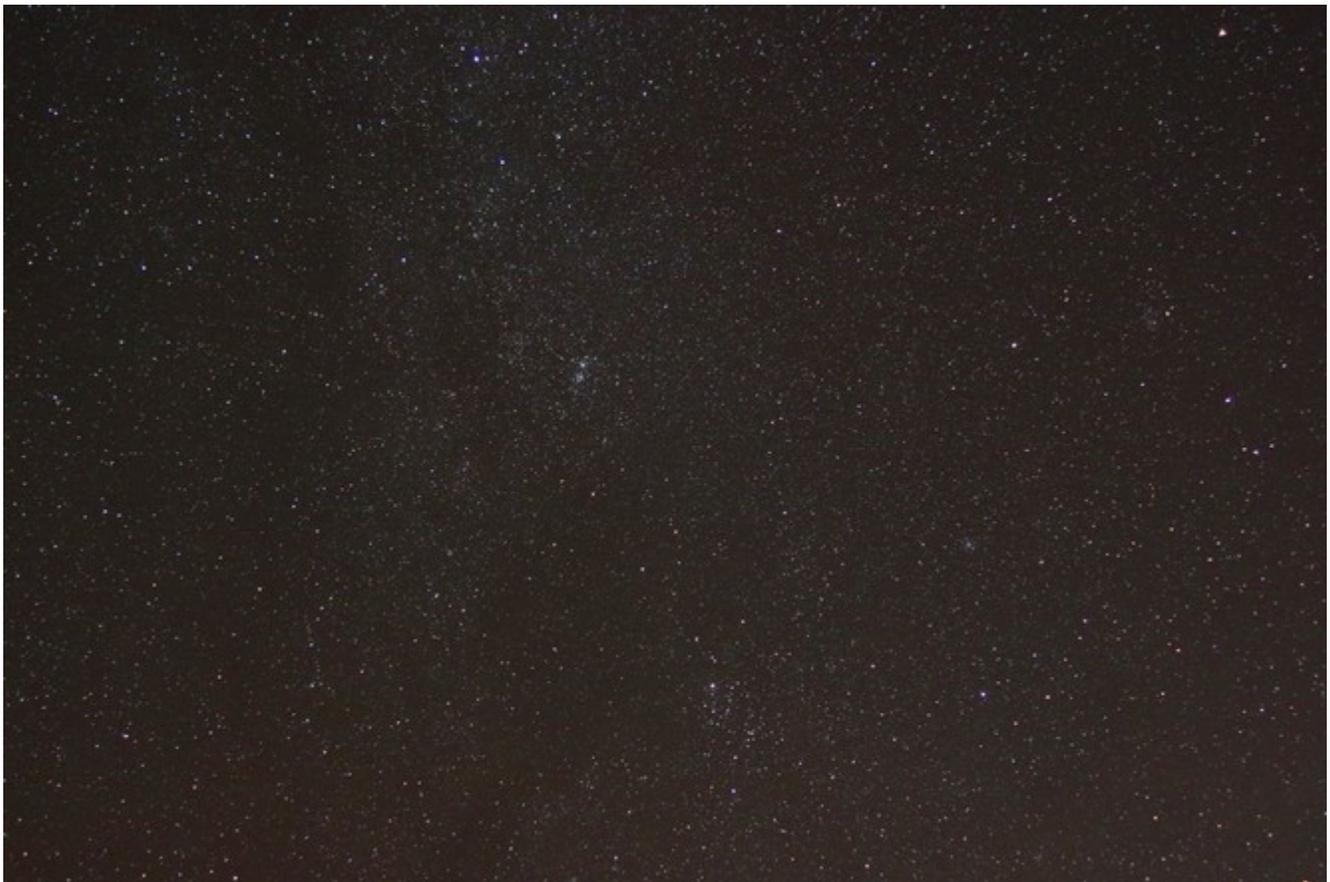
The next order of business was the always pleasant task of voting in a new member. In a unanimous vote the Board welcomes Leonard Tabaj to the club! Schauer next brought up a couple of ideas for Board consideration. These are ideas about offering members of the club additional activities and opportunities for input. Schauer asked the Directors to consider places we could go as a group for a field trip. Observatory Park, the Cleveland Natural History Museum Planetarium and John Glenn Observatory Park were mentioned as possibilities. The Board was also asked if it was time to send out a survey to members, asking for input on the club. This has been done in the past, but back then, the

survey was mailed, and returns of the survey were sparse due to the trouble of filling it out, and mailing it. Mickey Hasbrook promised to look into the ways a survey could be emailed, filled in and commented on, and then the recipient could simply hit “Reply” for the survey to be returned. This may be possible as a PDF. Also discussed were impromptu (or planned) observing sessions for members only.

