

THE ASTRONEWS



Volume 73, Issue 10

October 2023

www.hawastsoc.org

A word from your editor by
Sapavith 'Ort' Vanapruch

Inside this issue:

Our VP, Bill Bar, has a guest speaker lined up for our October, 10/3/2023, meeting. His name is Larry McHenry. Full information is on page 11.



We have a couple events in October that we will need help with. The first event is by Bishop Museum on Friday, 10/6/2023, from 5:30 PM – 8:30 PM. It is called “Playing With Light Member Preview Run of Show”. According to Romee’s email last week, this show is booked to capacity at 500 attendees. We will need at least 6 telescopes. We can show the Sun at 5:30P then turn to Saturn when it is dark enough.

The second event is the 2023 Lacy Veach Day that will happen on Saturday, 10/21/2023, from 8:30 AM – 2:00PM at Kamehameha School. For this event, we will set up telescopes to view the Sun. We should also have a back up plan to discuss the Moon, Sun, and Solar system. I have enough craft left over from Girl Scout STEM Camp for kids who want to make Solar System Ribbon. I will need head count in this Tuesday meeting to turn in to Lacy Veach by Friday, 10/6/2023.

Our star parties had started to get more attendees. Our members were able to show visitors quite a few objects in the night sky. Some of our members also have a chance to set up their equipment to do astrophotography. At Dillingham Airfield public

(Continued on page 11)

Club Information	2
President’s Message	2
Observer’s Notebook	3
Meeting Minutes	4
Event Calendar	5
NASA’s Night Sky Notes	6
Meteor Log	7
Treasurer’s Report	8

Upcoming Events:

- The next Board meeting is Sun., Oct. 1st 3:30 PM. **(Zoom Meeting)**
- The next meeting is on Tue., Oct. 3rd at the Bishop Museum at 7:30 PM. —**Hybrid (In person and Zoom) Meeting**
- Bishop Museum’s planetarium show “The Star Tonight” is every 1st Saturday, 10/7/2023, of the month at 7:00 PM

President's Message October 2023

The HAS is a club for amateur astronomers, but what is an amateur astronomer? Many would say it is someone who looks through a telescope at objects in the night sky. While that describes much of what club members do, it is too limited.

What about those who look at the sky with no more optical aid than a pair of eyeglasses? If you observe the Moon going through its phases or learn to pick out constellations and watch planets move through them, aren't you an astronomer? Of course you are.

Astronomers were around long before the invention of the telescope. Polynesians used their extensive knowledge of the positions of the stars and how they change with latitude, gained over many generations of observation, to navigate the vast Pacific hundreds of years before Europeans dared to sail far from their coastlines. Cultures everywhere observed the night sky before light pollution degraded the experience.

The daytime sky should not be ignored, either. Astronomers use telescopes and solar filters to observe the closest star, our Sun. Even without equipment, it is easy to notice at this time of year, near the equinox, how fast the sunrise and sunset positions along the horizon change from day to day. Solar and lunar eclipses also can be enjoyed with little equipment.

It's really not even necessary to look at the sky to be an astronomer. There are planetariums and planetarium apps, astronomy magazines, and websites with images of everything you could hope to see in a telescope. It has been a century since professional astronomers did most of their work by actually looking through a telescope. No need for an amateur astronomer to do so to claim the title.

