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The T.A.S. Spectrum is published monthly by the Texas Astronomical Society of Dallas. As always, we are looking for articles and photos from members. Not only do we want The Spectrum to reflect all of the activities of the club, but also to serve as an educational tool for new members and for those outside of T.A.S. who want to learn about astronomy and eventually join us.

The deadline for articles and information for the March Spectrum is February 29th.

Articles must be submitted as unformatted word documents (fonts, etc. will be changed as part of edit process) and should include pictures or diagrams. Pictures and diagrams should be at least 800 pixels wide and should be sent as separate files. Do note that graphics text in pictures do not scale well and may not be suitable for publication.

Note: astro advertisements by club members are also welcome.

For photos, please include your name, equipment used, and any other photo information you would like included.

All photos and illustrations included with articles should be those of the author and it should be noted as such.

If including photos/illustrations from other sources, please be sure that you have permission to use the material and list your sources.

The opinions expressed by the contributors to the Spectrum do not necessarily reflect the opinions of T.A.S. T.A.S. Members receive an electronic version of The Spectrum.

If you have questions about The Spectrum or want to submit an article or photographs please contact: TASSpectrumEd@gmail.com

CONTRIBUTORS THIS MONTH:

Gary Carter
Frank Castanho
Chaz Hafey
Dave Hutchison
Kelley Miller
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Title page banner (page 1) photo is by Andy Cheng. Title header and other banner or title photos, unless noted otherwise, are by Dave Hutchison or Maggie Hutchison
Mark your calendars for the General Meeting Friday, February 28th, 2020. This month’s guest speaker is an accomplished amateur astronomer and author, Robert Reeves. Over fifty-seven years Robert’s body of work has been published in Sky and Telescope, Astronomy, Deep Sky, Deep Sky Journal, Amateur Astronomy, and The Astrograph. He has also authored several books on the subject of astrophotography beginning with techniques using film and his transition into digital imaging. Luna being a favorite target, Robert has been exploring the moon since 1958. He recalls taking his first lunar photograph in 1959. In 1975 he acquired a Celestron 8 telescope, which he still uses today. Reeves also uses a Celestron 11, a Sky-Watcher 180mm Maksutov, and a 20-inch Sky-Watcher Stargate Dobsonian telescope for lunar photography from his Perspective Observatory located in central Texas. He recently acquired a Celestron C14 that he uses for his deep sky astrophotography pursuits. Robert will be sharing one of his passions, re-popularizing the Moon within the amateur astronomy community. He has perfected image processing techniques that allow the amateur astronomer, using modest equipment, to exceed the quality of earth-based professional lunar photographs taken during the Apollo era.

The following Saturday, February 29th is our first “5th Saturday” of 2020. We are organizing a Beginners Astronomy event up at the Atoka Dark Site. If you are new to the hobby, new to TAS and have not yet visited our Atoka facilities, or you are simply a member looking for some camaraderie while observing the night sky, please feel free to join us for a night of observation at the Dark Site. Maybe you received a new telescope for Christmas and have not yet ventured out to a remote site to use it? No problem! Veteran TAS members will be on-hand to provide a guided tour of the premises, provide assistance setting up your equipment, and will provide an introduction to the Winter night sky. This will be a potluck affair – bring your favorite snacks and goodies to share. The Bunkhouse is first-come, first served. Tent-camping and car camping is also supported. The water is off for the winter, so bring wet-wipes, a jug of water and some soap, or other means of washing hands. Keep an eye out for the official notification via Constant Contact.

The fundraiser for the new bunkhouse is progressing well. To date we have raised $10,988 with additional $7000 pledged in support of the Bunkhouse project. Glenn Fitzgerald, our Site Manager and Project Lead is busy securing formal quotes for the structure, concrete, electrical, and HVAC for review during our February BOD meeting and at the February General Meeting. We expect to be ready to present the final package for a vote of approval by the General Membership at the March General Meeting. Look for the formal project plan either in person at the February General meeting. This project plan will also be published in the March Spectrum Newsletter. If you have not yet contributed to the Bunkhouse fund please consider donating to the cause. This facility will be an asset to the club for decades to come. Your contribution will help us see this project come to fruition! The TAS Home Page now has a donation tab to make it easy to donate to the TAS mission and capital projects.

As many of you are aware our Amateur Telescope Makers Special Interest Group (ATMSIG) has been idle since Tom Noe of Teleport sold his shop in Wylie and relocated to Washington. I would like to find a location to re-convene the ATMSIG operations and am looking for others who might be like minded. The ATMSIG group has a number of talented individuals available, and I have received several requests for support and assistance where our talents are could be utilized. Pending requests include observatory design, optical tube assembly and mount construction, constructing and installing accessories, troubleshooting mount issues, and simple maintenance tasks like cleaning optics and OTA collimation. If you are interested in brainstorming this challenge with me please let me know. I would like to start with folks that are interested in supporting the concept and identifying a place to conduct our meetings.

I hope to see you at one of our February events!

Clear skies!

Announcements

LOANER SCOPE PROGRAM

The Texas Astronomical Society in the past has had a loaner scope program and I am happy to announce that we have restarted this program. We are currently providing the following telescope on a monthly loan:

A Meade LX90 8” SCT & Mount, 497 Controller and coiled cable, 8x50 Straight thru finder scope. Along with a Scope kit which contains the following: Eyepieces 6.4mm, 9.7mm, 12.4mm, 15mm, 20mm, 26mm, 32mm, 40mm, 1.25” Diagonal, 1.25” Visual back and an Observers Flashlight.