Finally, Mickey Hasbrook proposed that the club add an additional food item to the hot dogs that we currently provide for our OTAA conventions. She is offering to cook pulled pork or chicken in advance on the day of the event. The Board will discuss this further. Mickey also proposed that we change the seating arrangement at our annual Christmas party and pot luck. In the past we have had three long rows of tables which divides the club into groups. It is suggested that we group the tables differently so we are all together, which we will do.

Dates were set, and the meeting was adjourned at 8:48 p.m.

~Steve Schauer



Double Cluster and much more, 82 seconds, Pentax K3 II using AstroTracer function, from Ash Meadows, Nevada, east of Death Valley, October 13, 2018

--Dave Lengyel

## NASA's SLS Rocket Behind Schedule, Over Budget

It's official: NASA's Space Launch System (SLS) heavy-lift rocket is, once again, falling farther behind schedule while continuing to accumulate cost overruns. The news came via NASA's Inspector General. For space enthusiasts, this is just more of the same bad news.

In stark contrast to the singular focus NASA exhibited in the 1960s, the NASA of the 21<sup>st</sup> century could be described as lost not in space, but on the ground.

With mounting calls for the retirement of the Space Shuttle following the 2003 *Columbia* disaster, then President George W. Bush announced the Constellation Program in 2005, which sought to return Americans to the Moon by 2020 via heavy lift rockets similar to the Saturn V. There were to be two versions of the new *Aries* rocket: one designed for manned launches and another designed for heavy cargo payloads.

By 2009, a study concluded that Constellation was grossly over budget. As a result, in early 2010, then President Obama announced that Constellation was going to be canceled and replaced with a single rocket: the SLS, which could serve dual purposes while utilizing technology originally developed for Constellation.

Fast forward 8 years and it's more of the same.

The first SLS launch, set to be an unmanned capsule around the Moon, was set for December, 2017. The first manned flight was targeted for mid 2021. Obviously, December, 2017 is nearly a year in the rear view mirror, which does not bode well for 2021. Official target dates for the unmanned launch is now 2020 and the manned launch is now back to 2022.

According to the inspector general report, SLS development will cost nearly \$9 billion through 2021, nearly double the initial budget up to that point. Who's to blame? According to the report, it is Boeing, NASA's chief contractor for the project.

In a scathing assessment, the report states that the cost increases and schedule slips "can be traced largely to management, technical and infrastructure issues driven by Boeing's poor performance." Furthermore, the report adds that "for example, Boeing officials have consistently underestimated the scope of the work to be performed and thus the size and skills of the workforce required."

The report does have some praise for NASA, stating that the SLS Program has been "making key leadership changes; requesting reviews of Boeing's management, financial, and estimating systems; adding routine, in-depth performance reviews; and changing the procurement process to improve internal controls." Unfortunately, the report also notes that it is virtually impossible to determine how effective these measures have been.

One can only hope that Trump won't pull an Obama and decide to switch horses mid stream, wasting more money and further pushing back NASA's goal of getting astronauts back into space.

