

# SIDEREAL TIMES

Austin Astronomical Society  
keeping astronomy weird since 1969

## MONTHLY MEETING

Friday, November 9, 2018  
ETC 2.136 - UT Campus  
Engineering Teaching Center  
Dean Keeton and Speedway

## NO PRACTICAL ASTRONOMY

7:30 PM  
GENERAL ASSEMBLY

### Featured Speaker

**Renee James**

Where Spacecraft Go to Die  
(More info page 11)



## PRESIDENT'S NOTES

By Tim Brown, President

The weather has been uncooperative in the extreme leading to the cancellation of many outreach and member events. In fact, the Eldorado Star Party (ESP), which our club sponsors, is being held hostage to the unseasonably wet and unpredictable weather this week.

Despite unpromising skies I'll be at ESP this Friday and Saturday to represent our club and present AAS's donation to Saturday's raffle – a Baader Planetarium Hyperion Mark IV 8-24mm zoom. If you're not already there or on the way soon you're too late for this year's event but put it on your calendar for next year. ESP is a nice size, smaller than the Texas Star Party but much larger than our club's annual CTSP.

Now in its 16th year, the **ESP** is supported by the **San Antonio Astronomical Association**, the Hill Country Astronomers and the **Austin Astronomical Society**. ESP is made possible by the volunteer efforts of Anne Atkins and Dave Clark among others. Read the full story at <http://eldoradostarparty.org/welcome/>

Our lousy early Fall weather has caused the cancellation of both of our October events – Oct 10th at Pedernales State Park and AUTS Oct 13th at Saint Stephens. Keep your fingers crossed and come out to this Saturday's public star party at Inks Lake. Check the website <http://www.austinastro.org> for information and updates.



Sidereal Times  
Vol. 50 No. 11

<http://www.austinastro.org/>

Sidereal Times is the official monthly publication of the Austin Astronomical Society.

Banner: Oct. 2018 Image of the Month: Sadaf Syed - Sequoia National Park Nightscape



## PRESIDENT'S NOTES CONTINUED

### MONTHLY MEETING

#### **No Practical astronomy session this month**

Friday, November 9, 2018 ETC 2.136 - UT Campus Engineering Teaching Center Dean Keeton and Speedway.

This month's topic is presented by author and professor, Dr. C Renée James. A great topic and a fascinating speaker. Don't miss it.

#### Where Spacecraft Go to Die

Inspired by Kepler's recent death (it's not quite dead!), I began thinking about all the different planetary missions and how they met their ends. There were the murders (Cassini, Magellan), the catastrophic accidents (Mars Climate Orbiter), and the slow fades to old age (Kepler, Pioneer, Voyager). We've had so many amazing missions, and they've had such a variety of interesting deaths.

**Annual Holiday Party December 14th -details will be posted on the website**

#### Volunteer

AAS's success depends on the willingness of all members to pitch in. Volunteer to help with the activity that most interests you or that you think most needs improvement. Contact the EC member in charge of your area of interest and get involved. You are needed.

Clear Skies,

Tim

*"For my part, I know nothing with certainty, but the sight of stars makes me dream". (Vincent Van Gogh)*

## INSIDE THIS ISSUE

- |     |                                      |       |   |
|-----|--------------------------------------|-------|---|
| 1-2 | President's Notes                    | 12-13 | EC Minutes                              |
| 4-5 | Observing Targets                    | 14-15 | Communications Report                   |
| 6   | November's Dance of the Planets      | 16    | GA Minutes                              |
| 7-9 | Image Of The Month & Members Gallery | 17    | Treasurer's Report                      |
| 10  | Outreach Report                      | 18    | Membership Cards<br>Welcome New Members |
| 11  | GA Guest Speaker                     | 19    | Joining AAS                             |
|     |                                      | 20    | Officers and Contact Info               |

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## AAS AFFILIATIONS



<http://darksky.org/>



<https://www.astroleague.org/>



<https://nightsky.jpl.nasa.gov>



<http://www.tsgc.utexas.edu/>



# NOVEMBER OBSERVING TARGETS

By Brian Cuthbertson

If you're an observer, this is the season of North versus South. North is the Milky Way. Not the summer Milky Way, mind you: this season's Milky Way crosses through constellations like Auriga, Pegasus and Cassiopeia up near the pole. These constellations mark the Milky Way's thinning outer rim, not its crowded center. Even so, you can still find examples of typical Milky Way denizens there, and a few those are our targets below. On the other hand, South is intergalactic space. If galaxies are your game, just drop down to Aquarius, Pisces, Cetus, Eridanus and friends: the window is wide open to enjoy!