If anyone is interested in borrowing this equipment then please contact the current T.A.S. Treasurer Dennis Wardell at treasurer@texasastro.org or in person at our regular T.A.S. club meetings.

– Dennis Wardell

Robert Reeves to Speak at TAS General Meeting on February 28

Mark your calendar to hear astronomer and lunar photographer Robert Reeves speak at the TAS General Meeting on February 28 at 7:30 pm.

Robert has been an astrophotographer for more than fifty years, and has written numerous books on the subject, including Wide Field Astrophotography, published in 2000 by Willmann-Bell, Introduction to Digital Astrophotography, published in 2005, and Introduction to Webcam Astrophotography in 2006. He has also published more than 250 articles in astronomy magazines such as Astronomy Magazine, Amateur Astronomy, The Astrograph, The Reflector, and others.

Robert is a fixture at the most of the big star parties, including the Texas Star Party, arranging the keynote speaker, managing the group photo, and running the astrophotography contest. In a return to deep sky astrophotography, Robert recently acquired a Celestron C-14 with HyperStar.

Don’t miss the chance to hear one of the field’s foremost authorities on the geology of the Moon and discover the fascinations of our planet’s nearest cosmic neighbor.

Photo: Celestron.com
Many of us are familiar with at least one member of this constellation. For early in the evenings in January, Alpha Aurigae raises in the east and it is bright and always draw attention. This star is better known as Capella and is one of the brightest stars in the northern hemisphere. On a particularly clear night at Atoka, I’ve been known to complain about this star being a form of light pollution. At magnitude -0.50, it’s the 6th brightest star in the heavens, and it is the furthest north of the top ten brightest stars. As much as I complain about it being too bright and disturbing my view of the winter Milky Way, I also love how in the early evening at our dark sky site in Atoka, it shimmers beneath the trees. A white diamond on the horizon that will keep us company throughout the night.

Brightness is not the only thing to note about Capella. It is also a close binary consisting of two giant G-class stars. Don’t try to resolve these stars with your telescope. So far, no one has been able to do so. We know that it is a binary by looking at the Spectrum. The orbital period is 104.02 days.

For those of us who plan on staying around for another couple of million years, these two stars are in the process of becoming red giants. Imagine the fireworks and eventual nebula that going to be at this location in the very distant future.

Another double star in Auriga that is worth looking at is Theta Aurigae. Some may know this star by its Arabic name Al-Mi’sam which translates to “wrist”. This star(s) is one of my favorites. First, there is some good color contrast in this star. The primary star will appear white. But the secondary star is very yellow in comparison. Second, the two stars are separated by about 3.5 arc-seconds. A typical night of good seeing in our area will allow you to resolve 2.5 arc-seconds. The separation of this star system can thus be used as a way to determine how good your seeing is for the night. If you can resolve the star system, your optics and the sky are in good shape. On such nights, pull out the web cam and try to get some good pictures of Jupiter. If you can’t resolve this star system, either fix your optics, or get the binocs out and enjoy a crystal clear night with turbulent skies that can only happen after a blue norther.

When I think of Auriga, one thing comes to mind, open clusters. This constellation is loaded with them.
knew there were a lot of Messier open clusters here, but when I prepared for this column, I was amazed at how many other open clusters are also here. A big reason for the number of open clusters is the fact that this constellation covers a good part of the Milky Way.

Before we go further, let's review some things about open clusters. Unlike globular clusters, open clusters are much more random. Globular clusters have a defined central core. Furthermore, globular clusters are spherical. Open clusters typically are not symmetrical and their cores are not as concentrated. In many cases, it's just a denser group of stars.

Robert Trumpler came up with a method to classify open clusters which is still used today. This method uses a Roman numeral to specify the concentration of the stars. The range of brightness is identified with a simple number. Last, the total number of stars in the cluster is identified with a 'p', a 'm', or a 'r'. Sometimes you will see a 'n' added to the classification. This is to signify some nebulosity. (Reference the inset for additional details) As you might guess, most of our remaining objects this month will be open clusters. But don't despair, some have nebulosity associated with them so there should be something for everyone in this list. Let’s start with the Messier open clusters. M36, M37, and M38. All three of these clusters make for wonderful objects in binoculars or a small aperture scope. M36 (NGC 1960) is sometimes referred to as the ‘pinwheel cluster’. If you look at this cluster with moderate magnification, you may note a pinwheel like pattern with the brighter stars of the cluster. This cluster has a rating of Trumpler type I,3,m signifying that it is fairly concentrated, with a good number of stars having a wide range of magnitudes. Most of the stars in the cluster are fairly young (similar to M45) and as such, there is not much color contrast among the stars in this cluster.

Compared to M36, M37 (NGC 2099) is much brighter. On a really good night in Atoka, I am able to see this cluster naked eye using averted vision. Look at it with binoculars, and you will note that this is definitely a cluster. Increase the magnification a little, and you will be able to resolve all the stars. Depending on where you look, the Trumpler type for this cluster is either I,1,r or I,2,r. The last of the Messier objects in Auriga is M38 (NGC1912). M38 is also an open cluster. The Trumpler class for this cluster is listed as II, 2, r.

The Messier clusters tend to be fairly easy to see. There is an obvious concentration of brighter stars in an area. Some of these next clusters are a bit more difficult to make out. Remember, the Milky Way winds its way through Auriga. What makes these clusters a little more difficult is that they are fainter. As such, many of the stars sort of mix in with the rest of the Milky Way. Three clusters to take a look at are NGC 1907, NGC 1664, and NGC 1857.