~Denny Bodzash

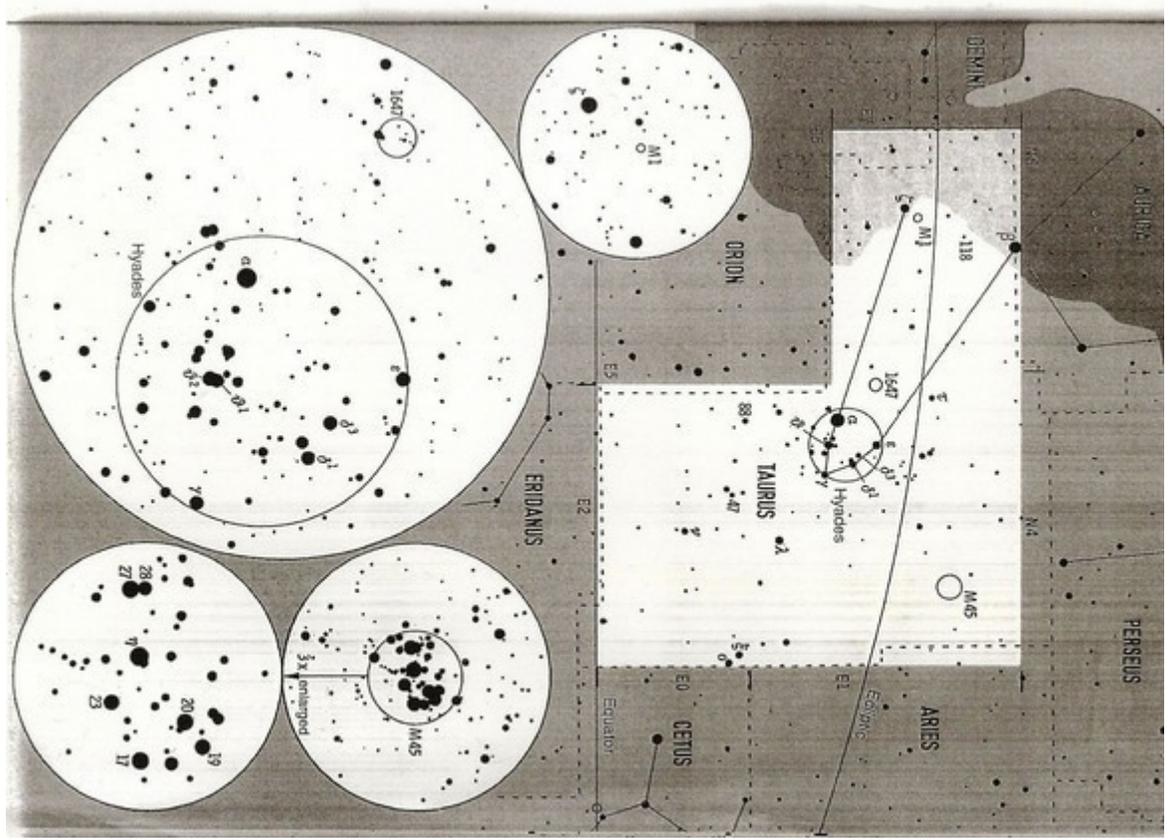
# E3 Equator, Ecliptic Winter Constellations

NEBULA	Position	V-Mag.	Size	Shape	Type	Vis.	Dist.	R.A.	Dec.
M45	Tau	3	14' 11"/100'	O r n	OC	☐☐☐	400ly	3 <sup>h</sup> 47 <sup>m</sup> 0 <sup>s</sup>	24 <sup>o</sup> 12'
Hyades ...	Tau	6	1 11'	O m	OC	☐☐☐	150	4 <sup>h</sup> 28 <sup>m</sup>	16 <sup>o</sup> 5'
1647 ...	Tau	7	64' 14"	O m	OC	☐☐☐	1800	4 <sup>h</sup> 46 <sup>m</sup> 0 <sup>s</sup>	19 <sup>o</sup> 07'
1952 M1	Tau	7	8 11'	O r n	DN	☐☐☐	6000	5 <sup>h</sup> 34 <sup>m</sup> 5 <sup>s</sup>	22 <sup>o</sup> 02'

**M45 Pleiades, Seven Sisters, marvellous with unaided eye or binoculars.** Meroppe's reflection nebula NGC1435 visible under darkest sky. Only impressive with unaided eye or opera glasses, scattered stars, the closest and brightest star cluster. Aldebaran is a foreground star. **1647 ...** Large open cluster; it is resolved into many stars in binoculars. **1952 M1 Crab Nebula,** difficult in binoculars, elongated, irregular in a telescope, a nebula filter helps, the remnant of the supernova in 1054.