## **M103=NGC 581 rating: EASY**

**open cluster in Cassiopeia**

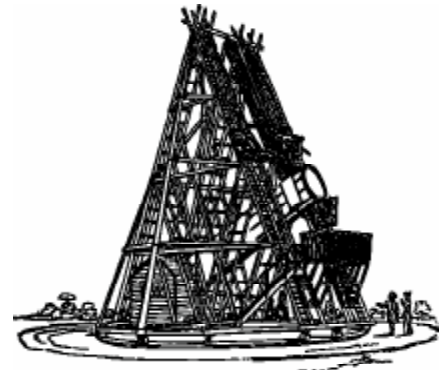
RA 1h 33.2m Dec +60d 42.4' (2000)

**Magnitude 7.4**

Welcome to the last object in Messier's original catalog (M104 and higher numbers are additions to modern versions of Messier's list). M103 is very easy to locate, and can be seen in scopes as small as 2.4-inches. Just point your objective at 2.7-magnitude Delta Cas, in Cassiopeia's 'W', and you'll find M103 just about a degree NE. Although a "Messier" object, M103 was actually discovered by P. Mechain in 1781.

M103 is a moderately compact cluster about 7-8' wide, elongated SE-NW in a fan shape. It contains about 40 stars as true members, the brightest of which are class B3 giants. However

the most prominent star is reddish (spectral type gM6). Traveling? Look for this cluster when your odometer registers 8000 light-years, and allow 15 light-years to cross it. Bon Voyage!



*William Herschel's telescope. From a drawing in 'The Imperial History of England, comprising the entire work of D. Hume,' David Hume, 1891. Credit: [openclipart.org](http://openclipart.org)*

## **M76 rating MEDIUM**

**planetary nebula in Perseus**

RA 01h 42.3m Dec +51d 34' (2000)

**Magnitude 10.1**

Located in a western extension of Perseus that seems almost custom-made for it, M76 lies less than a degree NNW of 4th-magnitude Phi Persei, and about 8 degrees SW of the Perseus Double Cluster. This planetary has so many aliases that it may as well be called the "Moniker" Nebula. To start with, it sports not one but two NGC numbers: NGC 650/651. As for more colorful nicknames, take your pick: perhaps its most popular nickname is the "Little Dumbbell" Nebula. But it's also been dubbed the "BarBell" Nebula, the "Cork" Nebula and the "Butterfly" Nebula.

Whatever you choose to call it, M76 is generally regarded as one of the faintest of the Messier objects. Its discovery is credited to P. Mechain in September of 1780, though 6 weeks later Charles Messier also spotted it. One of the more irregular examples of planetary nebulae, M76 appears as a roughly rectangular or box-shaped mass measuring about 2x1'. The appearance is fairly similar to the brightest portion of the "Dumbbell" Nebula M27 in Vulpecula; hence its most popular nickname.

In a 2.4-inch refractor, M76 is faintly visible as an unconcentrated patch elongated SW-NE. In a 6-inch scope the SW end is brighter and better defined than the NE one, and the whole planetary is enclosed in an east pointing right triangle formed by 3 nearby stars.

In a 10-inch scope you can more clearly see why the planetary has two NGC numbers: its ends, or lobes, form two fairly isolated irregular patches with fainter nebulosity in between.

Interestingly, M76 presents us with a nice example of modern research confirming historical speculation. In 1891 astronomer Isaac Roberts suggested that the general appearance of M76 was probably that of a broad ring seen edge-wise. More than a century later, the July 2000 issue of *Sky & Telescope* reported on studies comparing M76 to planetary nebula M57 (the Ring Nebula) which conclude that both objects have the same intrinsic shape of a flattened ring. In the case of the Ring Nebula, the doughnut

is included approximately 45 degrees to the plane of the sky. For M76, the torus is seen edge-on against the plane of the sky. Take a bow, Mr. Roberts!

### **Palomar 13 rating: HARD Globular cluster in Pegasus**

**RA 23h 06.7m Dec +12d 46.3' (2000)  
Magnitude 15.6**

Here's a nice little challenge just 2.5 degrees south of ALPHA Pegasi, or Markab if you prefer. Palomar 13 has the distinction of being one of the Milky Way's most insignificant globular clusters. Its absolute magnitude is only -3.5, just 2,000 Sun's worth of luminosity. Only four Milky Way globulars have luminosities that are lower. Despite its insignificance, Palomar 13 is 12 billion years old, during which time it has traced a highly eccentric orbit around the galaxy. Every two billion years, this orbit brings it relatively close to the galactic center, at which time gravitational forces strip away the delicately bound cluster stars, slowly destroying the cluster in the process. Palomar 13's last close approach to the galactic center was only about 70 million years ago, and its next approach may result in its final destruction. With averted vision, you can see Palomar 13 in an 11-inch Schmidt Cassegrain as a soft, diffuse glow. But look quick! In a couple of billion years, it may not be there anymore.





