

Skywatchers

Newsletter of the China Lake Astronomical Society

Volume 58 No. 11

October 29th, 2021

November 01 CLAS Meeting

Hybrid at Maturango Museum 7:30 PM

Program for the Monday November 01, 2021 Meeting

As a follow up to the October 16 star party, Keith will present the topic: "International Observe the Moon Night. Please check this website:

<https://moon.nasa.gov/observe-the-moon-night/>

Also use this link:

https://moon.nasa.gov/system/downloadable_items/534_Moon_Map_2021_Northern.pdf

to download a tour of the Moon as was used during the International Observe the Moon Night:



Keith will use pictures of the moon taken that night to help you tour you the Moon. The Moon is our nearest celestial object and very easily observed. Hopefully you will be able to identify the objects from the Moon tour and appreciate our Moon.

- 7:00 PM - Refreshments
- 7:30 PM - Program: *Observing the Moon – Keith Weisz*

In Person and on Line. CLAS is inviting you to a scheduled Zoom meeting.

Topic: CLAS Club Meeting Time: Nov 01 2021 07:30 PM Pacific Time (US and Canada)

<https://us02web.zoom.us/j/6727499334?pwd=VWhuVGZ3aFphL283THRKNUNoZ0RSZz09>

Meeting ID: 672 749 9334 Passcode: 9V8FQM

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Meeting ID: 672 749 9334

Passcode: 562029

Find your local number: <https://us02web.zoom.us/j/kzvHNprV6>

President's Column

We will once again serve refreshments starting at 7:00 PM, before our 7:30 meeting. Come early and enjoy with your fellow members.

Would you like help with your telescope? Several of you have approached me after the fact of our recent “telescope workshop” meeting with stories of telescopes that are gathering dust. One of my goals is to get more CLAS members out observing, both at our Star Parties and on your own.

I've told members with scopes—either handed down or in a closet so long that manuals have disappeared—to contact one of the officers and arrange to bring your telescope for some *hands-on help* following our meetings; or if it's too big to transport, schedule a time when we can come by and help.

Let's get your telescope working again so you can take it under the stars! *Please give us a heads-up first.* Email me at ralph@chinalakeastro.org or [contact another board member](#).

In the same vein, we can use more volunteers at our Star Parties. Attendance is variable, but six months ago some people stood in line *thirty minutes* to look at Jupiter through my telescope! You can share your scope with members and the public or use one of ours (we'll show you how). Please get in touch with us if you'd like to help!

If you don't have a scope to share, please join in as an observer. We have [Star Party notices on ChinaLakeAstro.org](#). You can also read a [report from the October Star party](#). *Dress warmly and meet by the CLAS domes. Clear skies and stay healthy.*

— Ralph Paonessa

A Note from your Editor

This newsletter is sent directly to 183 folks and available to many more that visit our website ChinaLakeAstro.org. There are so many interesting things that are of interest going on in the field and so many things “you may be doing” that we would love to hear about. Please consider writing an article and sending it my way so it can be added in. Photographs, field trips, book reviews, etc. Just about anything related to Astronomy, Space Science, or related fields. Use your imagination.

Hope to hear from you soon. Remember this is your Newsletter.

Keep looking up.

Post Script: How about sending in some Lunar Eclipse pictures from the Nov 19th Lunar Eclipse

Upcoming Star Parties at Red Rock State Park.

As this Newsletter goes to press we have scheduled 2 observing sessions for the following dates.

~~October 30 Cancelled-~~

November 27th at Sunset.

If you plan on helping with any of the activities at Red Rock you will need to fill out a Covid-19 form and be able to prove you have been vaccinated. Please contact Lou Figueroa Lead Assistant Unit Volunteer Coordinator at 661-839-6553 or email Lou.Figueroa@parks.ca.gov for further information.

Hopefully possible Covid-19 restrictions are not re-instated. Let's keep our fingers crossed.