STAR	Position	V-Mag.	B-V	Te.	Sp.	Abs.	Name	Dist.	R.A.	Dec.
1 $\sigma$	Tau	3.6	0.9	G8	-m		Sep. 55 <sup>*</sup>	220ly	3 <sup>h</sup> 24 <sup>m</sup> 3 <sup>s</sup>	9 <sup>o</sup> 03'
2 $\xi$	Tau	3.7	-1	B9	0			220	3 <sup>h</sup> 27 <sup>m</sup> 2 <sup>s</sup>	9 <sup>o</sup> 73'
17	Tau	3.7	-1	B6-2			Electra	400	3 <sup>h</sup> 44 <sup>m</sup> 9 <sup>s</sup>	24 <sup>o</sup> 11'
19	Tau	4.3	-1	B6-1			Tevgeta	400	3 <sup>h</sup> 45 <sup>m</sup> 2 <sup>s</sup>	24 <sup>o</sup> 47'
20	Tau	3.8	-1	B8-2			Mala	400	3 <sup>h</sup> 45 <sup>m</sup> 8 <sup>s</sup>	24 <sup>o</sup> 37'
23	Tau	4.1	-1	B6-1			in M45	400	3 <sup>h</sup> 46 <sup>m</sup> 3 <sup>s</sup>	23 <sup>o</sup> 95'
25 $\eta$	Tau	2.8	-1	B7-3			Meroppe	400	3 <sup>h</sup> 47 <sup>m</sup> 5 <sup>s</sup>	24 <sup>o</sup> 11'
27	Tau	3.6	-1	B8-2			Atlas	400	3 <sup>h</sup> 49 <sup>m</sup> 2 <sup>s</sup>	24 <sup>o</sup> 06'
28 BU Tau		4.9-5.2	-1	B7-1			Pleiades	400	3 <sup>h</sup> 49 <sup>m</sup> 2 <sup>s</sup>	24 <sup>o</sup> 14'
35 $\lambda$ Tau		3.4-3.9	-1	B3-2				360	4 <sup>h</sup> 00 <sup>m</sup> 7 <sup>s</sup>	12 <sup>o</sup> 49'
38 $\nu$ Tau		3.9	0.0	A1	1			132	4 <sup>h</sup> 03 <sup>m</sup> 2 <sup>s</sup>	5 <sup>o</sup> 99'
47	Tau	4.8	* 0.8	G5	0			350	4 <sup>h</sup> 13 <sup>m</sup> 9 <sup>s</sup>	9 <sup>o</sup> 26'
54 $\gamma$	Tau	3.6	1.0	G8	0			155	4 <sup>h</sup> 19 <sup>m</sup> 8 <sup>s</sup>	15 <sup>o</sup> 63'
61 $\delta_1$ Tau		3.8	1.0	G8	0			155	4 <sup>h</sup> 22 <sup>m</sup> 9 <sup>s</sup>	17 <sup>o</sup> 54'
68 $\delta_2$ Tau		4.3	* 0.0	A2	1			150	4 <sup>h</sup> 25 <sup>m</sup> 5 <sup>s</sup>	17 <sup>o</sup> 93'
74 $\epsilon$	Tau	3.5	1.0	K0	0			155	4 <sup>h</sup> 28 <sup>m</sup> 6 <sup>s</sup>	19 <sup>o</sup> 18'
77 $\phi_1$ Tau		3.8	1.0	K0	0			155	4 <sup>h</sup> 28 <sup>m</sup> 6 <sup>s</sup>	15 <sup>o</sup> 96'
78 $\phi_2$ Tau		3.4	0.2	A7	0			155	4 <sup>h</sup> 28 <sup>m</sup> 7 <sup>s</sup>	15 <sup>o</sup> 87'
88	Tau	4.2	* 0.2	A5	1			150	4 <sup>h</sup> 35 <sup>m</sup> 7 <sup>s</sup>	10 <sup>o</sup> 16'
87 $\alpha$ Tau		0.9	1.5	K5-1			Aldebaran	66	4 <sup>h</sup> 35 <sup>m</sup> 9 <sup>s</sup>	16 <sup>o</sup> 51'
94 $\tau$ Tau		4.2	* -1	B3-1				400	4 <sup>h</sup> 42 <sup>m</sup> 2 <sup>s</sup>	22 <sup>o</sup> 96'
112 $\beta$ Tau		1.7	-1	B7-1			Elnath, Nath	130	5 <sup>h</sup> 26 <sup>m</sup> 3 <sup>s</sup>	28 <sup>o</sup> 61'
118	Tau	5.5	* 0.0	B9-1				500	5 <sup>h</sup> 29 <sup>m</sup> 3 <sup>s</sup>	25 <sup>o</sup> 15'
123 $\zeta$ Tau		3.0	-2	B4-3				400	5 <sup>h</sup> 37 <sup>m</sup> 6 <sup>s</sup>	21 <sup>o</sup> 14'

