The Prairie Astronomer

January 2017 Volume 58, Issue #1

January Program:

How to Use Your Telescope

Hubble's Slice of Sagittarius

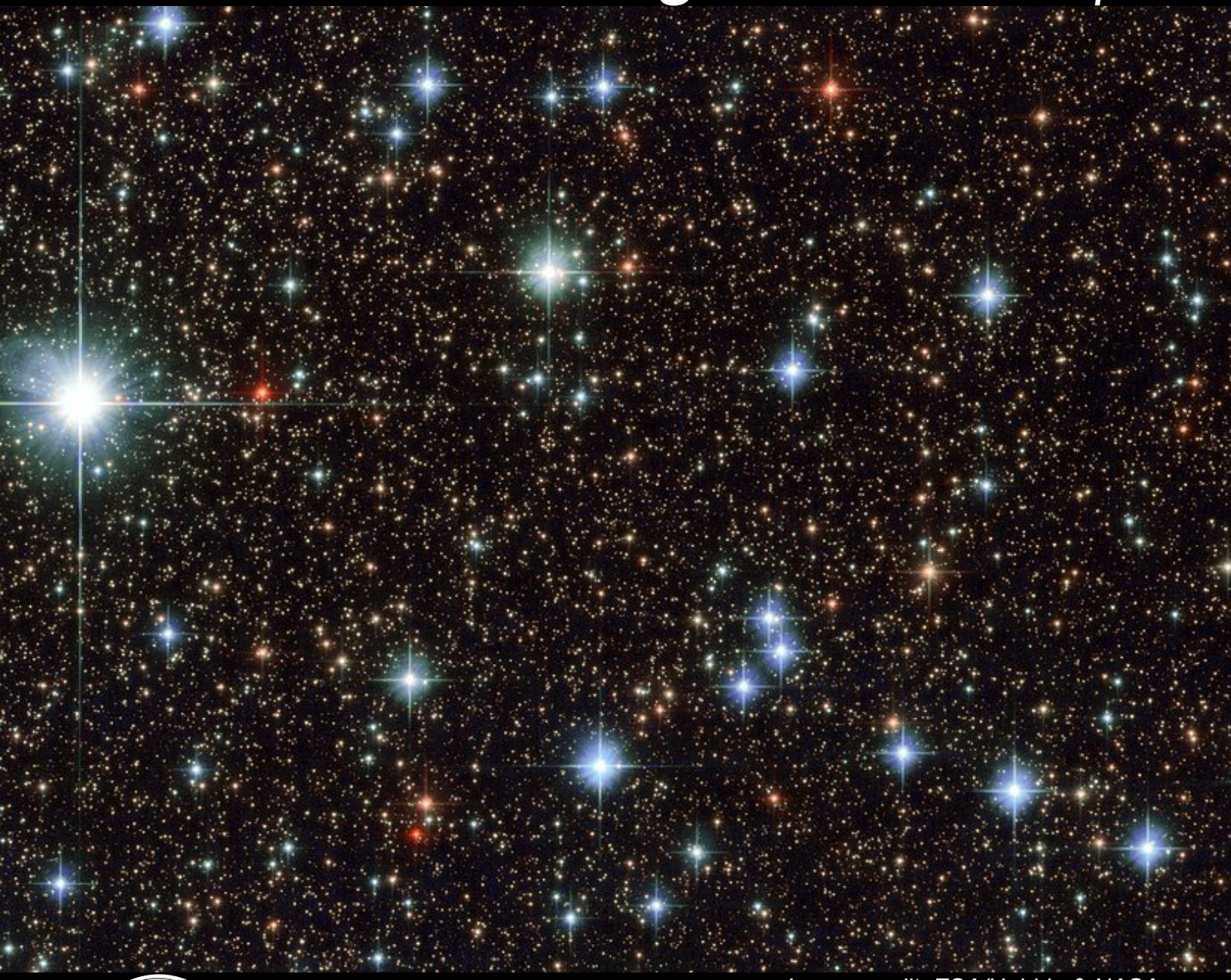

Image credit: ESA/Hubble & NASA

Night Sky Network

The Newsletter of the Prairie Astronomy Club

The Prairie Astronomer

NEXT PAC MEETING: January 31, 7:30pm

At Hyde Observatory

PROGRAM

The Prairie Astronomy Club will offer its annual free session: "How to Use Your Telescope" at Hyde Observatory, Tuesday evening January 31st at 7:30 p.m. Do you own a telescope and need help getting started using it? The Prairie Astronomy Club would like to help. Every year at our January meeting, we offer a session to give hands-on assistance. There is no charge for this session. It is open to the public and if you have a telescope you want to use you are encouraged to bring it. Meetings are at Hyde Observatory and are open to the public.

FUTURE PROGRAMS

January: How to Use Your Telescope

Tentative:
February: The Boller-Sivill Observatory
February alternate: Solar eclipse amateur science
March: Eclipse planning
April: How to Photograph an Eclipse
May: Club Dinner
June: Solar Star Party - and eclipse prep for public
July: NSP - no club meeting
August: NSP & Eclipse review
October: Club viewing night at Hyde

Buy the book! The Prairie Astronomy Club: Fifty Years of Amateur Astronomy.
Order online from Amazon or lulu.com.

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EVENTS

PAC Meeting
Tuesday January 31, 2017, 7:30pm
Hyde Observatory

PAC Meeting
Tuesday February 28, 2017, 7:30pm
Hyde Observatory

Newsletter submission deadline February 18

PAC Meeting
Tuesday March 28, 2017, 7:30pm
Mueller Planetarium

2017 STAR PARTY DATES

Photo by Brian Sivill

	Star Party Date	Star Party Date	Lunar Party Date
January	Jan 20th	**Jan 27th**	
February	Jan 17th	**Feb 24th**	
March	Mar 17th	**Mar 24th**	
April	Apr 21st	**Apr 28th**	
May	May 19th	**May 26th**	May 5th
June	Jun 16th	**Jun 23rd**	Jun 30th
July	Jul 14th	**Jul 21st**	
NSP	**July 23rd - July 28th**		
August	**Aug 18th**	Aug 25th	
September	Sep 15th	**Sep 22nd**	Sep 1st
October	Oct 13th	**Oct 20th**	
November	Nov 10th	**Nov 17th**	
December	Dec 15th	**Dec 22nd**	

Dates in **BOLD** are closest to the New Moon.