Even when we use telescopes, many varieties of experience are available. I like to look at the Moon and planets. Others prefer more difficult targets, both to locate and to observe. Imagers may spend little time looking through their instruments but countless hours processing their data to produce a final product that they generously share with the rest of us. Some

(Continued on page 4)

Hawaiian Astronomical Society
P.O. Box 17671
Honolulu, Hawaii 96817

President

Chris Peterson
(808) 732-7046
chrisp@higp.hawaii.edu

Vice President

Bill Barr
dustythepath@gmail.com

Secretary

Andy Stroble
jstroble@hawaii.rr.com

Treasurer

Peter Besenbruch
peter@besenbruch.info

Board Members-at-Large

Steven Chun
sctchun@usa.net

Astronews Editor

Sapavith 'ORT' Vanapruks
astronews@hawastsoc.org

HAS Webmasters

Peter Besenbruch
peter@besenbruch.info

School Star Party Coordinators

Mark Watanabe
mswatanabe@sbcglobal.net

Charles Rykken
cjrykken@gmail.com

THE ASTRONEWS is the monthly newsletter of the Hawaiian Astronomical Society. Some of the contents may be copyrighted. We request that authors and artists be given credit for their work. Contributions are welcome. Send them to the Editor via e-mail. The deadline is the last Wednesday of each month. We are not responsible for unsolicited artwork.

Observer's Notebook—October 2023 by Ort

Planets Close to the Moon

Times are Hawaii Standard Time

- Oct 1, 16h, Moon 3.2° NNW of Jupiter; 144° from Sun in morning sky; magnitudes -11.8 and -2.8
- Oct 2, 6h, Moon 2.78° NNW of Uranus; 137° from Sun in morning sky; magnitudes -11.6 and 5.7
- Oct 10, 6h, Moon 5.9° NNE of Venus; 45° and 46° from Sun in morning sky; magnitudes -7.8 and -4.5
- Oct 14, 0h, Moon 0.65° S of Mercury; 4° from Sun in morning sky; magnitudes -4.2 and -1.3
- Oct 15, 6h, Moon 0.94° S of Mars; 11° and 10° from Sun in evening sky; magnitudes -5.0 and 1.6
- Oct 24, 1h, Moon 2.57° SE of Saturn; 120° from Sun in evening sky; magnitudes -11.2 and 0.7
- Oct 25, 17h, Moon 1.36° SE of Neptune; 143° from Sun in evening sky; magnitudes -11.9 and 7.8
- Oct 28, 21h, Moon 2.89° NNW of Jupiter; 174° from Sun in midnight sky; magnitudes -12.7 and -2.9
- Oct 29, 15h, Moon 2.70° NNW of Uranus; 165° from Sun in morning sky; magnitudes -12.4 and 5.6










Other Events of Interest

Times are Hawaii Standard Time

- Oct 2, 21h, Moon 1.08° SE of Pleiades; 129° from Sun in morning sky
- Oct 8, 14h, Draconid meteors; ZHR 5; 2 days after last quarter Moon
- Oct 13, 15h, New Moon; beginning of lunation 1247; annular eclipse of the Sun
- Oct 15, 2h, Mars and Jupiter at heliocentric opposition; longitudes 218.8° and 38.8°
- Oct 18, 5h, Moon 0.83° NNE of Antares; 45° from Sun in evening sky; magnitudes -7.9 and 1.0; occultation
- Oct 21, 14h, Orionid meteors; ZHR 20; near first quarter Moon
- Oct 22, 12h, Venus dichotomy (D-shape)
- Oct 27, 15h, Full Moon; partial eclipse of the Moon (Not visible in Hawaii)

- 1 October: Morning Moon close to Jupiter
- 5 October: Ganymede's shadow transits Jupiter (21:46-23:52 UT)
- 13 October: Comet 103P Hartley near NGC 2392
- 21/22 October: Orionid meteor shower peak (favorable)
- 28 October: Small partial lunar eclipse

