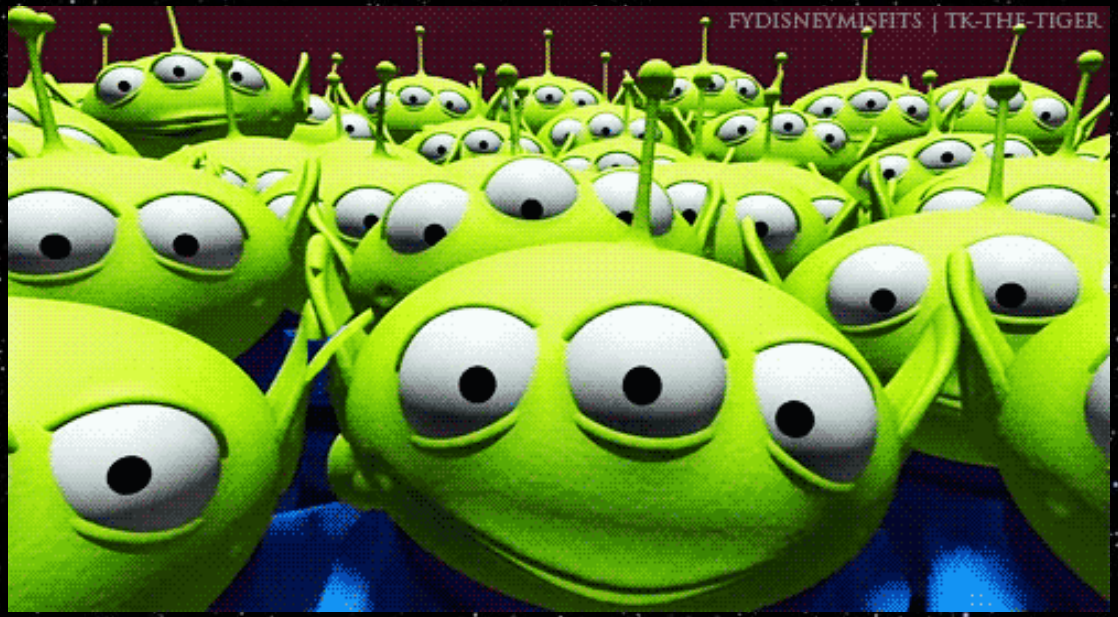
"So I thought, why waste money on a new scope when I've got this baby just sitting in my attic collecting dust."