PAC E-MAIL:

info@prairieastronomyclub.org

PAC-LIST:

Subscribe through GoogleGroups.
To post messages to the list, send to the address:

pac-list@googlegroups.com

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www.prairieastronomyclub.org
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www.planetary.org/home/
http://www.darksky.org/

Night Sky Network

Boller-Sivill Observatory - Construction Update

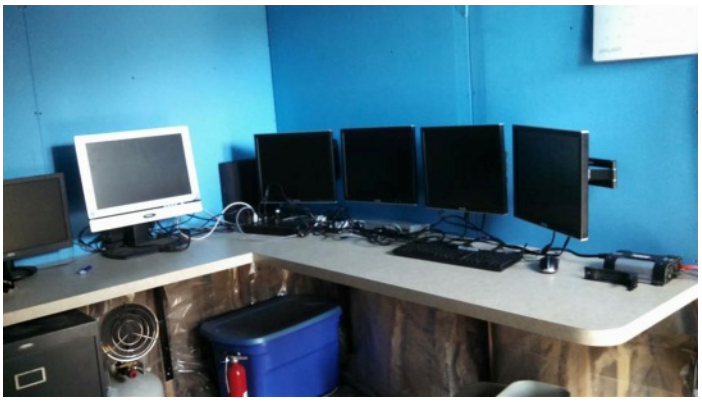
Brian Sivill and Brett Boller

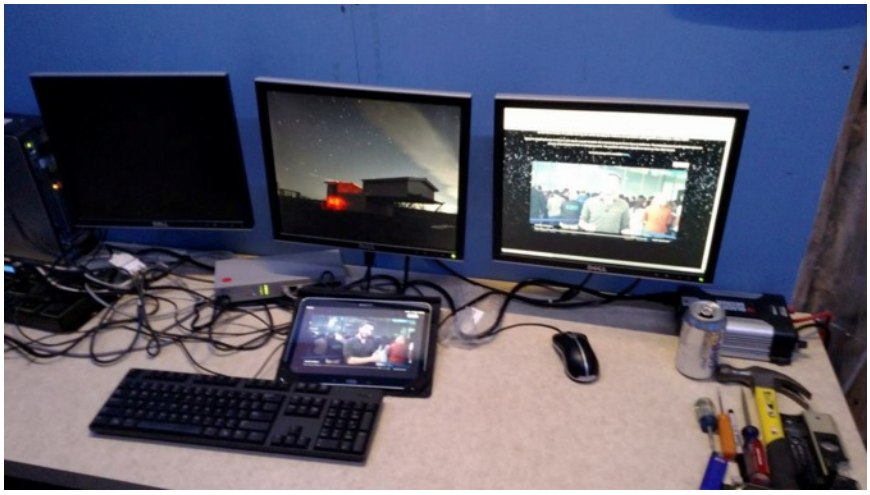
Though we've had some rough weather this month, a lot of work got done at Branched Oak on the Boller-Sivill Observatory. Inspired by a few really frigid experiences at the observatory, Brett put up insulation in the control room. A week or so later, he and his dad, Bill Boller, had the whole control room fitted with drywall. Brett is now proud to report that, when using our propane heater, it's possible to attain control room temperatures on par with the Equatorial Sahara, all while the outside temp is in low double-digits. All kidding aside, its very nice to have refuge from the cold when observing and WE GOT THAT!

Not long after, we were able to install a nice new wrap-around countertop, courtesey of my partner, Julie Cole, and her wonderful people at Custom Countertop. Around the same time, Michael Sibbernsen installed a network bridge, bringing internet connectivity right to the BSO roll-off. The following week, Brett and I moved in some file cabinets and mounted four computer monitors to the wall. The monitor mounts are a clever design that Brett found which extend nicely, yet fold flat against the wall. We then powered up a few computers we had been preparing for the Observatory. I've been re-purposing retired Windows PCs by installing Linux on them, with oustanding results. Brett had also donated a Linux 'all-in-one' machine running Ubuntu. So we are now officially a 'Linux shop'. Our very first experience using our 'new' PCs and internet connection, was to live-stream the Spacex launch and successful landing on Jan 14th. We were thrilled with BOTH the Spacex effort and the speed of our network!

With a Branched Oak Star Party scheduled for Jan 28, we'll have some nice things to show off, and a warm space for relaxing.

Bit by bit we improve and advance the facility. We should be in good form for the coming year!



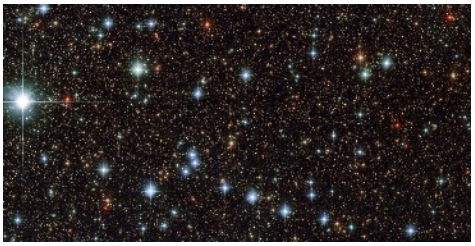


M33 also know as the Triangulum Galaxy is approximately 3 million light-years from Earth in the constellation Triangulum. Poor seeing conditions and the fact the we just got the telescope roughly aligned didn't let us take enough time on this object.

Boller-Sivill Observatory

NGC 404 also know as Mirach's Ghost. It is the small star like object above the bright star. This in fact is a field galaxy located about 10 million light years away in the constellation Andromeda. Boller-Sivill Observatory

Cover Photo:



This stunning image, captured by the NASA/ESA Hubble Space Telescope's Advanced Camera for Surveys (ACS), shows part of the sky in the constellation of Sagittarius (The Archer). The region is rendered in exquisite detail — deep red and bright blue stars are scattered across the frame, set against a background of thousands of more distant stars and galaxies. Two features are particularly striking: the colors of the stars, and the dramatic crosses that burst from the centers of the brightest bodies.

While some of the colors in this frame have been enhanced and tweaked during the process of creating the image from the observational data, different stars do indeed glow in different colors. Stars differ in color according to their surface temperature: very hot stars are blue or white, while cooler stars are redder. They may be cooler because they are smaller, or because they are very old and have entered the red giant phase, when an old star expands and cools dramatically as its core collapses.

The crosses are nothing to do with the stars themselves, and, because Hubble orbits above Earth's atmosphere, nor are they due to any kind of atmospheric disturbance. They are actually known as diffraction spikes, and are caused by the structure of the telescope itself.

Like all big modern telescopes, Hubble uses mirrors to capture light and form images. Its secondary mirror is supported by struts, called telescope spiders, arranged in a cross formation, and they diffract the incoming light. Diffraction is the slight bending of light as it passes near the edge of an object. Every cross in this image is due to a single set of struts within Hubble itself! Whilst the spikes are technically an inaccuracy, many astrophotographers choose to emphasize and celebrate them as a beautiful feature of their images.

Text credit: European Space Agency

Mars Rover Curiosity Examines Possible Mud Cracks

Scientists used NASA's Curiosity Mars rover in recent weeks to examine slabs of rock cross-hatched with shallow ridges that likely originated as cracks in drying mud.

"Mud cracks are the most likely scenario here," said Curiosity science team member Nathan Stein. He is a graduate student at Caltech in Pasadena, California, who led the investigation of a site called "Old Soaker," on lower Mount Sharp, Mars.

If this interpretation holds up, these would be the first mud cracks -- technically called desiccation cracks -- confirmed by the Curiosity mission. They would be evidence that the ancient era when these sediments were deposited included some drying after wetter conditions. Curiosity has found evidence of ancient lakes in older, lower-lying rock layers and also in younger mudstone that is above Old Soaker.

"Even from a distance, we could see a pattern of four- and five-sided polygons that don't look like fractures we've seen previously with Curiosity," Stein said. "It looks like what you'd see beside the road where muddy ground has dried and cracked."

The cracked layer formed more than 3 billion years ago and was subsequently buried by other layers of sediment, all becoming stratified rock. Later, wind erosion stripped away the

layers above Old Soaker. Material that had filled the cracks resisted erosion better than the mudstone around it, so the pattern from the cracking now appears as raised ridges.

The team used Curiosity to examine the crack-filling material. Cracks that form at the surface, such as in drying mud, generally fill with windblown dust or sand. A different type of cracking with plentiful examples found by Curiosity occurs after sediments have hardened into rock. Pressure from accumulation of overlying sediments can cause underground fractures in the rock. These fractures generally have been filled by minerals delivered by groundwater circulating through the cracks, such as bright veins of calcium sulfate.