Planets in October

 <h3>Mercury</h3> <p>Best during first week of October, bright in the morning. Lost after.</p>	 <h3>Venus</h3> <p>Brilliant morning planet at greatest western elongation on 24 October, 46.4° from the Sun.</p>	 <h3>Mars</h3> <p>Not visible this month.</p>
 <h3>Jupiter</h3> <p>Jupiter is very bright (mag. -2.8) and really well placed this month in southern Aries.</p>	 <h3>Saturn</h3> <p>Well placed evening planet in Aquarius. A gibbous Moon is nearby on the evenings of 23 and 24 October.</p>	 <h3>Uranus</h3> <p>Well-placed near Botein (Delta (δ) Arietis). Jupiter nearby; both joined by a gibbous Moon on 1/2 October.</p>
 <h3>Neptune</h3> <p>Well-placed evening planet. Reaches highest point, due south in darkness all month. Requires binoculars to see.</p>	 <h3>Pluto (Dwarf Planet)</h3> <p>will become visible at around 18:59 (HST), 45° above your southern horizon, as dusk fades to darkness. It will then sink towards the horizon, setting at 00:20.</p>	 <h3>4—Vesta (Asteroid)</h3> <p>is visible in the morning sky, becoming accessible around 00:28, when it reaches an altitude of 21° above your eastern horizon.</p>

Meeting Minutes

H.A.S. Secretary

*September 5th, 2023 7:30 PM (Bishop Museum Paki 2 and Zoom Meeting)
Andy Stroble*

Meeting called to order at 7:30pm by President Chris Peterson.

President Chris moved that Minutes of the August meeting be adopted. Unanimous approval.

Star party reports: many guests at Kahala, three members were at Geiger.

School star parties: Helemano Elementary School in Wahiawa. The planned date is September 14, 2023, from 7:30 to 8:30 PM. HPA middle school and Iolani have also made requests. Bishop Museum will be having an event for the opening of "Playing With Light", on Oct. 6th, and has requested telescopes.

Attending for the first time were Eric Vandeworth and children, and Shane Abraham.

President Chris reports: Indian moon lander Chandrayaan-3 was successful, preparing to go to sleep for the lunar night. Russia's Luna 25 crater has been located. Japan is to launch 'moon sniper' lunar lander SLIM soon.

Vice President Bill reports: Results of Membership interest survey reveal a wide spread. The idea of a topic of the Month was raised. And Bill shared some photos of Rho Ophiuchus, and M4 and m80 near Antares.

Member at large and Astronews Editor Ort shared photos of the Perseid meteor shower, with 28 of 1983 exposures having caught a falling star. He also showed some time elapse star trail shots. Ort attended the Girl Scouts Camp (he got a patch!), and shared a "pocket" solar system construction activity, designed to illustrate the sized of planets.

Member Tom presented some space history, with the story of the oldest satellite still in orbit, the Vanguard2, launched in 1958 for a 90-day mission.

At-Large-Boardmember, Steven Chun, gave some information on the use of the ASI AIR for visual astronomy, plate-solving, and not just auto-guiding. He also shared some photos of M4, M8, M20 and M57.

Treasurer Peter gave a tour of Ophiuchus globular clusters, using the HAS Deep Sky Atlas.

Meeting adjourned at 21:02, or 9:02pm HST.

There were 14 persons physically present, and 13 on Zoom (with some redundancy).

Faithfully submitted,
James Andy Stroble, Secretary.
Honolulu, Hawaii

(Continued from page 2) President's Message

observe mostly alone while others enjoy gathering with others. Some of us teach, but we all learn.

What kind of astronomer are you?

Hawaiian Astronomical Society Event Calendar

October 2023						
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 BoD Meeting 3:30 PM Zoom	2	3 Club Meeting 7:30 PM Hybrid	4	5	6 3rd Qtr 3:47AM Bishop Event 5:30P-8:30P	7 Club Party Dillingham Airfield Sunset 6:13PM
8	9 Columbus Day	10	11	12	13	14 New Moon 7:55AM Public Party Dillingham Airfield Sunset 6:07PM
15	16	17	18	19	20 10/21 8:30A-2:00P Lacy Veach Day Kamehameha School	21 1st Qtr 5:29PM Public Party Kahala/Geiger Sunset 6:02PM
22	23	24	25	26	27	28 Full Moon 10:24AM
29	30	31 Halloween	Notes:			