# NOVEMBER'S DANCE OF THE PLANETS

By Jane Houston Jones and David Prosper

November's crisp autumn skies bring great views of our planetary neighbors. The Moon pairs up with Saturn and Mars in the evenings, and mornings feature eye-catching arrangements with dazzling Venus. Stargazers wanting a challenge can observe a notable opposition by asteroid 3 Juno on the 17th and watch for a few bright Leonid meteors.

Red Mars gleams high in the southern sky after sunset. Saturn sits westward in the constellation Sagittarius. A young crescent Moon passes near Saturn on the 10th and 11th. On the 15th a first quarter Moon skims by Mars, coming within 1 degree of the planet. The red planet receives a new visitor on November 26th, when NASA's InSight mission lands and begins its investigation of the planet's interior. News briefings and commentary will be streamed live at: [bit.ly/landsafe](http://bit.ly/landsafe)

Two bright planets hang low over the western horizon after sunset as November begins: Jupiter and Mercury. They may be hard to see, but binoculars and an unobstructed western horizon will help determined observers spot them right after sunset. Both disappear into the Sun's glare by mid-month.

Early risers are treated to brilliant Venus sparkling in the eastern sky before dawn, easily outshining everything except the Sun and Moon. On November 6th, find a location with clear view of the eastern horizon to spot Venus next to a thin crescent Moon, making a triangle with the bright star Spica. The following mornings watch Venus move up towards Spica, coming within two degrees of the star by the second full



*Caption: This finder chart shows the path of the asteroid 3 Juno as it glides past 32 Eridani in November 2018. The asteroid's position is highlighted for selected dates, including its opposition on the 17th. Image created in Stellarium for NASA Night Sky Network.*

week of November. Venus will be up three hours before sunrise by month's end – a huge change in just weeks! Telescopic observers are treated to a large, 61" wide, yet razor-thin crescent at November's beginning, shrinking to 41" across by the end of the month as its crescent waxes.

Observers looking for a challenge can hunt asteroid 3 Juno, so named because it was the third asteroid discovered. Juno travels through the constellation Eridanus and rises in the east after sunset. On November 17th, Juno is at opposition and shines at magnitude 7.4, its brightest showing since 1983! Look for Juno near the 4.7 magnitude double star 32 Eridani in the nights leading up to opposition. It is bright enough to spot through binoculars, but still appears as a star-like point of light. If you aren't sure if you have identified Juno, try sketching or photographing its

star field, then return to the same area over the next several days to spot its movement.

The Leonids are expected to peak on the night of the 17th through the morning of the 18th. This meteor shower has brought "meteor storms" as recently as 2002, but a storm is not expected this year. All but the brightest meteors will be drowned out by a waxing gibbous Moon.

Stay warm and enjoy this month's dance of the planets!

You can catch up on all of NASA's current and future missions at [nasa.gov](http://nasa.gov)

With articles, activities and games NASA Space Place encourages everyone to get excited about science and technology. Visit [spaceplace.nasa.gov](http://spaceplace.nasa.gov) to explore space and Earth science!

