BRENDAS MINUTES

ASSET Minutes Sept 4, 2015

There will be a star party at King Middle School on October 19, with a backup date of 10/21. Don’t forget the All Clubs meeting at the Houston Museum of Natural Science, 10/23, and Astronomy Day at the George 10/24 from 3-10 p.m. There will be a Martin Dies Star Party on November 14. Bill had a sunspot report.

I recently read The Martian by Andy Weir. The movie will have come out by the time you get this newsletter. The events are very realistic and plausible—so there’s lots of real science you can relate to. I really enjoyed the book and the movie. I’m using past tense because I’m sure I’ll have already seen it when you read this.

Attendance: 18

Refreshments: Mitch and Donna

Brenda Tantzen
ASSET Secretary

WILL’S WORDS

October is here and that means cooler weather and those awesome fall/winter skies! The Okie Tex star party this year was an amazing one! 560 people attended and the skies were clear all week! A very rare thing. I think I observed almost every night and the skies were pretty clean. I had tons of fun with Courtne, Lonnie, Janie and Bill. Bill had his new 10” refractor out and the views were amazing. I spent a good amount of time with some friends from the Houston Astronomical Society and logged about 30 or so objects I needed. My Herschel List is well over half way done and I’m very excited about that. For those who haven’t yet made it to an Okie Tex party you NEED to. Try for next year if you can. It’s simply an amazing party. The Eldorado Star Party is coming up quick! Lots of us ASSET members will be there. I will have a recap of both parties at the October meeting. I hope some of you got to see the eclipse online. Rain killed it here... See you all at the October 16th meeting!

Will
REPORT FROM ARUBA ON THEIR SKIES & Alpha Centauri

Well, Jane and I slipped away to Aruba. I had great expectations to see the southern skies where we would be on the 12° latitude. But we only had very poor seeing, because of pollution. The wind never dropped below 15 mph. Anyway on the bright side, we saw a faint Alpha Centauri, (Rigel Kent), about 15° above the southern horizon. It is the 3rd brightest star in the sky.

We can see 4 of the first 5 brightest stars here, and they are, 1-Sirius, 2-Canopus, 4-Arcturus, & 5-Vega, but not 3-Rigel Kent. So that was a first for Jane & me, as it lies well below the southern horizon in Beaumont. As far as the rest of the trip, a vacation on a white sand beach in the Caribbean Sea is great. We went snorkeling and had a delicious seafood meal right on the beach. Aruba is a little different in the way of topography, and that made it very interesting. Lots of Iguanas.

HOWARD

OKIE/TEX STAR PARTY WAS A SEPTEMBER BIGGIE

Will & Courtney, Lonnie & Janie and Bill made the long trip to the panhandle of Oklahoma, on the New Mexico line. It is over 800 miles, up hill and against the wind most of the time towing their trailers, until they get to 4,500 feet elevation. But it is worth it for skies that you will never see here in East Texas. If astronomy is going to be a major hobby for you, you have to go to a dark sky star party and go many times. There were over 550 people attending, with their astronomy hardware covering a box canyon floor. There were afternoon talks, giveaways, activities and places to see in the area. Observers stay up until the wee hours of the morning, or all night if clouds permit. This is our favorite star party.

On Sunday the 27th, People around the world have observed a rare celestial event, as a lunar eclipse coincided with a so-called "supermoon." As luck would have it, in our area of East Texas, all we observed was rain and clouds.

HOWARD

NASA NEWS RELEASE - SEPT. 28TH

Potentially life-giving water still flows across the ancient surface of Mars from time to time. NASA scientists reported this Monday by revealing a potential breakthrough in both the search for life beyond Earth and human hopes to one day travel there. While the discovery doesn't by itself offer evidence of life on Mars, either past or present, it does boost hopes that the harsh landscape still offers some refuge for life. "The existence of liquid water, even if it is super salty briny water, gives the possibility that if there's life on Mars, that we have a way to describe how it might survive," said John Grunsfeld, associate administrator for the Science Mission Directorate at NASA. (CNN)
RIMA HYGINUS & CRATER HYGINUS (Hyginus hi-ji-nes)