<<Upcoming Star Parties>>

Public Party-Dillingham October 14 —7:00 PM
Club Party Dillingham October 7 —7:00 PM
Public Party Geiger/Kahala October 21 — 6:02 PM

Upcoming School Star Parties

Date	Time	Location

NASA's Night Sky Notes

From Galileo to Clipper, Exploring Jupiter's Moons

Vivian White



*"...We, too, are made of wonders, of great
and ordinary loves, of small invisible worlds,
of a need to call out through the dark."*

From In Praise of Mystery: A Poem for Europa by Ada Limon



As autumn begins, if you're up late, you may notice a bright point of light rising in the east. Look a bit closer, with a pair of binoculars, and you'll notice it's not a star at all. While stars look point-like no matter how big your backyard telescope, this light appears as a circle under closer examination. Even more curious, you will likely see a line of smaller dots on one or both sides. Congratulations! You've rediscovered the king of the planets - majestic Jupiter - and its four largest moons.

Galileo famously chronicled the four moving dots near Jupiter and surmised that they were orbiting the distant world. While Jupiter has well over 80 discovered moons as of September 2023, these brightest four are called the "Galilean Moons" - Io, Europa, Ganymede, and Callisto. (Great mnemonics exist to remember these in order of distance from Jupiter, such as "I Eat Green Caterpillars") You can follow these like Galileo did, using stargazing apps or the handy image below. A favorite beginning observing challenge is to track the movement of the Galilean Moons over the course of many nights. Even within a few hours, you will notice them moving in relation to Jupiter, just as Galileo did.

Fast forward 414 years, and NASA will be sending a robotic mission to investigate the surface of one of these distant worlds. The Europa Clipper Mission is launching to the cold, icy moon in 2024, to begin orbiting in 2030. With its salty oceans covered by ice, Europa was chosen as an excellent location to continue the search for life outside of Earth. Clipper will be the largest spacecraft ever sent to another planet, designed to withstand Jupiter's punishing radiation. Once it arrives at Jupiter in 2030, NASA plans to do about 50 flybys of Europa, mapping almost the entire surface of this watery world.

What was once only dreamed of in the small telescope of Galileo, or in great works of fiction, NASA is turning our wildest imagination into reality. One of the celebrated quotes from the classic 2010: Odyssey Two warns, "All these worlds are yours, except Europa. Attempt no landing there." Science fiction fans can feel relieved knowing that writer Arthur C. Clarke gave his blessing for the Europa Clipper mission.

Join the Europa Message in a Bottle Campaign to send your name with the spacecraft, hear the rest of the poem by the US Poet Laureate, and learn more about the wonders of space travel with the Clipper Mission: <https://europa.nasa.gov/participate>

(Continued on page 9)

This month I feature two meteor showers of the six listed for October. The Draconids (also called the October-Draconids) are known as a periodic shower which produced spectacular meteor storms in 1933 and 1946, and lower rates in several other years (ZHRs \approx 20–500+). Recent outbursts happened in 2011 (ZHR \approx 300; predicted) and in 2012 (unexpected). The 2018 return yielded a ZHR of about 150 lasting for about 4 hours, much higher than the predicted values. For 2023, there are no trail encounters announced. The parent comet 21P/ Giacobini-Zinner passed its perihelion last on 2018 September 10. Moonlight is at a minimum for the evening hours, which are best for Draconid observations. The radiant is north-circumpolar and is at its highest during the first half of the night. The Draconid meteors are exceptionally slow-moving (20 km/sec).