NGC 1907 is a cluster that can be easily found with an 8-in telescope. It has a Trumpler classification of I,1,m,n. The 'I' classification says that its fairly concentrated and thus this is the easiest of the three to see. Also, there are two fairly bright stars in this cluster that really help with locating the cluster. Note that the classification has a 'n' attached to it. The 'n' signifies that there is some nebulosity associated with this cluster. I was unable to observe this visually, however.

NGC 1664 has a Trumpler classification of III,1,p. The 'III' indicates that this cluster is not very

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### The Trumpler Classification System

**Degree of Concentration**

I. Detached clusters with strong central concentration.
II. Detached clusters with little central concentration.
I. Detached cluster with no noticeable concentration.
II. Clusters not well detached, but has a strong field concentration.

**Range of Brightness**

1. Most of the cluster stars are nearly the same apparent brightness.
2. A medium range of brightness between the stars in the cluster.
3. Cluster is composed of bright and faint stars.

**Number of Stars in Cluster**

p. Poor clusters with less than 50 (fifty) stars.
m. Medium rich cluster with 50-100 stars.
r. Rich clusters with over 100 stars.

Compared to M36, M37 (NGC 2099) is much brighter. On a really good night in Atoka, I am able to see this cluster naked eye using averted vision. Look at it with binoculars, and you will note that this is definitely a cluster. Increase the magnification a little, and you will be able to resolve all the stars. Depending on where you look, the Trumpler type for this cluster is either I,1,r or I,2,r. The last of the Messier objects in Auriga is M38 (NGC1912). M38 is also an open cluster. The Trumpler class for this cluster is listed as II, 2, r.

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NGC 1664 has a Trumpler classification of III,1,p. The 'III' indicates that this cluster is not very
concentrated at all. I found that scanning the area with a low power eye-piece was the best way to locate the object. There is a magnitude 7.5 star in the field (SAO 38807) that helps you find the cluster. After you locate it, increase the magnification a little. I was able to count 35+ stars that appeared to be a part of this cluster. This is a fun cluster to look at. As you observe, see what patterns start to show up. I saw a bit of an ‘S’ shape among the brighter stars.

Last, NGC1857 is an open cluster with a classification of I,3,m. Another magnitude 7.5 star (SAO 57903) leads the way to finding this cluster. This cluster appeared to have more stars than NGC1664. I was able to make out at least 45 or so with my 13-in scope.

We have two photographic objects this month, IC 405 (the Flaming Star Nebula) and IC 410 (NGC1893). To find these nebulae, start with Capella. Travel approximately 10 degrees (the width of your fist) due south. In the case of IC 410, you also have an open cluster to view (NGC1893). The extra stars there help with locating some mild nebulosity. I have personally never visually observed IC 405. Looking through some observing logs, I believe it is possible to view these nebulae visually without the aid of a camera. Find a dark sky, bring some aperture, use low magnification, and maybe try out your OIII filter. Let me know what you find.

This month, we have two challenge objects to view. We will start with UGC 3374 which is a spiral galaxy. It is also listed among the Seyfert Galaxies and is thus an unusually active galaxy. The galaxy is not far off from Beta Aurigae. At magnitude +12.57, this galaxy will be a challenge for many. Luckily it has a fairly bright and dense central core thus this galaxy should be viewable by those that have some considerable aperture. Iiro Sairanen of Finiland has a very interesting observing note as well as a sketch of what he saw when viewing this galaxy. (http://personal.inet.fi/surf/deepsky/havaintougc3374.htm)

As Iiro noted, there is also an interesting planetary nearby. IC 2149 is described as “bright and easily visible, appearing round and nearly stellar” by Sky Safari. I am not sure if I agree with the assessment, however. This object is difficult because at low magnifications, this object looks like a dim, +11 magnitude star. It is because of this that you need to be absolutely sure you know where you are located in the sky. Once you bring magnification up to about 150x, you are able to note a small amount of nebulosity. This nebula has a bit of an egg shape to it as viewed through my 16-in Dobsonian. The true nature of this nebula was captured by the Hubble Space Telescope. As you can tell, it is a little less than round in shape.

Next month, we will visit Canis Minor, the little dog. Until then, remember to observe 10 a month and give 10 thumbs up to Chaz and Dennis.