Howard Astronomical League

November 21, 2019

Introductions



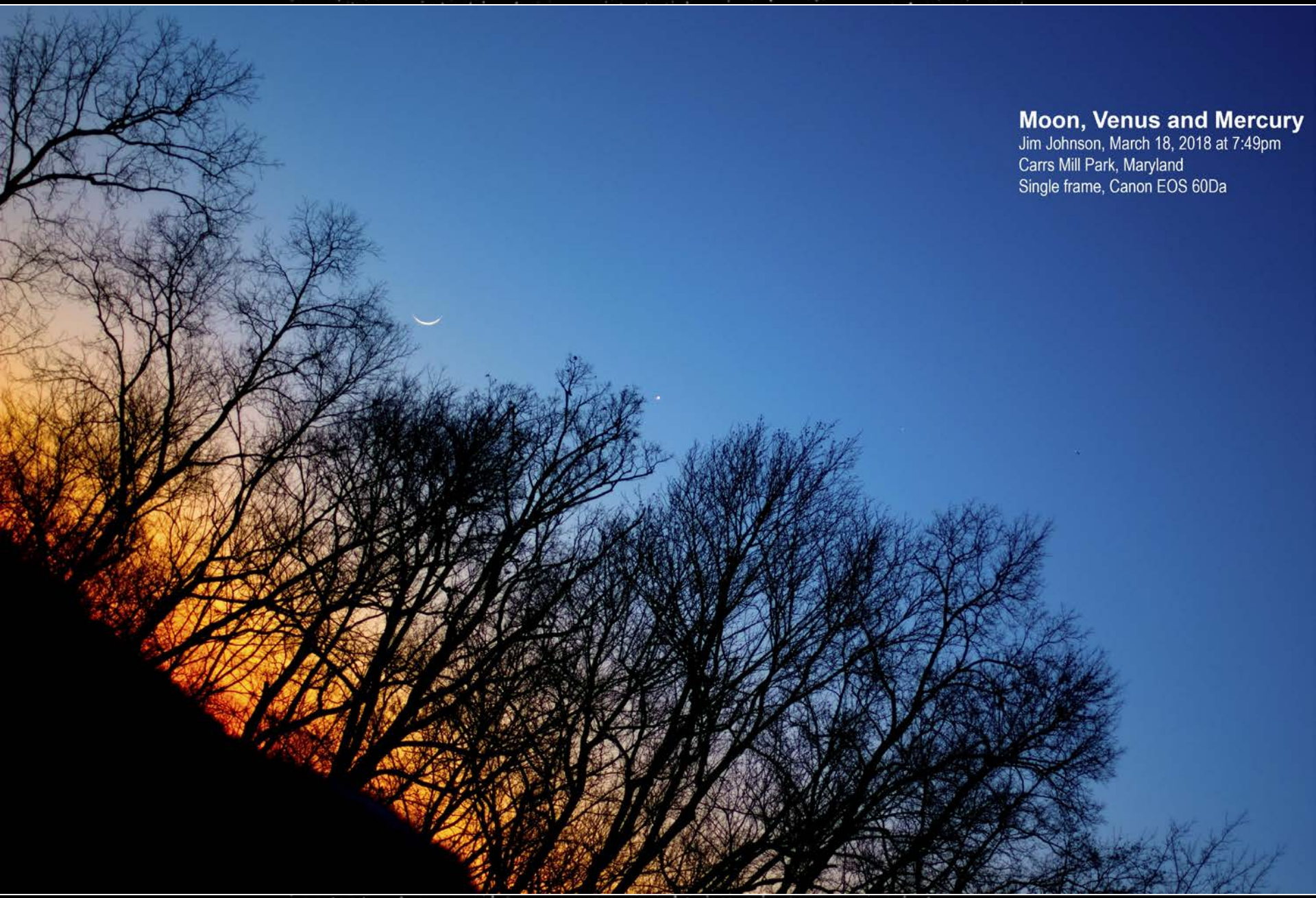
Next month’s meeting is on Thursday, December 19th, 2019 at 7 PM