Both types of crack-filling material were found at Old Soaker. This may indicate multiple generations of fracturing: mud cracks first, with sediment accumulating in them, then a later episode of underground fracturing and vein forming.

"If these are indeed mud cracks, they fit well with the context of what we're seeing in the section of Mount Sharp Curiosity has been climbing for many months," said Curiosity Project Scientist Ashwin Vasavada of NASA's Jet Propulsion Laboratory in Pasadena. "The ancient lakes varied in depth and extent over time, and sometimes disappeared. We're seeing more evidence of dry intervals between what had been mostly a record of long-lived lakes."

Besides the cracks that are likely due to drying, other types of evidence observed in the area include sandstone layers interspersed with the mudstone layers, and the presence of a layering pattern called cross-bedding. This pattern can form where water was flowing more vigorously near the shore of a lake, or from windblown sediment during a dry episode.

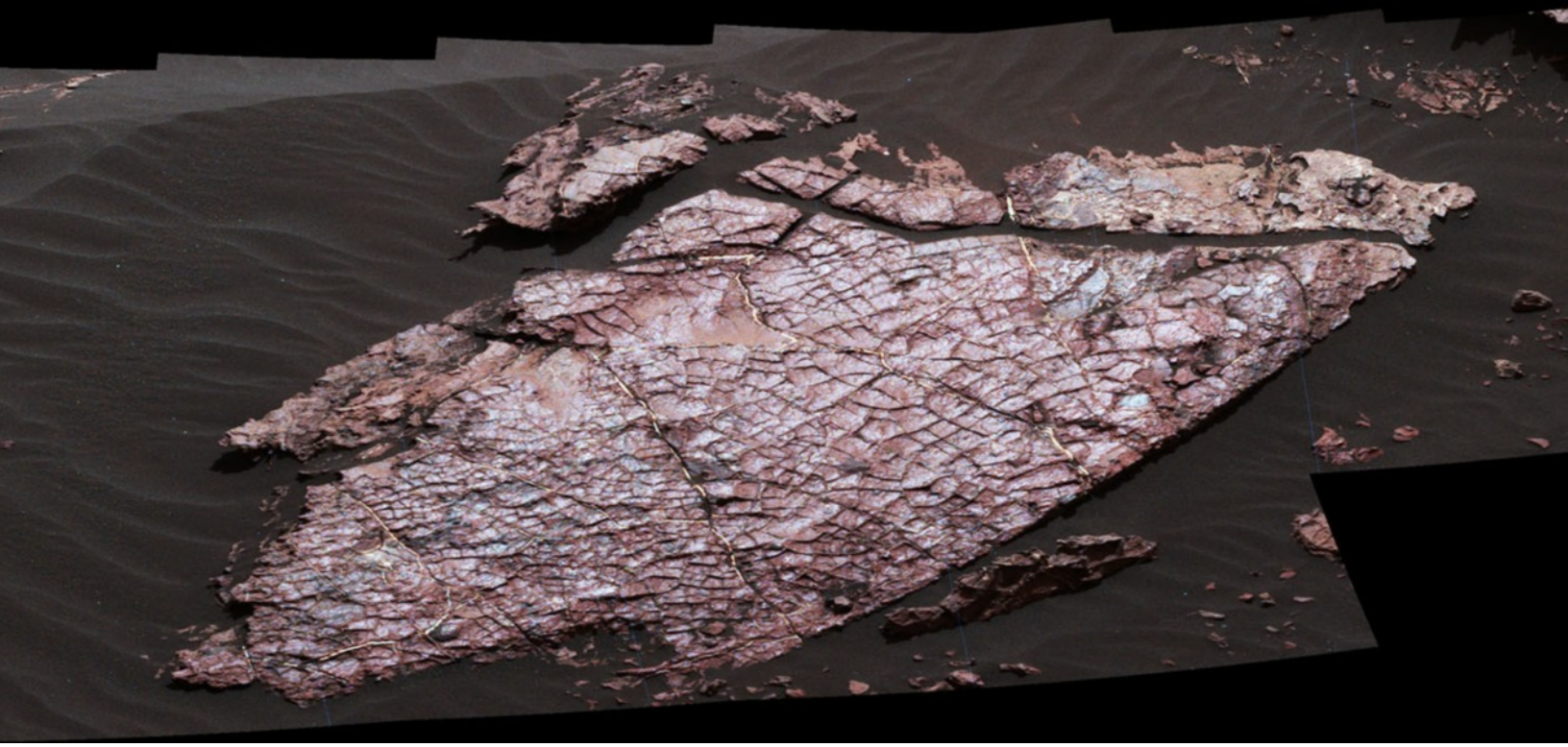
Scientists are continuing to analyze data acquired at the possible mud cracks and also watching for similar-looking sites. They want to check for clues not evident at Old Soaker, such as the cross-sectional shape of the cracks.

The rover has departed that site, heading uphill toward a future rock-drilling location. Rover engineers at JPL are determining the best way to resume use of the rover's drill, which began experiencing intermittent problems last month with the mechanism that moves the drill up and down during drilling.

Curiosity landed near Mount Sharp in 2012. It reached the base of the mountain in 2014 after successfully finding evidence on the surrounding plains that ancient Martian lakes offered conditions that would have been favorable for microbes if Mars has ever hosted life. Rock layers forming the base of Mount Sharp accumulated as sediment within ancient lakes billions of years ago.

On Mount Sharp, Curiosity is investigating how and when the habitable ancient conditions known from the mission's earlier findings evolved into conditions drier and less favorable for life. For more information about Curiosity, visit:

http://mars.jpl.nasa.gov/msl

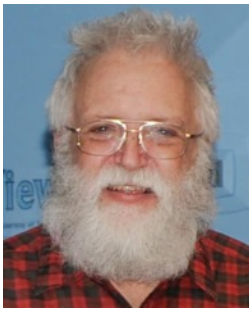


The network of cracks in this Martian rock slab called "Old Soaker" may have formed from the drying of a mud layer more than 3 billion years ago. The view spans about 3 feet (90 centimeters) left-to-right and combines three images taken by the MAHLI camera on the arm of NASA's Curiosity Mars rover. Credit: NASA/JPL-Caltech/MSSS *Full image and caption*

A grid of small polygons on the Martian rock surface near the right edge of this view may have originated as cracks in drying mud more than 3 billion years ago. Multiple Dec. 20, 2016, images from the Mastcam on NASA's Curiosity Mars rover were combined for this view of a rock called "Squid Cove." Credit: NASA/JPL-Caltech/MSSS *Full Image and Caption*

Observatory Update: KPG 542

Rick Johnson



KPG 542, also known as UGC 11453 is a pair of interacting galaxies in the northwest corner of Cygnus about 165 million light-years distant by redshift. Not a place you'd normally go galaxy hunting. Pros don't either unfortunately. I was unable to turn up much about this pair. The spiral has obviously been distorted with the plume along the north side and drawn out eastern arm. There's some disagreement whether it is an ATM or DIS pair. Without getting into details ATM pairs are in a common halo and DIS show interaction. Of course some are both but I don't see a common halo so vote for DIS with only the spiral showing any interaction. It is classified by NED as Sb with the companion E.

This one could have certainly fit Arp's category for spirals with a high surface brightness companion on an arm. Seems better suited then many he included in this category that were only line of sight pairs separated by many millions of light-years.