**This article is distributed by NASA Night Sky Network.**

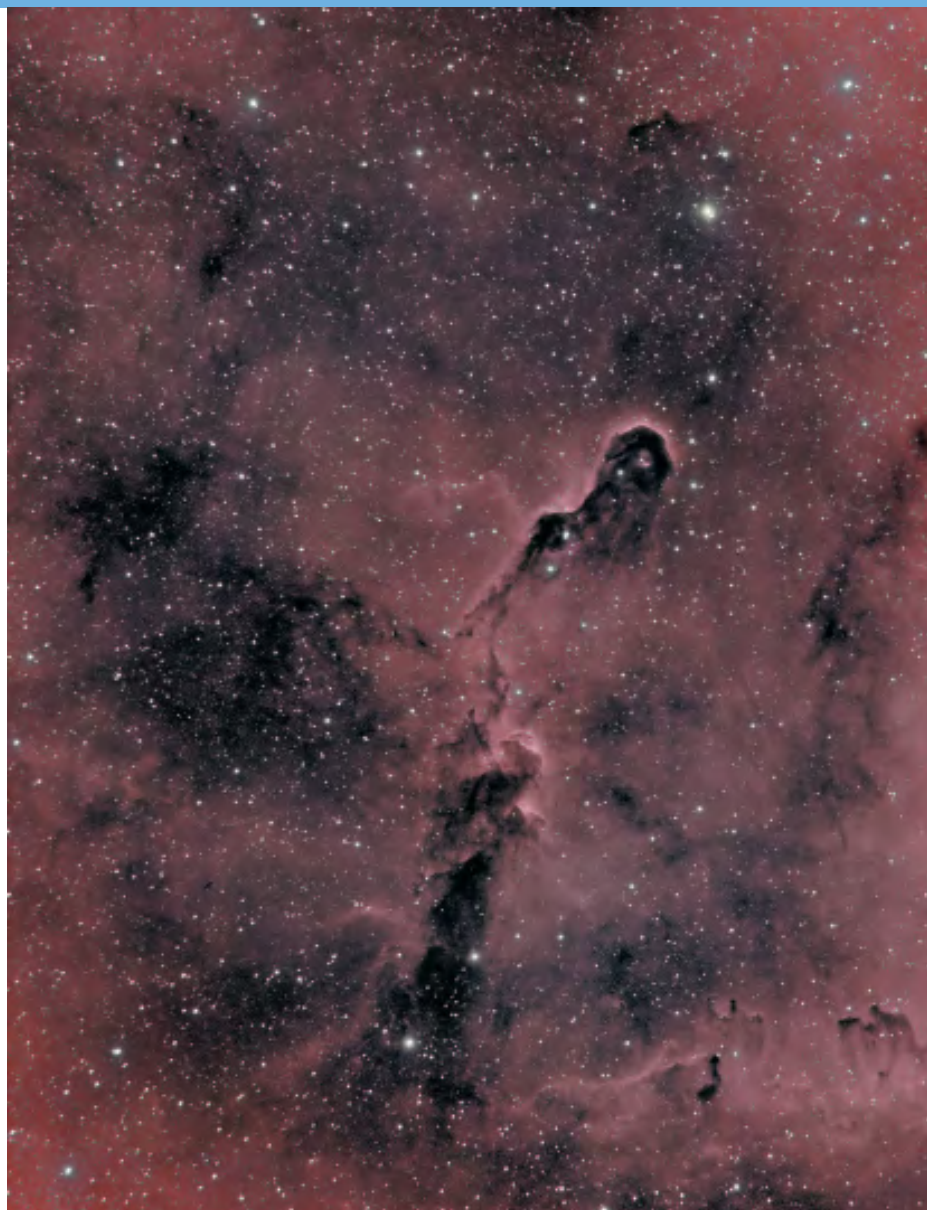
The Night Sky Network program supports astronomy clubs across the USA dedicated to astronomy outreach.

Visit [nightsky.jpl.nasa.org](http://nightsky.jpl.nasa.org) to find local clubs, events, and more!

# IMAGE OF THE MONTH

//////////////////////////////////// November 2018

Congratulations to  
**BOB VAN GULICK, IC 1396 ELEPHANT TRUNK NEBULA**



IC1396 -

This is IC 1396 in Cephus, commonly known as the Elephant Trunk nebula. I have 2 hrs of Ha and 1 hr of OIII in this image. Stacked in DSS with darks and flats, processed in StarTools. To get the reddish color, I set the Ha in L and R, and OIII in G and B and played with the palette until I liked the result. This is my best pic from ESP 2018.

# MEMBERS' GALLERY



by Laurie Allai

## NGC5248

NGC5248 Magnitude 10.97

OTA: Stellarvue SVQ100 F-5.8

Mount: Celestron CGX

Camera: Canon 5D MkII, modified by Hap Griffin

Guided by: Stellarvue SV60 EDS and Starshoot Autoguider, PHD2.6

18 frames of 600 Sec at ISO1600

Captured with Images Plus Camera Control 6.0

Processed with Images Plus 6.5, Photoshop CS 6.0



by Laurie Allai

## Messier 101

This image comprises roughly 27 hours of capture time.