This is a great object on the Moon, even in small telescopes. Rima Hyginus is a linear rille which branches to the northwest and the east of Hyginus crater. Rima Hyginus formed through faulting, and is actually a graben. A graben is a section of the crust that sunk as two parallel faults pulled apart. Collapse craters formed after the graben. Hyginus crater is one of a few craters on the Moon that was not created as a result of an impact, and is instead believed to be volcanic in origin. It lacks the raised outer rim that is typical with impact craters. Together the crater Hyginus and Rima Hyginus form a distinctive and prominent feature in an otherwise flat surface. Smaller craterlets can also be discerned along the length of this rille, again possibly caused by a collapse of an underlying structure. "Rima" is the Latin word for a rill, which is a long, winding gash or depression on the moon. Rima Hyginus is very close to the center of the moon as it faces toward us. While most rimae virtually disappear from view a day or so after lunar sunrise, Rima Hyginus gets brighter as the Sun rises, and is easily visible even during a full moon.
This article was provided by the Jet Propulsion Laboratory, California Institute of Technology, under a contract with the National Aeronautics and Space Administration.

Measure the moon's size and distance during the next lunar eclipse - By Ethan Siegel

The moon represents perhaps the first great paradox of the night sky in all of human history. While its angular size is easy to measure with the unaided eye from any location on Earth, ranging from 29.38 arc-minutes (0.4897°) to 33.53 arc-minutes (0.5588°) as it orbits our world in an ellipse, that doesn't tell us its physical size. From its angular size alone, the moon could just as easily be close and small as it could be distant and enormous.

But we know a few other things, even relying only on naked-eye observations. We know its phases are caused by its geometric configuration with the sun and Earth. We know that the sun must be farther away (and hence, larger) than the moon from the phenomenon of solar eclipses, where the moon passes in front of the sun, blocking its disk as seen from Earth. And we know it undergoes lunar eclipses, where the sun's light is blocked from the moon by Earth.

Lunar eclipses provided the first evidence that Earth was round; the shape of the portion of the shadow that falls on the moon during its partial phase is an arc of a circle. In fact, once we measured the radius of Earth (first accomplished in the 3rd century B.C.E.), now known to be 6,371 km, all it takes is one assumption—that the physical size of Earth's shadow as it falls on the moon is approximately the physical size of Earth—and we can use lunar eclipses to measure both the size of and the distance to the moon!

Simply by knowing Earth's physical size and measuring the ratios of the angular size of its shadow and the angular size of the moon, we can determine the moon's physical size relative to Earth. During a lunar eclipse, Earth's shadow is about 3.5 times larger than the moon, with some slight variations dependent on the moon's point in its orbit. Simply divide Earth's radius by your measurement to figure out the moon's radius!

Even with this primitive method, it's straightforward to get a measurement for the moon's radius that's accurate to within 15% of the actual value: 1,738 km. Now that you've determined its physical size and its angular size, geometry alone enables you to determine how far away it is from Earth. A lunar eclipse is coming up on September 28th, and this supermoon eclipse will last for hours. Use the partial phases to measure the size of and distance to the moon, and see how close you can get!
THE ORIONID METEOR SHOWER, October 20 and 21, 2015
The above dates present the probable best nights of the annual Orionid meteor shower. And an awesome shower it is! For one thing, it stems from debris from the most famous of all comets, Comet Halley. The object in the picture at the right isn’t a meteor, but Comet Halley. The comet last visited Earth in 1986 and will return next in 2061. Debris in the orbit of this comet – the Orionid meteor stream – is now encountering Earth’s atmosphere. The meteors will become visible, starting at late evening, and usually put on their greatest display in the dark hours before dawn on October 21 and 22. At the peak, from a dark site, you might expect to see about 10 to 20 meteors per hour.