Since there are no other galaxies with redshift data in the field and very few faint ones I didn't prepare an annotated image. In fact the only other galaxy listed at NED is toward the upper left corner. NED lists it as the IR source 2MASX J19321568+5411555. It

also is listed as an Uv source, GALEXASC J193215.45+541157.3.

This was my first September image. That month had only a few the first few days of the month. Then moon, clouds and by pass surgery put an end to imaging until late December.

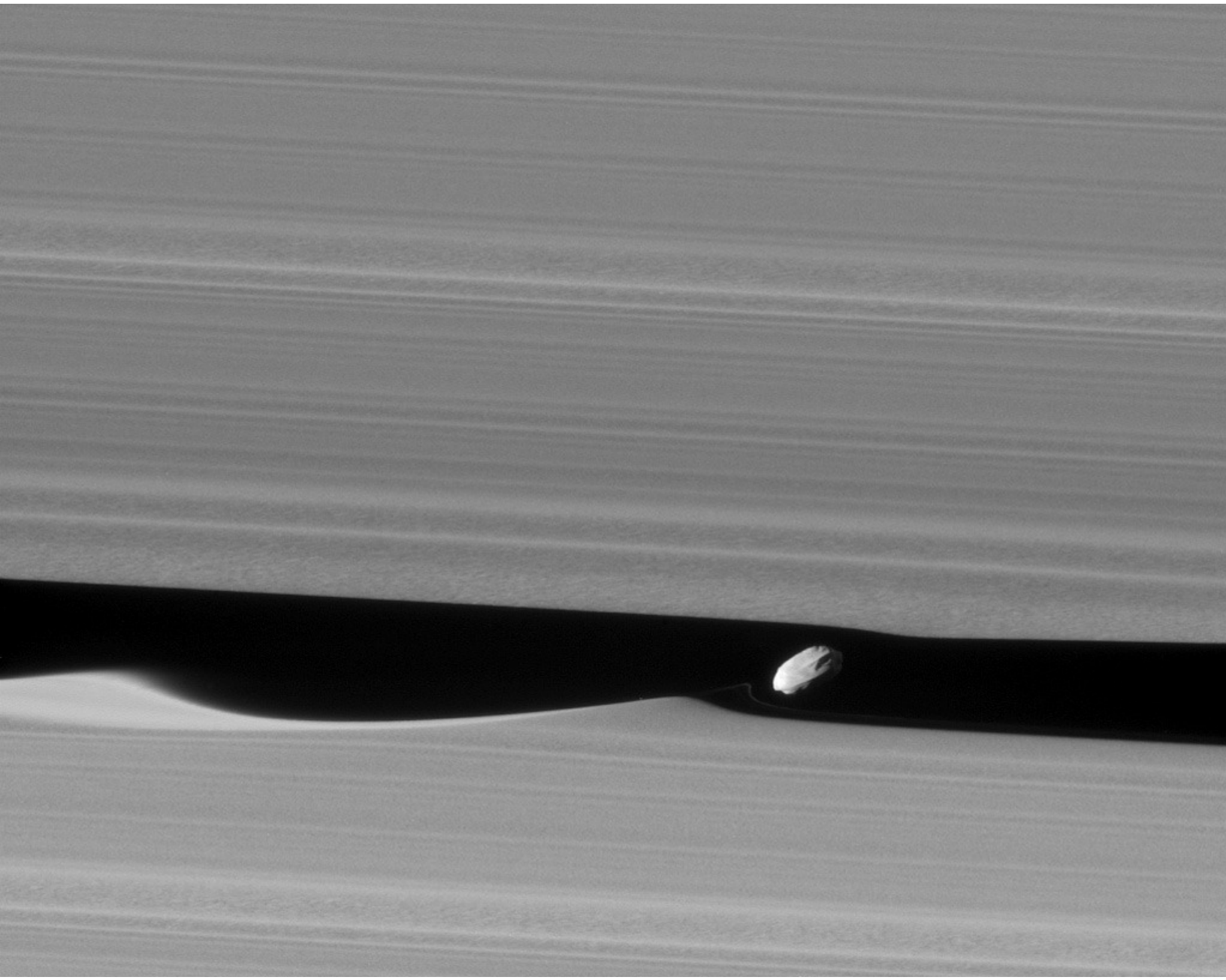
Watching the Wave Maker

The wavemaker moon, Daphnis, is featured in this view, taken as NASA's Cassini spacecraft made one of its ring-grazing passes over the outer edges of Saturn's rings on Jan. 16, 2017. This is the closest view of the small moon obtained yet.

Daphnis (5 miles or 8 kilometers across) orbits within the 42-kilometer (26-mile) wide Keeler Gap. Cassini's viewing angle causes the gap to appear narrower than it actually is, due to foreshortening.

The little moon's gravity raises waves in the edges of the gap in both the horizontal and vertical directions. Cassini was able to observe the vertical structures in 2009, around the time of Saturn's equinox (see PIA11654).

Like a couple of Saturn's other small ring moons, Atlas and Pan, Daphnis appears to have a narrow ridge around its equator and a fairly smooth mantle of material on its surface -- likely an accumulation of fine particles from the rings. A few craters are obvious at this



resolution. An additional ridge can be seen further north that runs parallel to the equatorial band.