OTA 1: Stellarvue SVQ100 F-5.8

Mount 1: CGX

Cameras: Canon T2i, modified by Hap Griffin

Guided by: Stellarvue SV60 EDS and Starshoot Autoguider, PHD2.6

Total Texas integration time: 22.8 hours

Imaged from March 29, 2018 to April 15, 2018: 5 nights, 5 different

exposure/ISO configurations

OTA 2: Celestron Edge 9.25 F/2.3 Hyperstar

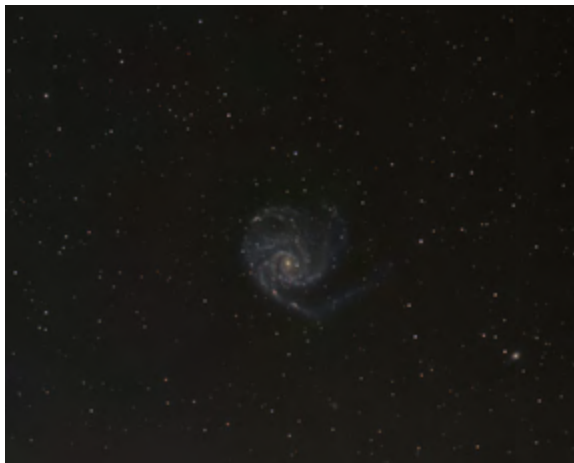
Mount 2: CGE-Pro

Camera: Canon T2i, modified by Hap Griffin

Guided by: Astro-Tech AT60EDT and Starshoot Autoguider, PHD2.6

26 frames of 600 Sec at ISO1600 ~ 4.3 hours

Imaged from Southern Arizona May 12, 2018



by Bob Van Gulick

## M17

This is M17 or the Swan/Omega Nebula. Only 1 hr of Hydrogen Alpha data in this shot due to time constraints. Stacked in DSS and processed in StarTools.





# MEMBERS' GALLERY

→  
**by Robert Pettengill**

## *Faces of Mars*

Three views covering the Martian globe from just after the 2018 opposition on August 2 (91.3 central longitude degrees), 7 (53.4 cld.) and 16 (326.8 cld.), 2018. The different rotational periods of Mars (24 hrs. 37 min.) and the Earth allow us to see a slightly different face of Mars each night at the same local time.



←  
**by Robert Pettengill**

## **Moon, waning crescent, just before sunrise**

IA HDR composite image of the waning crescent Moon with earthshine and HD90428 in Leo from Austin, Texas. Take with a Questar 1350/89 mm f/15 telescope and a Sony a6300 camera at prime focus. 2018-11-02 12:22 UT

→  
**by Stephen Hill**

## *IC1396 / Elephant Trunk Nebula*

300mm lens and a DSLR, Astronomix CLS filter, with the Star Adventurer camera tracker, and a Raspberry Pi v2 camera based autoguider.

Stack of 38 images at 90 seconds, f4, iso 800, with darks, flats, and bias frames.

Taken from Bortle class 7 skies.





# OUTREACH REPORT, NOVEMBER 2018

By Joyce Lynch, Outreach Chair

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In October, due to the weather, we had to cancel the public star party at Pedernales Falls State Park and Austin Under the Stars: "International Observe the Moon Night" Edition.

There are several outreach events coming up in November, and let's hope we have better luck.

On Saturday the 10th, we'll have our public star party at Inks Lake State Park. The park was closed due to flooding but reopened on November 2. The time is 5:00 to 8:30, and anyone planning to go should email [outreach@austinastro.org](mailto:outreach@austinastro.org) so your name can be put on the list for free admission to the park. Please do so even if you have an annual pass because the park staff would like to keep track of volunteers.

On Friday November 30 we've been asked to go to Emmaus Catholic Parish, 1718 Lohmans Crossing Road in Lakeway, for an evening star party. Exact times are to be determined.

We're in the process of finalizing the agreement with Pedernales Falls State Park regarding star parties there, and we're working on the 2019 star party schedule.

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## ASTRONOMY FOR PAY

Recently we have received several requests for star parties from commercial entities. Since we focus on non-profits such as schools and libraries, we offered these groups the option of paying astronomers to conduct the event. There could be similar requests in the future, so we are compiling a list of members who might be interested in participating. If you would like to have your name on the list of people interested in doing events for pay, please send an email to [outreach@austinastro.org](mailto:outreach@austinastro.org) Include your name, contact information, where in Central Texas you are willing to go, any specific areas of astronomy that interest you, and a little bit about your experience with observing.

# AAS GUEST SPEAKER IN NOVEMBER

## **Our featured speaker will be: Renee James**

Trained as a stellar spectroscopist at the astronomy department of the University of Texas at Austin, she has written extensively for both Astronomy and Sky and Telescope magazines, and was awarded the Popular Science Writing Award by a division of the American Astronomical Society. She has been teaching introductory astronomy for non-science majors at Sam Houston State University since 1999, receiving the Professor of the Year award from the physics students and being nominated for the University's Excellence in Teaching Award. Her unique methods also earned her a Gold Star award from NASA's IGES for inspiring uses of Hubble in education. (From the amazon.com author profile)