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<thead>
<tr>
<th>Object</th>
<th>Type</th>
<th>Mag.</th>
<th>R.A.</th>
<th>Dec.</th>
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<tr>
<td>Theta Aurigae</td>
<td>Double Star</td>
<td>+2.65, +7.20</td>
<td>06h 00m 45.20s</td>
<td>+37d 12m 35.6s</td>
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<tr>
<td>M 36 (Pinwheel Cluster)</td>
<td>Open Cluster</td>
<td>6.00</td>
<td>05h 37m 18.26s</td>
<td>+34d 08m 21.3s</td>
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<tr>
<td>M 37</td>
<td>Open Cluster</td>
<td>5.59</td>
<td>05h 53m 17.49s</td>
<td>+32d 33m 00.1s</td>
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<tr>
<td>M38 (Starfish Cluster)</td>
<td>Open Cluster</td>
<td>6.40</td>
<td>05h 29m 41.11s</td>
<td>+35d 50m 31.4s</td>
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<tr>
<td>NGC 1907</td>
<td>Open Cluster</td>
<td>8.19</td>
<td>05h 29m 05.83s</td>
<td>+35d 19m 32.1s</td>
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<tr>
<td>NGC 1664</td>
<td>Open Cluster</td>
<td>7.59</td>
<td>04h 52m 11.21s</td>
<td>+43d 41m 20.2s</td>
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<tr>
<td>NGC 1857</td>
<td>Open Cluster</td>
<td>7.00</td>
<td>05h 21m 08.99s</td>
<td>+39d 20m 42.6s</td>
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<tr>
<td>IC 410</td>
<td>Nebula</td>
<td>10.00</td>
<td>05h 23m 35.86s</td>
<td>+33d 31m 39.3s</td>
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<tr>
<td>IC 405 (Flaming Star Nebula)</td>
<td>Nebula</td>
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<td>05h 17m 12.19s</td>
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<tr>
<td>IC 2149</td>
<td>Planetary Nebula</td>
<td>10.60</td>
<td>05h 57m 31.54s</td>
<td>+46d 06m 11.5s</td>
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<tr>
<td>UGC 3374</td>
<td>Spiral Galaxy</td>
<td>12.57</td>
<td>05h 56m 01.45s</td>
<td>+46d 26m 18.6s</td>
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March Meteors

The International Astronomical Union (IAU) has a list of over 800 different meteor showers that have been observed and proposed that you can find [here](#). Only some of them are highlighted here in this article.

**gamma Normids (118 GNO)**
- **Active from February 25–March 28**
- **Peak night March 14-15**
- Radiant: RA = 16h 24m, Decl = −50°
- ZHR = 6
- Velocity: 56 km/s
- Parent Object: unknown

Recent video and visual plotting information confirmed activity from that region, but an analysis of video data obtained only from locations south of the equator has indicated that the activity occurs preferentially around March 25 instead, from a radiant at RA = 246°, Decl = −51°. The situation requires data to clarify the GNO activity issue. Post-midnight watching yields better results, when the radiant is rising to a reasonable elevation from southern hemisphere sites. Moonlight disturbs the March 14 period (gibbous waning) while the possible March 25 timing occurs close to new Moon this year.

**March 2020 Astronomical Events**

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<tr>
<td>2</td>
<td>8</td>
<td>8</td>
<td>Aldebaran 3.3S of Moon</td>
<td>18</td>
<td>8</td>
<td>8</td>
<td>Pluto 1.0N of Moon Occn</td>
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<td>2</td>
<td>13</td>
<td>57</td>
<td>FIRST QUARTER</td>
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<td>18</td>
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<td>Saturn 2.2N of Moon</td>
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<td>19</td>
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<td>Moon furthest North (23.5)</td>
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<td>49</td>
<td>Equinox</td>
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<td>5</td>
<td>16</td>
<td>5</td>
<td>Pollux 5.0N of Moon</td>
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<td>20</td>
<td>14</td>
<td>Mars 0.7S of Jupiter</td>
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<td>21</td>
<td>Regulus 3.6S of Moon</td>
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<td>20</td>
<td>14</td>
<td>Mercury 3.4N of Moon</td>
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<td>8</td>
<td>6</td>
<td>22</td>
<td>Neptune at conjunction</td>
<td>22</td>
<td>20</td>
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<td>Neptune 3.8N of Moon</td>
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<td>8</td>
<td>13</td>
<td>22</td>
<td>Venus 2.2N of Uranus</td>
<td>23</td>
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<td>Mercury greatest elong W(28)</td>
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<td>9</td>
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<td>23</td>
<td>Mercury stationary</td>
<td>24</td>
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<td>NEW MOON</td>
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<td>47</td>
<td>FULL MOON</td>
<td>24</td>
<td>8</td>
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<td>Moon at perigee</td>
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<td>Moon at apogee</td>
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<td>Venus greatest elong E(46)</td>
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<td>LAST QUARTER</td>
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<td>17</td>
<td>Uranus 3.8N of Moon</td>
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<td>29</td>
<td>Mars 0.8N of Moon Occn</td>
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<td>Aldebaran 3.4S of Moon</td>
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<td>Jupiter 1.6N of Moon</td>
<td>12</td>
<td>12</td>
<td>9</td>
<td>Mars 0.9S of Saturn</td>
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**Sources** - American Meteor Society and International Meteor organization

**Waz Up?**

By Chaz Hafey
Comets:
Comet brightness can change so quickly that the printed word (or electronic newsletter) can become outdated even before it is published. So I have not included comet information here but I do have some websites for you to try for comet up to date information.

https://in-the-sky.org/comets.php
http://www.aerith.net/comet/weekly/current.html
http://www.aerith.net/comet/future-n.html

Fireballs or bolides (bright meteors):
https://www.amsmeteors.org/

Satellites:
https://www.heavens-above.com/ (knowing your exact latitude, longitude and elevation will give you very accurate results)

Aurora:

Solar Activity:

Starmaps
Free astronomy computer program - http://www.stellarium.org/

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Occultation Legend:
- Phenomena – d or D means a disappearance, r or R means a re-appearance, m – means a near miss occultation, Gr means the star will graze the side of the moon
- StarNo – Star XZ identification number
- Magv – visual magnitude
- %illum – percent illumination of the moon, positive numbers is waxing moon, negative numbers is waning moon
- SunAlt – sun’s altitude in degrees, if positive then sun is above horizon
- MoonAlt – moon’s altitude in degrees
- MoonAz – Moon’s azimuth in degrees
- CAdeg – CuspAngle – how many degrees away from the terminator where the event occurs, N– means northern side of moon, S – means southern side of moon, negative numbers mean the bright side of the moon, positive means dark side of moon
March 8, 2020 – conjunction Venus and Uranus