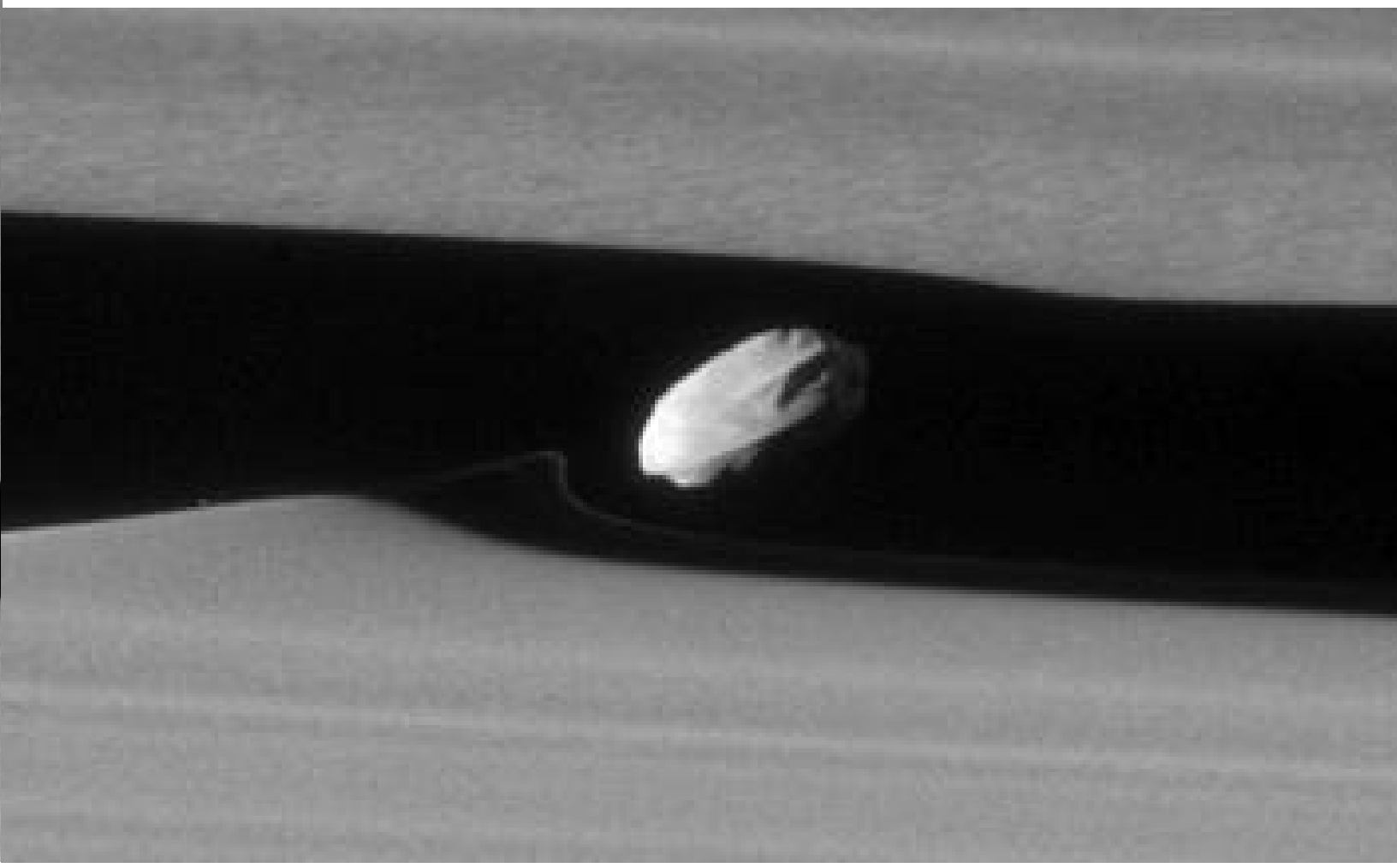
Fine details in the rings are also on display in this image. In particular, a grainy texture is seen in several wide lanes which hints at structures where particles are clumping together. In comparison to the otherwise sharp edges of the Keeler Gap, the wave peak in the gap edge at left has a softened appearance. This is possibly due to the movement of fine ring particles being spread out into the gap following Daphnis' last close approach to that edge on a previous orbit.

A faint, narrow tendril of ring material follows just behind Daphnis (to its left). This may have resulted from a moment when Daphnis drew a packet of material out of the ring, and now that packet is spreading itself out.

The image was taken in visible (green) light with the Cassini spacecraft narrow-angle camera. The view was acquired at a distance of approximately 17,000 miles (28,000 kilometers) from Daphnis and at a Sun-Daphnis-spacecraft, or phase, angle of 71 degrees. Image scale is 551 feet (168 meters) per pixel.

The Cassini mission is a cooperative project of NASA, ESA (the European Space Agency) and the Italian Space Agency. The Jet Propulsion Laboratory, a division of the California Institute of Technology in Pasadena, manages the mission for NASA's Science Mission Directorate, Washington. The Cassini orbiter and its two onboard cameras were designed, developed and assembled at JPL. The imaging operations center is based at the Space Science Institute in Boulder, Colorado.

For more information about the Cassini-Huygens mission visit http://saturn.jpl.nasa.gov and http://www.nasa.gov/cassini. The Cassini imaging team homepage is at http://ciclops.org.



February Observing: What to View

Jim Kvasnicka

This is a partial list of objects visible for the upcoming month.

Planets

Venus: Shines bright in the WSW at magnitude -4.8 all month.
Mars: To the upper left of Venus at magnitude 1.3.
Neptune: Lost in the Sun's afterglow.
Uranus: On February 26th look for Mars just 0.6° NNW of 6th magnitude Uranus.
Jupiter: Rises around 11:00 pm to start the month and two hours earlier at the end. It increases in magnitude to a -2.3 with a disk 42" wide.
Saturn: Crosses from Ophiuchus into Sagittarius at magnitude 0.5 all month.
Mercury: Low in the eastern dawn sky at magnitude -1.2.
Moon: A penumbral lunar eclipse will occur on February 10th starting at 5:14 pm CST.

Messier List

M1: The Crab Nebula in Taurus.
M35: Open cluster in Gemini.
M36/M37/M38: Open clusters in Auriga.
M42: The Orion Nebula.
M43: Emission nebula just north of M42.
M45: The Pleiades.
M78: Emission nebula in Orion.
M79: Class V globular cluster in Lepus.

Last Month: M33, M34, M52, M74, M76, M77, M103
Next Month: M41, M44, M46, M47, M48, M50, M67, M81, M82, M93

NGC and other Deep Sky Objects

NGC 2129: Open cluster in Gemini.
NGC 2266: Open cluster in Gemini.
NGC 2362: The Tau Canis Majoris Cluster.
NGC 2392: The Eskimo Nebula in Gemini.

Double Star Program List

32 Eridani: Yellow primary with a white secondary.
55 Eridani: Yellow and pale yellow pair.
Gamma Leporis: Pair of yellow stars.
Epsilon Monocerotis: White primary with a pale yellow secondary.
Beta Monocerotis: Three bluish white stars.
Kappa Puppis: Equal pair of white stars.
Alpha Ursa Minoris: Light yellow and white stars.
N Hydrae: Equal yellow stars.

Challenge Object

NGC 2389 Group: NGC 2389 is the brightest member of a trio of galaxies in Gemini 2.5° NNW of Castor. Other members include NGC 2388 and NGC 2385.

The Great American Total Eclipse August 21, 2017

Planning your eclipse trip? Take a look at Fred Espanak's presentation on YouTube:

https://www.youtube.com/watch?v=K4KnxE6yAuI

Focus on Constellations: Gemini

Jim Kvasnicka

Gemini the Twins is one of the twelve constellations of the Zodiac. The brightest stars are in two parallel rows, each representing one of the Twins. The bright stars at the NE end of the rows mark the Twin's heads and bear their names, Castor and Pollux. The Milky Way runs through the feet of Gemini so the constellation contains a wide variety of objects. Gemini's two finest objects ate the large open cluster M35 and the bright Planetary Nebula NGC 2392 the Eskimo Nebula.

Showpiece Objects

Open Clusters: M35, NGC 2129, and NGC 2266
Planetary Nebulae: NGC 2392
Multiple Stars: 15 Geminorum, 20 Geminorum, 38 Geminorum, Lambda Geminorum, Delta Geminorum, Alpha Geminorum, Kappa Geminorum

Mythology

Although Leda was the mother to both Castor and Pollux they had different fathers. Pollux was the son of Zeus who seduced Leda in the form of a swan. Since he was a son of a god Pollux was immortal. Castor was the son of Leda's husband Tyndareus. Their sister was Helen of Troy and both brothers fought in the Trojan War. They also sailed with Jason and his Argonauts in the Quest for the Golden Fleece. The Twins fell in love with beautiful sisters who were already betrothed to suitors. The Twins challenged the suitors in battle and slew them, but Castor was mortally wounded. Overcome with grief, Pollux would have committed suicide to be with his brother, but since he was immortal it proved impossible. Finally, Zeus placed both their souls together in the sky as symbols of brotherly love.