Renee will talk about **Where Spacecraft Go to Die.**

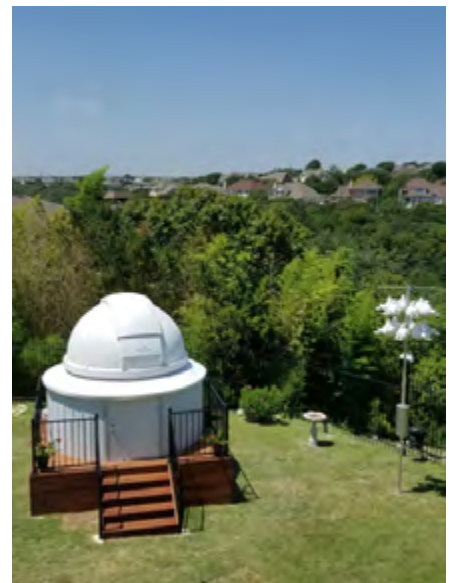
Inspired by Kepler's recent death (it's not quite dead!), I began thinking about all the different planetary missions and how they met their ends. There were the murders (Cassini, Magellan), the catastrophic accidents (Mars Climate Orbiter), and the slow fades to old age (Kepler, Pioneer, Voyager). We've had so many amazing missions, and they've had such a variety of interesting deaths.

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## **In Loving Memory of Mark White**



Mark and his wife Christine joined AAS within the last year and was only able to attend a couple of events but thoroughly enjoyed meeting nice folks with common interests. Mark passed away unexpectedly on October 21st 2018 when they were on a vacation in their new RV in Utah. Mark and Christine did bring a telescope to look at the dark skies in Capital Reef & Bryce Canyon but just never got the chance to.



*Picture of the observatory that Mark & Christine built over this last summer.*



# EXECUTIVE COMMITTEE MINUTES, SEPT. 2018

By John Cassidy, Secretary

## Executive Committee Minutes

September 12, 2018

he meeting was call to order by Tim Brown at 7:00 PM at Tim’s house.

Present were:

- Tim Brown
- Kathy Brown
- Terry Phillips
- John Cassidy
- Dana Leary
- Joyce Lynch
- Brian Lippincott
- Greg Rohde
- Jim Spigelmire
- Dawn Davies
- Cindy Cassidy
- Domingo Rochin

### Main topics on the Agenda handout were:

- 2018 Central Texas Star Party
- Fall AUTS
- Reports on arrangements for Pedernales State Park and Inks Lake State Park
- Officer’s reports

### Officer Reports President. Tim

1. A 12-inch Meade LX 200 was taken by J. Sheetz. Tim will discuss this with Cindy.
2. Because our observing areas are in a state of flux, there will be no CTSP this Fall.

### Vice-President. Terry

1. The EC approved member presentations/constellation of the month as the January program.
2. The EC considered a proposal to move the GA meetings to 7:00. After some discussion, the proposal was rejected.
3. The EC discussed moving the GA meetings to the Austin Gem and Mineral Society building. Greg will look into this.

## CALENDAR OF EVENTS

9 Nov. 2018

**No Practical Astronomy**  
 General Assembly Meeting  
 7:30 PM  
 ETC 2.136 - UT Campus  
 Engineering Teaching Center  
 Dean Keeton and Speedway

10 Nov. 2018

Star Party  
 5:00 PM - 8:30 PM  
 Inks Lake State Park

3 Dec. 2018

Executive Committee Meeting  
 7:00 PM - 8:30 PM  
 TBD.

6 Dec. 2018

“Starry Nights”  
 5:30 PM - 7:00 PM  
 Girlstart  
 1400 W. Anderson Lane

8 Dec. 2018

Star Party  
 5:00 PM - 10:30 PM  
 Pedernales Falls State Park



**Treasurer. Dana**

1. Dana will move \$844 in donations from the UFCU Donations Checking account to the UFCU Savings Account and will move sufficient funds from the General Checking Account to the UFCU Scholarship Account to bring its balance up to \$1,000.
2. The EC voted to accept a \$25 donation from Giving Assistant.

**Outreach. Joyce**

1. The Fall edition of AUTS will be held at St. Stephens on October 20. It will be like a public star party with no planetarium.
2. The AAS program at Girl Start went well.

**Member Services. Vanessa**

1. There will be no Practical Astronomy for the Aug 10 General Assembly meeting.

**Equipment. Brian & Dawn**

1. The EC discussed the need for an inventory of Society owned scopes. There is apparently a list of scopes on Google Drive but it needs updating. The scopes need to be insured properly and etched to show Society ownership.
2. We have a \$5,500 quote for a container with a rollup door and four air vents. The EC authorized Dawn to pick a company for the purchase and modifications.