March 18, 2020 – conjunction Mars, Jupiter and Moon

March 21, 2020 – conjunction Mercury and Moon

March 25, 2020 – conjunction Jupiter, Saturn and Mars

March 28, 2020 – conjunction Venus, Moon and Pleiades

March 31, 2020 – conjunction Saturn and Mars
**T.A.S. Board of Director’s Meetings**

The Board of Directors meetings are held at 2pm the Sunday before the General Meeting. All T.A.S. members are welcome to attend. The current location is:

The Community Room, located in: Fire Station #2
1200 Stacy Road, Fairview, Texas 75069

*NOTE: if you would like to attend, please verify the date/time & location by emailing one of the officers

**Next General Meeting:**
February 28, 2020, at 7:30pm
UTD in Richardson
Speaker: Robert Reeves
Topic: The Moon
T.A.S. holds 4 regular monthly Star Parties where our members get together to observe and educate about the night sky. Come join us to look at planets, stars, and other celestial wonders. The monthly Star Party schedule includes:

- StarGeezer's Star Party: Spring Park in Garland; first Saturday of each month. Second link
- Frisco Starfest: Frisco Commons Park in Frisco; second Saturday of each month.
- Cedar Hill Starbolt: JW Williams Park in Cedar Hill; Third Saturday of each month.
- Stars on the Rock: The Shores Park in Rockwall (New Location); fourth Saturday of each month.

T.A.S. holds a variety of other public outreach events. For the most up-to-date information, please visit the TAS Calendar of Events on the Texas Astronomical Society webpage:

Please Remember to call the TAS public observing hot line to check on the status of any T.A.S. event on the calendar by calling (214) 800-6000 on the day of the event to be sure the event has not been canceled or rescheduled.

REGIONAL OBSERVING OPPORTUNITIES

Three Rivers Foundation
Comanche Spring Astronomy Campus Crowell, Texas

3RF hosts two to three star parties each month at the Comanche Springs Astronomy Campus. They also welcome volunteers. The star party dates can be found here. For more information about the Three Rivers Foundation Comanche Springs Astronomy Campus, click here.
APSIG (Astrophotography Special Interest Group)
The APSIG is led by Frank Castanho and meets once a month on the first Tuesday of each month, from 6pm-8pm, at the TimberGlenn Library in Carrolton. This group meets to discuss the latest in the art and science of Astrophotography. Each meeting includes a talk about the subject for the month and includes sharing astro photographs. At the conclusion of the meeting, the group frequently moves to the local ‘Mi Cocina’ to finish the night on a high note.

For more information, follow this link

ATMSIG (Amateur Telescope Makers Special Interest Group)
The ATMSIG is currently in transition. It’s purpose is to explore the design, construction and adjustment of both do it yourself and professionally built telescopes. Anyone interested in building their first scope will find this group a big help in finding the best place to start. You don’t need to have a well equipped workshop, just a few simple tools and an interest in building or modifying it yourself. The ATMSIG is a wonderful place to see projects built locally by TAS members and to share new ideas for the future!

For more information about the group, please contact Gary Cater.

SciSIG (Science Special Interest Group)
Science with Scopes
Purpose: to generate excitement about doing amateur science. The group meeting monthly at the cafe at the Plano Central Market. Please contact Dave Hutchison for more information, if you would like to join the fun!

HAMSIG (HAM radio operators Special Interest Group)
HAMSIG was revived by Joe Lalumia and features Sky- net on the DARC repeater (146.88 MHz PL tone 110.9) on Saturday nights, starting at 9 PM. More Hams and astronomers are welcome to join in!

You do not need to be a licensed radio operator to lis- ten. From the www.w5fc.org website:

SKYNET!!!! 9PM CT – 10:30PM CT
2-Meter Repeater W5FC: 146.880MHz, PL 110.9, –
Echolink: W5FC-R, node 37247.
Youtube.com Search “DARC Skynet” Facebook.com Search “DARC Skynet”
Twitch.tv Search “KE5ICX”
Direct Video Link
Yahoo Group
Facebook Page
TAS BOD Meeting Minutes  
Date 1/19/2029  
Start Time 2:09 PM

Attendance:
Gary Carter  
Dennis Wardell  
Frank Castanho  
Dodie Reagan  
Matt Cooper  
Lloyd Lashbrook  
John Wagoner  

A Quorum was present

Agenda items:

1. Fill out Background Check Forms (those that have not completed them)

   Gary asked BOD/Leadership team for members who have not submitted the TAS volunteer Application form/Background Check request form to submit the filled-out form, currently Gary Need forms from 3 BOD members. Several other larger donations are pending approval of the Project, once pending donations are confirmed the club will start the Approval process for the Bunkhouse project. This project will need to be approved by the Members. A notice of a vote needs to be posted one month prior to the vote. The BOD will likely vote on proceeding with the approval process at the February BOD meeting.

2. Review status and next steps for the new bunkhouse at Atoka (Glenn Fitzgerald)

   Dennis Wardell has received $4780 toward the Bunk House Fund,

   Finalization of the Build Plan will need to be set prior to the February BOD

   Wheelchair ramps will be needed at each of the two entrances, Gravel will be needed to stabilize the pad and a driveway/walkway to the Bunkhouse. Pad size needs to be finalized. Glen will work with builder to determine the Hurricane strapping requirements.