Number of Objects Magnitude 12.0 and Brighter

Galaxies: 3
Globular Clusters: 0
Open Clusters: 12
Planetary Nebulae: 7
Dark Nebulae: 0
Bright Nebulae: 0
SNREM: 1

Photo: Till Credner - Own work: AlltheSky.com

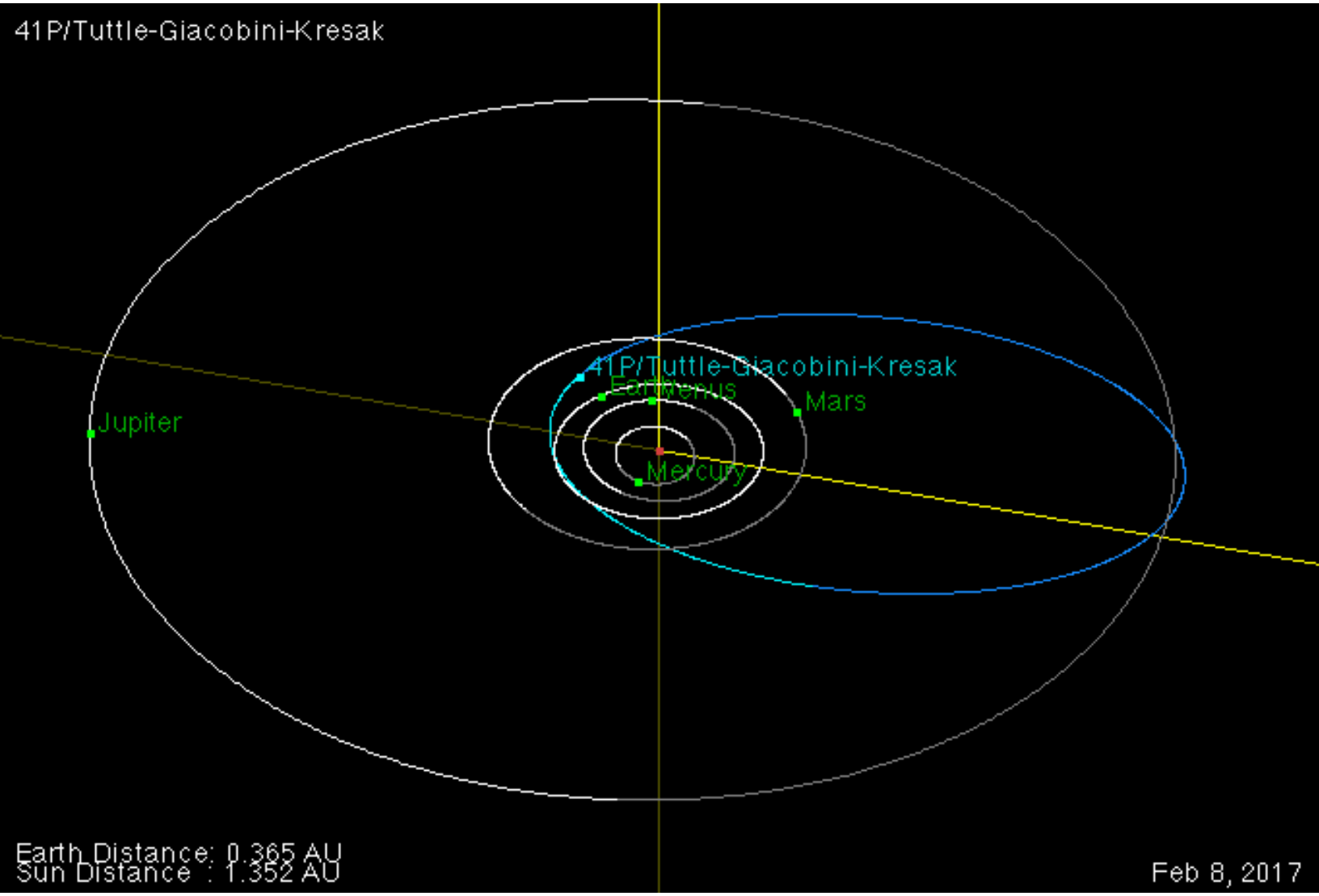
Comet Campaign: Amateurs Wanted

This article is provided by NASA Space Place.
With articles, activities, crafts, games, and lesson plans, NASA Space Place encourages everyone to get excited about science and technology.
Visit spaceplace.nasa.gov to explore space and Earth science!

Marcus Woo

In a cosmic coincidence, three comets will soon be approaching Earth—and astronomers want you to help study them. This global campaign, which will begin at the end of January when the first comet is bright enough, will enlist amateur astronomers to help researchers continuously monitor how the comets change over time and, ultimately, learn what these ancient ice chunks reveal about the origins of the solar system.

Over the last few years, spacecraft like NASA's Deep Impact/EPOXI or ESA's Rosetta (of which NASA played a part) discovered that comets are more dynamic than anyone realized. The missions found that dust and gas burst from a



An orbit diagram of comet 41P/Tuttle-Giacobini-Kresak on February 8, 2017—a day that falls during the comet's prime visibility window. The planets orbits are white curves and the comet's orbit is a blue curve. The brighter lines indicate the portion of the orbit that is above the ecliptic plane defined by Earth's orbital plane and the darker portions are below the ecliptic plane. This image was created with the Orbit Viewer applet, provided by the Osamu Ajiki (AstroArts) and modified by Ron Baalke (Solar System Dynamics group, JPL). http://ssd.jpl.nasa.gov/sbdb.cgi?orb=1;sstr=41P

comet's nucleus every few days or weeks—fleeting phenomena that would have gone unnoticed if it weren't for the constant and nearby observations. But space missions are expensive, so for three upcoming cometary visits, researchers are instead recruiting the combined efforts of telescopes from around the world.

"This is a way that we hope can get the same sorts of observations: by harnessing the power of the masses from various amateurs," says Matthew Knight, an astronomer at the University of Maryland.

By observing the gas and dust in the coma (the comet's atmosphere of gas and dust), and tracking outbursts, amateurs will help professional researchers measure the properties of the comet's nucleus, such as its composition, rotation speed, and how well it holds together.

The observations may also help NASA scout out future destinations. The three targets are so-called Jupiter family comets, with relatively short periods just over five years—and orbits that are accessible to spacecraft. "The better understood a comet is," Knight says, "the better NASA can plan for a mission and figure out what the environment is going to be like, and what specifications the spacecraft will need to ensure that it will be successful."

The first comet to arrive is 41P/Tuttle-Giacobini-Kresak, whose prime window runs from the end of January to the end of July. Comet 45P/Honda-Mrkos-Pajdusakova will be most visible between mid-February and mid-March. The third target, comet 46P/Wirtanen won't arrive until 2018.

Still, the opportunity to observe three relatively bright comets within roughly 18 months is rare. "We're talking 20 or more years since we've had anything remotely resembling this," Knight says. "Telescope technology and our knowledge of comets are just totally different now than the last time any of these were good for observing."

For more information about how to participate in the campaign, visit http://www.psi.edu/41P45P46P.

Want to teach kids about the anatomy of a comet? Go to the NASA Space Place and use Comet on a Stick activity! http://spaceplace.nasa.gov/comet-stick/

What Will the Voyager Spacecraft Encounter Next? Hubble Helps Provide a Roadmap

Nancy Atkinson, Universe Today

The twin Voyager spacecraft are now making their way through the interstellar medium. Even though they are going where none have gone before, the path ahead it is not completely unknown.