NASA GOES EAST; WEATHER SATELLITE SHOWS YOU THE CLOUDS
http://weather.msfc.nasa.gov/GOES/goeseastconus.html or Google GOES East Satellite to see where the clouds are near you for whatever you are doing. You can zoom in the satellite image and watch a loop of the cloud movement. The Geostationary Operational Environmental Satellite system (GOES), operated by the United States' National Environmental Satellite, Data, and Information Service (NESDIS), supports weather forecasting, severe storm tracking, and meteorology research. Spacecraft and ground-based elements of the system work together to provide a continuous stream of environmental data. The National Weather Service (NWS) uses the GOES system for its United States weather monitoring and forecasting operations, and scientific researchers use the data to better understand land, atmosphere, ocean, and climate interactions. The GOES system uses geosynchronous satellites which—since the launch of SMS-1 in 1974—have been a basic element of U.S. weather monitoring and forecasting. The cloud information is very helpful in setting up observing sessions.

PLUTO FROM NASA’S NEW HORIZONS - PICS KEEP COMING
This is a small partial post written by Alex Parker, a research scientist at the Southwest Research Institute in Boulder, Colorado, working on NASA’s New Horizons mission.

The world is Pluto, the far-from-home machine is New Horizons, the atmosphere is a tenuous skin of nitrogen, carbon monoxide, and methane gases, and the hazes permeating that atmosphere are suspended organic particulates. The right picture is just 15 minutes after its closest approach to Pluto on July 14, 2015, NASA’s New Horizons spacecraft looked back toward the sun and captured this near-sunset view of the rugged, icy mountains and flat ice plains extending to Pluto’s horizon. Please go to NASA’s New Horizon’s web site to see more pictures and explanations for them and read Alex Parker’s article.
**WHAT'S HAPPENING IN THE SOLAR SYSTEM? WHERE ARE THE PLANETS?**

**SATURN**— It is now sinking fast into the SW. It has been our premier planet all summer. To view, get out just after the Sun sets, when you can first see it, and study the rings and moons till it gets too low.

**PLUTO**— Is in Sagittarius and is still viewable in the south & SW. You can view it at 14th mag. just as total darkness sets in. You can go to skyspub.com/pluto2015 to locate it. **NEPTUNE**— is at 7.9 mag. and is high in the south, in Aquarius. **URANUS**— is at its brightest now at 5.7 mag. Uranus is in Pisces, and will be high in the south at mid-month. When it reaches its highest point in the due south, which is the central meridian, that is called reaching “opposition”. Uranus is 3.7” in dia. And Neptune is 2.3” in dia. Use your SkySafari or skyspub.com/urnep to find their locations. That takes care of the evening skies. The morning skies has all the bright planets gathered together for their pre-dawn show. **VENUS, MARS, JUPITER AND MERCURY PLUS THE STAR REGULUS**— are all there in October spaced in a line, from top, Regulas down to the horizon to the crescent Moon. Regulus, Venus, Mars, Jupiter, Mercury, and a very thin crescent Moon, on the morning of Oct. 11th. During the month these planets pass each other and positions change. Mercury is highest on Oct. 16th. Jupiter passes each planet above it as it moves faster than the others and on the 26th, is the Jupiter, Venus conjunction again. It is less than 1°.

*There is a meteor shower on the 8th and 9th of October called the Dracoids.* Some years it is quite good, then other times is a fizzle. But when its good, it can produce as many as 100s per hour. Those going to ESP will have dark skies to see them. So let’s hope for a good year for the Draconids. **Read about the Orionids on page 5.**
HERE IS THE NIGHT SKY OF FALL -
Go Out With Binoculars

To view the bright stars of the late summer sky, look up. High overhead you will see the dazzling blue-white star Vega in the small constellation Lyra, the Lyre. The larger constellation Cygnus and its bright star Deneb lie Northeast of Vega. Its informal name, is the “Northern Cross”. Further to the Southeast you will see the bright star Altair in Aquila, the eagle. The stars Vega, Deneb, and Altair form what’s known as the “Summer Triangle”. Next to Vega, almost directly overhead, you’ll see a “keystone”-shaped group of four stars which marks the body of the constellation Hercules. Look to the South and SW you’ll find the long band of star clouds of the Milky Way in the constellation of Sagittarius. If you have dark sky, and binoculars you will see clusters and nebula with them, as faint misty patches of silver-white. You can print this page, or all the StarGazer, as it is a PDF file.