3. Review Lease Pads requests. (John Wagoner)

   Four members have committed to build a pad on the Lease Site, these four requests exceed the minimum pour size, so this project will likely go forward in the near future (March).

   2 – 8’x8’, 1 – 10’x10’ * and 1 - 12’x12’ * have been requested. (* new lease sites)

4. Review status of and actions re: TAS PayPal Account (Dennis Wardell, Ed Flaspoehler)

   New PayPal account is up and running, this account is under TAS control instead of a member.

   Dennis now has a credit card reader. TAS is now capable of accepting TAS payments via credit card, note there is a 2.7 % fee associated with this payment method.

   PayPal fees have been reduced from 2.9% to 2.2% with the new account

   PayPal giving can be used for donations with no fee. PayPal giving can not be used for merchandise or membership fee.
5. Discuss Status of the request from St. Marks Alumni (Gary Carter)

   TAS need to discuss with TAS counsel Membership and Liability St Marks Members that are
   Minors. Parents of Minor will be required to be members. St. Marks needs to take full
   ownership of transporting to the TAS Atoka Site and agree to TAS requirements,

   Allen Stern and St Marks Alumni have contacted TAS, they have a desire to bring science
   back to St Marks and like to team with TAS to make this possible.

   No Dedicated assets for St Marks or special privileges, same privileges as normal members.
   Gary Asked the BOD for input on going forward with this effort.

   John Wagoner had strong desire to prevent this project from going forward due to past
   experiences with St Marks and issue with Minors being transported to Atoka across state
   lines. Gary to contact Allen Stern and St Marks to discuss past issues and state TAS will
   revoke memberships if similar issues arise. St Marks needs to have real objectives and
   method to determine is objective are being achieved.

6. Discuss next steps with respect to tagging and tracking TAS assets (Dennis Wardell)

   Glen Fitzgerald has the Tag, Gary Carter need Tags for equipment in his possession, Gary
   Will work with Glen.

   Full Asset Inventory will be required

   Gary is working with Insurance is renewed and understand what is covered and determine if
   TAS needs to Supply a inventory List to Insurance.

   High value assets that can not be tagged need to be kept in a notebook held by the Secretary
   info on location etc. need to be kept. Dollar Threshold for Asset Tag requirement was
   discussed, likely > $100

7. TAS IT Infrastructure updates/next steps (Ed Flaspoehler, Gabe Cardona, Luis Santana)

   New PayPal account needs to be setup in the Portal/Website to get this account up and
   running

8. Solicited proposed dates and times for a call with UTD 180DC.org

   Gary to Set up a Meeting to discuss this with the UTD 180DC.org group, Gary will send out
   teleconference info to BOD once meeting is setup.

9. Motion to remove appointee of JTAS/Kids Program Coordinator, Marvin Huddleston

   Gary asked for motion to remove appointee of JTAS/Kids Program Coordinator, Marvin
   Huddleston

   BOD discussed the issues brought up by Gary, and plans TAS plans for this program, likely
   needs to be coordinated with St Marks proposal. Gary Carter will appoint a new coordinator
   when appropriate.

   This is a TAS President Appointment and Gary will inform Marvin Huddleston with the decision
   replace him.

10. Review Prioritized List of Action Items from last year’s audit, assign Als (Gary Carter)

    1) Oklahoma tax filing cannot be verified, contact Tim Longwell for status

    Gary Carter to contact Tim Longwell about Oklahoma instate representation.

    2) Need to check with Texas and Oklahoma state comptrollers to verify TAS is following Non-
       Profit yearly/recurring reporting.

    Gary Carter will ask Carlton Crothers to contact Comptroller, Gary Will handle is Carlton is not
    able to take on this action

    Frank Castanho shall update Texas filling, Filing is due this year(every 4 years)

    3) Need to check with Atoka County on property tax status

    Gary Carter will ask Carlton Crothers to contact Comptroller, Gary Will handle is Carlton is not
    able to take on this action

    4) View Quickbooks reports, Non-Functional sub-account that persists in Quickbooks needs to
       be removed.

    Dennis will work with Carlton Crothers to remove this Quickbooks sub account.

    5) PayPal - New TAS owned account need to be opened –

       COMPLETED, needs to be integrated with TAS Portal/Website. (Closed)

    6) Dave Hutchison outgoing VP need to turn in his TAS credit card and be removed from the
       bank signature card

       Card was never activated; Maggie Hutchison will cut card up.

    7) Add Dodie Reagan (New VP) to bank signature card and get Dodie Reagan a credit card

       Dodie Reagan and Gary Carter needs to visit the bank to get on the Signature Card/Credit
       Card, Dodie also needs password to Vice President Email, Gabe needs to provide,

    8) Contact Insurance company and determine any requirements to maintain a list of TAS
       Atoka/TAS equipment with insurance company

       Gary Carter will discuss with insurance during the 2020 Insurance renewal

    9) Need to place Asset tags on TAS equipment, tags have been created

       Asset Tags created, Glen Fitzgerald to apply the tags to the Equipment.

    10) Need to keep Student and Life membership in separate categories in BOD reports
Luis Santana will set up Portal and BOD portal to track Lifetime members
Dennis Wardell update Quickbooks to Keep Lifetime members in a special account that earns
Students memberships are not showing up in the BOD membership report. Luis Santana will
be asked to create a separate BOD report for Student Sponsored Members.

11) TAS IT infrastructure, Services need to be improved, (committee is in place).
Ed Flashpoehler has made some improvements to the TAS Website and will continue this
effort, such as weather station.