Astronomers are using the Hubble Space Telescope to observe the 'road' ahead for these pioneering spacecraft, to ascertain what various materials may lay along the Voyagers' paths through space.

Combining Hubble data with the information the Voyagers are able to gather and send back to Earth, astronomers said a preliminary analysis reveals "a rich, complex interstellar ecology, containing multiple clouds of hydrogen laced with other elements."

"This is a great opportunity to compare data from in situ measurements of the space environment by the Voyager spacecraft and telescopic measurements by Hubble," said Seth Redfield of Wesleyan University, who led the study. "The Voyagers are sampling tiny regions as they plow through space at roughly 38,000 miles per hour. But we have no idea if these small areas are typical or rare. The Hubble observations give us a broader view because the telescope is looking along a longer and wider path. So Hubble gives context to what each Voyager is passing through."

The combined data is also providing new insights into how our Sun travels through interstellar space, and astronomers hope that these combined observations will help them characterize the physical properties of the local interstellar medium.

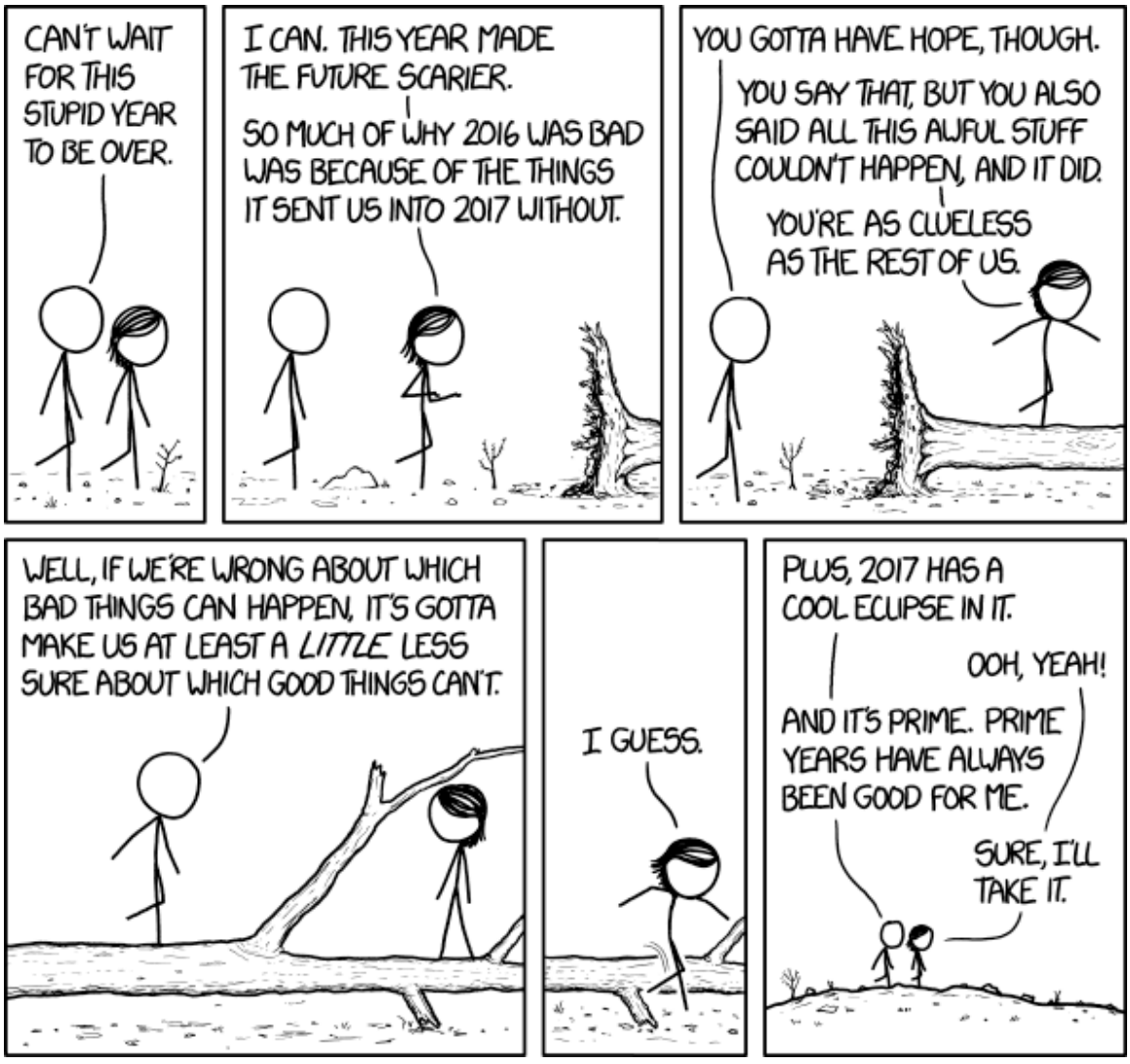
“Ideally, synthesizing these insights with in situ measurements from Voyager would provide an unprecedented overview of the local interstellar environment,” said Hubble team member Julia Zachary of Wesleyan University.

The initial look at the clouds’ composition shows very small variations in the abundances of the chemical elements contained in the structures.

“These variations could mean the clouds formed in different ways, or from different areas, and then came together,” Redfield said.

Astronomers are also seeing that the region that we and our solar system are passing through right now contains “clumpier” material, which may affect the heliosphere, the large bubble that is produced by our Sun’s powerful solar wind. At its boundary, called the heliopause, the solar wind pushes outward against the interstellar medium. Hubble and Voyager 1 made measurements of the interstellar environment beyond this boundary, where the wind comes from stars other than our sun.

“I’m really intrigued by the interaction between stars and the interstellar environment,” Redfield said. “These kinds of interactions are happening around most stars, and it is a dynamic process.”



xkcd.com

Both Voyagers 1 and 2 launched in 1977 and both explored Jupiter and Saturn. Voyager 2 went on to visit Uranus and Neptune.

Voyager 1 is now 13 billion miles (20 billion km) from Earth, and entered interstellar space in 2012, the region between the stars that is filled with gas, dust, and material recycled from dying stars. It is the farthest a human-made spacecraft has even traveled. Next big 'landmark' for Voyager 2 is in about 40,000 years when it will come within 1.6 light-years of the star Gliese 445, in the constellation Camelopardalis.