HAL HOLIDAY PARTY

AND

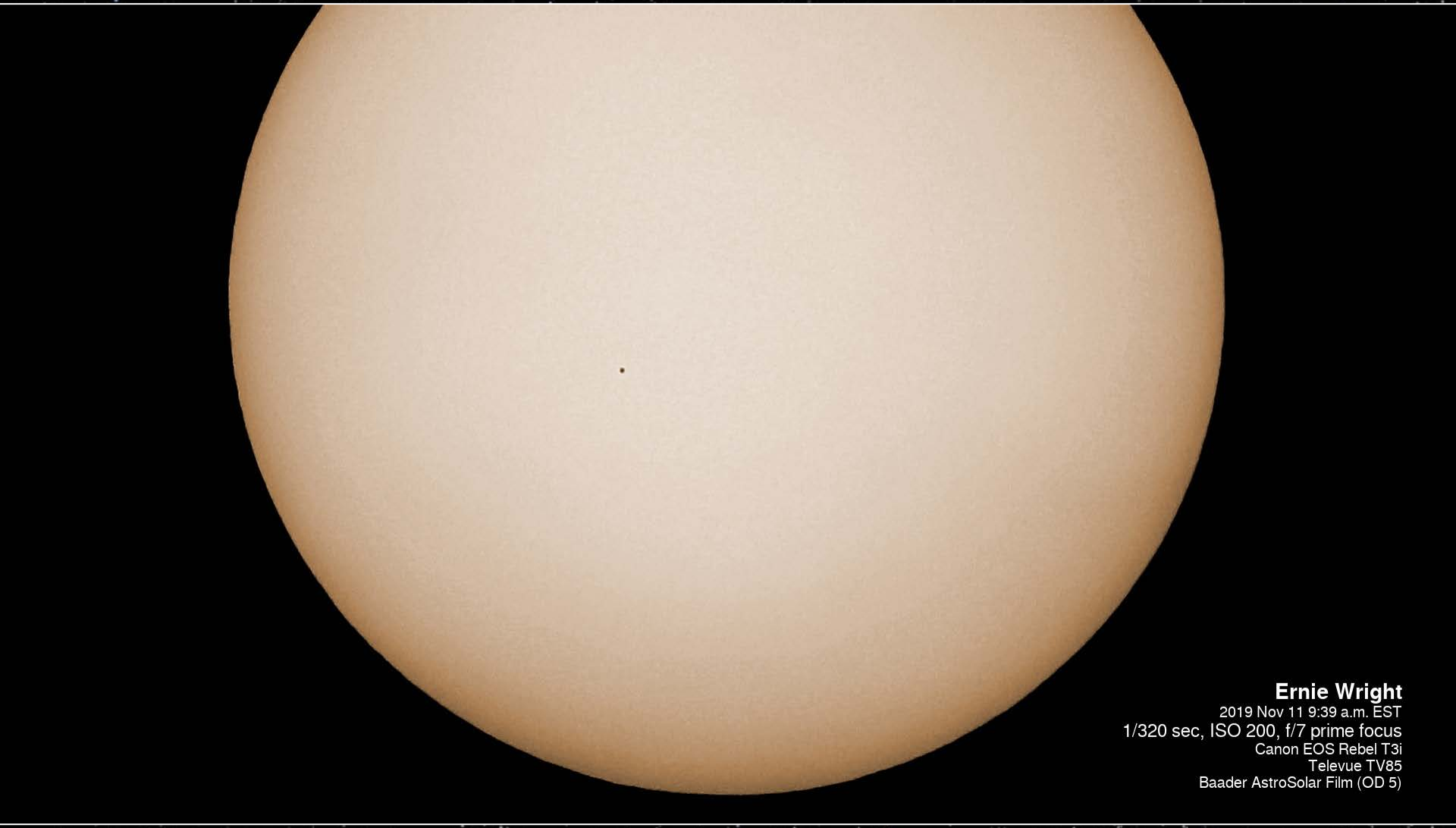
SWAP MEET

Member Astrophotos, Sketches, and Paintings



Moon, Venus and Mercury
Jim Johnson, March 18, 2018 at 7:49pm
Carrs Mill Park, Maryland