BINARY	Position	V-Mag.	B-V	Te.	Sp.	PA	Vis.	VARIABLE	STAR
47	Tau	4.9	7.3	0.8	0.8		1.3	☐	28 BU Tau
68 $\delta_2$	Tau	4.4	7.6	0.0	0.6		1.5	☐	35 $\lambda$ Tau
88	Tau	4.3	7.8	0.2	0.5		69.6	☐	Period 3.362395 d
94 $\tau$	Tau	4.3	7.1	-1	0.1		62.9	☐	Mfn. 2454000.1
118	Tau	5.9	6.7	-1	0.1		4.7	☐	2nd min. mag. 3.6



Constellation of the Month courtesy of John Reising.

## Deep-Sky Objects for November

Objects for Binoculars							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
03 <sup>h</sup> 47.0 <sup>m</sup>	+24° 07'	M45	1.2v	110'		Tau	Open Cl 100• "Pleiades"
04 <sup>h</sup> 27.0 <sup>m</sup>	+16° 0'	Mel 25	0.5v	330'		Tau	Open Cluster 40• "Hyades"
04 <sup>h</sup> 46.0 <sup>m</sup>	+19° 04'	NGC 1647	6.4v	45'		Tau	Open Cluster 200•
05 <sup>h</sup> 28.7 <sup>m</sup>	+35° 50'	M38	6.4v	21'		Aur	Open Cluster 100•
05 <sup>h</sup> 36.1 <sup>m</sup>	+34° 08'	M36	6.0v	12'		Aur	Open Cluster 60•
05 <sup>h</sup> 52.4 <sup>m</sup>	+32° 33'	M37	5.6v	20'		Aur	Open Cluster 150•
Objects for Small Telescopes (2-6 inch)							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
04 <sup>h</sup> 09.2 <sup>m</sup>	+30° 47'	NGC 1514	10.9v	>114"		Tau	Planetary Nebula
04 <sup>h</sup> 51.1 <sup>m</sup>	+43° 42'	NGC 1664	7.6v	18'		Aur	Open Cluster 50•
05 <sup>h</sup> 03.6 <sup>m</sup>	+23° 49'	NGC 1746	6.1v	42'		Tau	Open Cluster 20•
05 <sup>h</sup> 10.7 <sup>m</sup>	+16° 32'	NGC 1807	7.0v	17'		Tau	Open Cluster 20•
05 <sup>h</sup> 12.1 <sup>m</sup>	+16° 42'	NGC 1817	7.7v	15'		Tau	Open Cluster 60•
06 <sup>h</sup> 11.6 <sup>m</sup>	+48° 43'	41 Aur	6.3, 7.0	7.7"	356°	Aur	Double Star
Objects for Medium Telescopes (8-14 inch)							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
03 <sup>h</sup> 19.7 <sup>m</sup>	-19° 25'	NGC 1300	10.4v	5.5'x2.9'		Eri	Galaxy
04 <sup>h</sup> 14.2 <sup>m</sup>	-12° 44'	NGC 1535	9.6p	>18"		Eri	Planetary Nebula
05 <sup>h</sup> 08.1 <sup>m</sup>	+37° 03'	NGC 1778	7.7v	6'		Aur	Open Cluster 25•
05 <sup>h</sup> 20.2 <sup>m</sup>	+39° 21'	NGC 1857	7.0v	5'		Aur	Open Cluster 40•
05 <sup>h</sup> 28.0 <sup>m</sup>	+35° 19'	NGC 1907	8.2v	6'		Aur	Open Cluster 30•
05 <sup>h</sup> 59.7 <sup>m</sup>	+37° 13'	37-Upsilon	2.6, 7.1	AB: 3.6"	313°	Aur	DS (AC: 10.6; 50°; 297°)
Objects for Larger Telescopes (16-inch & larger) Challenge Objects							
RA	Dec	Number	Mag(s)	Size/Sep.	PA	Const.	Type of Object
03 <sup>h</sup> 09.8 <sup>m</sup>	-20° 35'	NGC 1232	10.0v	6.8'x5.6'		Eri	Galaxy
03 <sup>h</sup> 38.5 <sup>m</sup>	-23° 02'	NGC 1395	9.7v	5.4'x4.6'		Eri	Galaxy
03 <sup>h</sup> 40.2 <sup>m</sup>	-18° 35'	NGC 1407	9.7v	6.0'x5.8'		Eri	Galaxy
04 <sup>h</sup> 21.8 <sup>m</sup>	+19° 32'	NGC 1554-55	-	1.7'		Tau	R+E Neb. "Hind's Var Neb"
05 <sup>h</sup> 16.3 <sup>m</sup>	+34° 16'	IC 405	-	30'x20'		Aur	R+E Neb "Flaming Star Neb"
05 <sup>h</sup> 34.5 <sup>m</sup>	+22° 01'	M1	-	6'x4'		Tau	SNR "Crab Nebula"