The Leo Minorids (022 LMI) shower was first identified in photographic orbital data and comet C/1739 K1 (Zanotti) is suggested as parent object. The activity was established from

(Continued on page 10)



Most meteors are sourced to the asteroid belt. Here's a Halloween costume that celebrates asteroids
(credit: wholesalehalloweencostumes.com)

Phases of the Moon (courtesy timeanddate.com)

First Quarter	Full Moon	Last Quarter	New Moon
October 21	October 28	October 6	October 14

Shower	Activity	Maximum		Radiant		V_{∞} km/s	r	ZHR
		Date	λ	α	δ			
Oct. Camelopard. (281 OCT)	Oct 05 - Oct 6	Oct 06	192.58°	164°	+79°	47	2.5	5
Draconids (009 DRA)	Oct 06 - Oct 10	Oct 09	195.4°	262°	+54°	20	2.6	10
δ -Aurigids (224 DAU)	Oct 10 - Oct 18	Oct 11	198°	84°	+44°	64	3.0	2
ϵ -Geminids (023 EGE)	Oct 14 - Oct 27	Oct 18	205°	102°	+27°	70	3.0	3
Orionids (008 ORI)	Oct 02 - Nov 07	Oct 22	208°	95°	+16°	66	2.5	20
Leo Minorids (022 LMI)	Oct 19 - Oct 27	Oct 24	211°	162°	+37°	62	3.0	2

Time to enjoy our Hawaiian skies and observe the very small asteroids entering our atmosphere! For more info contact: Tom Giguere, 808-782-1408, Thomas.giguere@yahoo.com; Mike Morrow, PO Box 6692, Ocean View, HI 96737.

Cash Flow - 8/9/2023 to 9/10/2023

Beginning Balance	\$5,175.21
Money into selected accounts comes from	
Donation	\$775.00
Membership - Electronic	\$20.00
Membership – Family	\$6.00
Telescope Rental	\$20.00
Total Money In	\$821.00
Money out of selected accounts goes to	
Astronomical League	\$12.00
Award	\$37.50
Insurance	\$323.20
Subscription - Astronomy	\$34.00
Total Money Out	\$406.70
Difference	\$414.30
Ending Balance	\$5,589.51

Here are the financials up through September 10. The biggest expense involves our yearly liability insurance. The large donation was taken in large measure from money donated to fix a Questar 3.5” telescope.

Thanks to everyone who paid, renewed, and donated.

Covid wastewater data continues to trend up in parts of Oahu and decline in others. Hospitalizations have dropped to under 100 again. The new vaccine for the latest round of variants is rolling out. Even slowpoke Kaiser has started administering shots as of the day of this writing. Again, to borrow from the computer security folks, you want “defense in depth:” Vaccines and masking will help keep you from getting sick, or reduce the severity of the illness, along with it’s long term damage.

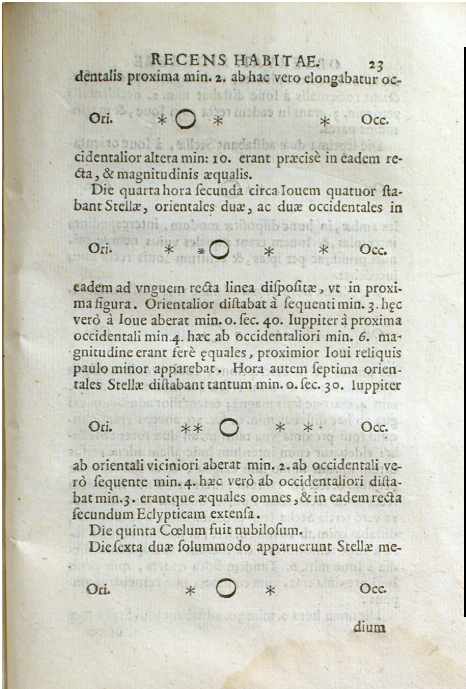
See you under the stars.