News from Cerro Coso College

Despite Cerro Coso College opening up for Fall classes the decision has been made not to have their normal fund raising barbeque and Star Party at the Observatory. This is the second year in a row it has been cancelled due to Covid-19 issues. Let's hope in 2022 the Barbeque will return.

Out of the Archives 50 Years Ago Today

IN RESPONSE TO REQUESTS, THE PROGRAM FOR THE MEETING FOR MONDAY, NOVEMBER 1, 1971 WILL BEGIN WITH A REPEAT WITH THE MT. WILSON FIELD TRIP SLIDES WHICH WERE SHOWN AT THE LAST MEETING.

ON NOVEMBER 13TH THE NASA MARINER 9 SPACECRAFT, LAUNCHED LAST MAY WILL REACH THE VICINITY OF MARS AND IS SCHEDULED AT THAT TIME TO BE PLACED IN ORBIT AROUND THE RED PLANET. IT IS EXPECTED AT THAT TIME DURING THE ENSUING THREE MONTHS MARINER 9 WILL MAP NEARLY 70 % OF THE MARTIAN SURFACE. IN ANTICIPATION OF THIS EVENT WE ARE TO HAVE A SLIDE PRESENTATION BY JIM MCMAHON OF PHOTOGRAPHS TAKEN OF MARS IN THE SUMMER OF 1969 DURING THE CLOSE ENCOUNTERS OF THE MARINER 6 AND 7 SPACECRAFTS. THESE PHOTOGRAPHS ARE NOT DUPLICATES OF THE ONES WHICH YOU SAW PUBLISHED SHORTLY AFTER THE MARINER FLYBY; THEY HAVE BEEN "COMPUTER ENHANCED" HAVING HAD THE SYSTEMATIC ELECTRONIC "NOISE" REMOVED.

THEY ARE OF HIGH QUALITY. FINALLY IF ALL GOES WELL, WE WILL SEE THE APOLLO 15 VIDEO TAPE MADE LAST SUMMER BY BRUCE AMES AND BRUCE MCLAUGHLIN.

CLE

Crew-3 astronauts arrive in Florida ahead of SpaceX's planned Halloween launch.



By [Amy Thompson](#) about 14 hours ago The Crew-3 mission is set to blast off at 2:21 a.m. EDT on Oct. 31.

The astronauts who will fly on NASA's SpaceX Crew-3 mission participate in a media event following their arrival at the agency's Kennedy Space Center in Florida on Oct. 26, 2021. Speaking at the microphone is NASA astronaut and spacecraft commander Raja Chari. Behind him from left is European Space Agency astronaut and mission specialist Matthias Maurer, and NASA astronauts Tom Marshburn, pilot, and Kayla Barron, mission specialist. (Image credit: NASA/Kim Shiflett)

CAPE CANAVERAL, Fla. — Four astronauts were all smiles as they arrived at NASA's Kennedy Space Center (KSC) in Florida on Tuesday afternoon (Oct. 26) ahead of SpaceX's third operational astronaut launch for NASA.

NASA astronauts Raja Chari, Kayla Barron and Tom Marshburn, and Matthias Maurer of the European Space Agency (ESA), stepped off a NASA plane at 2:30 p.m. EDT (1830 GMT) after it parked on the former [space shuttle](#) runway here at KSC.

Their mission, called [Crew-3](#), will see a SpaceX Falcon 9 rocket launch a Crew Dragon spacecraft on a roughly 24-hour journey to the International Space Station (ISS). Liftoff is set for 2:21 a.m. EDT (0621 GMT) on Sunday (Oct. 31) from Pad 39A here, if all goes as planned.

"We're absolutely thrilled to be here, as you can imagine, and quite humbled by seeing the millions of human hours that go into getting us ready and getting the vehicle ready, all for this one moment," Marshburn said during a media event Tuesday to mark the crew's arrival in Florida. "We couldn't be more excited and ready to go."