Single frame, Canon EOS 60Da


Victor Sanchez



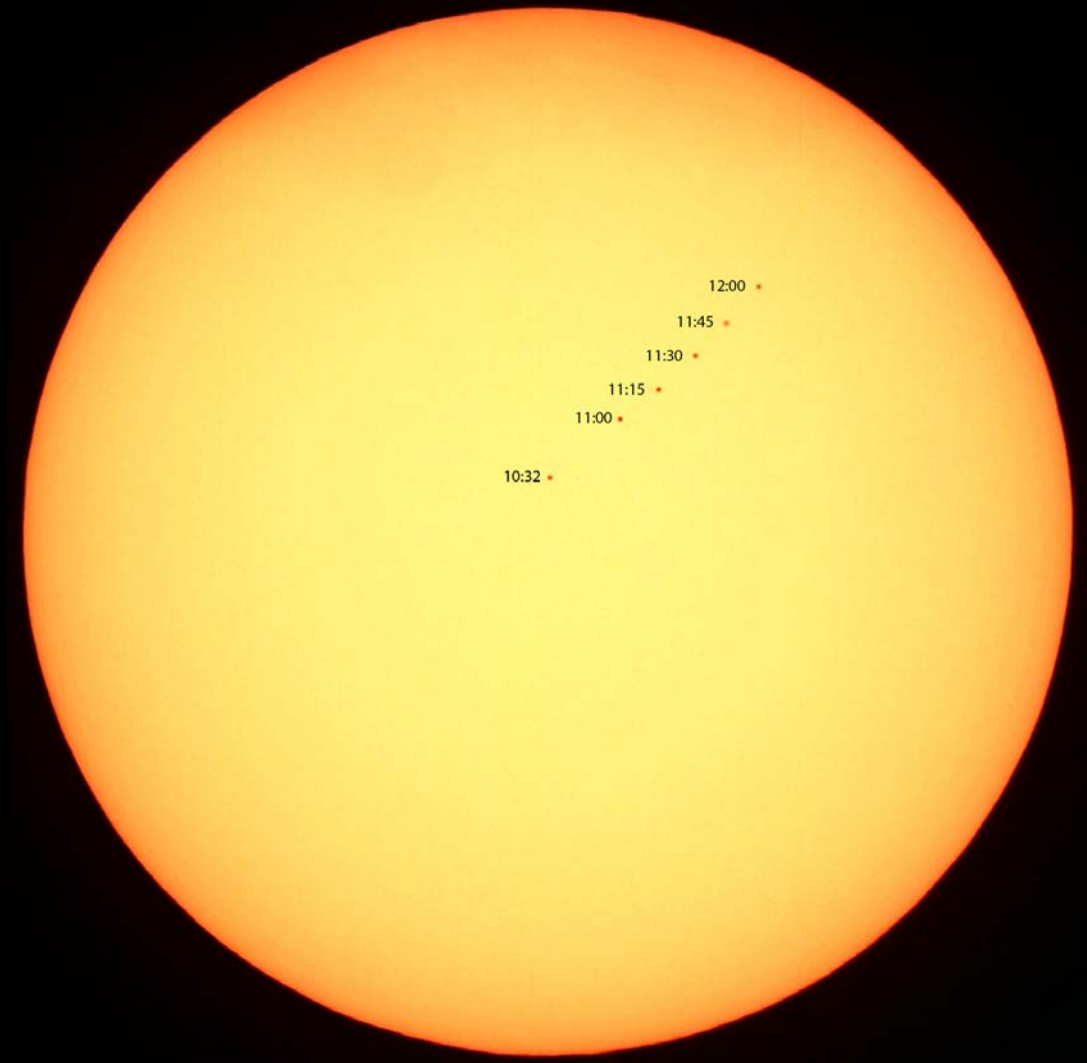
Ernie Wright
2019 Nov 11 9:39 a.m. EST
1/320 sec, ISO 200, f/7 prime focus
Canon EOS Rebel T3i
Televue TV85
Baader AstroSolar Film (OD 5)