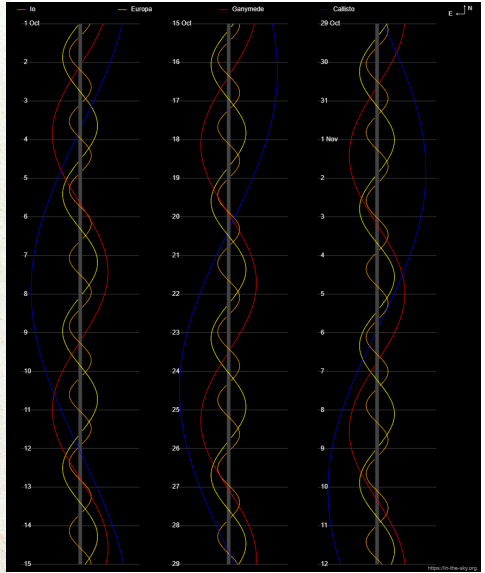
Voyager 1 Lifts Off Toward an Interstellar Journey

On Sept. 5, 1977, NASA’s Voyager 1 spacecraft lifts off atop its Titan/Centaur-6 launch vehicle from Launch Complex 41 at Cape Canaveral Air Force Station, now Cape Canaveral Space Force Station, in Florida.

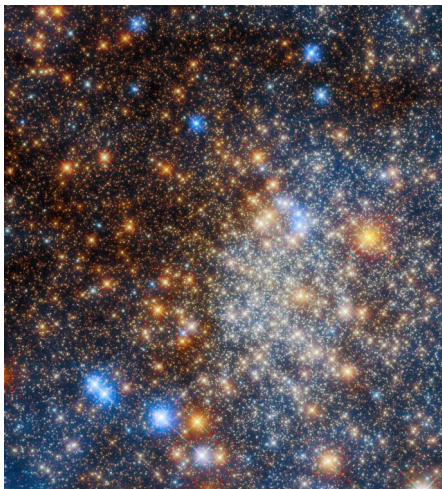
Watch a wonderful Clipper webinar with Dr. Cynthia Phillips, planetary geologist with the mission: <https://www.youtube.com/live/RnnLJBLRBCA?feature=shared&t=269>



Galileo's drawings of Jupiter and its Medicean Stars from Sidereus Nuncius. Image courtesy of the History of Science Collections, University of Oklahoma Libraries.



The position of the Galilean Moons of Jupiter in October 2023: <https://in-the-sky.org/jupiter.php>



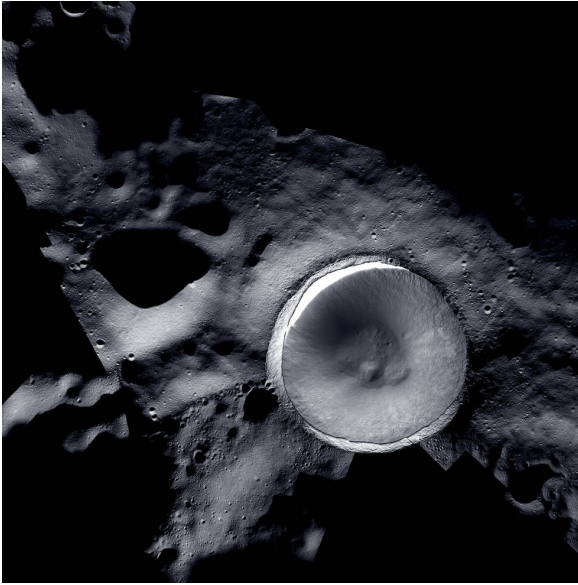
Hubble Sees Glittering Globular Cluster Embedded Inside Our Milky Way

A field of stars in colors of yellow, gold, and blue fills the frame against a black background. This colorful image of the globular star cluster Terzan 12 is a spectacular example of how dust in space affects starlight coming from background objects. A globular star cluster is a conglomeration of stars, arranged in a spheroidal shape. Stars in globular clusters are bound together by gravity, with a higher concentration of stars towards the center. The Milky Way has about 150 ancient globular clusters at its outskirts. These clusters orbit around the galactic center, but far above and below the pancake-flat plane of our galaxy, like bees buzzing around a hive.