12) Add TAS BOD members to Facebook moderator list.
Dodie and Gary have been handling moderation duties, Dennis Wardell asked for Facebook
moderator credentials

13) Twitter - check with Matt Cooper on status of TAS Twitter account access control
Gary Carter to discuss Matt Cooper to determine Status

14) Need to consider moving a backup copy of membership portal database to a cloud service
supporting non-profits.

Gary Carter to discuss With Luis Santana the options for setting this up

11. 2020 Event Planning proposals (All)
Messier Marathon and Ghost Hunt will be on the TAS 2020 Calendar.
Winter Star Gaze is a potential event.
Fifth Saturday Atoka Star Party Event will be continued for 2020.
Gary Carter Asked for inputs for BOD members for inputs on other possible TAS events,
AL Award nominations are due this month, Lloyd will look into possible nominations

12. 2020 TAS awards Banquet
Gary Made a motion to let Frisco Banquet Hall to hold on to the 2019 deposit to schedule the
2020 Banquet for December 5th 2020. Seconded by Dennis Wardell motion passed
unanimously. We lost our first Saturday preference in 2019, this will reserve our preference
and get in on the Calendar earlier.

Meeting was adjourned at 4:16 pm.

Reports from TAS BOD & Appointees

• President Report: Gary Carter: See Above
• Vice President Report: Dodie Reagan: Dodie has set up a Dinner with February Speaker Robert
  Reeves prior to his talk, Dodie to send out details to BOD members prior to event. Dodie will look into
  invitation Robert to the Fifth Saturday February 29th. January General Meeting speaker: Rob
  Pettengill; Topic Astronomy in Chile. February General Meeting speaker: Robert Reeves, Topic is
  the Moon.

• Treasurer Report: Dennis Wardell, Treasurer: Presented up to date financial reports, all accounts
  balanced as of end of October.
• Secretary: Frank Castanho: No report.
• Astronomical League Award Coordinator: Lloyd Lashbrook, Lloyd has several Awards to present at
  the January General Meeting
• Public Observing Coordinator: Matt Cooper stated the Public outreach has been going well,
  communications is greatly improved, Matt is happy with the new communication approach he has
  been using.
• Lease Site Coordinator John Wagener is ready to pour 4 New Concrete Pads.
• Membership Coordinator: Luis Santana No Report
• Site Manager: Glen Fitzgerald: No Report
• Librarian Report: No Report
• Spectrum: Maggie Hutchinson: No Report but Maggie needs input for the Spectrum. Maggie needs
  information about TAS events such as Messier Marathon, well before the event so get the info out as
  early as possible. Maggie need Messier Marathon info by end of January, Gary to ask for volunteers
to lead Messier Marathon at the next General meeting.
• Historian: Gary Carter: No report
• JTAS: Marvin Huddleston: No Report
• Observatory Stewart: No Report
TAS General Meeting Minutes  
Date: 01/24/2020  
Start Time: 7:30 PM  

Approximately 65 in attendance  

Gary Carter and the General Membership welcomed nine new members and guest. Several new members and guests introduced themselves.

1. Program  

Dodie Reagan introduced and welcomed the TAS January’s General Meeting speaker, Rob Pettengill, Ph.D. the topic of Rob’s presentation was “2019 Astronomy in Chile Educator Ambassadors Program (ACEAP) Expedition to Chile, it takes a global village”. (See BadAstroPhotos.com for Rob’s Website)

2. Announcements  

• Dennis Wardell had TAS sweatshirts available for members who order them and had several unsold sweatshirts for sale in limited sizes available for members who didn’t get a chance to order one, if Dennis doesn’t have your size available, special orders can be taken. TAS Sweatshirts are $25

• Gary Carter discussed the progress toward the fund-raising effort for the proposed new Atoka Bunkhouse Project. Bunk House fund raising is looking strong. Gary stated a General Membership vote to approve TAS funding and approval to proceed with the bunkhouse project will be conducted during the March General Meeting. A presentation of the proposed plan/cost breakdown will be presented to the membership prior to the vote. Gary Carter went over the funding effort we have $10,900 in hand and pledges for an additional $7000 from members, total cost is estimated at $26,000, TAS will fund the remainder of the balance if approved by members.

• TAS now can receive Payment/Renewal/ New Membership fees via credit card at the meetings. See Dennis Wardell to submit a credit card payment.

• Gary Presented Award to TAS members Maggie and Dave Hutchison received the double star award for all their hard work volunteering for TAS. Gary Presented the President’s award to Frank Castanho for his efforts the BOD and APSIG group. The presidents chair was presented to Frank, chair will stay in his position for 2020. Gary had several other awards to present but members where not present, awards will be presented at future meetings.

• Lloyd Lashbrook had several awards to present but members where not present. Lloyd encouraged members to participate in a AL observing program.

• A PayPal TAS donation button has been added to the TAS website. These donations are tax deductible and have no fee.

3. Reports:  

• President – Gary Carter: See Announcements above  
• Vice President – Dodie Reagan: Robert Reeves will be giving a presentation on the Moon to TAS February General Meeting.

• Treasurer – Dennis Wardell: TAS savings and checking balances to the membership. Dennis reminded members to sign up TAS to your Tom Thumb or Amazon Smile rewards program.

• Secretary - Frank Castanho: No report. Minutes are posted in the TAS Spectrum.

• Membership Coordinator - No Report

• Membership Badges contact Dennis Wardell if new badge is needed or desired. $5 for new graphics badge, normal member badges are free. Dennis had badges available for members who have requested them.