Transit of Mercury – Nov 11, 2019 13:13 UT

6” f/8 RV-6 Newtonian eyepiece projection w/ 16mm Meade Plossl
Canon Rebel T6s, 1/15 sec at ISO 400
Taken through high, thin clouds

Jim Tomney

Transit of Mercury –
Stacked Photos Showing Planet's Motion
(Times shown EST)



Prime focus using Vixen ED80sf (80mm f/7.5)
Canon Rebel T6s, 1/100 sec at ISO 100

Jim Tomney

Rigel (Beta Orionis)

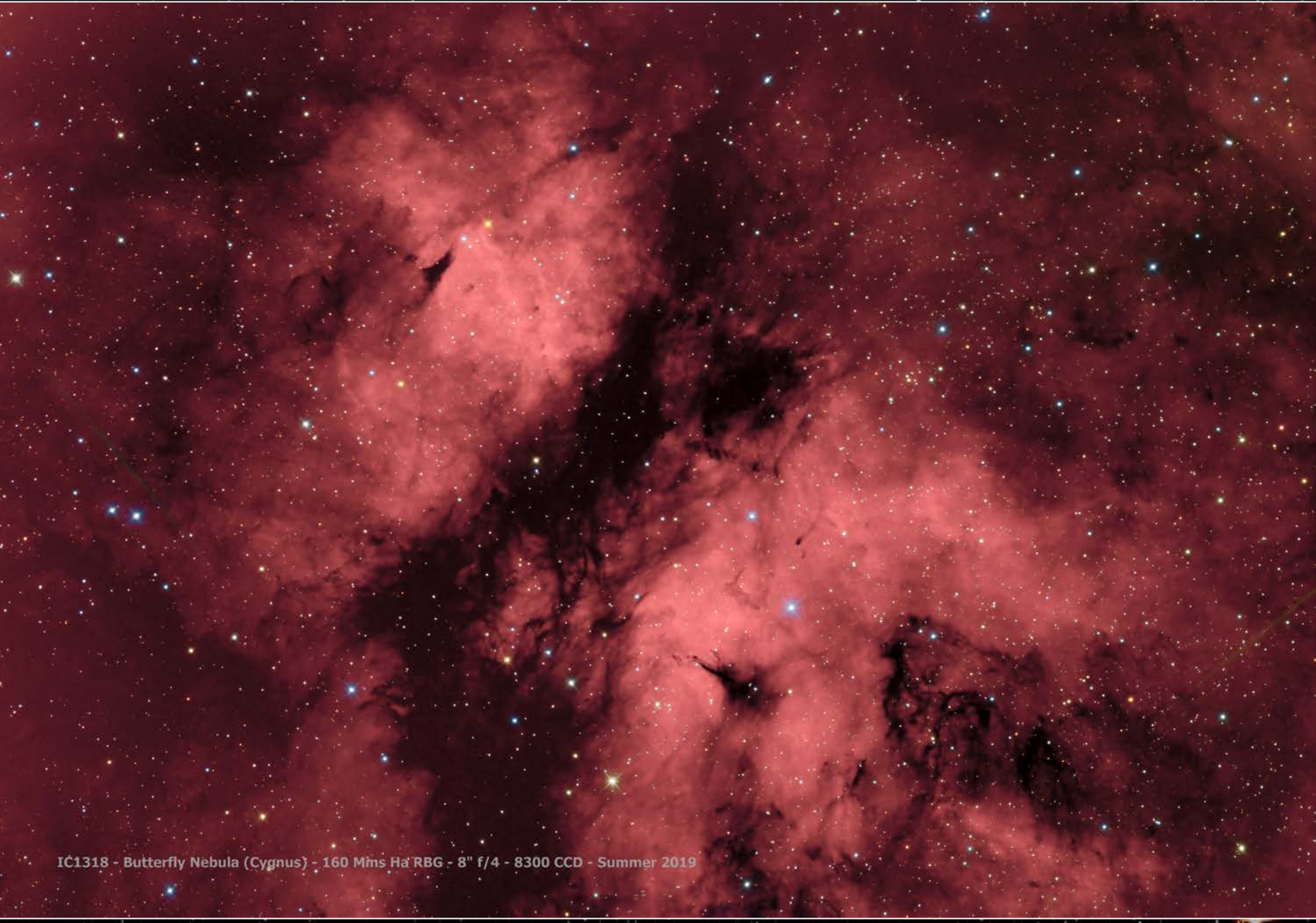
Double Star

Constellation:	Orion
Magnitudes:	0.14 & 6.8
Distance:	900 light years
Separation:	9.0 arcseconds
Brightness:	58,000 & 110 suns
Spectral Types:	B8 & B5
Color:	White & Bluish-White

Telescope:	155mm Refractor
Eyepiece:	8mm Delos (137x)
Field of View:	0.52 degrees
Orientation:	Diagonal View

Date:	09-November-2019
Time:	02:25 to 03:00 EDT
Location:	Deck of House
Drawing by:	Richard Orr

Gene Handler



Gene Handler


NGC2264 - Christmas Tree Cluster
Nikon D850
200-500mm lens @ 500mm
80x 1" exposure | ISO25600
2019-11-01 morning
Severn, MD


M57 - Ring Nebula
Nikon D850
200-500mm lens @ 500mm
100x 1" exposure | ISO 25600
2019-10-27 evening
Severn, MD


M45 - Pleiades
Nikon D850
200-500mm lens @ 500mm
140x 1" exposure | ISO 25600
2019-11-02 morning
Severn, MD

Officers Reports

President	Phil Whitebloom	president@howardastro.org
1st Vice President	Mike Krauss	1stvp@howardastro.org
2nd Vice President	Victor Sanchez	2ndvp@howardastro.org
Treasurer	Chas Rimpo	hal_treasurer@howardastro.org
Secretary	Cheryl Kerr	secretary@howardastro.org
Event Coordinator	David Stein	events@howardastro.org
Publicity Chair +	Joel Goodman	halpublicity@howardastro.org
Observatory Director *	Joel Goodman	observatory@howardastro.org
Librarian +	Bob Dutilly	librarian@howardastro.org
ALCor +	Steve Jaworiwsky	halcor@howardastro.org
Webmaster *	Paul Montanaro	Use "Contact Us" Page

2020 HAL Elections

Election Committee Chair: Jim Johnson

Elections held at the January 16th, 2020 HAL general meeting to elect the 2020 Board of Directors

President	2nd Vice President	Treasurer
1st Vice President	Secretary	Event Coordinator

All offices are considered open to all interested HAL members. Send nominations (self or others) to election@howardastro.org by 7pm on January 15th, 2020