The quartet of astronauts, all of whom except Marshburn are spaceflight rookies, departed from Ellington Field near NASA's [Johnson Space Center](#) in Houston late Tuesday morning and flew to KSC in a charter plane owned by the space agency. Upon arrival, they were greeted by NASA Assistant Administrator Bob Cabana, a former astronaut himself; KSC director Janet Petro; and Franke de Winne, Europe's ISS program manager. "It's great to be home in Florida, but it's really great to have Crew-3 here," Cabana said. "Welcome to Kennedy Space Center, guys."

Crew-3 is the third operational crewed mission for SpaceX and the first to carry three rookie astronauts. The crew's capsule, [named Endurance](#), is the third brand-new capsule to launch astronauts for NASA, and it will ride to space atop a used Falcon 9 rocket.

That rocket's first stage, called B1067 by [SpaceX](#), first flew in June of this year, when it lofted a different Dragon spacecraft, as part of a robotic cargo resupply mission to send research gear and supplies to the ISS. Marshburn, Chari, Barron and Maurer will join seven others already living and working on the orbital outpost. Crew-2 astronauts Megan McArthur and Shane Kimbrough of NASA, Thomas Pesquet of ESA, and Ahikihiko

Hoshide of JAXA are currently on the ISS with NASA astronaut Mark Vande Hei and Russian cosmonauts Oleg Novitsky and Pyotr Dubrov, as part of the Expedition 65 crew.

"We're really excited to hit the deck here at KSC and to join the crew for Expedition 66 aboard the space station," Barron said on Tuesday. "I think for all of us, especially the rookies on the flight, it still feels a little surreal, like we don't really believe that we're actually going to space, hopefully in the early hours of Sunday morning."

Chari agreed. "I think for me, the thing that is most unique about this week is that we pretend to be astronauts so often — we're always training — and now we're going to see our vehicle and it's actually the real deal," he told Space.com.

Chari explained that the crew has various mockups that they spend a lot of time training on, so it will be fun to see what the actual spaceship and space station are like in comparison.

"We have a mockup at SpaceX and we have one in Houston, so we train a lot," Chari said. "And when we see the ISS, it will be the actual ISS, so I think processing that is a pretty cool theme of this week."

Crew-3 will not only be Barron's first spaceflight but also be her first in-person launch overall.

"This will be the first [rocket](#) I've seen in person, so I'm really excited for the whole experience," Barron told Space.com. "As the launch gets closer and we get to see our flight capsule and climb around, and then once we get to see it again this week integrated with the rocket — those are the things that I think are helping us kind of deal with reality and the fact that we're actually gonna launch here on Sunday." "I think in coming to the Kennedy Space Center, you never feel closer to space than you do when you're here," she said. "It's actually a really cool time for reflection on our personal journeys, on the effort that all of the amazing people who have helped us get to this point put in, but also the history of the incredible things we're doing."

When asked what the crew's Halloween plans were, Marshburn said there may be a few tricks in store. "Mark Vande Hei provided us with some costumes that we might pull out here the next few days when we arrive at the space station," he said. "We might knock on the door and see if they'll let us in, but we'll see."

The crew is looking forward to spending a few days here at KSC before strapping into their capsule and blasting off into space. Once on station, they're really excited to delve into the research investigations that they will spend the next six months conducting.

"I'm really excited about all the things we're doing to inform future exploration missions to the moon and hopefully eventually to [Mars](#)," Maurer said. "We're doing a lot of work on our life-support equipment, trying to understand how to make it more reliable, make the maintenance easier, things like that to help facilitate future life-support systems on the moon and eventually on Mars."

Marshburn, who is also a trained physician, said he was most looking forward to doing a series of biological experiments that will help researchers better understand the effects of spaceflight on the human body.