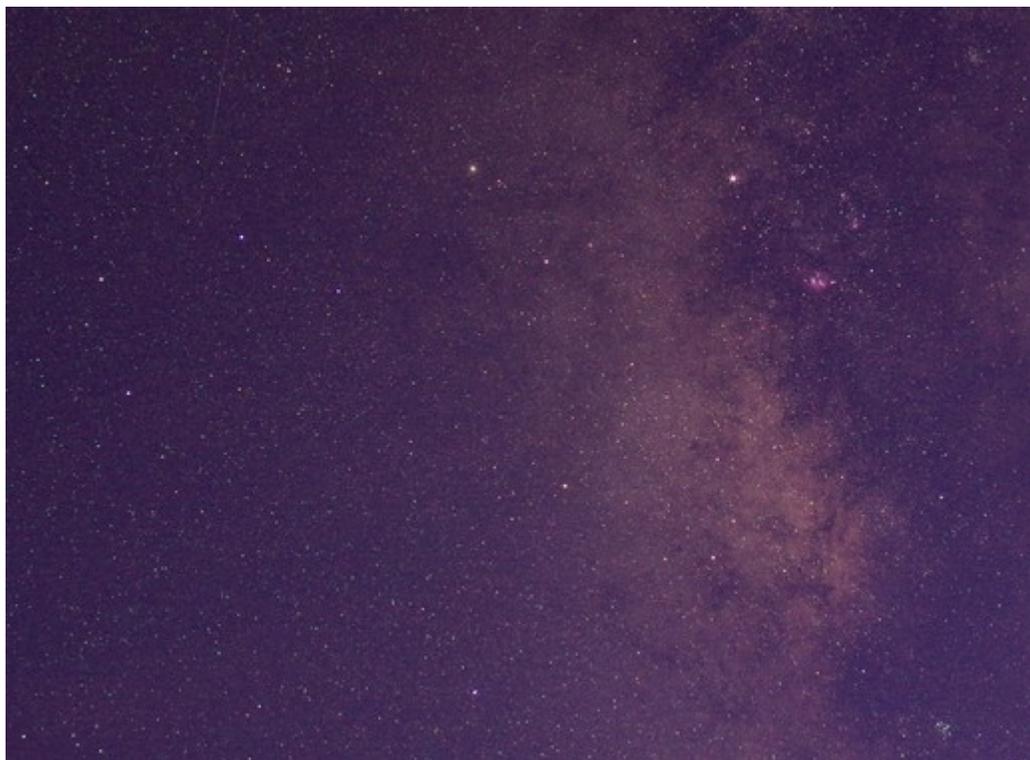
Print and use the [Deep-Sky Interest Group - Observation Form](#) to record your observations.