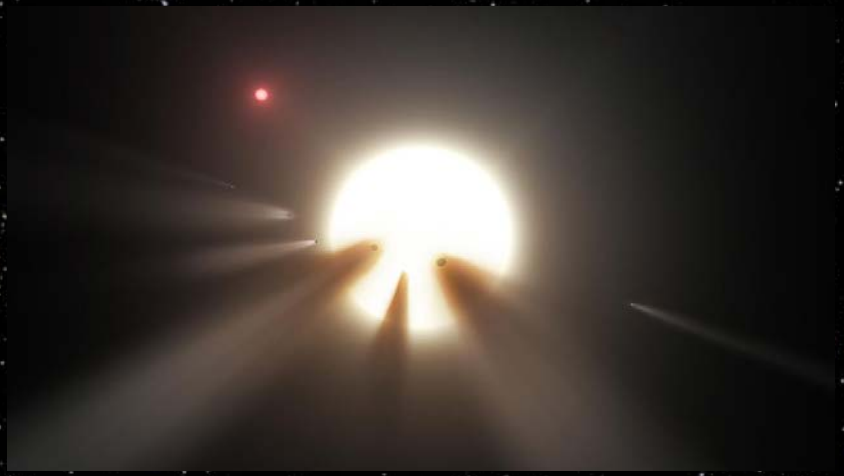
New Board's term begins February 1st, 2020

Bob Savoy

- Celestial Navigation Discussion

The Milky Way Galaxy Exploding from Mount Rainier, Photograph by David Morrow

Tabby's Star
The One That Made People Think It Was Aliens

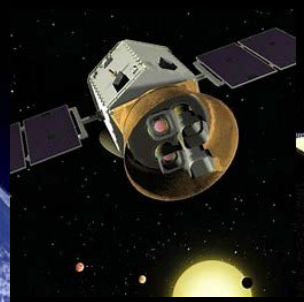


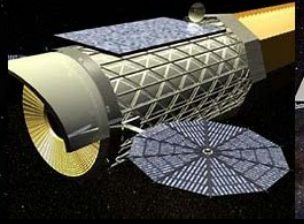
Officially named KIC 8462852, the star is 1,200 light years away in the constellation Cygnus, and is about 1.4 times the mass of the Sun. What intrigued astronomers about this otherwise ordinary star is that a transiting object caused it to dip in light by as much as 20 percent. That object had to be something far, far bigger than a planet. A group of professional planet hunters—including Wright and led by Tabetha S. Boyajian—came up with a number of scenarios as to what might be going on. It included a swarm of comets or—again, as a last resort—aliens. The idea was that something causing that deep a transit might be an artificial structure, including a theorized "Dyson Swarm" of object harnessing power from the star.

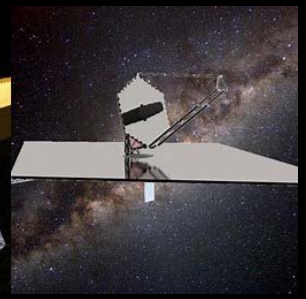
Visual Observers Corner

It's time once again for:

Astronomy
Past
Present
Future







El Caracol Chichen Itza Observatory

415 AD-455 AD

Chichen Itza was settled sometime between 415 AD and 455 AD. Its strangely shaped observatory is something of an oddity. While most astronomical instruments were attuned to the movement of the stars or the worship of the Sun, El Caracol ("the snail") was focused on the movements of Venus.

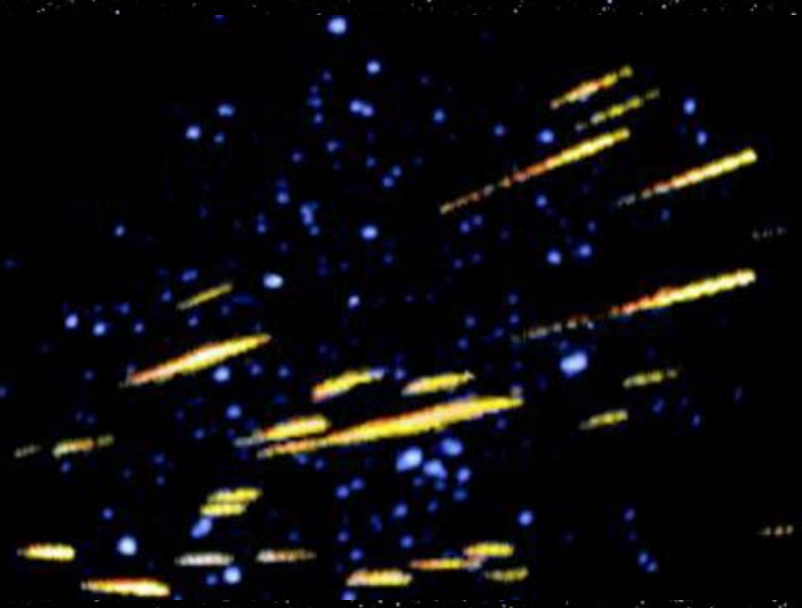
The planet's pattern of appearance and disappearance caused problems for astronomers for a long time. For the Maya, Venus was sacred. Everything, from festivals to sacrifices, was scheduled around the movement of the planet. Wars were even planned to start at the same time that Venus rose in the sky. The planet was a sign of good fortune, with coronations held as Venus made its appearance. Even games were scheduled according to Venus.