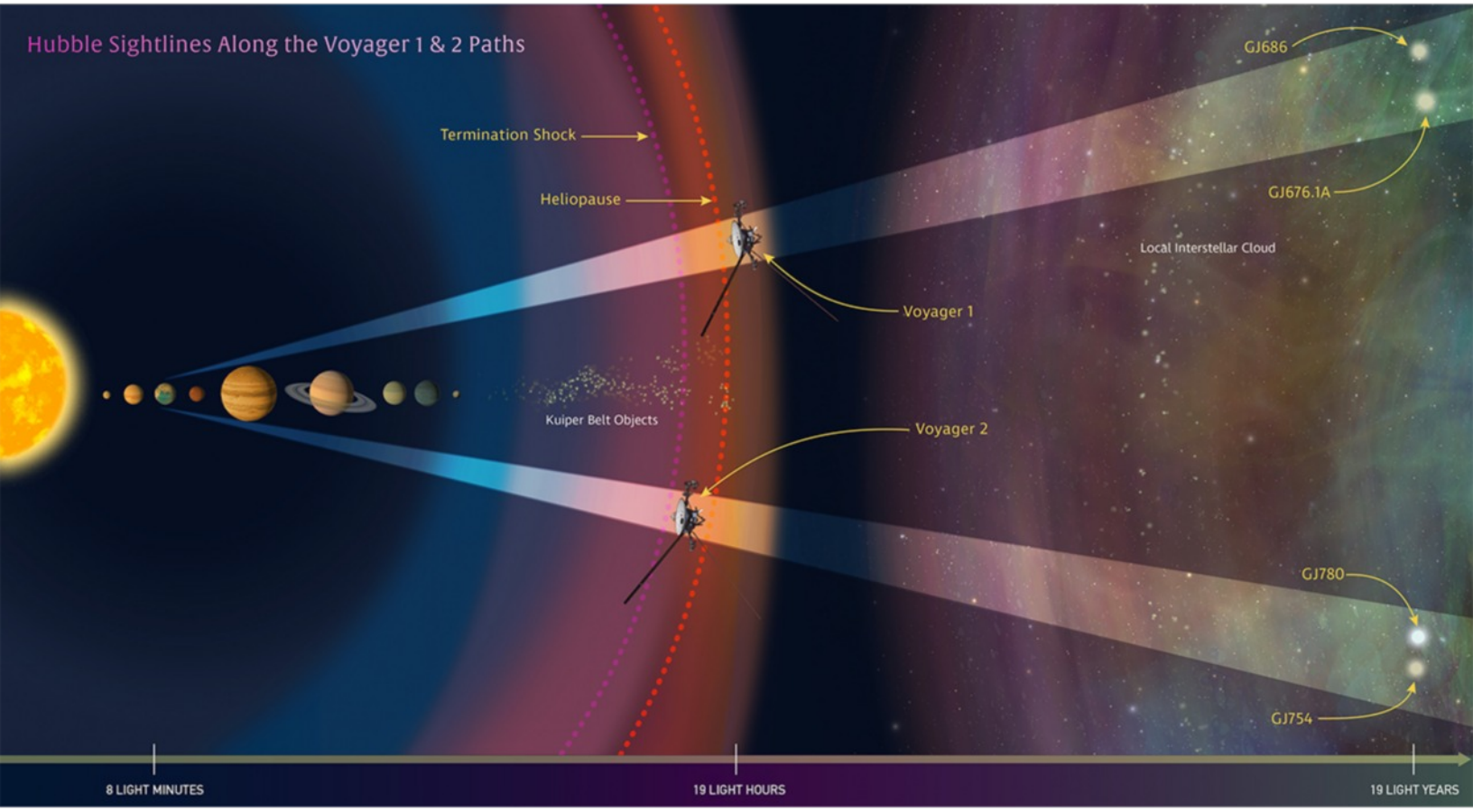
Voyager 2, is 10.5 billion miles (16.9 billion km) from Earth, and will pass 1.7 light-years from the star Ross 248 in about 40,000 years.

Of course, neither spacecraft will be operational by then.

But scientists hope that for at least the next 10 years, the Voyagers will be making measurements of interstellar material, magnetic fields, and cosmic rays along their trajectories. The complimentary Hubble observations will help to map interstellar structure along the routes. Each sight line stretches several light-years to nearby stars. Sampling the light from those stars, Hubble's Space Telescope Imaging Spectrograph measured how interstellar material absorbed some of the starlight, leaving telltale spectral fingerprints.

When the Voyagers run out of power and are no longer able to communicate with Earth, astronomers still hope to use observations from Hubble and subsequent space telescopes to characterize the environment where our robotic emissaries to the cosmos will travel.

Source: HubbleSite



In this illustration, NASA's Hubble Space Telescope is looking along the paths of NASA's Voyager 1 and 2 spacecraft as they journey through the solar system and into interstellar space. Hubble is gazing at two sight lines (the twin cone-shaped features) along each spacecraft's path. The telescope's goal is to help astronomers map interstellar structure along each spacecraft's star-bound route. Each sight line stretches several light-years to nearby stars. Credit: NASA, ESA, and Z. Levy (STScI).

From the Archives: February, 1997

Two Thumbs Up for Comet Hale Bopp!

Kevin Dowd & I went out to the east of town around 5:30 Monday morning, February 17, for a look at Cornet Hale-Bopp. The transparency was poor, but through a break in the clouds we got a good view. The comet is at least as bright as Altair (wow!). In Kevin's 7X35 binoculars we could see 3 - 5 degrees of tail fanning out. In Tel'Poke (my telescope) the nucleus looked elongated perpendicular to the tail (probably due to jets?) and the bow shock was visible. Behind the nucleus was a very dark shadow-like area. I took a few photos, but missed the clear spell to take these, so they probably weren't that great. It's well worth getting up early to see the comet, whenever moonlight doesn't interfere with the view. –Martin Gaskell

For some time now I have been embarrassed to say I haven't seen the comet yet. You know how it goes.… too much of this and that and a new baby soon on the way. And mornings this time of the year are not that inviting to me. Well this morning at 5:15 I saw it. As with yesterday's report by Martin and Kevin, it is a must see. I claim it is 'almost' as bright as Altair, maybe a half magnitude off. I defocused my binoculars and did the comparison The tail is VERY fan shaped, but the nucleus (as Martin indicated) is elongated and perpendicular to the tail… most curious. I was only using my 10 x 50 binoculars, but already this comet appears to offer as much, if not more than Hyakutake and I would have liked to get my 6" out, but it's buried in the garage. The star 27 Vulpecula was shrouded in the tail which pointed nearly straight up relative to the horizon. Hale-Bopp is halfway between Cygnus and Delphinus but the neat thing is the summer triangle looks so different with this 'other bright object' between Deneb and Altair. Twilight began to be noticeable at 6:00 AM, but I could still see it well. I saw all this from my backyard at 51st & J. I am highly anticipating March and April.

–Erik Hubl

Like Erik, I saw Hale-Bopp on February 19th, but at 6:15 AM from my home. It looked like a bright hairy star. At 6:40 AM I could still see the stellar nucleus even in the advancing twilight from the Kawasaki Motors parking lot, where I work. – Bryan Schaaf

Photo by Dave Knisely

Taken the morning of March 7th, 1997 about an hour and a half before sunrise using a 50mm lens on my old Minolta SRT-101 using Kodak Royal Gold 1000 film.

CLUB MEMBERSHIP INFO

REGULAR MEMBER - $30.00 per year. Includes club newsletter, and 1 vote at club meetings, plus all other standard club privileges.

FAMILY MEMBER - $35.00 per year. Same as regular member except gets 2 votes at club meetings.

STUDENT MEMBER - $10.00 per year with volunteer requirement.

If you renew your membership prior to your annual renewal date, you will receive a 10% discount.

Club members are also eligible for special subscription discounts on Sky & Telescope Magazine.

CLUB TELESCOPES

To check out one of the club telescopes, please contact a club officer. Scopes can be checked out at a regular club meeting and kept for one month. Checkout can be extended for another month if there are no other requests for the telescope, but you must notify a club officer in advance.

100mm Orion refractor: David Pennington
10 inch Meade Dobsonian: Lee Taylor
13 inch Truss Dobsonian: Available

CLUB APPAREL

Order club apparel from cafepress.com:

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