**Secretary. John**

1. Minutes of the August 6 EC meeting were approved.

**General Business.**

1. Cindy Cassidy discussed Partner level participation by the Society in the Texas Night Sky Festival. The Society has participated in the Festival before, but the newly created Partner status will give us a much higher profile in the event. The EC voted unanimously to accept Partnership status and to donate \$999 to the Festival.

Meeting was adjourned at 8:45 PM  
John Cassidy, Secretary



# COMMUNICATIONS REPORT, Nov. 2018

By Sean Leary, Communications Chair

For the Executive Committee meeting in November 2018

- Wrote up and published Oct 2018 EC meeting minutes.
- Located all archived image of the month images and emailed Member at Large Jim Spigelmire regarding permanent online gallery.
- Added post for star atlas donation to AAS.
- AUTS added 2nd Facebook post and Facebook event. Later added austinastro post and FB comment to cancel the event due to weather.
- Updated Oct public star party event text per request from Outreach.
- Added outreach editor account to austinastro.org.
- Reached out to VP, Member Services, Outreach, and Equipment for website content.
- Updated events, added post to cancel Oct 13 public star party and members only party at Pedernales.
- October image of the month banner and link to full size image added.
- Sidereal Times page, slider updated for Oct 2018, banner added.
- Updated member reminder 1 email template to include mailing address in case member wants to send a check, per request by Treasurer.
- Updated Hillcountryastronomers.com link on Resources page per 3rd party request.
- November General Assembly author bio, topic added to event, added post, bio, topic, image
- Updated November EC meeting location.
- Add post for Inks Lake public star party
- Updated Treasurer handbook content for handling memberships paid by check.
  - Previously, the following Treasurer sections had been updated by me:
    - Changing membership levels
    - Changes from bundled memberships
    - Renewing a member who pays by check
    - Changing to a senior bundled membership
    - Removing a member
  - Added the Treasurer overview 2018 doc to shared drive based on Mark's original

## Website traffic for the past month



## COMMUNICATIONS REPORT CONTINUED

How many people are visiting the site?

Page	Pageviews	Page Value
/	717	\$0.00
/JoinAAS	51	\$0.00
/index.php/events/	39	\$0.00
/index.php/membership/	38	\$0.00
/Sys/Profile	37	\$0.00
/index.php/event/aas-...tin-under-the-stars/	33	\$0.00
/index.php/about-aas-2/	32	\$0.00
/index.php/observing...the-eagles-almanac/	32	\$0.00
/index.php/events/aa...anyon-of-the-eagles/	29	\$0.00
/index.php/2018/09/2...moon-night-edition/	21	\$0.00

Last 28 days ▾ [PAGES REPORT >](#)

What pages do they visit? & Who is sending us traffic?

Page	Pageviews	Page Value
/	717	\$0.00
/JoinAAS	51	\$0.00
/index.php/events/	39	\$0.00
/index.php/membership/	38	\$0.00
/Sys/Profile	37	\$0.00
/index.php/event/aas-...tin-under-the-stars/	33	\$0.00
/index.php/about-aas-2/	32	\$0.00
/index.php/observing...the-eagles-almanac/	32	\$0.00
/index.php/events/aa...anyon-of-the-eagles/	29	\$0.00
/index.php/2018/09/2...moon-night-edition/	21	\$0.00



# GENERAL ASSEMBLY MINUTES, SEPT. 2018

By John Cassidy ,Secretary

## **General Assembly Minutes**

September 14, 2018

The meeting was call to order by Tim Brown at 7:30 PM.

The Assembly recognized and welcomed new members and visitors.

Terry is working on spring speakers and also looking at the Austin Gem and Mineral Society building for GA meetings.

CTSP has been deferred to Spring because of uncertainties about sites.

Sean is looking for website content and is starting work on a revamp of the Society website itself.

Dawn reported on the status of the Pedernales and Inks Lake sites.

Brian reported on development of a new lightweight heat shield for satellites and on Spacefab, an internet funded company planning to launch small space telescopes for private users.

Bill Ambrose spoke on lunar craters and shared his photos and drawings.

The meeting was adjourned.