PAST

Possible Meteor Outburst This Week

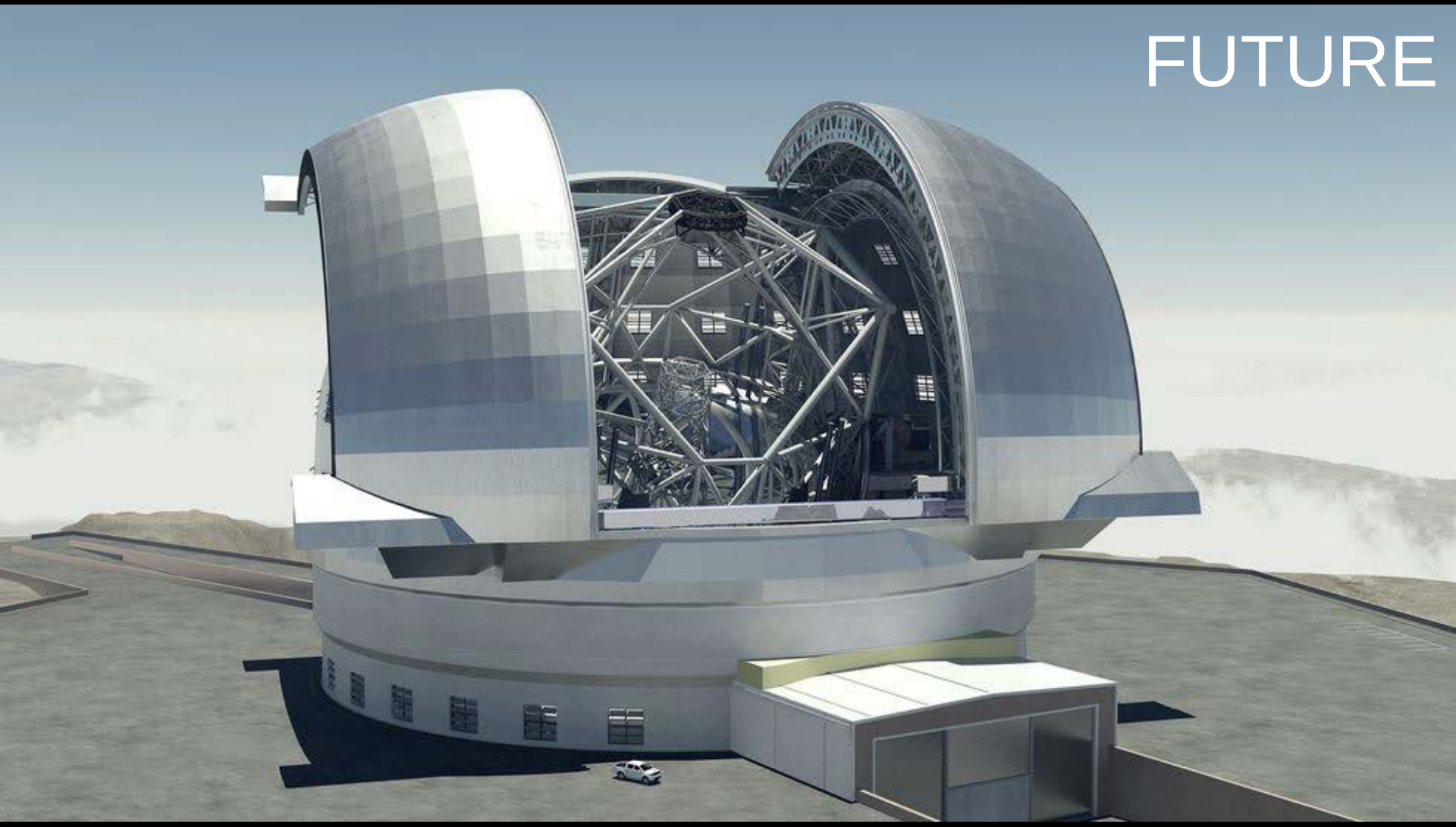
PRESENT

A METEOR OUTBURST COULD HAPPEN THIS WEEK: Get ready for a meteor outburst--maybe. Later this week, Earth will pass by a stream of dusty debris from an unnamed comet. Forecasters believe this could cause an outburst of alpha Monocerotid meteors on Thursday night/Friday morning (Nov. 21-22). Visit today's edition of Spaceweather.com for the full story and observing tips.



Source: Space Weather.com

The Extremely Large Telescope Fires Up (2025)



Some of the most interesting space projects are still happening right here on Earth. When completed at its location in Chile, the ELT will be the largest telescope in the world, able to gather 13 times more light than today's most powerful space-gazing telescopes.

A Special Feature from "What's Out Tonight"

September 2019

www.whatsouttonight.com

Clusters, Nebulae, Galaxies +

ly = Light year, a unit of distance. 1 ly = 6 trillion miles.

- Alpha Persei Cluster. Distance: 600 ly / Diameter: 31 ly / Mag 1.2 / Spans 3° / 30 stars.
- Andromeda Galaxy. Companion to our Milky Way Galaxy. Distance: 2,400,000 ly / Diameter: 120,000 ly / Mag 3.5 / Spans 3° x 1°.
- Coathanger Cluster. 10 stars shaped like a bar-type coathanger. It spans 2° and it stars are 150 ly away.
- Double Cluster. Two side-by-side clusters. Distances: 7,200 ly / Diameters: 63 ly / Mag 3.5 / Span 1° / 320 stars total. Best in a telescope.
- Pleiades. And, the "Seven Sisters." Visible with the eyes. Distance: 395 ly / Diameter: 13 ly / Spans 1.8° / 100 stars.