Image Credit: NASA, ESA, ESA/Hubble, Roger Cohen (RU)

(Continued from page 7) - Meteor Log

video data and over the past years, a suitable sample of visual data has been collected as well. Visual data from 2017–2021 yield a maximum ZHR of about 5 around October 24 or perhaps slightly earlier. The radiant area can be seen solely from the northern hemisphere, where it rises around midnight. The given maximum date is shortly after the first quarter Moon, leaving the morning sky moon-free for collection of optical data. Meteor shower information, credit: International Meteor Organization.



NASA Moon Camera Mosaic Sheds Light on Lunar South Pole

A new mosaic of the Shackleton Crater

A new mosaic of the Shackleton Crater showcases the power of two lunar orbiting cameras working together to reveal unprecedented detail of the lunar South Pole region.

This mosaic was created with imagery acquired by LROC (Lunar Reconnaissance Orbiter Camera), which has been operating since 2009, and from ShadowCam, a NASA instrument on board a KARI (Korea Aerospace Research Institute) spacecraft called Danuri, which launched in Aug. 2022. ShadowCam was developed by Malin Space Science Systems and Arizona State University.

LROC can capture detailed images of the lunar surface but has limited ability to photograph shadowed parts of the Moon that never receive direct sunlight, known as permanently shadowed regions. ShadowCam is 200-times more light-sensitive than LROC and can operate successfully in these extremely low-light conditions, revealing features and terrain details that are not visible to LROC. ShadowCam relies on sunlight reflected off lunar geologic features or the Earth to capture images in the shadows.

Credits: Mosaic created by LROC (Lunar Reconnaissance Orbiter) and ShadowCam teams with images provided by NASA/KARI/ASU

(Continued from page 1) - word from your editor

star party on 9/16/2023, we had a lot of visitors (10 cars & 40 visitors). We had 10 members set up telescopes for visitors. Steven was showing Saturn & Double Double (Epsilon Lyrae) to them. Most visitors left at 9:30 PM. Some stayed until we closed up at 11:30 PM.

That same night, I used my Dwarf II (DII) to again took an Astrophotography of M31 (Andromeda Galaxy). I took 500 lights & 60 darks at 15 sec. exposure, Gain 80, & IR cut. My DII is in polar align configuration. I processed the photo using Siril and Lightroom.



October 3, 2023 Guest Speaker.

Edwin Hubble: The Surveyor of the Universe

"One hundred years ago, on the night of October 5th, 1923, a discovery was made that changed our understanding of the cosmos. American astronomer Edwin Hubble, using the new 100" Hooker reflector telescope at Mt Wilson Observatory, identified within the Andromeda Nebula what was to become the first extra-galactic variable star. This led to astronomers adopting the expanding universe theory! Some historians consider Hubble's discovery to be one of the greatest in astronomy since Galileo's time.

Through his work of studying variable stars in galaxies, Hubble broke new ground in our understanding the universe, and along the way sparked the basics of the Big Band Theory. Today, we're going to look-back on his life and accomplishments, and talk about his discoveries.

We'll also review my amateur observations of Hubble's objects and how you can observe them too."

Larry McHenry has been active in amateur astronomy for over 40 years, and is a member of the Kiski Astronomers, and the Oil Region Astronomical Society (ORAS) in Western Pennsylvania. One of Larry's favorite astronomical activities is learning about the historical astronomers that have come before us and observing their objects.

You can learn more about Larry's astronomical interests online at his webportal: <http://www.stellar-journeys.org/>

**H.A.S.
P.O. Box 17671
Honolulu, HI 96817**



OSIRIS-REx Sample Return Capsule Lands in the Utah Desert

View from above of a desert landscape with brush. The red and white striped parachute that slowed the descent of the Sample Return Capsule is on the ground near the upper left and the black capsule is near the center of the image.

Photo Credit: NASA/Keegan Barber