• Public Outreach Coordinator – No Report, see TAS calendar for events  
• Lease Site manager —John Wagoner – No report  
• Dark Site Manager – Glen Fitzgerald: Dark Site is looking good, Glen reported about 6 people attended the winter observing the event at the Dark Site,  
• Observatory Steward – Dave Hutchison: No report  
• Astronomical League coordinator - Lloyd Lashbrook: No report.  
• Librarian ---Kelly Miller: We have many books for members to borrow  
• Spectrum — Maggie Hutchison requested articles/photos for the spectrum  
• APSIG – Meets first Tuesday at the Timberglen library from 6 to 8 PM, next Meeting Feb 4th.  
• SCISIG : No report.  
• ATMSIG : No report  
• HamSig : HAMSIG SKYNET meets every Saturday night at 9 pm 146.88 MHZ PL tone 110.9 or http://www.w5fc.org  
• IDA, Night Sky Network: No Report.

4. Constellation of the Month  

Chaz Hafey and Dennis Harwell presented the Constellation of the Month for December and January. December’s Constellation of the month was Aries.  

January’s Constellation of the Month is Orion.

General Meeting adjourned at 10:18 PM

Texas Astronomical Society of Dallas
About T.A.S.

### Officers

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<tr>
<th>Position</th>
<th>Name</th>
<th>Email</th>
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<tr>
<td>President</td>
<td>Gary Carter</td>
<td><a href="mailto:president@texasastro.org">president@texasastro.org</a></td>
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<tr>
<td>Vice President</td>
<td>Dodie Reagan</td>
<td><a href="mailto:vp@texasastro.org">vp@texasastro.org</a></td>
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<td>Secretary</td>
<td>Frank Castanho</td>
<td><a href="mailto:Secretary@texasastro.org">Secretary@texasastro.org</a></td>
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<td>Dennis Wardell</td>
<td><a href="mailto:Treasurer@texasastro.org">Treasurer@texasastro.org</a></td>
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<td>Larry Ammann</td>
<td>Matt Cooper</td>
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<td>Matt Cooper</td>
<td>Carlton Crothers</td>
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<td>Lloyd Lashbrook</td>
<td>Grady Muldrow</td>
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<td>John Wagoner</td>
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<tr>
<td>Membership Coordinator/ALCOR</td>
<td>Luis Santana</td>
<td><a href="mailto:Membership@texasastro.org">Membership@texasastro.org</a></td>
</tr>
<tr>
<td>Librarian</td>
<td>Kelley Miller</td>
<td><a href="mailto:mayor@kelleytexas.com">mayor@kelleytexas.com</a></td>
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### Other Positions

- **Dark Sky Site Manager**
  - Glennn Fitzgerald

- **Lease Pad Coordinator**
  - John Wagoner  astrowagon@gmail.com

- **Public Observing Coordinator**
  - Matt Cooper  tasobserving@gmail.com

- **Observatory Steward**
  - Dave Hutchison

- **Historian**
  - Gary Carter

- **Astronomical League Awards Coordinator**
  - Lloyd Lashbrook

- **Website/OMMS/Forums/I.T.:**
  - Gabe Cardona, Luis Santana, Ed Flaspoehler

- **Membership Engagement:**
  - Bill Butt
Purpose:
The Society was chartered in 1955. The purpose of this organization is to promote interest and research, and to give instruction, in the science of astronomy and related disciplines

Information Packet and Membership Application:
The T.A.S. Information Packet and Membership Application is available for download in PDF format. To view this document you will need Adobe Acrobat reader. If you haven't already, download your free reader now from Adobe. Visit the TAS website for more information.

Membership:
Membership is open to anyone having an interest in astronomy and related subjects. Annual dues are $50 (individual); add $4 for each additional family member. The dues include subscriptions to The Spectrum and The Reflector. You may apply online to join.

Meetings
Meetings are held on the FOURTH FRIDAY of every month (except, November and December) at The University of Texas at Dallas campus in Richardson. The meeting begins at 7:30 PM in the Science Learning Center building- SLC on the campus map.

PARKING: SEE THE MEETING NOTICE PAGE FOR IMPORTANT PARKING INFORMATION.
Click here for a campus map. You can also click here to get a google map

If you are a visitor, or if this is your first meeting, please check in at the New Members & Visitors table set up outside the conference room. The table will be set up at 7:00pm. The meeting includes programs presented by members or guest speakers and a slide show of the current “Constellation of the Month.”

Summary of Benefits:
Unlimited access to the club’s observing site near Atoka, Oklahoma. This site includes:
- Restroom facilities
- Running water (except during winter months) • Solar heated shower
- Space for overnight camping
- Dark, smog-free skies
- Available to members at all times
- The Spectrum, the T.A.S. monthly newsletter. • The Reflector, the Astronomical League quarterly national newsletter.

Various Special Interest Groups (SIGS):
- APSIG - Astrophotography
- ATMSIG - Amateur Telescope Makers
- Public Observing
- HAMSIG - HAM Radio operators
- SciSIG - citizen science

Monthly meetings with slide shows, films, guest speakers, beginners talks, equipment displays, flea markets for equipment, and an extensive astronomical library with books, slides, and charts available for loan.

Advice and help from other club members on building and purchasing telescopes, using binoculars, observing celestial objects, astrophotography, computer applications ...and much more!!

For more information, or to request an Information Packet and Membership Application, contact TAS at Apply Online to join.

E-Mail: info@texasastro.org