John Cassidy, Secretary





# TREASURER'S REPORT, OCT. 2018

By Dana Leary, Treasurer

## Oct. 2018 Treasurer's Report

### Deposits:

Dues payments		
Checks	\$40.00	
Paypal	\$ 1,000.00	
Dues payments in checking acct.		\$1,040.00
interest earned - scholarship	\$0.00	
Interest earned-checking	\$1.07	
interest earned - donations	\$0.00	
Interest earned - CD - A	\$5.25	
Interest earned - CD - B	\$6.38	
Total interest earned		\$12.88

**Deposit Totals Oct. 2018** **\$1,052.88**

### Expenses:

Frontier final payment	\$157.03
Life Storage - telescope storage	\$65.00
Six eyepieces,	\$360.00
hotel expense for guest speaker	\$183.99
eyepiece for El Dorado Star Party	\$289.00

**Expenses Total Sept. 2018** **\$ 1,055.02**

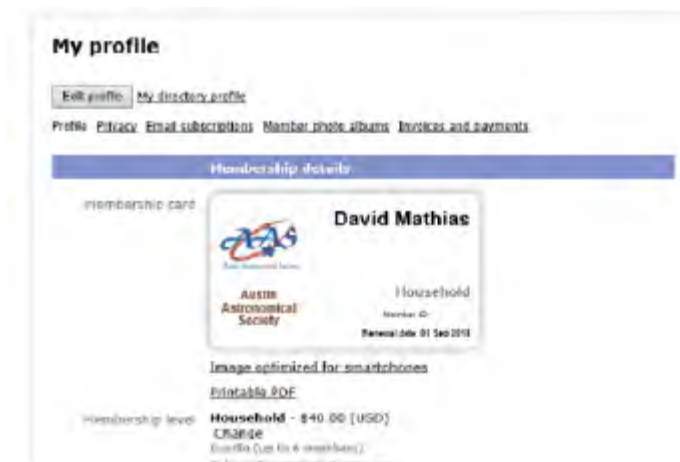
### Bank Balances:

UFCU donations	\$971.92	
UFCU scholarship special **	\$1,001.27	
UFCU checking **	\$24,335.02	
UFCU CD - A	\$5,839.51	
UFCU CD - B	\$5,815.44	
Paypal account	\$450.95	
<b>Total Cash</b>		<b>\$39,414.11</b>

AAS members	611
AAS memberships	441

# MEMBERSHIP CARDS NOW IN YOUR PROFILES

At last, Wild Apricot, our membership database vendor, has made available to its customers membership card templates. Now, under your AAS membership profile you will see a mockup of a card with your name, Membership ID and membership expiration date. You are offered two options for displaying your card: one which is suitable for displaying from a smartphone, and another printable PDF which you can cut and laminate to your heart's delight.



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## WELCOME NEW MEMBERS!

Adam, Peklay  
Ed, Oshinski  
Elrod, Grayson  
Harbin, Richard

Mussett, Michelle  
Sato, Haku  
Schaefering, Gordon  
Seanleary, Seanleary

# JOINING AAS OR RENEWING MEMBERSHIP

To join or renew your membership to AAS, please visit: <http://austinastro.org/index.php/why-should-you-be-a-member/> There are six membership levels to choose from:

**Household Bundle (up to 6 members) \$40.00 (USD)**

Renewal: Every one year, starting from join date

No recurring payments. For members of a household living at the same address.

**Household With Senior (up to 6 members) \$28.00 (USD)**

Renewal: Every one year, starting from join date

No recurring payments.

For members of a household living at the same address and at least one member is over 65 years of age.

**Junior \$15.00 (USD)**

Renewal: Every one year, starting from join date

No recurring payments. For members up to age 18.

**Students \$15.00 (USD)**

Renewal: Every one year, starting from join date

No recurring payments. For members age 18 and older.

**Regular \$25.00 (USD)**

Renewal: Every one year, starting from join date

No recurring payments. For individual members.

**Seniors \$15.00 (USD)**

Renewal: Every one year, starting from join date

No recurring payments. For members 65 years of age or older.



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## NIGHT SKY NETWORK

The Night Sky Network is a nationwide coalition of amateur astronomy clubs bringing the science, technology, and inspiration of NASA's missions to the general public. AAS members can register with NSN and receive the NSN newsletter and email about upcoming webinars and any additional information or announcements created by the NSN for members. They will be able to search for resources, view all of the toolkits and the files, and access the downloads in each kit.

If you are interested in registering, here is the procedure.

Go to <https://nightsky.jpl.nasa.gov/index.cfm>

Enter your zip code in the upper right box for CURRENT LOCATION.

Scroll down to CLUBS NEAR YOU and click on AAS.

Click on Register in the toolbar on our page.

Fill out the form and submit.

Your form will be sent to the club for approval.

If you have any questions, email [outreach@austinastro.org](mailto:outreach@austinastro.org)

# OFFICERS OF THE SOCIETY, 2018-2019

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Joseph Macry writes a weekly column for Manor Community News: "This Week in Astronomy". You can read the online edition here: <http://manorcommunitynews.com/>