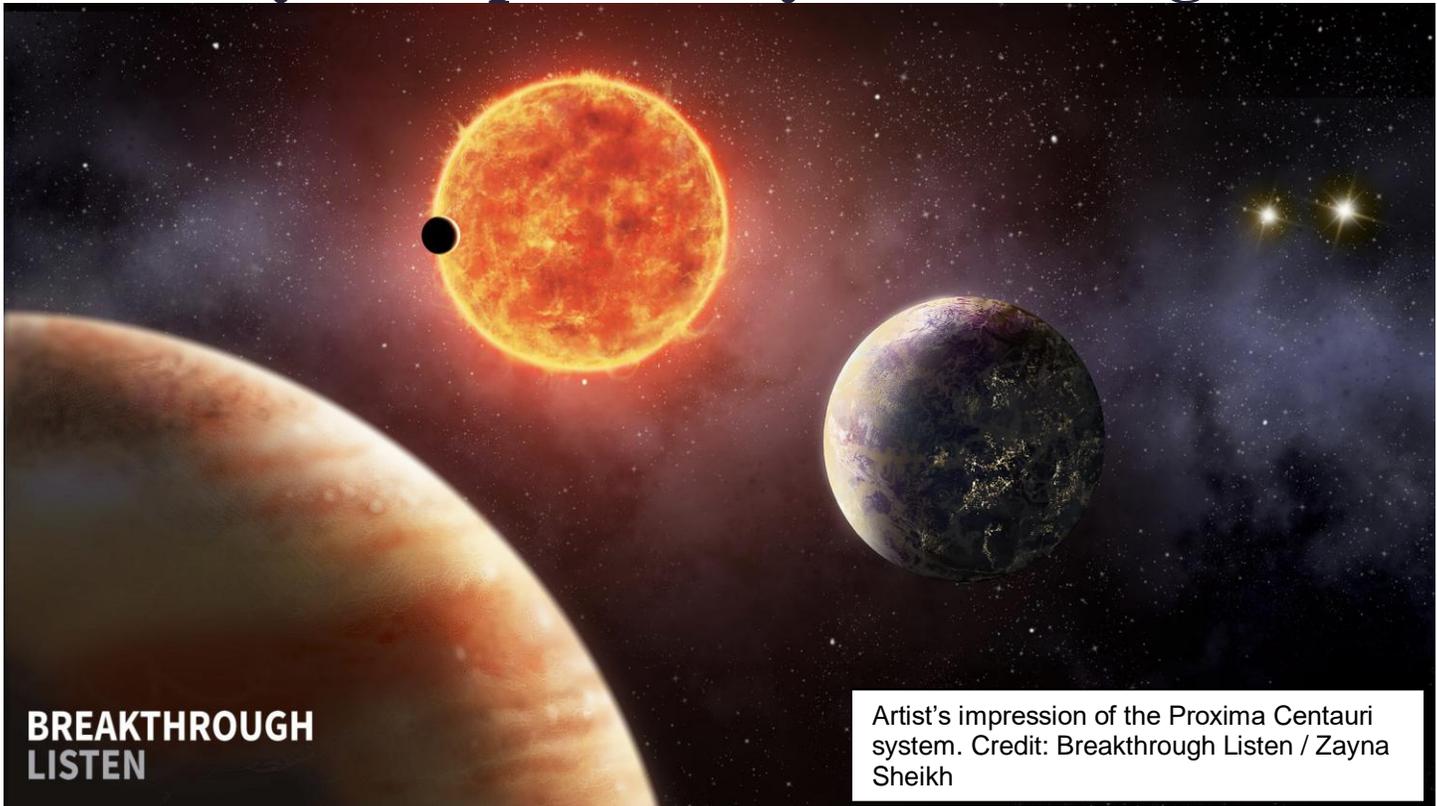
"I'm particularly excited for the work that we do on ourselves, because we're guinea pigs up there," he said. "And that excites me because of what we find out about the human body."

Marshburn said that even though humans have been flying in space for decades, researchers are still learning [how microgravity affects the body](#).

"Being exposed to microgravity that long, it's like an accelerated aging process, if you will, with bone and muscle wasting that we have to counteract with the exercise," he said. "We've been doing this for a couple of decades now, but we're still adding to the knowledge."