- IC4665. Cluster. A large sprinkle of stars. Distance: 1,400 ly / Diameter: 17 ly / Mag 4.2 / Spans 40' / 30 stars.
- M15. Globular Cluster. Distance: 34,000 ly / Diameter: 122 ly / Mag 6.2 / Spans 13'.
- M11. Wild Duck Cluster. Distance: 5,600 ly / Diameter: 23 ly / Mag 5.8 / Spans 14' / 200 stars.
- M13. Favorite Globular Cluster. Distance: 21,000 ly / Diameter: 104 ly / Mag 5.8 / Spans 17'.
- M22. Beautiful Globular Cluster. Distance: 10,000 ly / Diameter: 70 ly / Mag 5.1 / Spans 24'.
- M34. Large Cluster. Distance: 1,400 ly / Diameter: 14 ly / Mag 5.2 / Spans 35' / 60 stars. Try with binoculars, too.
- M36. Cluster. Distance: 3,700 ly / Diameter: 13 ly / Mag 6.0 / Spans 12' / 60 stars. Try with binoculars, too.

Brightest Stars

- Aldebaran. Rising in TAURUS. Magnitude +1. Distance: 65 ly. Diameter: 36 times the Sun's. Orange Giant.
- Altair. In AQUILA. Magnitude +0.9. Distance: 19 ly. Diameter: 1.9 times the Sun's.
- Capella. In AURIGA. Magnitude +0.1. Distance: 42 ly. Diameter: 15 times the Sun's. It's actually 4 orbiting stars.
- Deneb. In CYGNUS. Magnitude +1.3. Distance: 3200 ly. Diameter: 222 times the Sun's. Blue-White Supergiant.
- Fomalhaut. In PISCIS AUSTRINUS. Magnitude 1.2. Distance: 25 ly. Diameter: +1.9 times the Sun's.
- Mirach. In ANDROMEDA. Magnitude +2.1. Distance: 199 ly. Diameter: 89 times the Sun's.

Tonight's Guest Speaker

Pete Gural

Sole Proprietor of Gural Software and Analysis LLC;
Consulting Employee for Leidos Inc.

Title: "Meteor Astronomy from Lawn Chairs to the Digital Age"