Thanks to Len Jezior for deep sky objects chart.



Scorpius and Jupiter, 10/9/18, 122s, Ash Meadows

--Dave Lengyel



Sagittarius and Saturn, 10/9/18, 32.5s, Ash Meadows

--Dave Lengyel

## IDA Urges Decision-Makers in China Consider Cost-Effective Alternatives to “Artificial Moon”



The full Moon competes against the bright city lights along the Hong Kong waterfront. Photo by Trey Ratcliff.

According to recent media reports, China’s Chengdu, a city in the Sichuan province, has announced plans for an experimental “artificial moon” to be launched in 2020, with two additional satellite launches slated for 2022.

The “illumination satellites” would use reflective surfaces to redirect sunlight to the ground over the city of Chengdu at night from low Earth orbit. The satellites would reflect sunlight to Earth over an area of 3,600-6,400 square kilometers. [1] Wu Chunfeng is head of Tianfu New District System Science Research Institute in Chengdu. Explaining the project to *China Daily*, he said, “Three huge mirrors will divide the 360-degree orbital plane, realizing illuminating an area for 24 hours continuously.” [1]

Because the illumination satellite would replace streetlights, reports estimate energy cost savings of approximately 1.2 billion yuan (\$170 million) per year. [2]

While IDA encourages creative solutions for lighting that reduce energy costs, we urge decision-makers in China and elsewhere to consider the impact of satellite illumination on wildlife, human health (specifically the interruption of circadian rhythms), and other unknown factors.

Based on media reports, IDA estimates that the Chengdu satellite illumination project could result in ambient light levels in the city that are nearly 50 times higher than those attributable to current levels of human-caused skyglow. [3] Unlike municipal roadway lighting, satellite illumination cannot be shielded or directed in such a way to substantially reduce or eliminate the threat posed by this light.

While the approach of satellite illumination appears desirable on the surface, promising reduced dependence on electricity and obviating the costs of maintaining street lighting, decades of research show the environmental hazards associated with unnatural nighttime illumination levels. We encourage decision-makers to consider cost-effective alternatives that provide sufficient light at night for human activities while not unduly harming the nighttime environment.

## References

1. Wei, Jiang. "[China to launch man-made moons in space.](#)" *China Daily*, 18 October 2018.
2. Al-Jazeera. "[China to launch 'artificial moon' to illuminate city streets.](#)" 19 October 2018.
3. Carter, Jamie. "[China's 'Fake Moons' Could Make Light Pollution Almost Fifty Times Worse, Warns Astronomer.](#)" *Forbes*, 16 October 2018.

~from Oct. 31, 2018 NIGHTWATCH E-NEWSLETTER of the International Dark-Sky Association

## The Artificial-Moons-on-Earth Blues

A few years ago the high-pressure-sodium streetlights in Oberlin began to be replaced with LED streetlights. The conversion is now complete, and the city is saving energy and money.

The fixtures of the new streetlights are full cutoff, with all of the light directed downward instead of sideways and upward.

You would think this should be a welcome development for amateur astronomers.

Why, then, does the clear night sky here lately seem brighter, with less contrast?

Of all wavelengths in the visible-light spectrum, the blue end of it scatters the most in the atmosphere, which is why the clear sky of day is blue; it's also why the clear sky of night in a city lit with bright blue-light LED streetlights is looking murkier. The new LED streetlights have a color temperature of 4000K, which contains much more blue than high-pressure sodium. They're also blindingly bright. Ideally, LED streetlights should be no more than about 2700K, but those cost more upfront, so they're not used; they should just be sufficiently bright for adequate safe visibility, but no brighter.

Climate-change activists, epitomized by the [350.org](http://350.org) people, are fighting the good fight to keep the global CO<sub>2</sub> level to below 350ppm. Even though putting a 2700K limit on LED outdoor lighting doesn't have the urgency of mitigating man-made climate change, it could at least help restore a more inspiring view of the night sky for the benefit of those of us who look into the vastness, not just into LED screens, in the Anthropocene.

~Bill Ruth