Source: [Crew-3 astronauts arrive in Florida ahead of SpaceX's planned Halloween launch | Space](#)

Breakthrough Listen project releases analysis of previously detected signal



An intriguing candidate signal picked up last year by the Breakthrough Listen project has been subjected to intensive analysis that suggests it is unlikely to originate from the Proxima Centauri system. Instead, it appears to be an artifact of Earth-based interference from human technologies, the Breakthrough Initiatives announced today. Two research papers, published in *Nature Astronomy*, discuss both the detection of the candidate signal and an advanced data analysis process that can finely discern "false positives." "The significance of this result is that the search for civilizations beyond our planet is now a mature, rigorous field of experimental science," said Yuri Milner, founder of Breakthrough Initiatives.

Breakthrough Listen (a program of the Breakthrough Initiatives) is an astronomical science program searching for technosignatures—signs of technology that may have been developed by extraterrestrial intelligence. Listen's science team, led by Dr. Andrew Siemion at the University of California, Berkeley, uses some of the largest radio telescopes in the world, equipped with the most capable digital processing systems, to capture data across broad swaths of the radio spectrum in the direction of a wide range of celestial targets. The search is challenging because Earth is awash with radio signals from human technology—cell phones, radar, satellites, TV transmitters, and so on. Searching for a faint signal from a distant star is akin to picking out a needle in a vast digital haystack—and one that is changing constantly over time.

The CSIRO Parkes Telescope in New South Wales, Australia (one of the largest telescopes in the Southern Hemisphere, known as "Murriyang" in Wiradjuri) is among the facilities participating in Breakthrough Listen's search. One of the targets being monitored by Parkes is Proxima Centauri, the Sun's nearest neighboring star, at a distance of just over 4 light years. The star is a red dwarf orbited by two known exoplanets. The Listen team scanned the target across a frequency range of 700 MHz to 4 GHz, with a resolution of 3.81 Hz—in other words, performing the equivalent of tuning to over 800 million radio channels at a time, with exquisite detection sensitivity.

Shane Smith, an undergraduate researcher working with Listen Project Scientist Dr. Danny Price in the summer 2020 Breakthrough Listen internship program, ran the data from these observations through Breakthrough Listen's search pipeline. He detected over 4 million "hits"—frequency ranges that had signs of radio emission.

This is actually quite typical for Listen's observations; the vast majority of these hits make up the haystack of emissions from human technology.

As with all of Listen's observations, the pipeline filters out signals which look like they are unlikely to be coming from a transmitter at a large distance from Earth, according to two main criteria:

- Firstly, is the signal steadily changing in frequency with time? A transmitter on a distant planet would be expected to be in motion with respect to the telescope, leading to a Doppler drift akin to the change in pitch of an ambulance siren as it moves relative to an observer. Rejecting hits with no such signs of motion reduces the number of hits from 4 million to around 1 million for this particular dataset.
- Secondly, for the hits that remain, do they appear to be coming from the direction of the target? To determine this, the telescope points in the direction of Proxima Centauri, and then points away, repeating this "ON-OFF" pattern several times. Local interfering sources are expected to affect both ON and OFF observations, whereas a candidate technosignature should appear only in the ON observations.
 - Even after both of these data filters are applied, a handful of candidates remain that must be inspected visually. Sometimes a faint signal is actually visible in the OFF observations but is not quite strong enough to be picked up by automated algorithms. Sometimes similar signals appear in neighboring observations, indicative of interfering sources that may be turning on and off at just the wrong period, or the team can track down the signals to satellites that commonly broadcast in certain frequency bands.
 - Occasionally an intriguing signal remains and must be subjected to further checks. Such a signal of interest was discovered by Smith in Listen's observations of Proxima Centauri using the Parkes telescope. A narrow-band, Doppler-drifting signal, persisting over five hours of observations, that appears to be present only in "ON" observations of the target star and not in the interspersed "OFF" observations, had some of the characteristics expected from a technosignature candidate.
 - Dr. Sofia Sheikh, currently a postdoctoral researcher with the Listen team at UC Berkeley, dug into a larger dataset of observations taken at other times. She found around 60 signals that share many characteristics of the candidate, but are also seen in their respective OFF observations.
 - "We can therefore confidently say that these other signals are local to the telescope and human-generated," says Sheikh. "The signals are spaced at regular frequency intervals in the data, and these intervals appear to correspond to multiples of frequencies used by oscillators that are commonly used in various electronic devices. Taken together, this evidence suggests that the signal is interference from human technology, although we were unable to identify its specific source. The original signal found by Shane Smith is not obviously detected when the telescope is pointed away from Proxima Centauri—but given a haystack of millions of signals, the most likely explanation is still that it is a transmission from human technology that happens to be 'weird' in just the right way to fool our filters."
 - Executive director of the Breakthrough Initiatives, Dr. S. Pete Worden, said, "While we were unable to conclude a genuine technosignature, we are increasingly confident that we have the necessary tools to detect and validate such signatures if they exist."
 - Breakthrough Listen is making all of the data from the Parkes scans available to the public to examine for themselves. The team has also just published two papers (led by Smith and Sheikh) outlining the details of the data acquisition and analysis, and a research note describing follow-up observations of Proxima Centauri conducted with the Parkes Telescope in April 2021. Listen will continue monitoring of Proxima Centauri, which remains a compelling target for technosignature searches, using a suite of telescopes around the world. And the team continues to refine algorithms to improve their ability to discriminate between "needles" and "hay," including as part of a recently completed crowdsourced data processing competition in collaboration with kaggle.com.
 - "In the case of this particular candidate," says Siemion, "our analysis suggests that it's highly unlikely that it is really from a transmitter out at Proxima Centauri. However, this is undoubtedly one of the most intriguing signals we've seen to date." Source: [Breakthrough Listen project releases analysis of previously detected signal \(phys.org\)](#)

NOVEMBER EVENTS:

The next club meeting November 01. We will be having our meeting in the Maturango Museum. The time will be 7:30 PM. Current Covid requirements will be enforced. You can also join us on zoom.

<https://us02web.zoom.us/j/6727499334?pwd=VWWhuVGZ3aFphL283THRKNUNoZ0RSZz09>

NOVEMBER CELESTIAL CALENDAR:

1. Jupiter and Saturn remain in the evening sky this month. Look for them in the south after sunset.



2. Mars remains too close to the sun to be easily visible this month.

3. Venus is still in the evening sky but is getting lower in the sky. On November 14th, passes 3 degrees south of Globular cluster M22. look for Venus in the southwest soon after sunset.

4. Mercury is in the morning sky where it can be seen in the east before sunup.

5. There will be partial Lunar eclipse on November 19th.



INFORMATION:

Please visit us at our website ChinaLakeAstro.org.

For more information, contact the China Lake Astronomical Society at 760-446-0454 or 760-384-8666.

Roger Brower

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Basic CLAS dues are \$25.00 per year - due in January. Students and Skywatchers Newsletter are **FREE**.

Members also receive discounted rates for Astronomy Magazine and /or Sky and Telescope Magazine.

The fee schedule is as follows: Verify current magazine prices with Roger!

Basic membership \$25.00 per year.

Membership with Astronomy magazine is \$59.00 per year.

Membership with Sky and Telescope magazine is \$58.00 per year.

Membership with both S & T and Astronomy is \$92.00 per year.

Send your Check or Money Order to:

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Meetings of the China Lake Astronomical Society are held at the Maturango Museum at 7:30 p.m. on the first Monday evening of each month, except when the first Monday is a holiday.

WESTERN AMATEUR ASTRONOMERS WEB SITE <http://www.waa.av.org/>

New! CHINA LAKE ASTRONOMICAL SOCIETY WEB SITE <http://chinalakeastro.org/>